

BMW E36: Repairing the Climate Control Computer

The Problem

I have a 1996 BMW 328is with about 120K miles on it (yeah, I know, a lot of miles, but hey, it's the ultimate **driving** machine, not the ultimate sit in the driveway machine). A month or so ago, my climate control computer began to turn off intermittently -- but it would leave the AC compressor engaged. The AC light on the AC button would remain lit, as would the air vent button (whichever one had been last selected), but the display would be dark, and hitting the buttons did nothing. So, you would have the AC compressor on, but no fan.

The problem seemed to be temperature-dependent, with high temperatures resulting in more cases of intermittent "off" events. Today, it stopped working altogether. Nothing about this is the Bentley manual. I checked with the folks over at [BMW Central](#), and they all seemed to agree that this was a problem with the Climate Control computer. One of the board contributors pointed me to a couple of other boards where the problem had been discussed and a fix brought up: the [The Unofficial BMW Bulletin Board](#) and [Bimmerforums.com](#). Both suggested replacing a capacitor on the board of the climate control computer. Being short on money, but having some spare time and no fear of screwing up (I figured if I had to replace the computer anyway, might as well give this a try first), I decided to give it a try. This is my story.

The Tools

Here's a list of the tools that I used in repairing my climate control computer:

- Small Philips screwdriver
- A couple of small flathead screwdrivers
 - Needle-nose pliers
 - Wire Cutters
 - Razor blade
- Radio Shack 30W Soldering Iron
 - Desoldering braid
 - Solder

That's it.

The Parts

Here's a list of the parts that I used in repairing my climate control computer:

- 0.47 microfarad 50 volt tantalum capacitor, about 49 cents at Fry's Electronics

Why a tantalum capacitor you might ask? Well, the directions on the other boards suggested *any* type of capacitor of the correct size (.47 microfarad) and voltage capacity (at least 35 volts) would suffice -- the tantalum was all Fry's had in that size the day I went, except for electrolytics, and you've got to get the polarity correct on an electrolytic or it will blow up, so tantalum it was.

The Repair

First thing you have to do is get the Climate Control computer out of the car. To do that, first you have to get your Multi-Function Display out of the way. This is very easy; put your hand into your sunglass or whatever slot, put your fingers through the hole in the top of the holder, and push the MFD forward to pop it out:



Yes, I realize my car is dirty. Slide the MFD forward, pop it out, and let it hang out of the way:

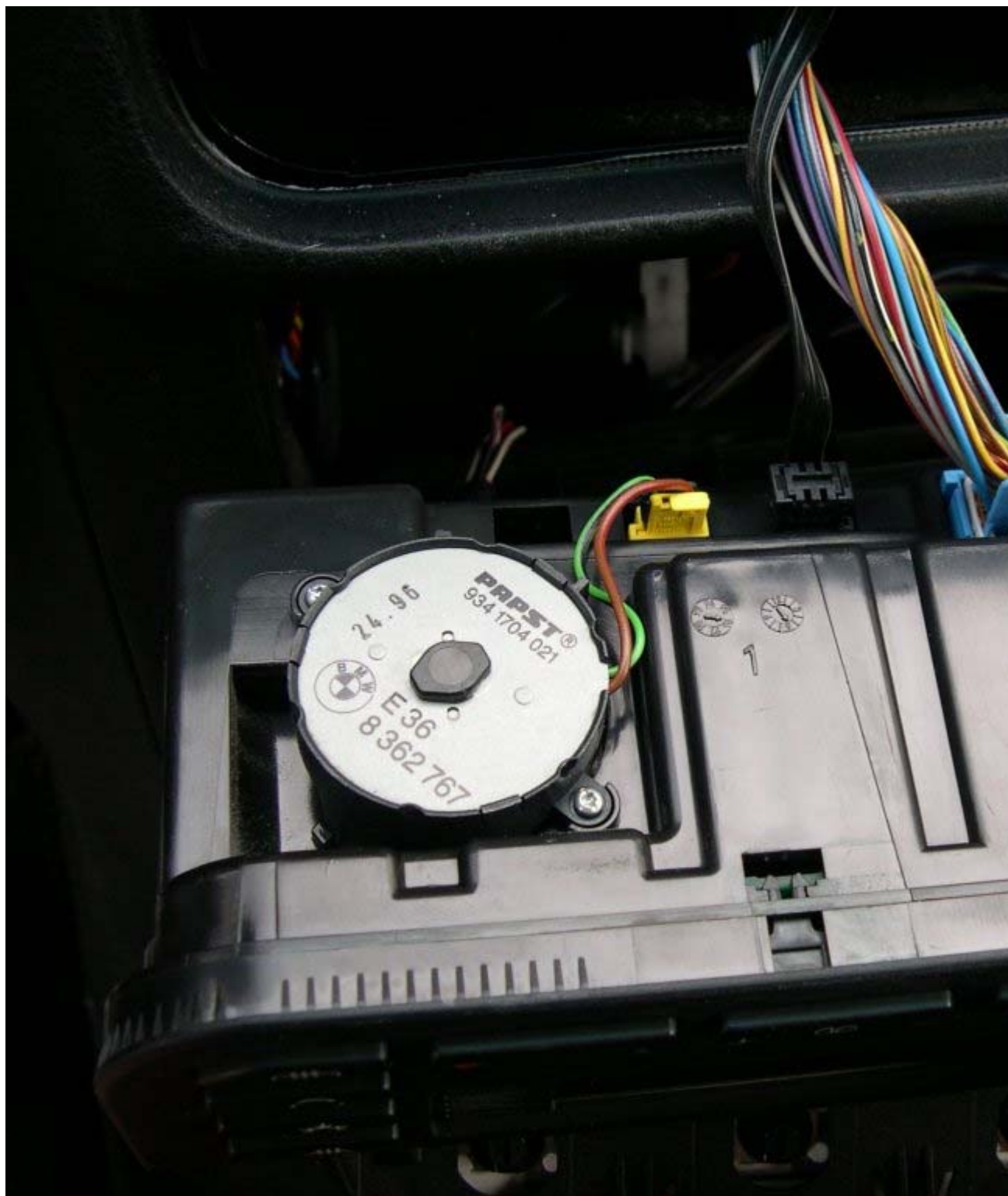




Now, just reach into the MFD's slot and push the Climate Control computer forward with your fingers:



If you flip the computer over, you will need to remove the two wiring harnesses that connect it to the car. The Black one just pulls straight out; the other one, you flip the white lever and the connector pops out. You gotta love these BMW connectors...



Now that it's undone, get it over to your workbench, and take out the four screws on the back. They have a Philips head, but the screws are in tight and are pretty soft, so I ended up using a small flat-head screwdriver to get them out. You mileage may vary:



With the screws out, you need to pop the tab on one side out with a screwdriver, and then squeeze together the tabs on the other side to get the front of the computer off:



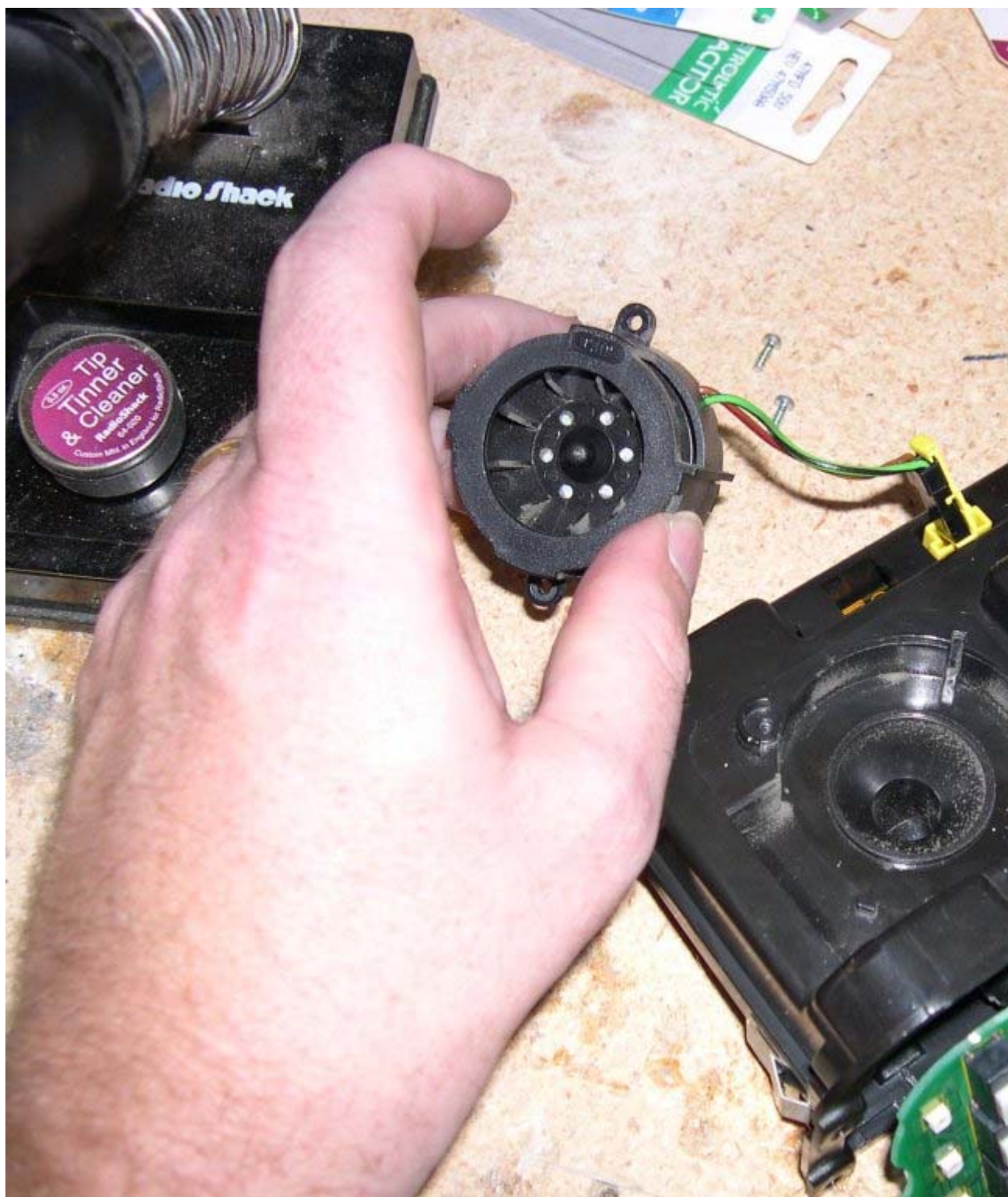


Next. pop out the circuit board with the display on it:

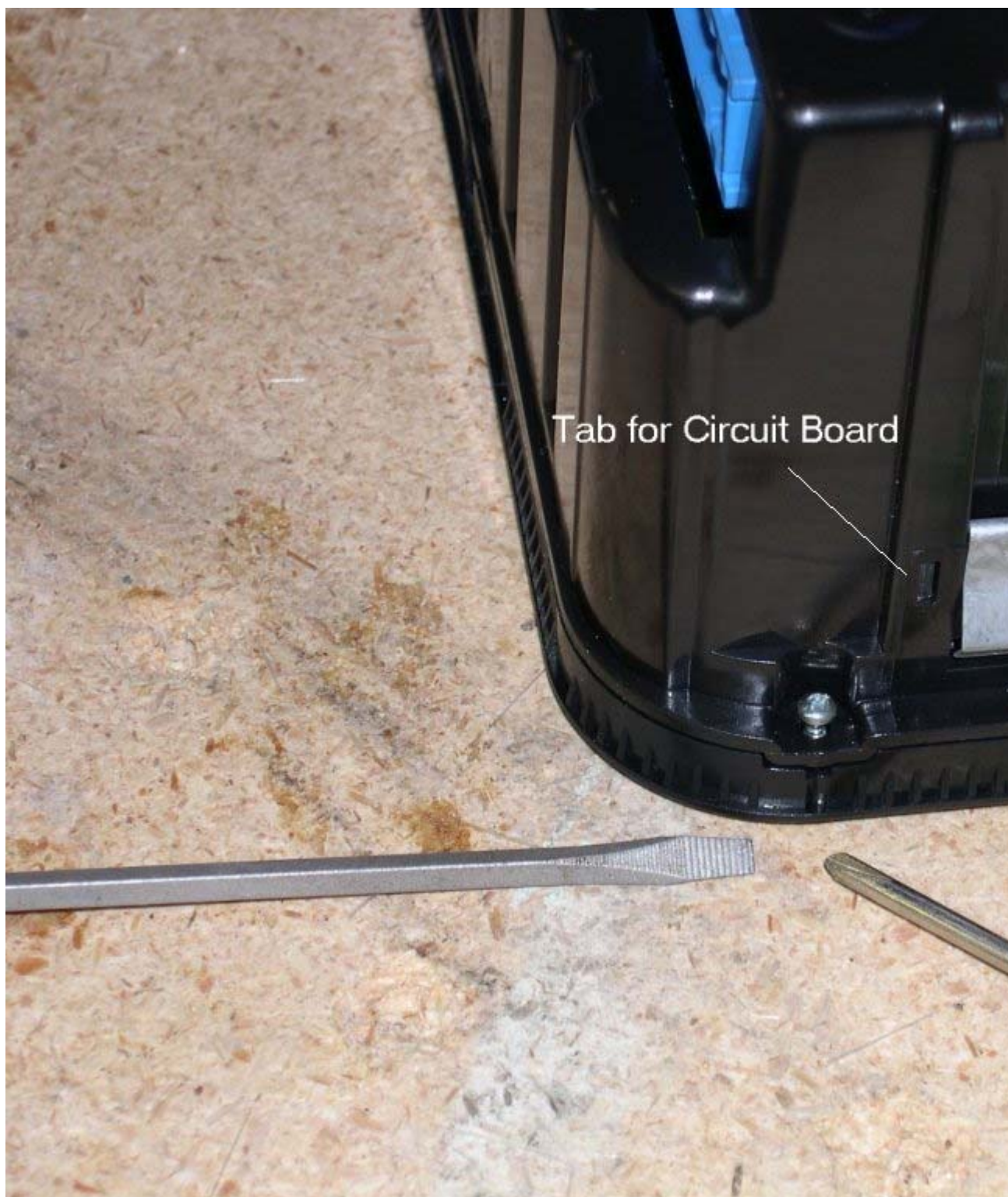




Next, remove the fan for the AC control (I think that is what this is, not completely sure). You might want to do this before you get the front of the computer off, because the screws again are small and soft and you may want to have more structural soundness to work with. It worked for me this way, though, so it's up to you. Remove the connector by pulling it straight out:



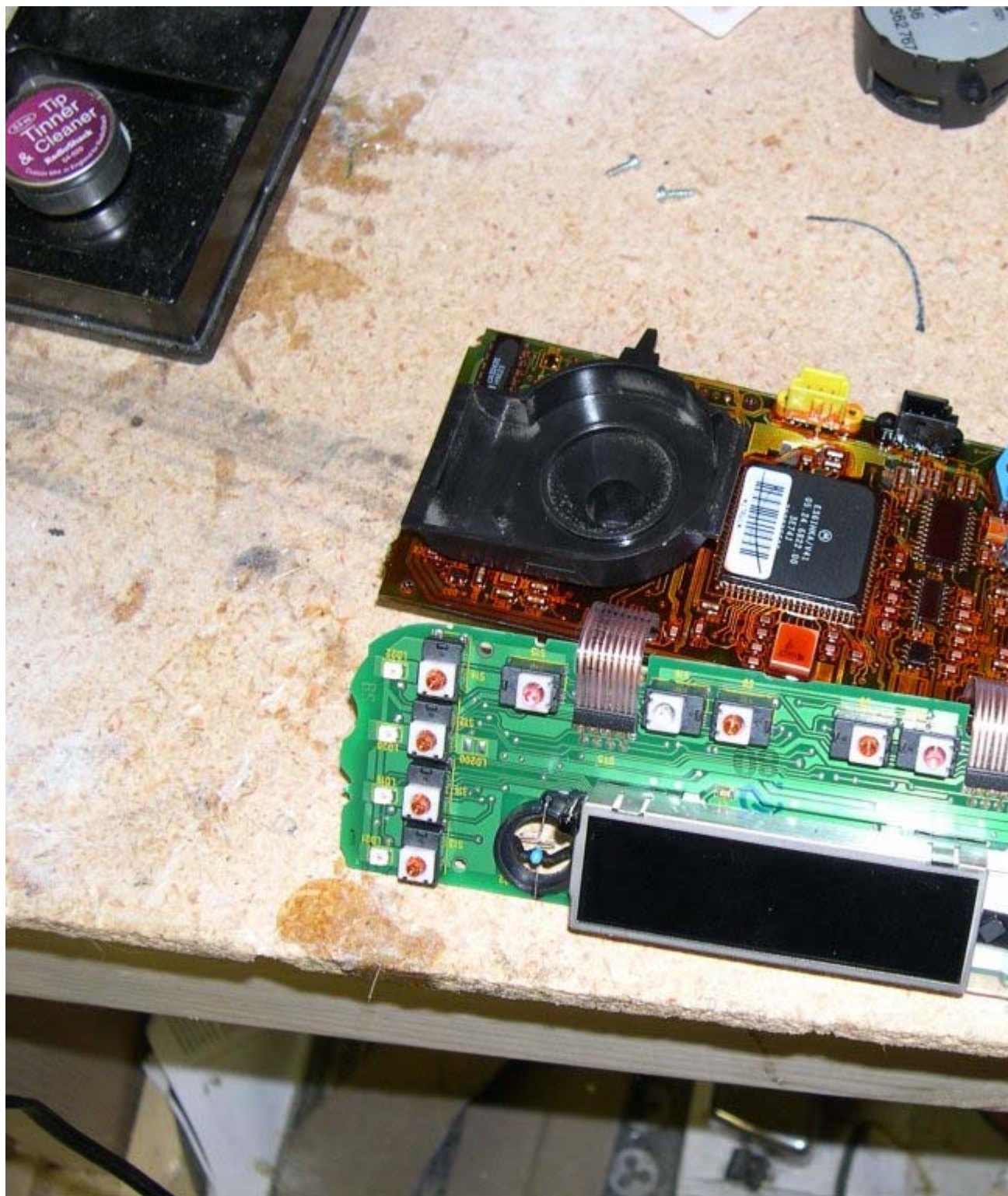
Next, you need to slide the main circuit board out. This is both easier and harder than it looks. There are two tabs on either side of the housing that hold the board in place:



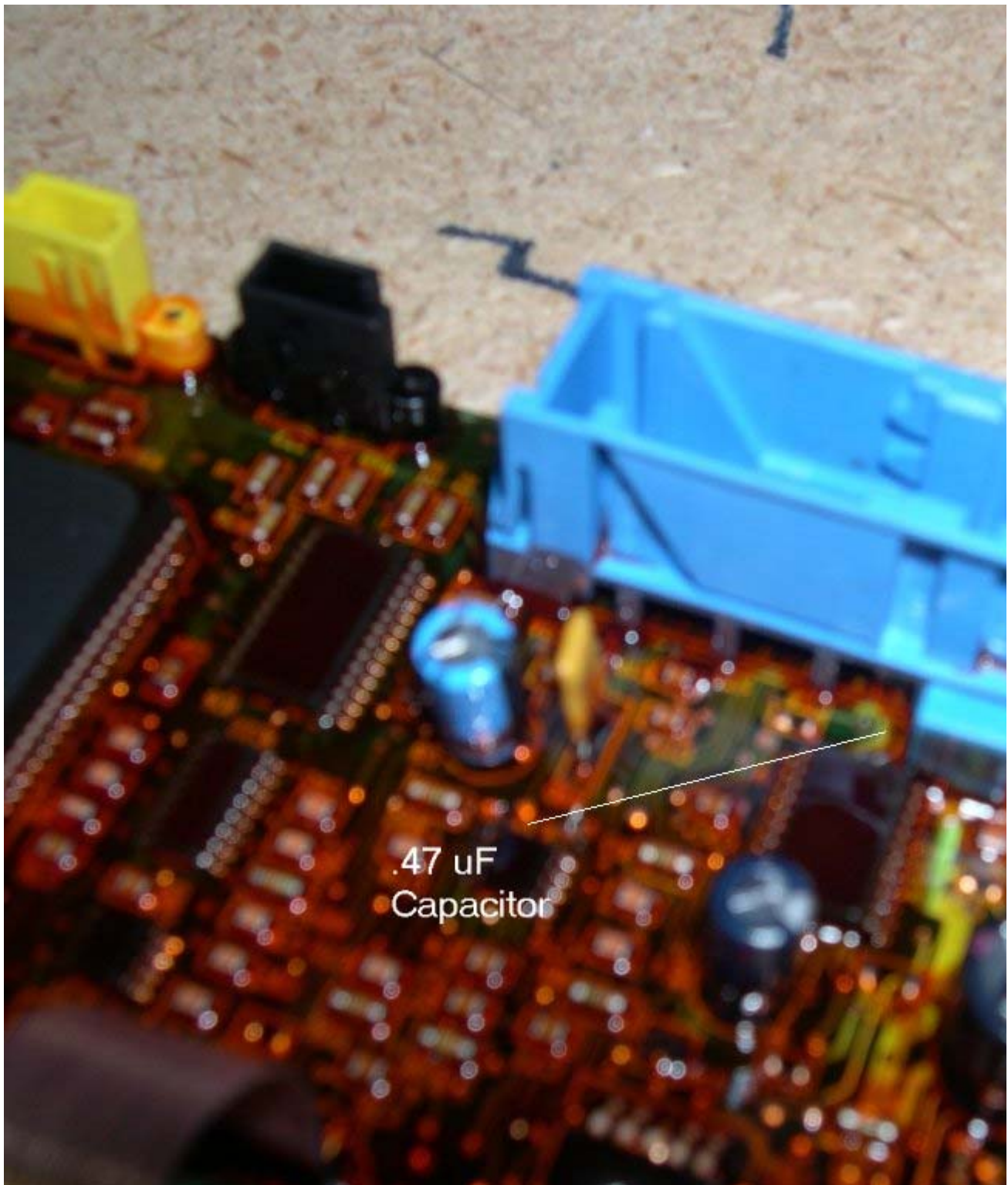
I got one side popped out easily by pushing the board forward from the back with a screwdriver while applying some pressure to the housing. The other side was tougher -- I had to use one screwdriver to pry away the housing while pushing from the back with the other one:



It wasn't that hard once I figured out what to do. Push the board forward from the back until it slides out easily, and you end up with this:



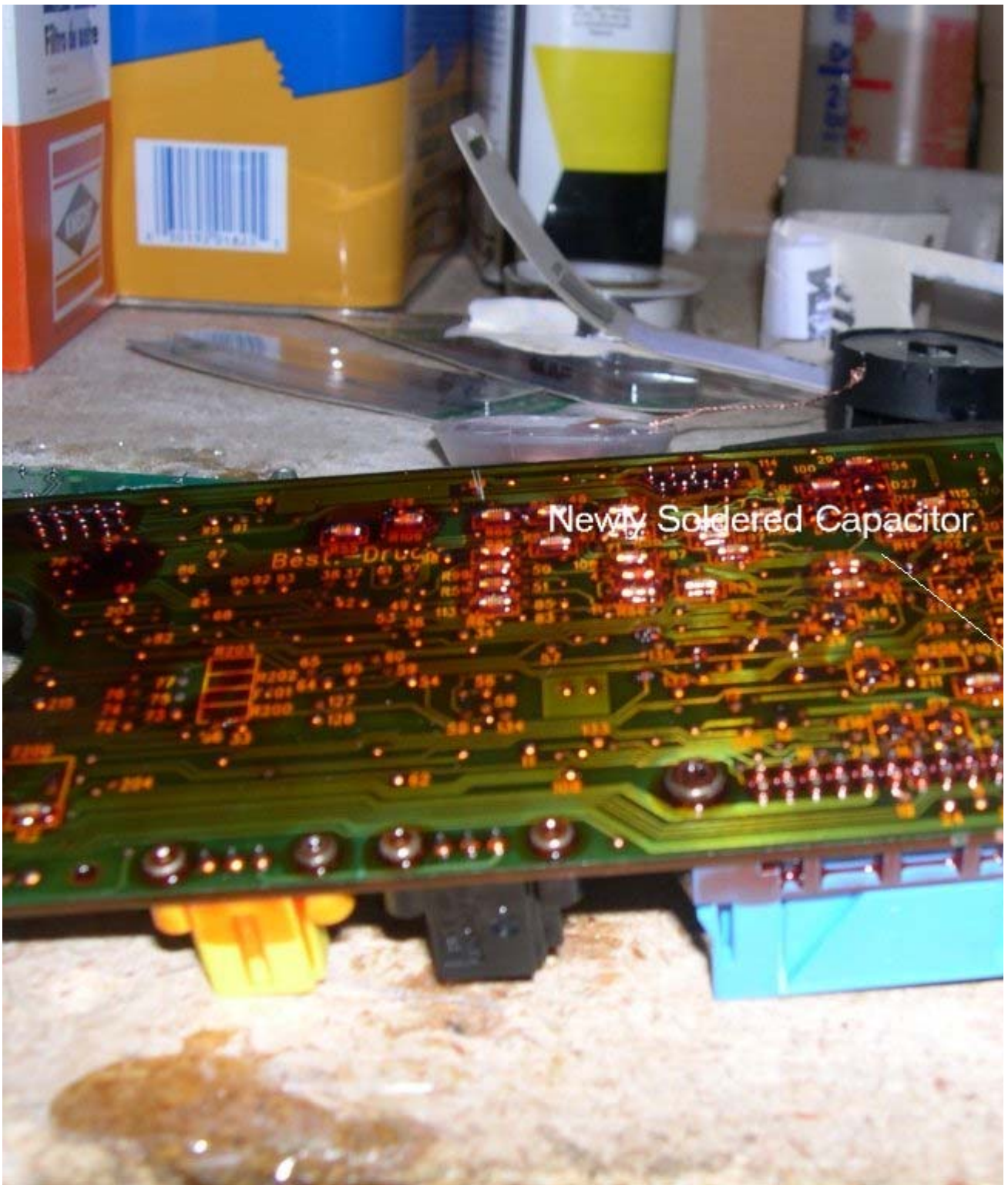
The next thing you want to do is locate the proper capacitor on the front of the circuit board -- it's the square blue one closest to the big blue connector:

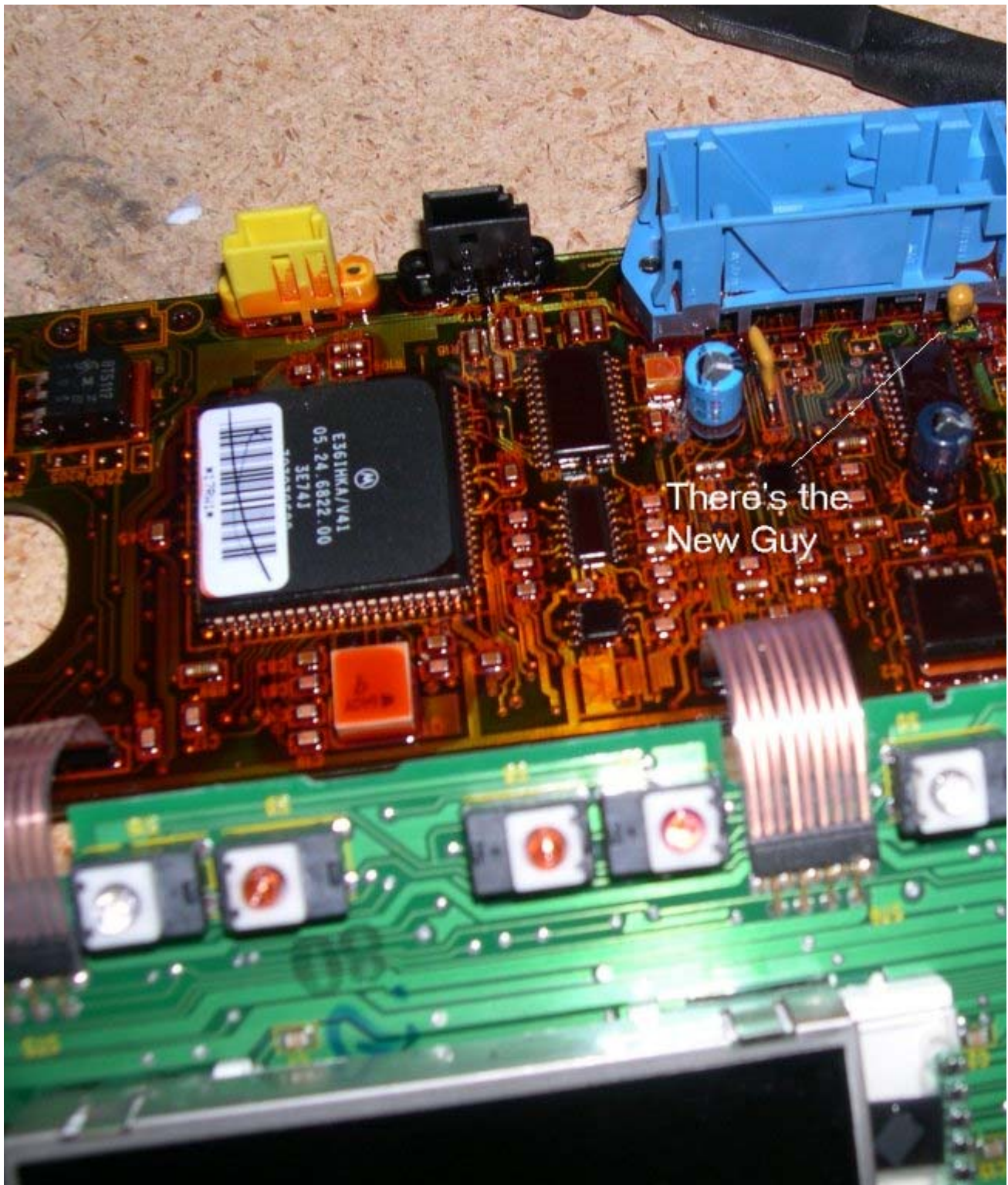


If you flip the board over, you can locate the two pins for the capacitor in question by first getting into the general area, then looking for a small surface-mount resistor -- the two pins for the capacitor are right next to that surface-mount resistor (the screwdriver is pointing at the resistor):



I used a razor blade to scrape away some of the laquer coating from the pins, then used my soldering iron and a desolder wick to remove the solder from the pins. Once the solder was removed, I was able to easily pull the resistor out from the front with my needle-nose pliers (I had to rock it a bit to break away the lacquer, but it came out pretty easily). I chased the holes with a piece of stiff wire (probably an old guitar string) of the right diameter, then inserted the new capacitor. A little solder later, I snipped off the leads, and the new cap was in place:





Reassembly was the opposite of disassembly, as one might expect -- everything went back together very easy. I popped the repaired computer in the car, and it worked perfectly! I'll let you know if it continues to work, but it sure looks good so far.

Total time to repair: About 90 minutes, but now that I've done it once, I could probably do it again in under an hour easy. Total price: 49 cents, plus tax -- I already had everything else. Even if you have to buy everything from scratch, it would still be a LOT cheaper than getting a new or rebuilt computer!