



VEBKO ONLINE HELP

Possible Errors in the Switching Module

Category	tester
Section	Troubleshooting
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Overcurrent error of board one and two is one of the most common errors in the switching module. After making sure that the command module is healthy, in the switching module, we need to find the problem in accordance with the error that we are having on a side. As mentioned earlier, the input electricity enters from this section. When switch number two is connected, it is converted to DC by the diode bridge and 300 volts DC enters these two lines. It enters the IGBT from here. If you pay careful attention to the complete Main Switching, you can see that these female pin headers are connected to this part. These connections enter the command module from here.

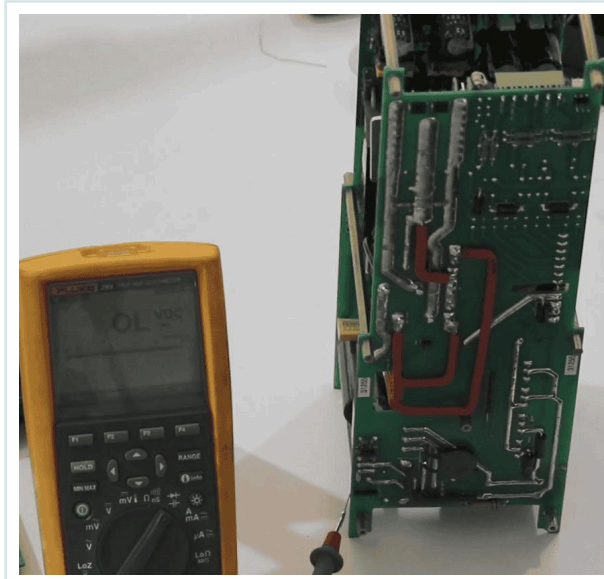


Figure 1

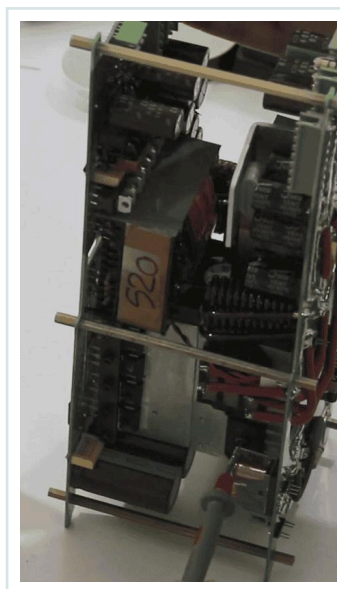


Figure 2



Figure 3

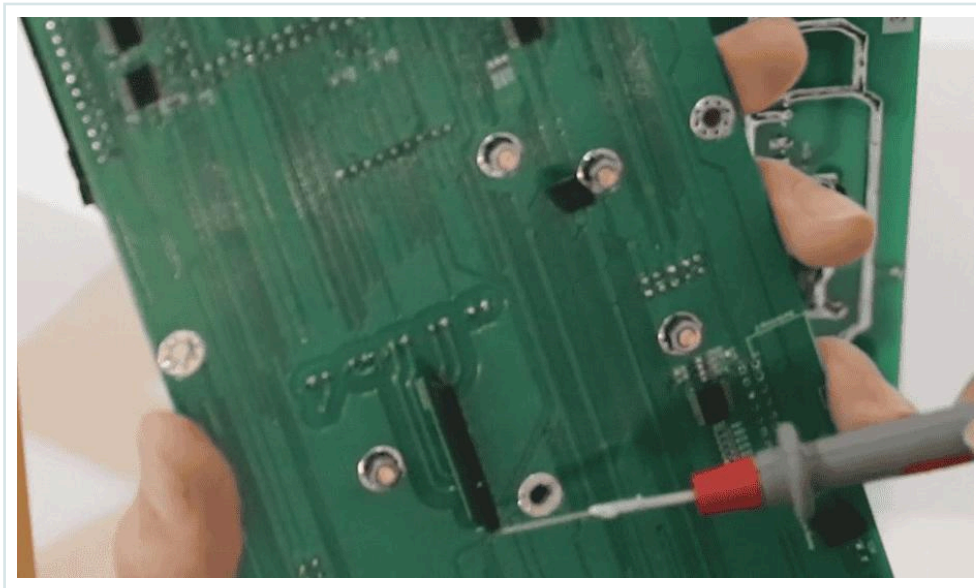


Figure 4

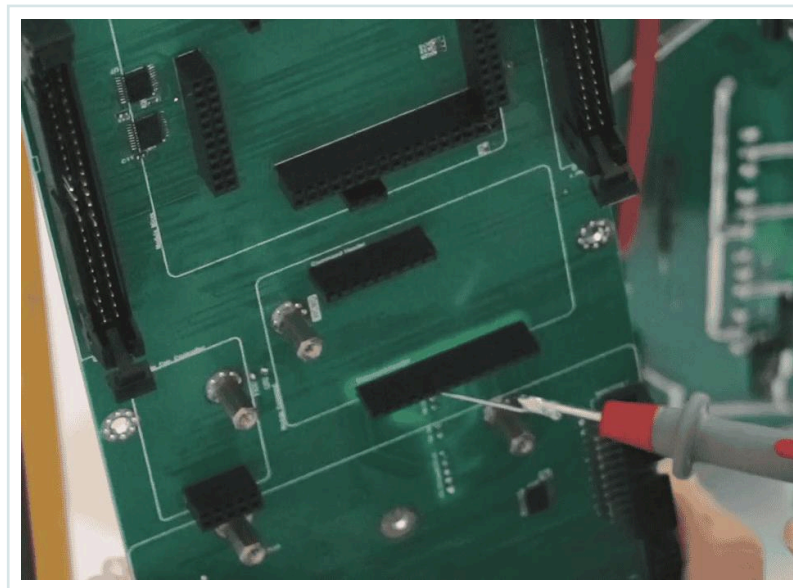


Figure 5

This means that the command pulses enter this part from here and then go to the IGBTs. Each of these pins is connected to one of these IGBT pins. Some of the problems that some users might face are that when the IGBTs are placed on the board, while installing them in this section, the pads may be detached, or if the tin of these bases is weak, the connection between this IGBT base and the pin header may not be established. So the first step is to examine the command and after making sure that the command is healthy, we enter the switching module. First we perform the IGBTs' test. We set the multimeter at diode test mode. The second and third bases from the top for every IGBT are drain and source bases. We connect the negative and positive probes of the multimeter to the second and

third bases, respectively, and the approximate value of 0/4 must be displayed and in the opposite state is Overload. We perform the test for every one of these IGBTs.

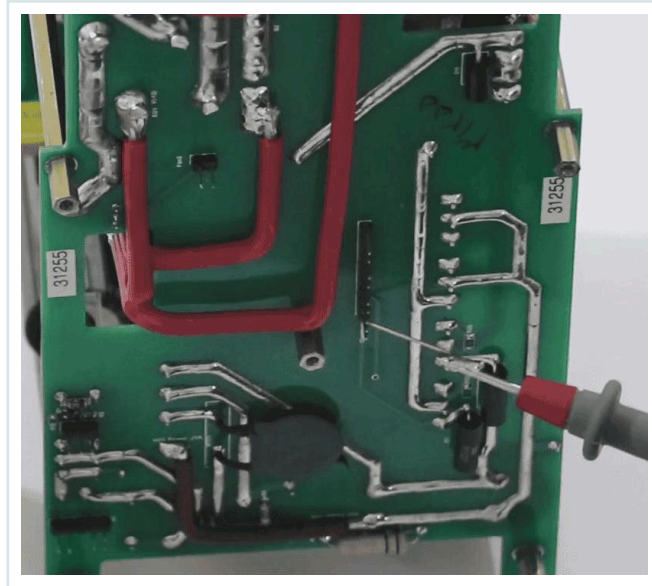


Figure 6



Figure 7

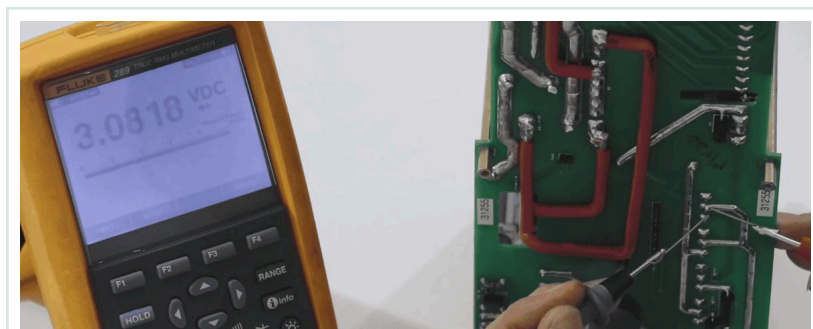


Figure 8



Figure 9

So examining the command is the first step and then we need to test the IGBTs to see if one of them is burned out. If drain and source has a 0/4 value and its opposite state is open or is not Overload and if gate and source bases are open, that IGBT is burned out. So far we know that the IGBTs are healthy. We set the multi-meter at Buzzer mode and check the connection between these IGBTs and these pin that connect the command and the switching module. From the top, the gate and source of the first IGBT must be connected to pins number one and two, respectively. The connection between this pin and here is a track from inside the switching module. When the IGBT is changed, it is possible that this track is disconnected or it does not have any tin and the connection is not properly established.



Figure 10

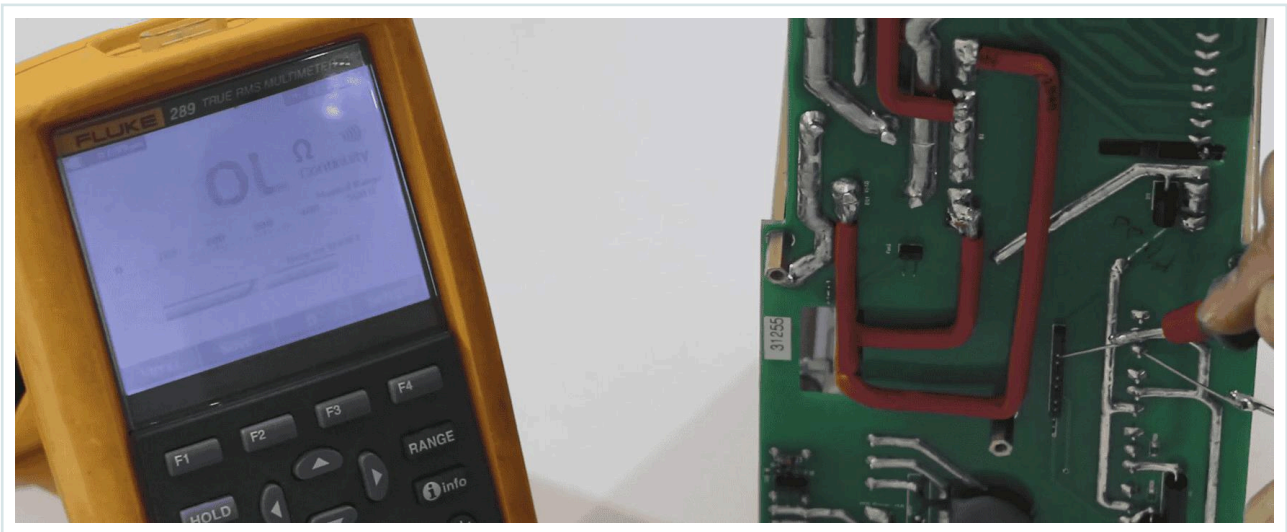


Figure 11

Then, the second IGBT and its source are connected to pin number 3 and pin number 4, respectively. The source of the third IGBT is connected to the last three pins and for the fourth IGBT, the second base which is its gate and its source is connected to the last three pins. If all of the connections are correct, the IGBTs and their connection to the command module are completely healthy. In the end, we precede one more step and if we still are not able to eradicate the Overcurrent error, there is one more thing that we can do which will be explained in the following. There is a set of protection diodes in the input and output of the transformer so that they can neutralize any sudden voltage and also there are two protection diodes in the current output. We can examine these diodes by a diode test. This diode that is located at the two ends of this transformer, since it is located at the two ends of a coil and normally, these two ends are connected to each other, by testing it we can see that the two ends are connected so the only way to test this diode is to remove one diode base from the circuit and then test it.



Figure 12



Figure 13

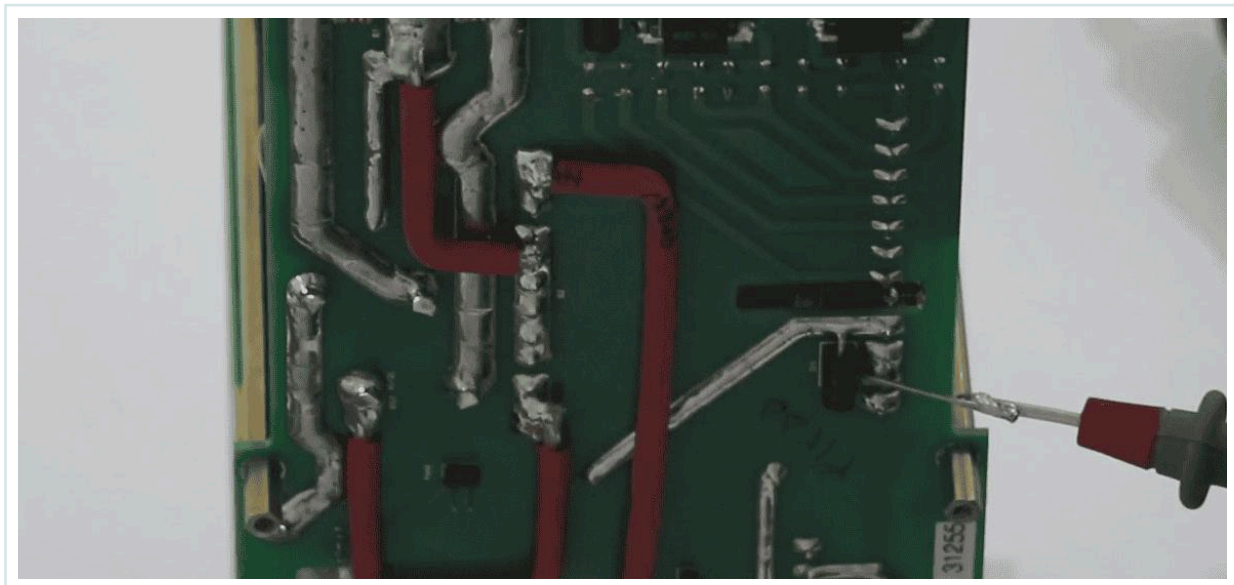


Figure 14

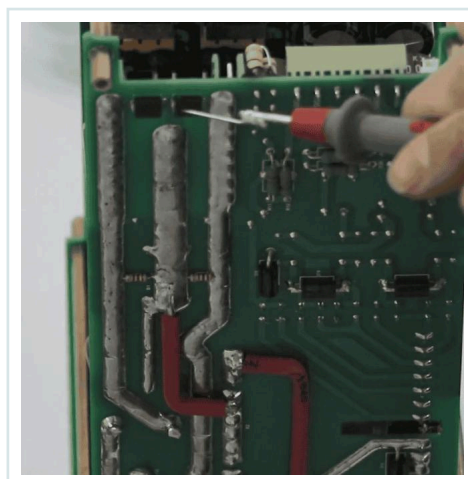


Figure 15

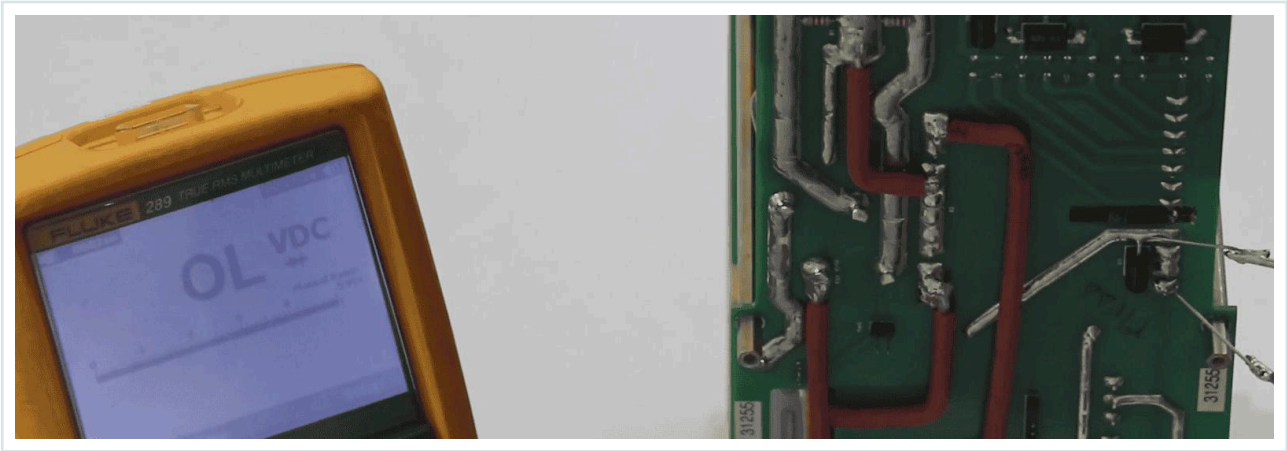


Figure 16

[jg1]Possible_Errors_In_Swithcing_Module