

# Re-calibrating your KLR650 speedometer

(1987-2007 Models. 2008 and up are similar but not shown.)

Here is a copy of the text that I posted to the DSN\_KLR650 group back in December 2004, now with some pictures to help along.

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## THE PROBLEM:

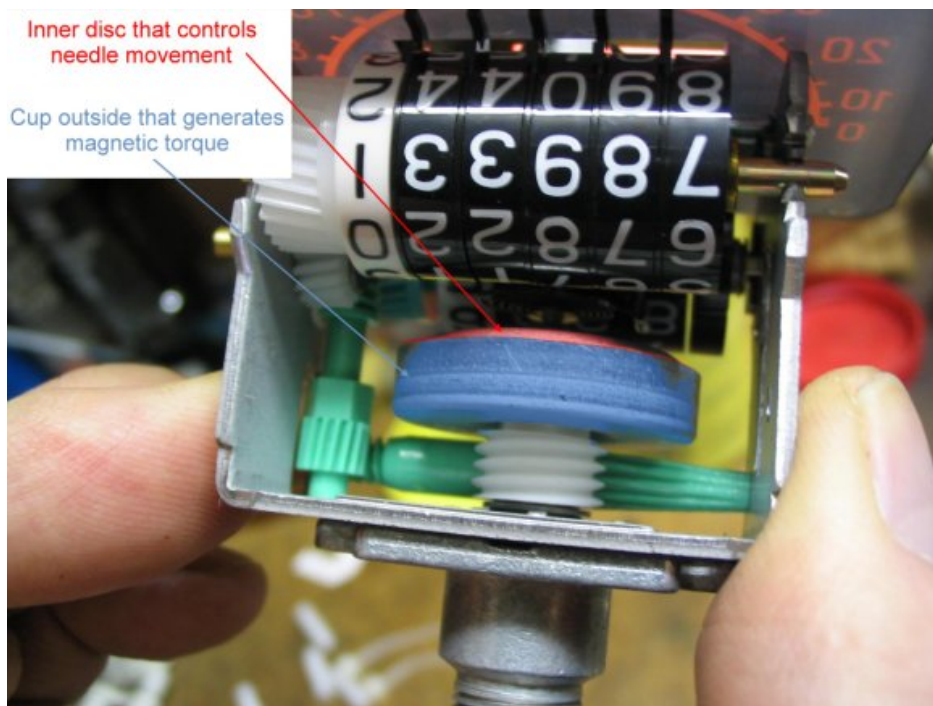
We are all familiar with the 7% to 10% speedo error on our KLRs. A few of you wrote me off-line with improvement ideas, and Don M. sent the best idea IMO – and I just completed the work and have checked the results. It worked like a charm!

## THE SOLUTION:

The odometers are generally right on, so we don't want to change the speedo cable ratio to the wheel. Since the speedo error grows with velocity (for discussion in general terms, it reads 3 mph fast at 45, reads 4 mph fast at 55, and reads 5 mph fast at 70), the goal was to spin the speedo needle on the shaft by about 4 to 5 mph to make it read slower. In concept, the end result would be dead on at 60 mph and within 1-2 mph between 40 and 80, where the huge majority of my riding occurs.

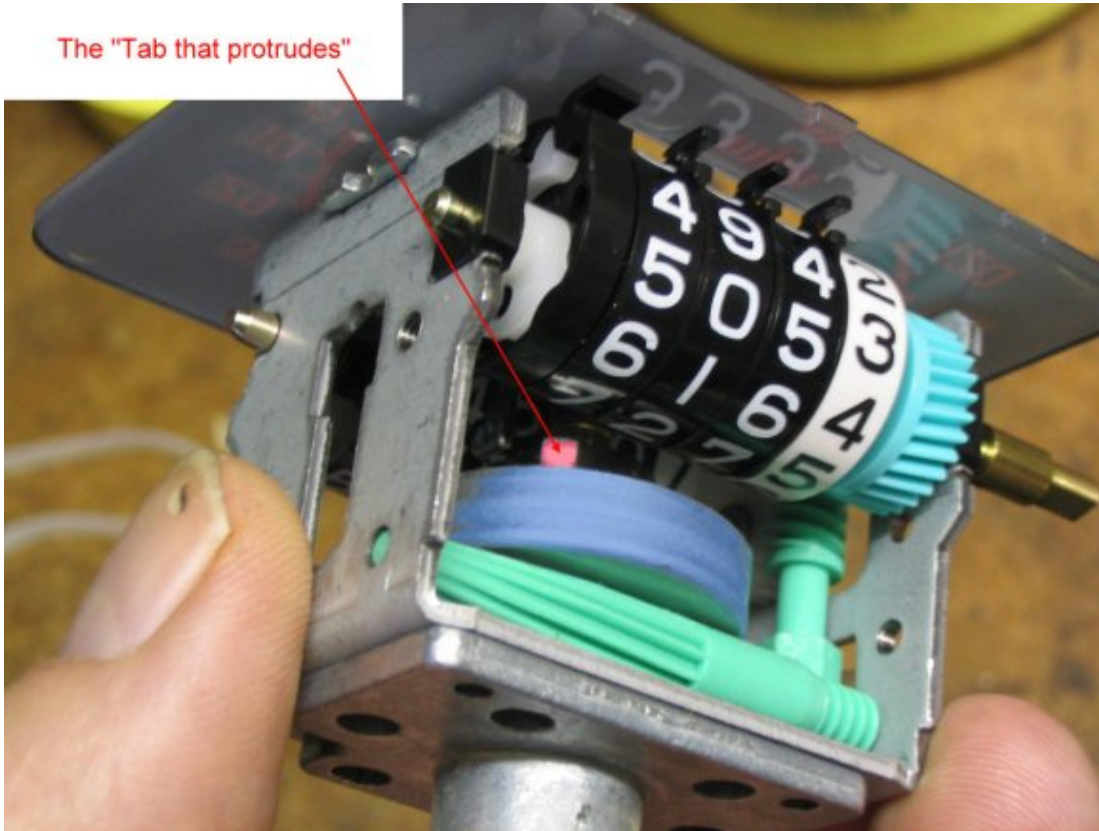
## THE METHOD:

For the record, the speedometer needle is simply a snug fit on a tapered shaft, there are no “gears to strip”. The real risk here is breaking the needle, so be careful. I removed the instrument cluster and removed the speedometer from the cluster. Quite straightforward, just use your shop manual.



Under the odometer face is a disc that controls the needle movement (the cup outside of it generates a magnetic torque proportional to velocity and moves the inner disc). I've colored these two parts to help you visualize what I'm trying to describe. The trick here is to do this once, not over and over again as a trial-and-error project

so I wanted to establish some repeatable point before mods, then tweak until that same test resulted in a 4-to-5 mph lower reading on the workbench.



On the inner disc is a tab that protrudes. Remember that I've colored two parts here red and blue, but your parts will be silver. The tab is the easiest thing to grab on the disc, and by looking through the side (come up with the method you prefer, just be consistent!) I would center the tab at a landmark under the speedo face. While holding at this location, my daughter said it read dead on 35 mph. I did this test a few times to see if we were repeatable at getting a reading of 35, and we were.



So the goal was to tweak the needle on the shaft until this same test resulted in a 30 or 31 mph reading. You'll note that the needle assembly is a black 'hockey puck' with a red/orange needle. You don't want to break off the needle, so your goal is to apply your twisting force to the hockey puck, if you will. The forces to spin the needle on the shaft were pretty high in my opinion so I was cautious, and it took a number of tries.

You can't do this fix at the zero mph point because of the zeroing pin in the speedo face. I put a small screwdriver in the mechanism, against the tab to hold the speedo needle in place (significantly above 0 mph), then grabbed the needle at its base and twisted CCW just a little.

After the first try we still read 35 mph on our calibration test, indicating I had not budged the needle. One more try and I felt it slip just a little. We checked it, and bingo, it was barely above 30 mph!

I assembled the bike, grabbed the GPS and went for a ride. Exactly what we hoped for – 1.5 mph slow at 40, 0.8 mph slow at 50, 0.1 mph slow at 60 mph and about 0.8 mph fast at 70. Yessssssssssss.

For those of you who find the factory error annoying, this might be the right fix for you too.

### CAUTION:



My bike was only a year old when I did this, and the needle is not as brittle as an older bike that has sat in the sun a lot. About 6 months after I recalibrated the speedo on my bike, I also conducted this procedure on a friend's 1989 KLR. As we were twisting the needle, we heard the needle break right at its base connection to the "hockey puck" – CLICK. Dang! However, we simply mixed up some epoxy and dabbed on a drop right where the crack was... and let it cure with the needle displaced to the left about 4 mph. This stabilized the needle in the new position. So this speedo reports accurately now as well - however you can visibly see the kink where the needle meets the 'hockey puck' in his speedo. The good news is that *when you're riding*, you simply are looking where the needle is measuring on the speedo face, and never tend to notice the kink at all.