DIY Rear Drive Rebuild for the BMW K1200LT

The information in this document was collected from the BMW K1200LT user forum located at BMWlt.com.

This document was written up by Duane (Dman). The entire thread that contains the original write up can be located at

http://www.bmwlt.com/forums/showthread.php?postid=118116#poststop

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Another way to skin the cat?

(Disclaimer: I have never stayed in a Holiday Inn Express, but I have done 3 crown gear bearing replacements.)

Well, actually there is, or should I say that it worked for me? The method is to remove the preload shims and then measure the movement. With just a "little" heat on the housing cover the bearing will slip in the bore fairly easy.

Let me explain:
See Pic 1.

Tools: Dial indicator w/ magnetic base, two small pry bars, SMALL soft face hammer, two small wood blocks to use as pry points, and a heat gun and a non contact temp reading device (not shown)

Setup: Drive unit assembled without housing O ring, hub seal, and preload shim(s), with or without pinion installed, parts lightly oiled is OK but CLEAN, CLEAN, CLEAN! Flat piece of steel bolted to the caliper mount holes to land the magnetic base on, two bolts screwed into the hub to use as pry points. Optional: Large "old" bath towel to place the assembly on to protect the finish.

The Prep: On the three I have done I've found that it didn't require much heat on the housing cover to allow the bearing to slip in its bore. Above 105 deg. F seemed to be sufficient . YMMV. Warm the housing cover. Take your time. Too hot to touch is way too much. Just enough to allow the bearing to slip in the bore and then just a little more.

See Pic 2.

The Deed: Put the magnetic base on the bolted on platform, place the dial indicator spindle on the center of the hub. Pry the hub assembly up in the bore.
1. Now take the SMALL soft faced hammer and "thump" the hub to seat it back down,
2. zero the indicator and pry up again. Read the indicator.

Do 1 and 2 numerous times to find the consistent reading. You will be able to feel the bearing slip in the bore and pull up tight against the housing when things are correct. Add some heat if deemed necessary. You will find that the consistent reading is the largest one. That is the end play. Add .002 to .004 in. to the dial indicator reading and that is the shim thickness to install. (And remember that the shims are metric dimensioned!)

A couple of notes:
When prying remember that we aren't trying to pull the bolts out of the hub. The pry bars used in the picture are short. Large screwdrivers would work fine.
When "thumping" the hub to seat the bearings we aren't trying to beat the $%!t out of it. (Did I mention SMALL soft face hammer?) Watch the dial indicator, it will show

you when things are seated.

OK, so what about the heat? (I wondered too.) Took the assembly as seen in the picture and hung it above my little space heater in my workshop for an overnight "roast." The idea was to make sure that the internal componets were up to temp. When checked with the assembly heated (147 deg. F) the reading was less than .001 different. Not enough to worry about.

I think the reason for such a small change when heated is that the crown gear assembly is two pieces and one of them is aluminum (and expands more than if it were steel. (See Pic 3) The crown gear and hub are the same piece and made of steel.) The tapered roller bearing support (the cone shaped part) is made of said aluminum and is pressed into the hub portion of the crown gear as can be seen through the wheel bolt holes. (See pic 4)

On the last one I did (actually, the one shown in the pictures) has a few other issues dealing with possible reasons for failure. But that's another post!

HTH YMMV and Good Luck


TOOTHPICKS


Aluminum


PSW P 692
BMW

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I wonder if they were concerned with the weight?!!

Quote:

> Originally Posted by **dshealey**
> *Question? I thought the only real purpose of the aluminum part is to support the speed sensor ring. Is the small tapered roller bearing actually pressed up against it, or is there a shoulder on the axle shaft that the roller inner race is against? I would think that it should be against a shoulder on the steel axle shaft, as the aluminum heating and expanding could displace the bearing on the shaft slightly.*

The "cone " shaped portion (axle) of the crown gear assembly is entirely of aluminum as far as I can tell. (Have the drive assembled and ready for install or I'd go look)

Pic 1. The Speedo ring in the picture is off of its mount area. The bearing ID is a bit smaller than the ring and is pressed to a shoulder above the ring on the axle

Pic 2. The face of the axle is faced (machined) except for the triangular shaped indent in the center which is raw cast.

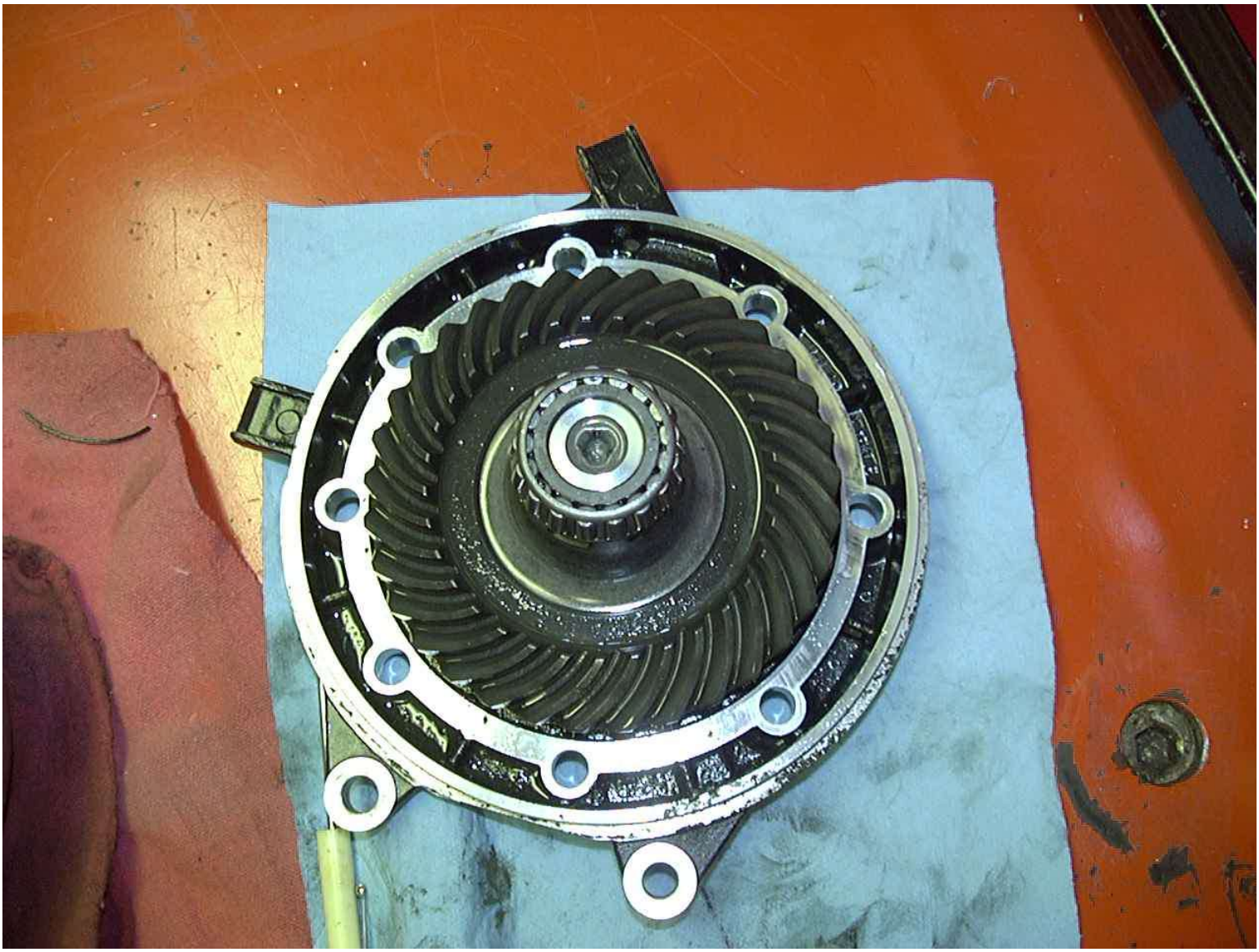
Pic 3. If you poke a screwdriver into the center hole of the wheel mount hub you will find a void to the bottom of the tapered bearing stub of the axle.
If you drop a magnet in there it doesn't stick to anything.
Look at this picture and understand why there is a warning in the service manual concerning the length of the wheel bolts. Can you imagine the preload problems you would have if you used too long a bolt and "jacked" the aluminum axle out of the crown gear hub!

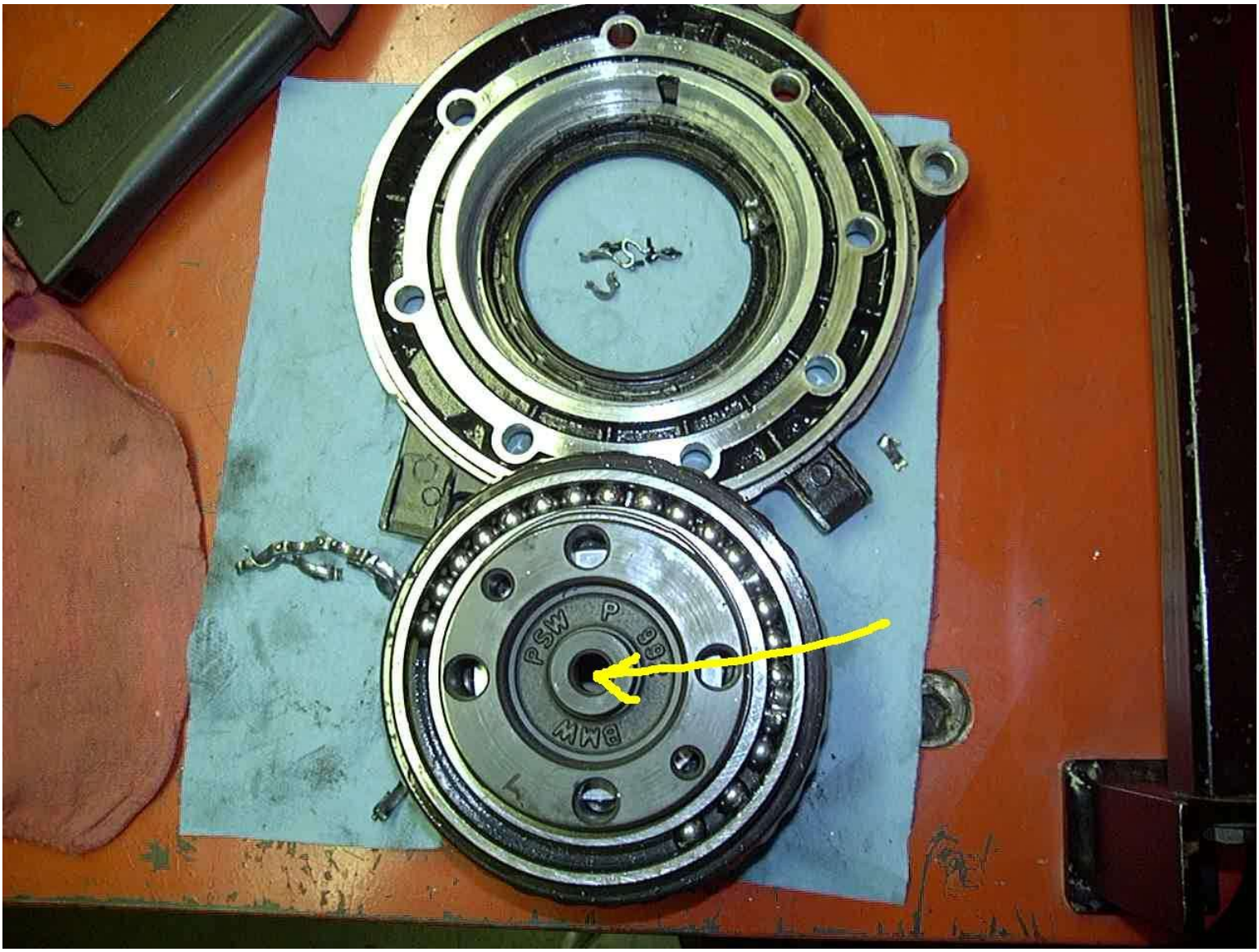
Quote:

> Originally Posted by **dshealey**
> *EDITED: Does anyone know if that aluminum part even exists on an '02-later LT that does not have the speed sensor?*

I'll SWAG this one. The aluminum axle is still there but I'd bet that the mount diameter, shoulder for the ring, and the ring itself isn't.


Aluminum

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