

Electronic wizardry

By Wes Fleming #87301



MY GRANDFA-ther was a hard man, and blunt to boot. He served in the army during World War II, Korea, and in the Ohio National

Guard for decades. He was a police officer for many years, as well. A child of the Great Depression, he didn't trust banks and indulged in creature comforts like a good cigar or a big, comfortable four-door sedan.

Not long after I graduated from high school, I asked him for advice about a difficult situation I had gotten myself into. "Don't be stupid," he said. "Everything is harder when you're stupid." At 18 years old, I didn't quite understand the depth of such simple advice, but as an adult I have come to rely on it more and more often.

Except, it seems, when it comes to my motorcycles.

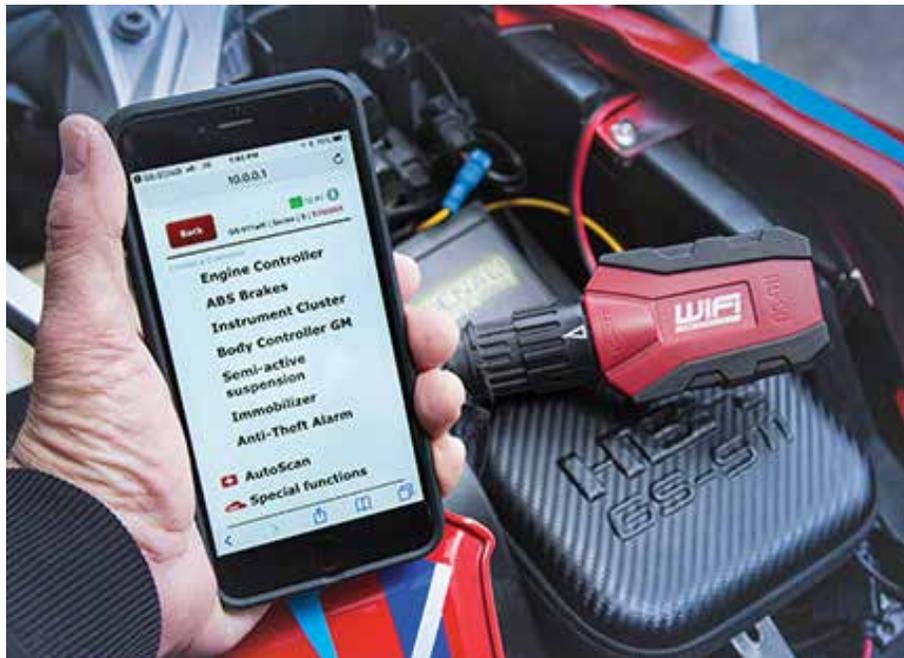
Regular readers of my tech exploits will remember that many moons ago, a lengthy maintenance cycle presented me with an easy opportunity to detach the starter from the transmission of my 2005 R 1200 GS and measure the thickness of the clutch components. With nearly 80,000

miles on the bike, this should have been a no-brainer, yet I squandered the opportunity. Sure enough, 3,000 miles later my clutch failed. Had I spent 15 extra minutes at 80,000 miles, I could have saved myself months of waiting and hours of work.

During the clutch replacement, I had the opportunity to take care of a mundane task that, because I didn't think about it at the time, went on to strand me at a gas station

other than neutral had been an ongoing issue since mid-2015, but one I worked around by simply starting my bike in neutral. There's two things that could cause that particular problem: a bad kickstand switch or a bad (or out of adjustment) clutch switch. I had reason to test my kickstand switch not long ago and found it to be good, so my assumption was that the clutch switch needed adjusted or replaced.

I was wrong about that, but it turned out not to be my fault. The aftermarket brake and clutch levers I installed on my bike in mid-2015 are adjustable, and unless they are adjusted to one of the extremes possible, they simply don't engage the clutch switch properly. This was communicated to me by the folks at Adventure Designs, from whom I bought the JPR "shorty"



and require me to fetch a trailer to retrieve my bike. My grandfather's words came back to me as I stood next to my bike in the driveway, fruitlessly trying to get it to start.

The symptoms were simple: with ignition on, kill switch set to "go" and the starter thumbed, the result was no clicks, no whirrs, no feeble attempt to turn over at all. There was also no bright green N telling me the bike's transmission was in neutral and no zero in the gear indicator box to confirm Mr. N's glow.

My bike refusing to start in anything

adjustable aluminum levers. I don't remember this feature being part of the hardware documentation, but then again, I don't remember reading any hardware documentation.

With the kickstand and clutch switches now out of contention as the cause of the problem, I turned to the thing that tells me and the motorcycle's computer that the transmission is in neutral. This electronic device is called a gear indicator potentiometer, and it's bolted onto the back of the transmission.

You've probably been waiting for the stupid part to come back around. Gentle reader, I am nothing if not here to prevent your ongoing disappointment, so here it is. Ever since I got this motorcycle in 2010, it has done this weird thing. If I stay in fifth gear too long, the gear indicator on my dash would change from 5 to 6, then go blank a few seconds later. It would stay blank for some indeterminate period of time, occasionally flashing a random gear number, then seemingly resetting itself to normal operation. As time has gone on, the amount of time in fifth gear to cause this fault has gotten shorter, and the amount of time for the bike to reset itself has gotten longer.

This issue was not forgotten during my clutch replacement, but a new gear indicator potentiometer costs \$220, and I was already into my bike for over \$1,400 on that clutch. I just couldn't bear to add another two bills and change to the parts bill. I didn't even pull it out to check or clean it. As my grandfather would say, stupid.

The only way to confirm my diagnosis that the shift indicator potentiometer has finally gone the rest of the way bad is to hook the bike up to a diagnostic tool and read the fault codes. I could have gone to a dealer and had them hook it up to an official BMW computer, but queues are long, and I'm not one to demand special front-of-the-line treatment from people I didn't buy my motorcycle from (or anybody else, for that matter). Instead, I went to Beemers Uber Alles, where I work in an increasingly sporadic fashion, and hooked my bike up to our GS-911 diagnostic interface.

After the system scan, attention-grabbing red letters told me what I already knew: "10115 Gear position potentiometer. The fault is currently present." I clicked the button to clear the fault codes from the bike's computer.

A flash of green caught the corner of my eye and I heard the fuel pump prime. The realization that I just fixed my motorcycle WITH A COMPUTER struck me like Wile E. Coyote running full speed into a wall painted to look like a road tunnel.

No wrenches. No Torx drivers. No sockets. A computer. My mind went immediately to 2001: A Space Odyssey and Hal refusing to open the pod bay doors for Dave.

After subjecting my motorcycle to another ignominious two-hour trip on a trailer, I sent Ted Porter (of the Beemer Shop) an email.

"Thank you, Ted," I wrote. "You saved my sanity today. Thanks to the GS-911, not only did I confirm what's wrong with my motorcycle, but I was able to get it to start again by clearing the fault codes."

The Beemer Shop isn't the only place you can buy a GS-911, but Ted was the first to import it into the USA, and the knowledge he and his staff possess of how the device and its accompanying software works is dizzying. He explained to me the differences between the Enthusiast and the Professional licenses. Ted stressed that even if the Enthusiast license holder has maxed out the allowed 10 VINs, that GS-911 can still be used with a mobile device (Android or iOS) to read the codes on any compatible BMW motorcycle and more importantly, reset the fault codes. Had I been stranded somewhere on the road instead of stuck safely at a gas station and then in my own driveway, this functionality would have been critical to saving my day and getting me back on the road.

Buying a GS-911 is probably only suitable for the more hardcore, "I do my own maintenance" riders out there, and on top of that, only the ones willing to shell out for its not insignificant cost. A GS-911 is not a substitute for the knowledge and experience brought to motorcycle repair by a qualified, educated BMW motorcycle technician, but it can definitely save an otherwise ruined ride and give consumers a good place to start when discussing their maintenance and repair needs with their chosen qualified professional mechanic.

While I've used one in the shop for several years, I'm now of the opinion that having a GS-911 in my tool kit is as important as having my other go-to bit of electronic wizardry, a digital volt-ohm meter (DVOM). A GS-911 and its accompanying mobile app could get me back on the road, and I'm sure it will allow me to help other riders I encounter in my journeys. I'll discuss DVOMs in depth in a future column and also look at how to replace the gear indicator potentiometer. I might even dissect the broken one to see its innards and maybe figure out why it malfunctioned.

You can learn more about the GS-911 from the manufacturer's website, hexcode.co.za, and you can buy your own from Ted Porter's Beemer Shop (beemershop.com) and other online retailers. Prices start at \$299. ☺



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