

POWERING YOUR COILS DIRECTLY FROM YOUR BATTERY (via an automotive relay)

George "wiredgeorge" Lesho

Motorcycle Carburetion Specialist: Mikuni Keihin Tekei

Mico TX.

lesho@bigfoot.com CMA 74623

<http://members.ebay.com/aboutme/wiredgeorge>

Condition/Symptoms:

A common complaint regarding older bikes and KZs and Zs in particular is stated as “the carbs need cleaned” or “the carbs need tuned”. This problem manifests itself by rough running, backfires through the carbs; sometimes frequently and sometimes infrequently and sooty spark plugs.

What most people recommend:

The air/fuel mixture is too rich. Use smaller main jets, move the clips on your jet needles down or fiddle with your mixture screw (also called a pilot screw).

These common recommendations MAY help the problem but may also have no effect, other than cause tuning problem which ultimately will only make matters worse.

What wiredgeorge recommends:

If you have or know the following:

- clean air filter or pods
- rebuilt your carbs or know that their innards are clean
- know there is no crud in the bowls or being passed from the tank
- have correct float levels
- have what you believe to be appropriate jetting

Then your problem may NOT be carb induced!

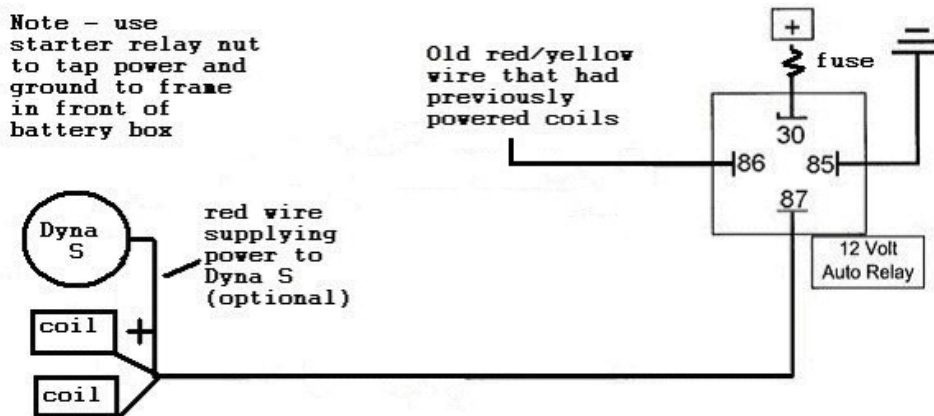
Consider that two things are necessary for complete combustion. The correct air/fuel mixture and a good spark. If you have spent the time ensuring your carbs are set up correctly and still have rough operation, backfires and soot on your plugs, doesn't it make sense that the problem is with your spark?

What can be done?

The problems I have described can be partly attributed to tired old ignition components or improper timing but I have found that even if you have switched to a Dyna S or Dyna 2000 igniter and have a fresh set of Dyna 3 ohm coils, you can still experience these problems.

WHY?

The voltage feeding the coils is insufficient to cause the coils to fire a strong spark. YOU HAVE A WEAK SPARK and no amount of tuning will rid you of the symptoms or soot. I suggest you power the coils using a separate circuit via a standard automotive relay. Bosch makes a wide variety of relays and any will work. These relays have number coded inputs and outputs. I have supplied a drawing which shows how to wire the relay into your bike and your coils will fire a spark as never before. The soot and rough running days will be over when you have made this simple modification. I have mounted the relay above my battery using a longer bolt that normally retains the starter relay and put a nut on the backside to hold the new coil relay.



To wire this up, buy the following:

- 12 ga. wire
- 18 ga. wire
- soldering iron and light duty rosin core solder
- shrink wrap (3/16")
- standard automotive relay
- standard relay pigtail
- inline fuse rated for 30A
- pack of 10A (inline type) fuses
- 1 round plug in type male connector
- Crimp on female lug connects for 18A and 12A
- Wire ties

Here are the steps: **NOTE: first disconnect your battery!**

The relay can be attached to a nut/bolt on your battery box under your seat. The relay has male connectors on. While you can put crimp on female connectors onto the ends of your wires that will be connected, these tend to get oxidized quickly and fail. I suggest using a standard relay pigtail which essential plugs into the relay and has 5 wires coming off it that correspond to the connectors on the relay.

1. Solder / shrink wrap one end of a 12 ga. wire to connect to relay lug # 85 wire on the relay pigtail. To properly solder a wire to wire connection, join the wires by twisting them together. Then warm the under of the wire ends and hold solder on the top of the wires until this solder melts and permeates the ends of the wires; that is, it penetrates through the wires. This is called “tinning” the wire. This keeps the end of the wire intact and neat and the strands are far less prone to failure. Also tin the loose end and wrap it around a bolt in the frame in a clockwise manner and tighten the bolt. I suggest you use one of the grounding bolts located in front of the battery box. This is the relay **GROUND!**
2. Solder / heat shrink one end of a 12 ga. wire to connect to relay #30 pigtail wire. Put about 1 inch of heat shrink onto the free end of the wire and move it towards the relay and out of the way for now. Cut the wire on the inline fuse to make two ends. Put a 10A fuse in the holder and put it together. Solder the inline fuse end to the 12 ga. wire connected to the relay. Strip a bit of insulation from the other end of the fuse holder wire and tin with solder. Loosen the nut that retains the positive battery connection on the starter solenoid and place the tinned end of the wire, now coming from the #30 pigtail lead under the nut and tighten. This is your **POSITIVE 12 VDC** battery connection.
3. Find the yellow/red wire that had previously been used to power the coils. This wire is currently going into a one into two type connector. Remove the wire and cut off the male connector. Strip some insulation from the yellow/red and splice / shrink wrap it to a piece of 18 ga. wire. Run the 18 ga. wire to the relay and splice / shrink wrap it to wire coming from the Relay #86 connector. This is you relay **TRIGGER.**
4. The last piece is the positive wire to the coils. From the wire pigtail #87, run splice / shrink wrap a 12 ga. wire and pull it back to the coils. You should have a two into one connector where the hot wires had previously joined to the yellow/red wire. This is where you will connect this coil powering wire. This wire’s power is switched on and off with the ignition key. This is the **COIL HOT WIRE.**

Note! If you are using a Dyna S ignition, there will be a “positive” wire coming up from the ignition (located under the points cover) that needs to be connected to a power source and it can be spliced / shrink wrapped to the “COIL HOT WIRE”. I believe the points ignitions have a similar wire. There will also be signal wires coming from your points or Dyna S ignition (or points) These will not be modified.

You are done at this point but I would use some wire ties to pretty up the installation and ensure no wires dropped down and laid atop the valve cover or engine. Now, when you start the engine, with the kill switch in the “ON” position, your coils will be powered by the new circuit we created and your spark will be much, much stronger. Say goodbye to constantly cleaning your spark plugs and tinkering with your jetting!

To see a picture of my under-seat coil powering relay, click on the following link. The relay pigtail doesn't show well as all wires are wrapped and it is under the relay:

<http://img3.photobucket.com/albums/v12/wiredgeorge/KZ900/MVC-877F.jpg>

wiredgeorge

