

## Testing The Stator, a Pictorial Guide

(by BassCliff)

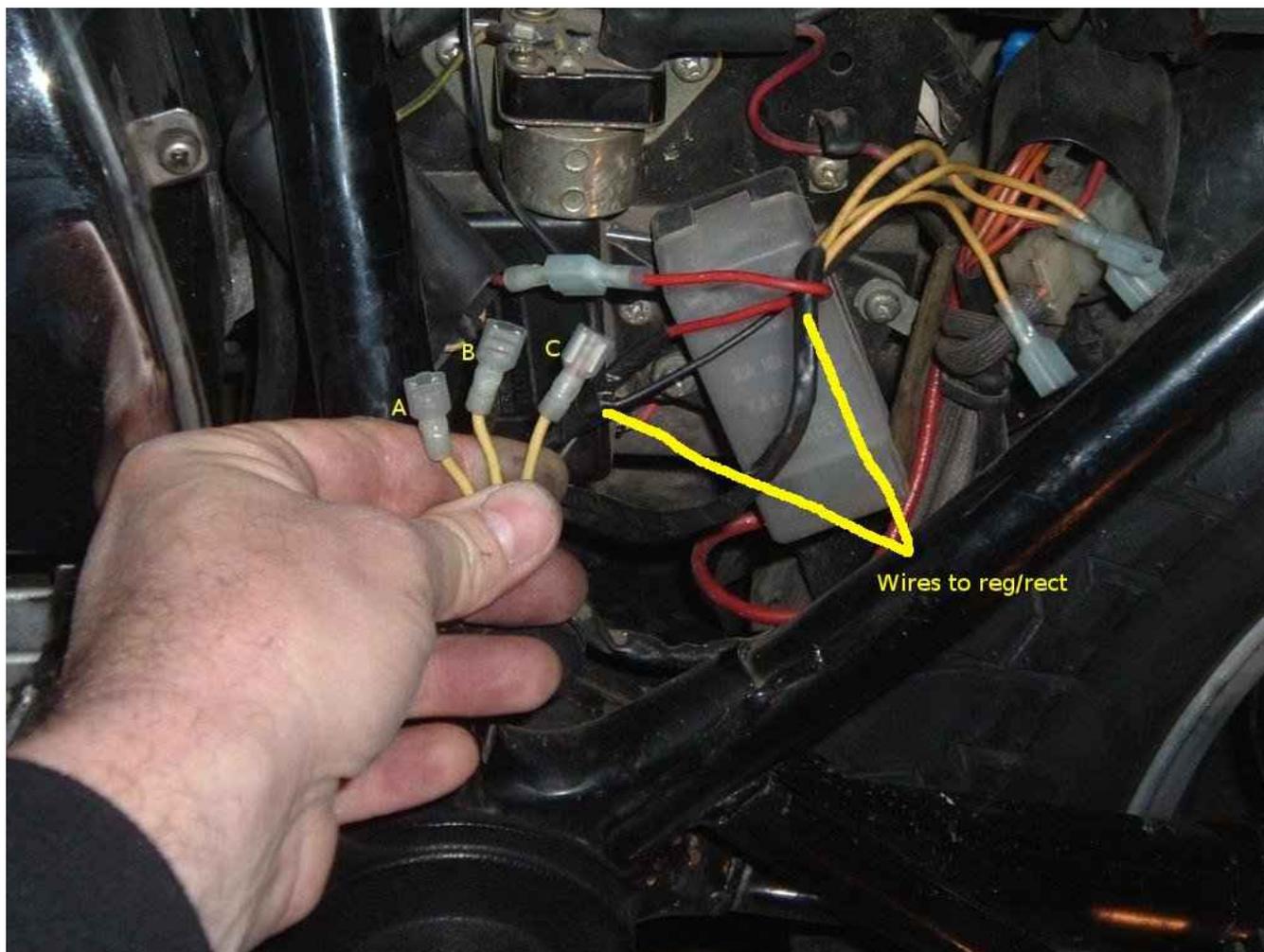
The [GS Resources website](#) has a very complete [fault finding chart](#) in [The Stator Papers](#) available on the [In The Garage](#) page. This resource is very useful for understanding and troubleshooting the charging system on these classic Suzuki GS motorcycles. This guide should help illustrate the procedure for testing your stator output.

First, let's take a look at the overall health of the charging system. We'll do this by opening up the battery compartment, setting our volt/ohmmeter to DC volts, start the motorcycle, place the negative (black) test lead on the negative (-) battery terminal and the positive (red) test lead on the positive (+) battery terminal.



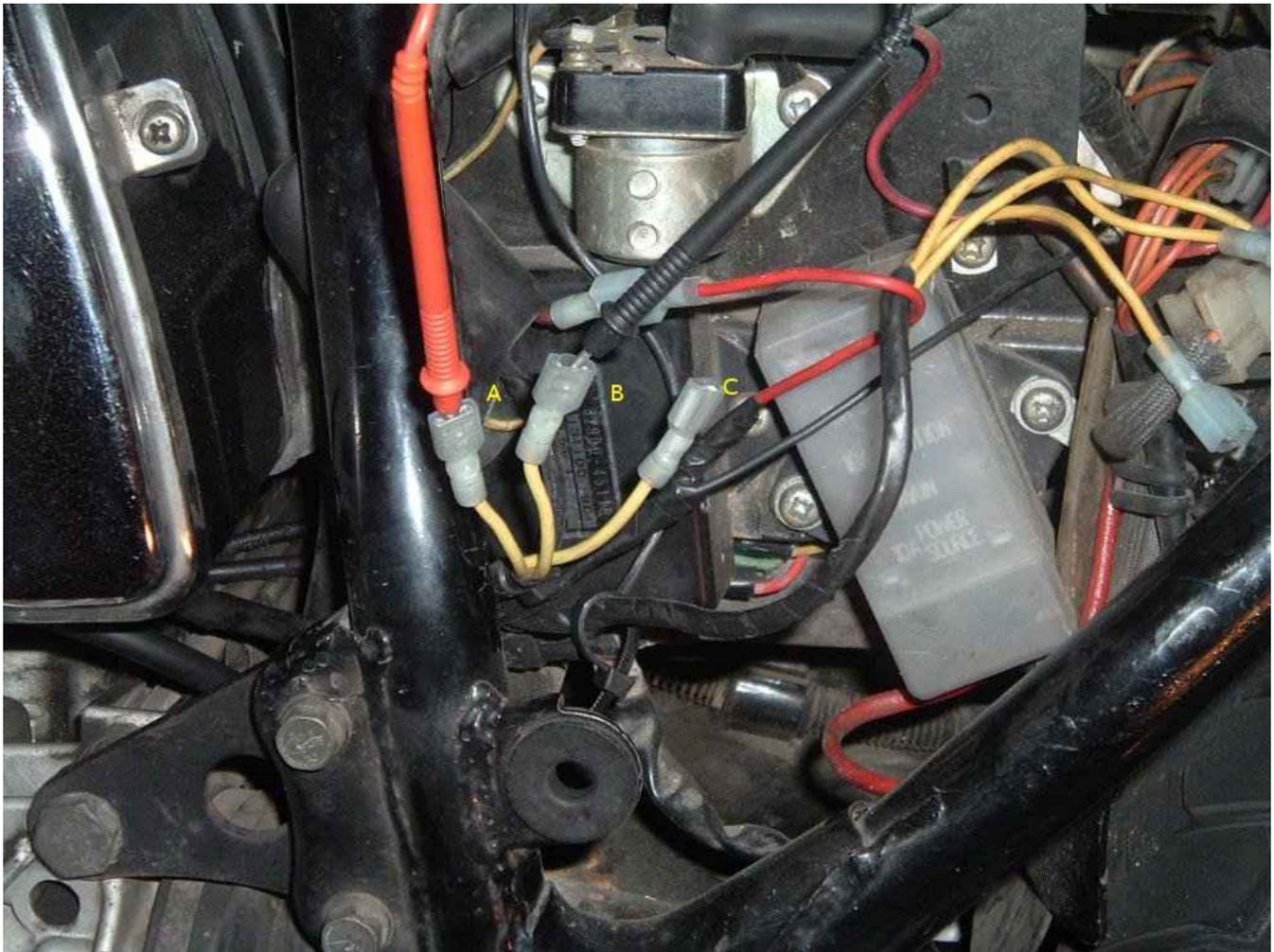
With the motor at idle you should see around 13 volts or better. At 4000 rpm you should see around 14.5v. As you can see, this motorcycle has a problem with its charging system.

The connections between the stator output and the regulator/rectifier input are usually on the left side of these GS motorcycles. On the stock Suzuki stators the 3 output wires are different colors (yellow, blue/white, green/white). My bike has an aftermarket stator installed which has all yellow wires. The Stator Papers state, rather tongue-in-cheek, that Suzuki made the stator wires different colors only to confuse us. Like The Stator Papers suggest, just consider all of the stator output wires as yellow in color. Below are the stator output wires in my hand.



The stator outputs are labeled “A”, “B”, and “C”. I have also pointed out the wires leading to the regulator/rectifier unit. Stock r/r units have 5 wires. The 3 yellow wires connect to the stator. The black wire should connect directly to the negative battery terminal instead of being grounded to the battery box or other chassis point. This helps cut resistance in the charging system. Newer replacement r/r units may have a 6<sup>th</sup> wire, called the “sense” wire. This gets connected to a switched 12v source, such as the rear brake light switch, to sense the electrical system voltage and help regulate the stator output. GSR member Mr. duaneage supplies upgraded Honda r/r units that have the “sense” wire. His wiring diagram can be viewed [HERE](#).

Two of the stator tests are passive resistance or continuity tests. First we will test for resistance or shorts between the stator legs themselves. Turn off your motorcycle. Set your meter for ohms measurement and test the resistance between A-B, B-C, and A-C. The reading should be less than 2 ohms but not zero (0.5–2.0 ohms).



The orientation of the test leads in this procedure is not important. If any of these readings are too high or too low, you have a bad stator. In my experience, even if these readings are good, it doesn't necessarily mean that your stator is good. Further testing is needed to verify the condition of your stator.

Let's continue on the next page.

Next we will test the stator's continuity to ground. This simply means we are checking for a connection between the stator windings and the chassis ground. Note that there should be NO connection whatsoever between the stator windings and ground.

Again, with the bike turned off, test the resistance between each stator leg and a chassis ground. You should see infinite resistance (no connection at all). If there is any resistance reading (0–100 ohms) then your stator is bad.



My meter reads “OL”, meaning “over limit”, when there is no connection or infinite resistance between two points. Let's hope yours reads the same when you perform this test. But it has also been my experience that even after passing these first two tests, the stator may still be bad.

Let's continue again on the next page.

For this last test we will need a good, fully-charged battery. We will start the motor and measure the output of the stator as the motorcycle is running. Again we will measure between the stator legs, A-B, B-C, and A-C. The orientation of the test leads does not matter in this test. Set your meter to **AC Volts** and start your motorcycle. Use the choke or have someone help you hold the throttle at around 4000 rpm and check the output between the legs. The output between each pair (A-B, B-C, A-C) should all be equal to each other and above 60 volts **AC**.



If the AC voltage is not equal for all three outputs, or if it is below 60v AC, then you have a bad stator. Please see the [Greeting-Basic Info-Vendors Page](#) on my website for sources for electrical parts. Bikebandit and Z1Enterprises sell products from Rick's Motorsports and Electrosport. RMStator is another source. Join us at [The GS Resources Forum](#) to get more advice from lots of helpful, friendly GS riders. Thank you for your indulgence.

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