

I just needed an oil change

By Wes Fleming #87301

A multi-part saga

Part Six: A New Fuse Panel, Wiring Cleanup and Finally Changing the Oil

FIXING UP MY 2005 R 1200 GS HAS BEEN A LONG ROAD to this point, with a two-steps-forward-one-step-back feel to it, but the light at the end of the tunnel is getting closer.

A few months ago, my auxiliary HID lights stopped working. I checked out the end of the line and noticed that the terminal hot wire screwed into on my Centech AP-1 fuse block was burned and melted. I switched the lights to a different terminal, made sure the correct fuse was in there, and got on my way.

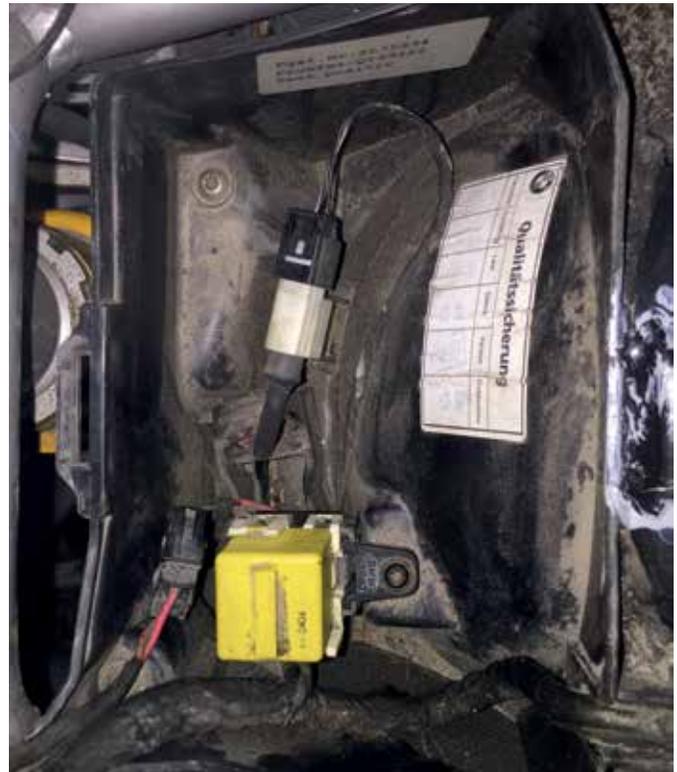
A few weeks later, my GPS started to switch to battery mode and back off it again, sometimes a few times a minute, but sometimes not at all during a ride. Then I noticed my battery charger stayed on the “not charging” indicator. I decided in the

wake of all my other problems (see Part One through Part Five), instead of wondering or worrying about possible electrical issues, I'd tear the whole thing apart and start from scratch.

First up was a new fuse block. The Centech served me well until that one terminal burned, but I abused it by not keeping water, dirt and mud out of that compartment. I bought a Fuzeblock FZ-1, which has some differences over my old Centech. It's not waterproof, but its cover fits more tightly, which will help keep water out. It has a built-in relay, which cuts down on the number of wires under the seat in the first place. It's also easy to change an accessory from switched (only works when the bike is on) to unswitched (always available) use by just moving the fuse from one set of lugs to the other.



The old Centech (top) and new Fuzeblock units. Note the fried terminal at the top right of the Centech and the corroded terminals on the old relay.



This mess is a reminder that small things can have big effects down the road. I tossed the stock tool kit and removed the rubber strap that held it in place; doing that left a small oblong hole in this compartment that was open to the space above the rear wheel. That hole contributed to the demise of the Centech. I plugged it with a piece of rubber and some glue (you can see it smeared on at the right side of the photo).



Above, All the removed components. **Right**, The aux socket connector – theoretically waterproof but obviously not actually so.

After removing the Centech, its relay and the spaghetti-like mess of wires running all over the place, I also removed some excess wiring from an old set of auxiliary lights and the auxiliary socket as well. The socket was broken and corroded, which was an indication that I hadn't been taking very good care of it after riding in the rain.



Any fuse panel that supplies switched power needs a “trigger wire” – a connection to a wire that gets power when the ignition key gets turned to ON. A previous owner of my GS ran the trigger wire for the Centech to a wire on the diagnostic port. I've seen that done on other bikes, and it occasionally causes problems, so I wanted to remove that. I like to connect the trigger wire to the tail light; it's more difficult, but I think it's a more reliable connection in the long run. After incorporating the trigger wire into the tail light's connector, I was ready to get to wiring things up.

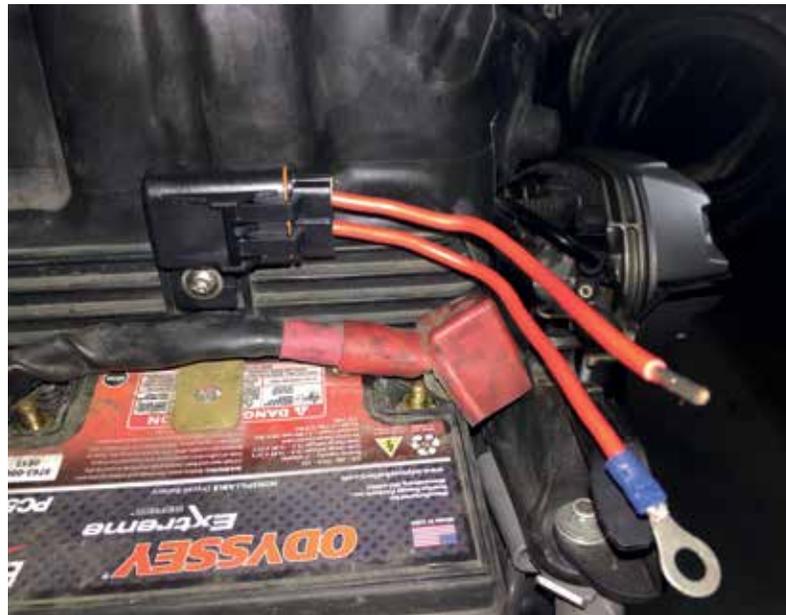
With all the old wiring removed, all that was left was to find a place for the Fuzeblock's fuse. I bought a common automotive/marine waterproof fuse holder and screwed it down where the plate that holds the owner's manual used to be. This enabled me to keep the “hot” wire to the battery as short as possible, though I did have to lengthen one of the wires to get to the Fuzeblock.

With the hot, ground and trigger wires measured, stripped and connected, the Fuzeblock was wired in and ready to go. Once everything was located (measure twice, cut once!), the wires got some support with a zip tie. With the Fuzeblock screwed to the base of the tool kit compartment and the wires zip-tied through a conveniently located hole, the whole thing looked and felt secure. After getting all of that done, I hooked up the new aux socket and ran its wires to the right place on the bike; I snipped off the socket's fuse holder because I was going to run it through the fuse panel.



Removing the entire tail light assembly isn't necessary, but you do have to take out the mounting screws and drop it down to get access to the wires.

The trigger wire (red with yellow stripe) crimped together with the tail light wire into one spade connector – this makes for a strong, reliable connection.



The Fuzeblock's fuse holder has a crimped-on connector for the battery...



...and a butt-spliced crimped connector to make the wire long enough to reach the Fuzeblock. Crimped connections are easier to do (provided you have the right tool and connectors) than soldered connections. They're not necessarily better than soldered connections, but they are easier to repair on the side of the road if necessary.



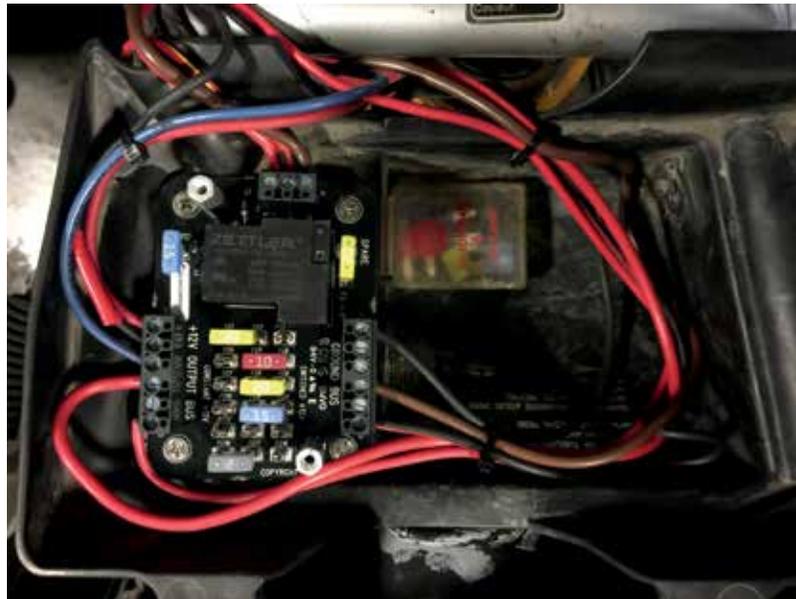
Strategically placed zip ties not only hold wires in place, but relieve strain on the wires, helping them to stay connected more reliably.

I have five accessories that require power: HID driving lights, a FIAMM horn (130 decibels!), my Gerbing jacket liner, a set of heated Corbin seats and a Garmin zumo 590 GPS. The Fuzeblock has six sets of terminals; the sixth got the aux socket that was previously wired straight to the battery. Wiring the aux socket straight to the battery was something a lot of folks did on this generation of bikes, as otherwise you had to do a CAN bus dance to connect a battery charger; with the direct connection, there's no process to remember. Running the socket through the fuse panel makes sense, as it can head off any possible issues that might cause the wiring to overheat. I set everything to switched power except for the GPS and the aux socket, because I want them to work when the ignition is off. After connecting all the accessory wires—some lengthened, others trimmed down—I labelled the Fuzeblock and closed it up.

With the electrics sorted, it was time to do what I initially set out to accomplish: CHANGE THE OIL! BMW specifies Castrol lubricants, and while I don't always use them, this isn't the place (or time) for a religious discussion about what oils you should use or whether to put 180 or 220 ml of gear oil in your final drive. When in doubt, and unless you have a strong opinion about these things, use what BMW says to use.

The clutch slave cylinder got fresh fluid when it got replaced (see Part Four), so after the engine, transmission and final drive got their oils, all that was left to do was flush and bleed the brake system.

Getting the cap off the master cylinder isn't difficult, but it goes easier (and you're less prone to make a mistake and break something) if you use the special BMW tool. Luckily, this one (p/n 83 30 0 402 038) is under \$20, and you can order it from any BMW motorcycle dealer. It fits on both the brake fluid and the clutch fluid reservoirs. I'll look at the brake system flush/bleed process in a future article that looks at the linked/power brake and ABS system in general.



My goal was to keep the wiring neat and only as long as it needed to be. The ground wires for the horn and the HID lights are connected to the chassis, and since they weren't problematic, I didn't see any reason to move them. Note how easy it is to change an accessory from switched to unswitched power—just move the fuse! This is one of the pros of the FZ-1.



Everything is labelled for quick and easy reference; since I didn't hook up the heated seat, it's not listed.

The only thing left to do was take the bike for a test ride! I wasn't sure what to expect when I got on, but after replacing all the electrical components, I at least knew the battery had a full charge. It fired right up and sounded good.

I had never ridden a brand-new BMW, so I didn't know what they feel like when they're fresh out of the crate. I imagine they feel like what riding my GS felt like on that test ride—spirited and ready for anything. The engine ran smoothly, the transmission shifted nicely, I braked with confidence, and my aux lights and GPS stayed on the whole time.



Using the BMW special tool to get into your brake and clutch fluid reservoirs makes the task easier and less prone to accidental damage to the components. At \$18.48 as of this writing, it's a small investment that could save you money in the long run.



Brake fluid should be clear and maybe slightly yellowish. If it's brown or you see chunks in the reservoir, it's time to clean and flush. BMW recommends servicing your brake system every two years.



Fresh oil on the ground is never a good sign, but in this case it was a minor issue. Oil leaking out from the ignition coil tunnel generally points to an improperly seated donut gasket. Rotate the gasket (replace if it's damaged or torn) and try to get the cylinder head cover on correctly again. It sometimes takes me three or four tries.



All back together and cooling off after the test ride.

After cooling down for a couple of hours, I noticed an oil spot under the left cylinder. Since it was an oil leak that started this whole process, I thought it was ironic. I wasn't concerned, though, as I knew what was going on. Surrounding the spark plug is a donut gasket; if you don't get the cylinder head cover put on just right, oil can leak out around it. The easy way to check is to pull the ignition coil cover; when I did, there was fresh oil. Five minutes later I had the gasket and the cover reseated and the oil leak was gone.

The last step in this whole process was to ride for 600 miles, then retorque the cylinder heads and reset the valve clearances. This is typical and required any time you pull the heads off the bike. (See a video of this process at <https://goo.gl/yuGVMt>)



Sometimes done for performance reasons, I had the wrap done to hide my rusty, crusty headers.

Even though it was a lot of work and cost a good bit of money for parts, I learned a lot about my motorcycle and feel good about doing most of the work myself. I'm lucky in that I have a pro mechanic to backstop me. I was on the verge of selling my GS before these problems, but it runs so well now that I have definitely changed my mind. I don't worry about the drive shaft, I shouldn't need a clutch for a while and all the electronic accessories work all the time. It's almost like owning a new bike. Almost. Plus, I think it looks sharp with the wrapped pipes! 😊