

# FAULT FINDING FLOW CHART FOR MOTORCYCLE CHARGING SYSTEMS

START

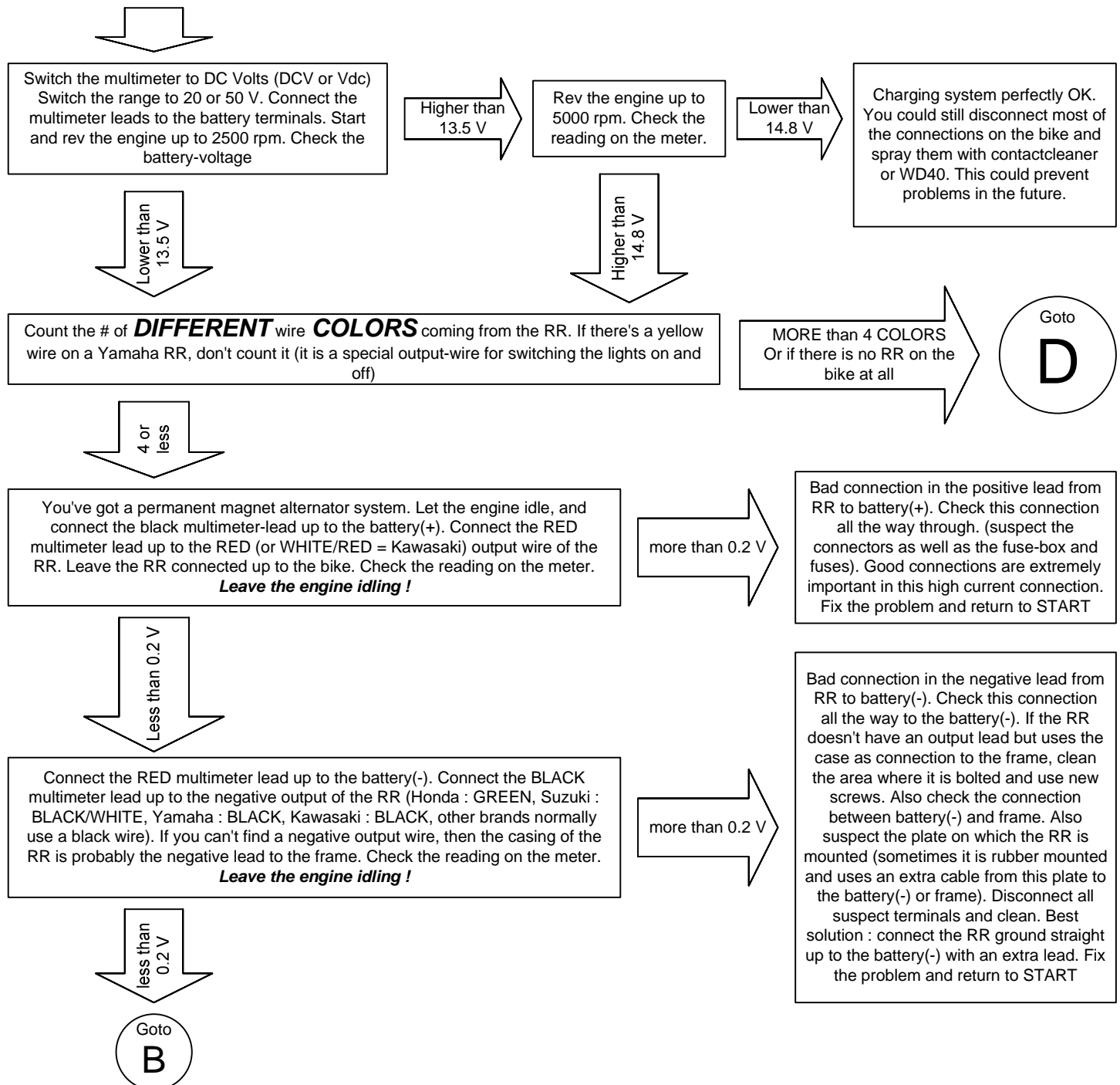
## VERY IMPORTANT :

This fault-finding chart assumes that the user has knowledge of the basics of electricity (Voltage, current, resistance, etc.), and about electrical systems on motorcycles in general. If you do not have this knowledge/experience, find someone that has and let him/her check the charging-system on the bike. The use of this fault-finding chart is entirely at the risk of the user. The author cannot be held responsible for any damage that could arise from the use of this fault finding flow chart.

Fully charge the battery. If the battery is not fully charged you may get wrong results using this fault-finding chart. You could just replace it with a battery off another motorcycle that has a known good functioning charging system.  
Use an accurate digital multimeter! RR means Regulator/Rectifier. This whole fault finding flow chart only works if you have a bike with a combined regulator and rectifier (= regulator/rectifier) in a single case.

## NOTE:

Suzuki used on the older GS models three different colors for the three output wires of the stator. They were the only manufacturer doing this. This has caused a lot of unnecessary confusion, because the output of all the three wires is the same. The colors on the wires from the stator are : YELLOW, WHITE/BLUE and WHITE/ GREEN. On the Suzuki RR these colors are : YELLOW, WHITE/BLUE and WHITE/RED. JUST THINK OF THEM ALL BEING YELLOW !!!



**B**

If you have an RR with 4 different wire COLORS emerging from it find the switched +12V supply input. (Normally Honda : BLACK, Suzuki : ORANGE, Yamaha : BROWN, Kawasaki : BROWN, otherwise check the wiring-diagram for the extra wire coming from the ignition-switch). Connect the red multimeter-lead to the battery(+) and the black multimeter-lead to the switched +12V input-wire (the one you just found). Leave the RR fully connected up to the bike and let the engine idle. Switch on the lights. Check the reading on the meter.

more than 0.2 V

Bad connection from the battery(+) through the ignition switch to the switched +12V supply-input on the RR. Check the whole electrical circuit. This is one of the most difficult faults to find. Suspect the ignition-switch itself, the fuse-box and its connections. The RR thinks the battery-voltage is too low while the actual voltage is correct or too high. Disconnect all terminals and clean them with contact-cleaner. If you have fixed the problem, return to START

Reading is lower  
than 0.2 V

You have LESS than  
4 different wire  
COLORS

Stop the engine. Disconnect the wires coming from the stator. These are usually three YELLOW (or WHITE = Yamaha) wires. Switch the multimeter to Ohms, the lowest range on the meter. Measure the resistance between all three wires coming from the stator, so you need to take three readings.

One of the readings is lower than  
0.5 Ohms or higher than 2 Ohms

All readings are  
within 0.5 to  
2.0 Ohms

Connect one of the multimeter-leads up to one of the three YELLOW (or WHITE = Yamaha) wires. Connect the other multimeter lead up to the engine-case. Check the reading on the meter. Make sure the connection to the engine case is a good one !

You have any reading **lower than 100 Ohms**  
Check the display, your meter might be showing kilo Ohms or Mega Ohms , (0.1k Ohms is 100 Ohms, 0.45M Ohms is 450 k Ohms is 450,000 Ohms.)

Stator is at fault. Replace  
the stator and return to  
START

You have no reading at  
all, or OL in the display

Switch the multimeter AC-Voltage (Range at least to 100 Vac). Make sure you DON'T switch it to DC-Voltage (=DCV or Vdc). Connect the multimeter leads between two of the three YELLOW (or WHITE = Yamaha) wires coming from the stator. Start the engine and rev it up to app. 5000rpm. Check the reading on the meter. Switch one of the multimeter leads to another YELLOW (or WHITE) wire and check the reading again. Switch the other multimeter-lead to another YELLOW (or WHITE) wire, and check the reading again.

The three readings are not equal,  
or one of them is below 50 Volts  
(AC)

Three equal  
readings, all  
higher than 50  
Volts (AC)

Goto  
**C**



Disconnect the RR from the bike. Switch the multimeter to the **DIODE-TEST function**. (The reading on the display will be in **VOLTS** now, not in Ohms!) Connect the RED multimeter-lead to the RED (or WHITE/RED = Kawasaki) output wire of the RR. Connect the BLACK multimeter-lead to one YELLOW (or WHITE = Yamaha) wire. Check the reading. Repeat this procedure for the two other YELLOW wires.

The meter shows **1.00 V or lower** on one of the three tests.

The meter displays "OL", or a voltage **above 1.5V** on all three tests

Connect the BLACK multimeter-lead to the red (or white/red = Kawasaki) output wire of the RR. Connect the RED multimeter-lead to one YELLOW (or WHITE = Yamaha) wire. Check the reading. Repeat this procedure for the two other YELLOW wires.

The meter shows **lower than 0.2 V or higher than 1.0 V** on one of the three tests

The meter displays **around 0.50 V** on all three tests

Connect the BLACK multimeter-lead to the negative output wire of the RR (Kawasaki : BLACK, Yamaha : BLACK, Honda : GREEN, Suzuki : BLACK/WHITE). If there is no output wire, connect the black multimeter-lead to the RR case. Connect the RED multimeter lead to one YELLOW (or WHITE = Yamaha) wire. Check the reading. Repeat this procedure for the two other YELLOW wires.

The meter shows **1.00 V or lower** on one of the three tests.

The meter displays "OL", or a voltage **above 1.5V** on all three tests

Connect the RED multimeter-lead to the negative output wire of the RR (Kawasaki: BLACK, Yamaha : BLACK, Honda : GREEN, Suzuki : BLACK/WHITE). If there is no output wire, connect the BLACK multimeter-lead to the RR-case. Connect the BLACK multimeter-lead to one YELLOW (or WHITE = Yamaha) wire. Check the reading. Repeat this procedure for the two other YELLOW wires.

The meter shows **lower than 0.2 V or higher than 1.0 V** on one of the three tests

The meter displays **around 0.50 V** on all three tests

RR is at fault, replace it with a new one and return to START

As this was the last test, the only thing that can be at fault is the battery itself. replace it with a known good fully charged battery and return to START

