

Re: repair burned track on motherboard

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tte@wtd.net wrote:

>Long story short, there is an isolated part of the motherboard that is
>damaged. If I tape a small piece of aluminum foil to bridge the gap in
>the PCB track the motherboard will boot up however the display flickers
>and one can tell that the motherboard is not working so well.

If you're pretty sure that the only problem is the burnt trace(s), then fixing the trace more permanently may well fix it. Besides soldering a wire across the trace, there are also pens that have an ink with metal dispersed in it... you can "draw" a new trace on the circuit board. I am not sure how fine of a line these will write; I just know they exist.

To use one of these, you have to make sure the good ends of the damaged trace are bare (by scraping or heating the coating away), just like for soldering a wire. Then, start drawing on the bare part of the trace, and continue across the gap to the other bare part of the trace. It will probably help if the gap area is relatively smooth, and not rough. Once you're happy that the motherboard is working, you might seal the repaired trace with something like clear nail polish to keep it from oxidizing.

If you live in a big enough city, there is probably a local electronics distributor (not Radio Shack) where you can go and buy one over the counter. If not, you can get them from several mail-order stores. Digi-Key sells Circuit Works conductive pens in both "standard" and "micro" tips for \$17 each (but they will charge you another \$5 if your total order is less than \$25). Mouser sells a Tech Spray pen for \$13, and the same Circuit Works pens for \$16 each, no minimum order.

If you want to try and solder a wire across the gap, you might have more success if you can solder to where the ends of the trace are. Follow the broken trace (with a magnifying glass) to see if it ends at a component lead. Usually, the place where the component lead is soldered to the board will offer a bigger "target" to solder to than the skinny trace. It might end at a via, which will look like a little circle. The via may go all the way through the board and the trace might continue from the via on the other side of the board, or the via might only go through a couple of layers (most PC motherboards have multiple

sci.electronics.repair: Re: repair burned track on motherboard

layers, most of which you can't see). If you can't tell where the via comes out, then you'll have to just bridge the gap instead of going to the end of the trace.

If you do solder a wire and the wire ends up being less than an inch or so, you might seal the whole thing with clear nail polish as above. If the wire is longer, use a couple of drops of epoxy or hot glue along the middle of the wire to hold the wire to the motherboard, and just seal the ends with the solder joints.

If you decide you want help, a local TV shop might be able to do it for you – watch out for the minimum labor charge, though. Another place to try is a local vo-tech school that has a class in soldering and circuit board assembly; the instructor might turn your boards into a class project, or be able to point you at an "A" student who will solder for food (or a few bucks, or whatever.) If there are any companies in your town that do electronic assembly, somebody there will know how to fix it, but it might be hard to get to them through the front desk... see if you can make friends with one of the assemblers and offer to buy her (usually, but not always, it's a her) a nice lunch or an hour's worth of time to fix the boards.

Standard disclaimers apply; I don't get money from any of the companies mentioned above.

*>I don't want to simply try and return these motherboards since I think
>this would be rather dishonest given my mistake.*

An honest man!

Matt Roberds