

Changing the Fuse in the MY64 Multimeter

When the user exceeds the current capacity of the MY64 multimeter, an internal fuse opens to protect the precision current shunt. Typically this occurs when the user leaves the multimeter in current measuring mode and places the probes across a voltage source.

Page 26 of the MY64 Operator's Manual instructs the user to:

- Disconnect the test leads
- Remove the screws on the back cover and open the case
- Take the PCB out from the front cover
- Replace the blown fuse with the same ratings

The above explanation leaves out a few details, which may frustrate a user. Here are some instructions with pictures to help you be successful.

WARNING! Static discharge can destroy your meter. The ECE department will not be responsible for meter abuse. If you have any doubts about your ability to perform this procedure, consult with a Teaching Assistant in the Computer Engineering Labs.

After removing the test leads, separate the meter from the yellow bumper, using your fingers to peel from the top.



Turn the meter on its face on a soft surface. Unscrew the 3 identical screws with a #2 Phillips screwdriver. The screws have a right-hand thread, so turn the screwdriver counter-clockwise. **CAUTION!** Using a screwdriver that is too small or too large may permanently damage the meter case screws. It is not necessary to remove the screws, but you may have less difficulty with the next step if you do.



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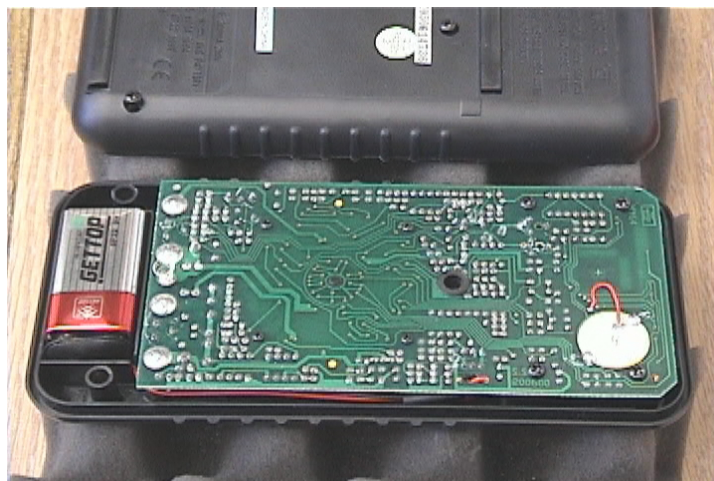
Lift up on the bottom end of the case (with 2 screws). The top of the case snaps on and off.



Guide the case back straight up from the meter, being careful not to bend any internal parts.

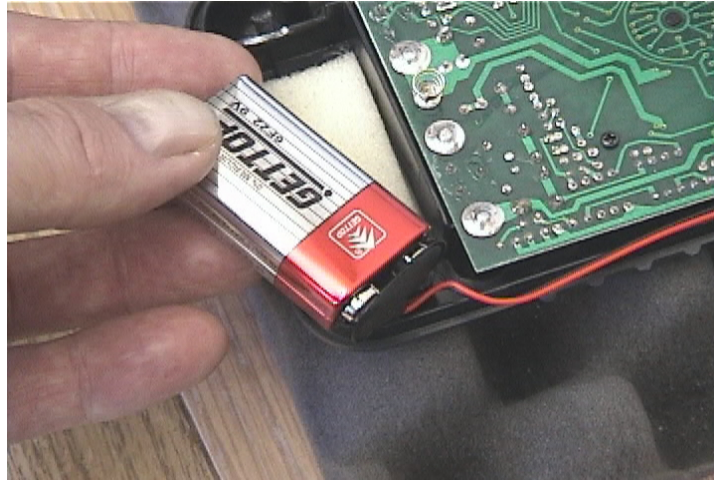


The circuit board is revealed.

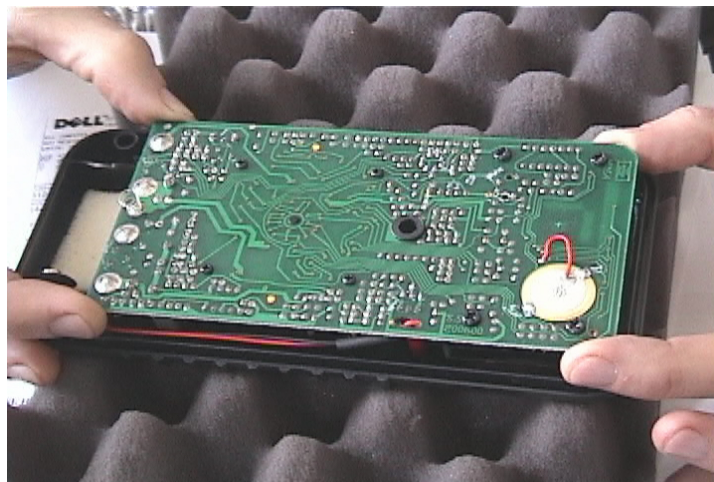


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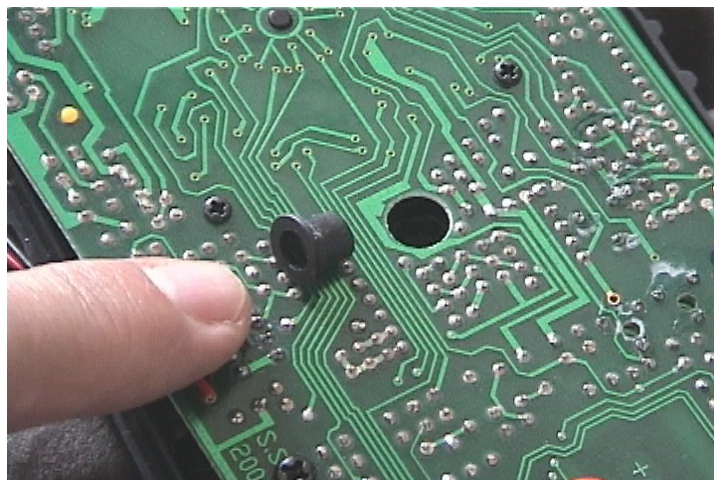
Carefully lift the battery and connector out of the battery compartment. Notice the routing of the battery cable through the case slot. Remove the battery.



Lift the circuit board straight up, using both hands. Continue working on a soft surface.

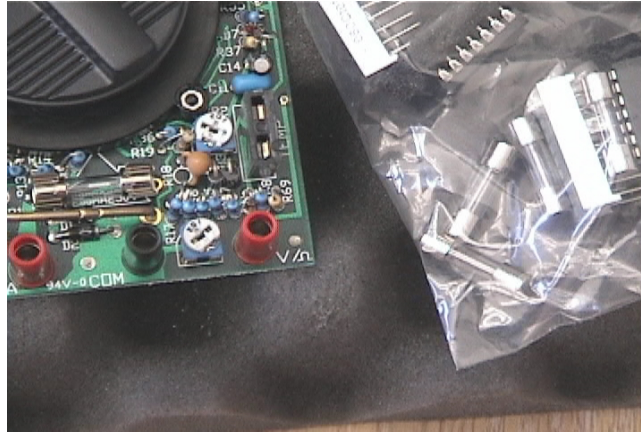


There is a plastic bushing, which may fall out. Save it.

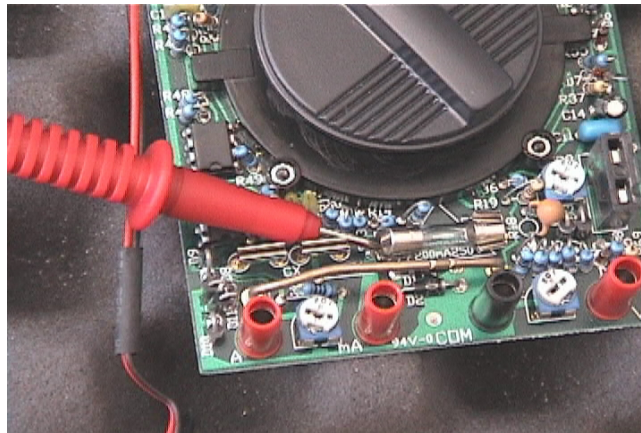


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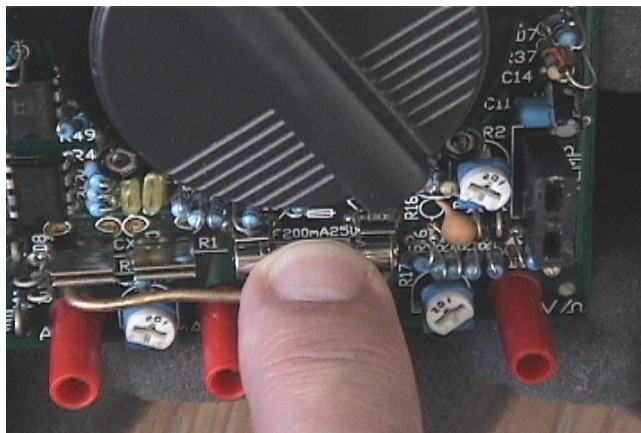
Each ECE2004/3004 kit comes with 5 spare 200 mA fuses. **WARNING!** These fuses have a glass body, which can break and cut you. Which is cheaper: a fuse with a higher current rating, or a new meter?



Turn the circuit board over on the soft surface. Find the 200 mA fuse. Note the thick wire with the crimps in it. This is the precision current shunt, which should be protected. Use a meter probe to gently pry one side of the fuse out of its holder. Lift out the old fuse with your fingers.

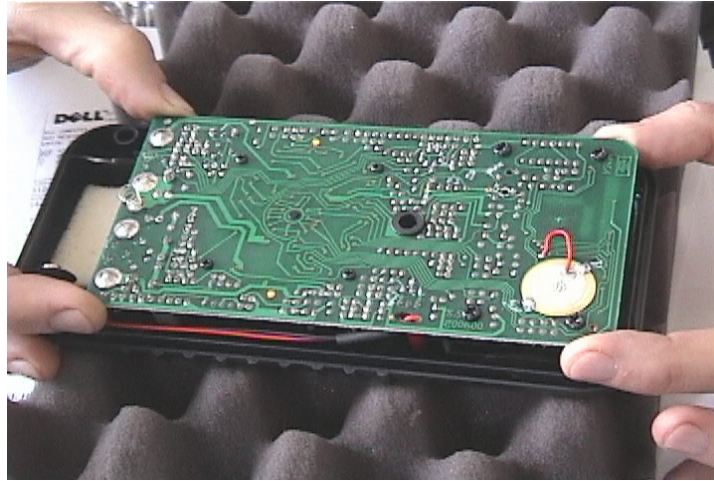


If you look through the new fuse into a light source, you may be able to see the tiny wire. Locate the new fuse on the fuse holder prongs. Press down with equal force across the entire fuse.

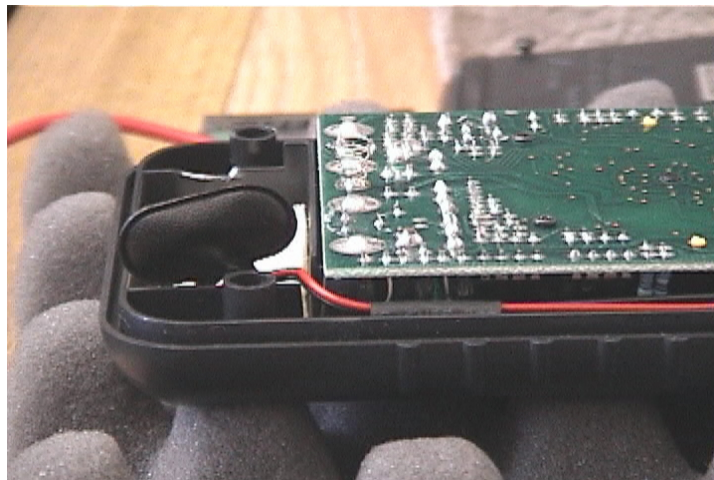


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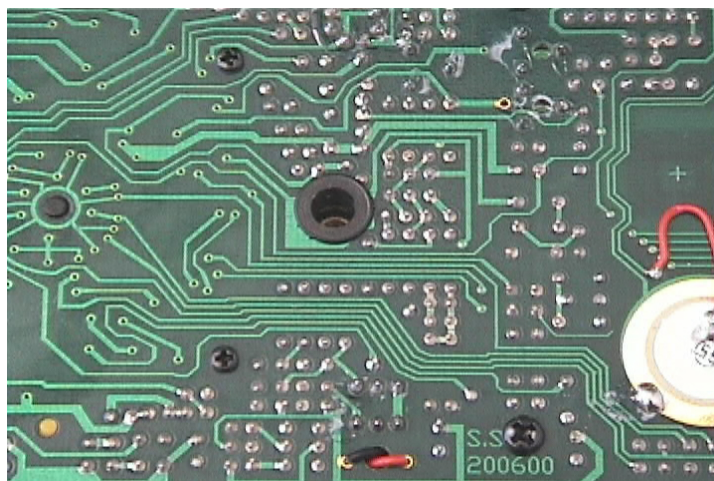
Using both hands, gently guide the board back into the case. Be careful not to force the board or bend any components.



When the board is in place, the level of the board will match the level of the battery holder. You may also turn the meter over to check for jack and switch alignment.



Make sure the plastic bushing is back in place.



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Install the 9 volt battery, aligning pins to sockets.



Using a meter probe, guide the battery wires into the case slot. Note the relative location of the black insulation on the battery wires.



Using both hands, gently guide the back case over the circuit board. Do not force.



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Start the 3 identical case screws by hand. If you encounter resistance, reverse the screw direction until there is no resistance and start again. The screws are going into plastic. You do not want to cut new threads. Instead you want to feel the screw threads following the old threads.



Start tightening each of the 3 screws, in a 1-2-3-1-2-3 sequence, to make sure all screws are seating correctly and the required force is small. If a screw seems tight, reverse directions, to avoid cutting new threads, and start over.



Make sure the jacks and switches are aligned.



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Finish tightening the case screws. **CAUTION!** Don't over tighten metal screws into a plastic case or you may permanently damage your meter.

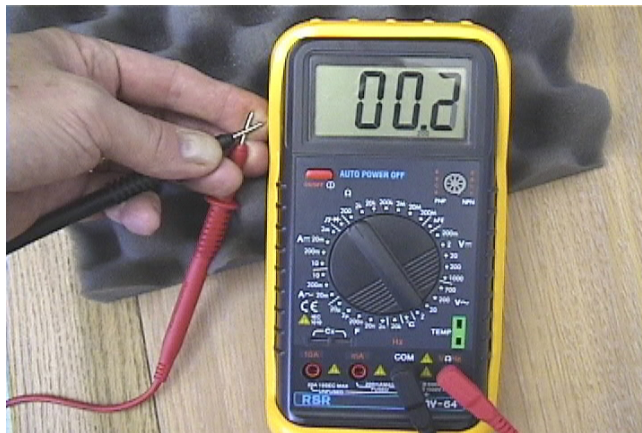
Maneuver the meter into the bottom of the yellow bumper.



Snap the meter top into the yellow bumper.



Perform a simple ohms test to make sure your meter is operating.



Congratulations! Hopefully you have learned not to probe a voltage with a current meter.