

Testing for Blown Mosfets

Tools Needed:

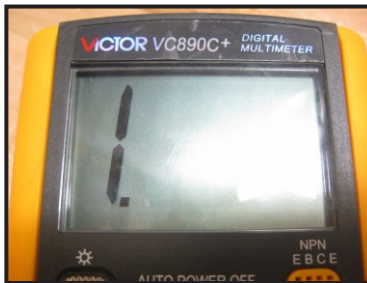
1. Multimeter
2. Motor controller



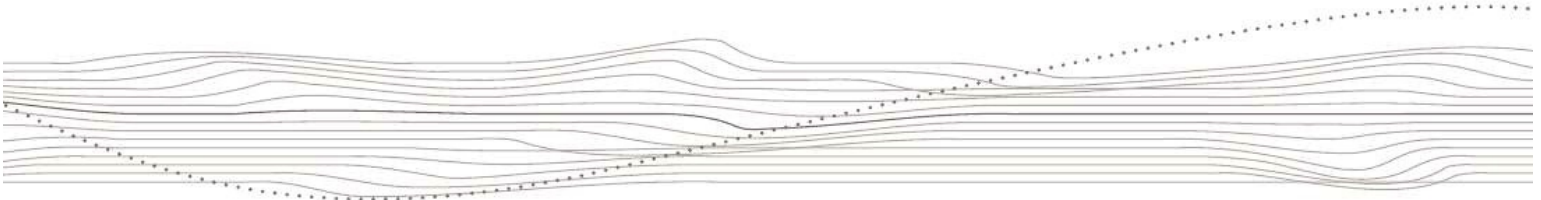
Make sure your multimeter has the black probe in the COM slot and the red probe in the V slot.



Switch the multimeter to continuity (diode) mode or 200 ohm mode.

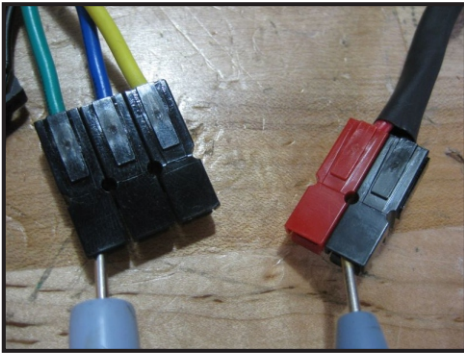


The multimeter is now ready for use

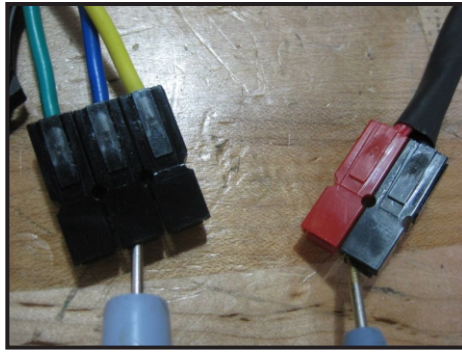


Testing for Blown Mosfets

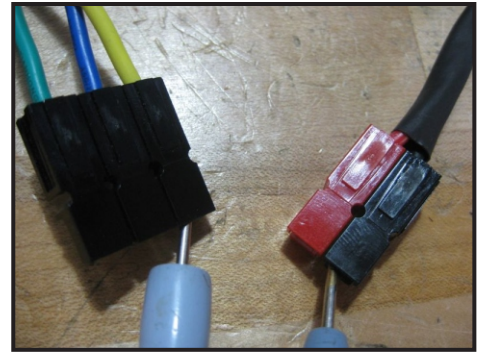
You will now need to use the multimeter to look for continuity between each of the 3 phase wires and the ground and power connections. There are 6 measurements in total (3 phases and the ground, 3 phases and the power). You do not need the controller powered up to do this measurement as you are looking for continuity and not voltage. You should see a significant amount of resistance for each test. Make sure you are getting good contact on the pins of the Anderson connectors.



Green Phase and Ground



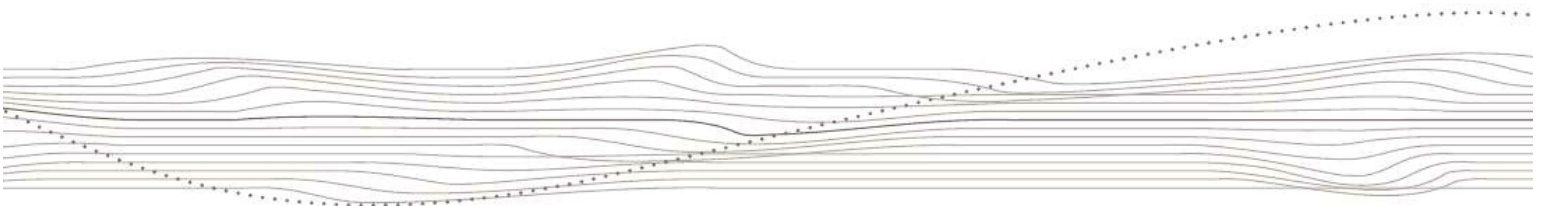
Blue Phase and Ground



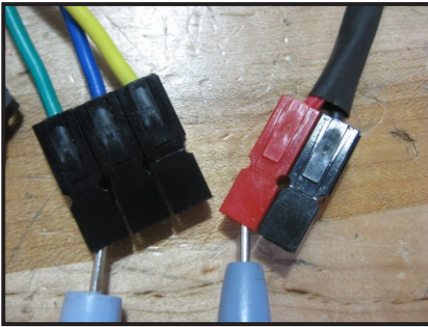
Yellow Phase and Ground



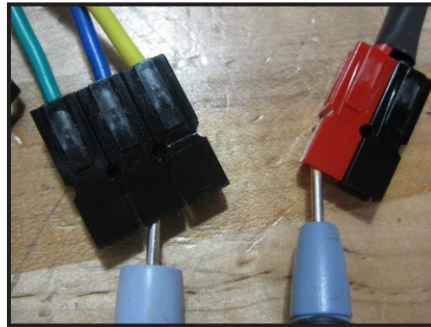
All three measurements on the ground side show about 10kΩ resistance so the mosfets are in good condition.



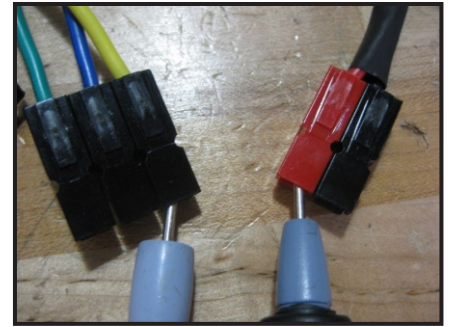
Testing for Blown Mosfets



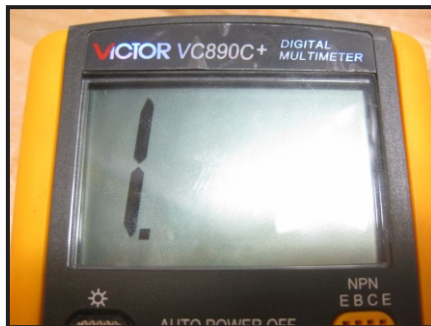
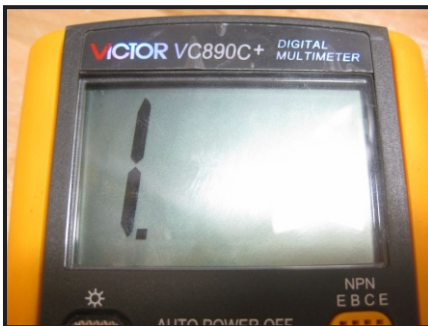
Green Phase and Power



Blue Phase and Power



Yellow Phase and Power



In this case we see an infinite resistance between the green/blue phases and power but we see zero resistance between the yellow phase and power. This implies that the yellow high side mosfet has blown and failed in a short circuit and needs to be replaced. Note the diode and alarm symbol in the top left of the multimeter screen signifying continuity is present - depending on your multimeter there may also be an audible beep generated when the short is detected. This means that the high side yellow phase mosfet is blown and needs to be replaced.

If a mosfet is blown you should also find that when you plug in the controller to the motor (without power) you encounter significant resistance when turning the motor (backwards for a geared motor because of the freewheel mechanism). This resistance should go away if you then unplug the controller.

