

Audio Repair Restoration Project: Klipsch ProMedia Ultra 2.0 Computer Speakers.

These speakers have a cult following worldwide, due to their compact size with outstanding sound.



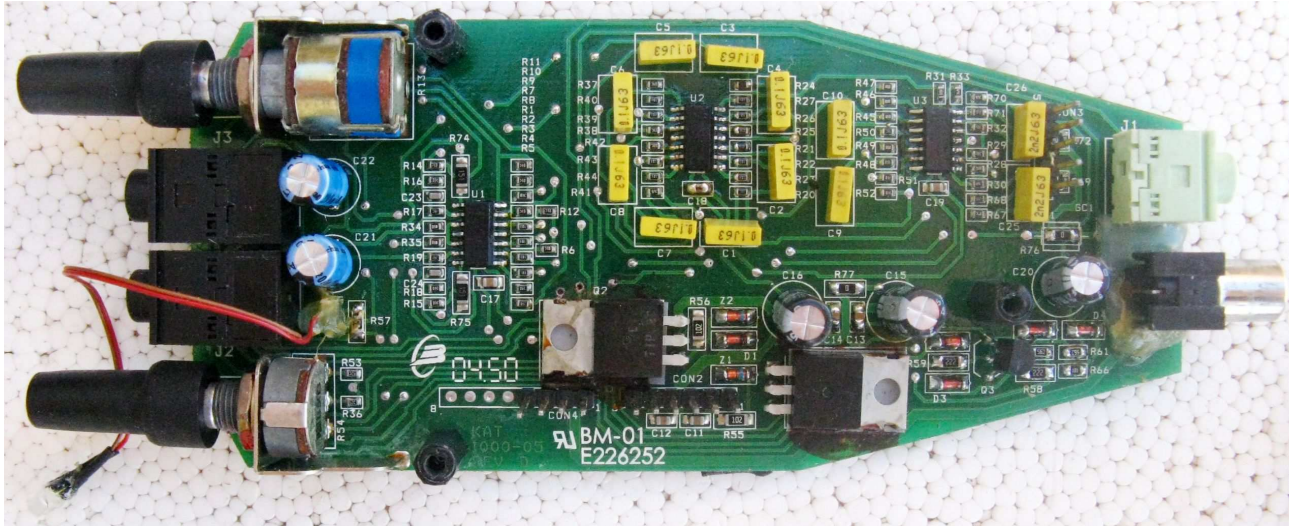
1. Clean the On/Off/Volume Potentiometer-Switch.

They have had a very reliable history, with usually only the On/Off/Volume Potentiometer-Switch being faulty, and that is an easy fix, using a spray such as DeOxit FaderLube, which cleans the crud, and removes the dropouts and scratchiness.

Some people have chosen to replace the potentiometer entirely, which is a matter of free choice. As far as I am concerned, unless you are selecting \$100 gold-plated MilSpec components, any other \$1 Chinese potentiometer is not going to be any better, than the potentiometer which was factory-installed.

My customer brought me this unit, with the complaint that it does not power on. Immediately, of course, I suspected the On/Off switch. But a quick test proved that this switch was perfect, and so this was a problem which I'd not seen before with this unit.

This is NOT at all a user-friendly unit to disassemble, even for a skilled technician. The double-decker PCB's are soldered together via 11 pins, which requires tedious desoldering and separation. Not to mention having to fabricate wiring between the 2 PCB's to facilitate troubleshooting and testing. It may be cheap for production, but it's a pain to repair.

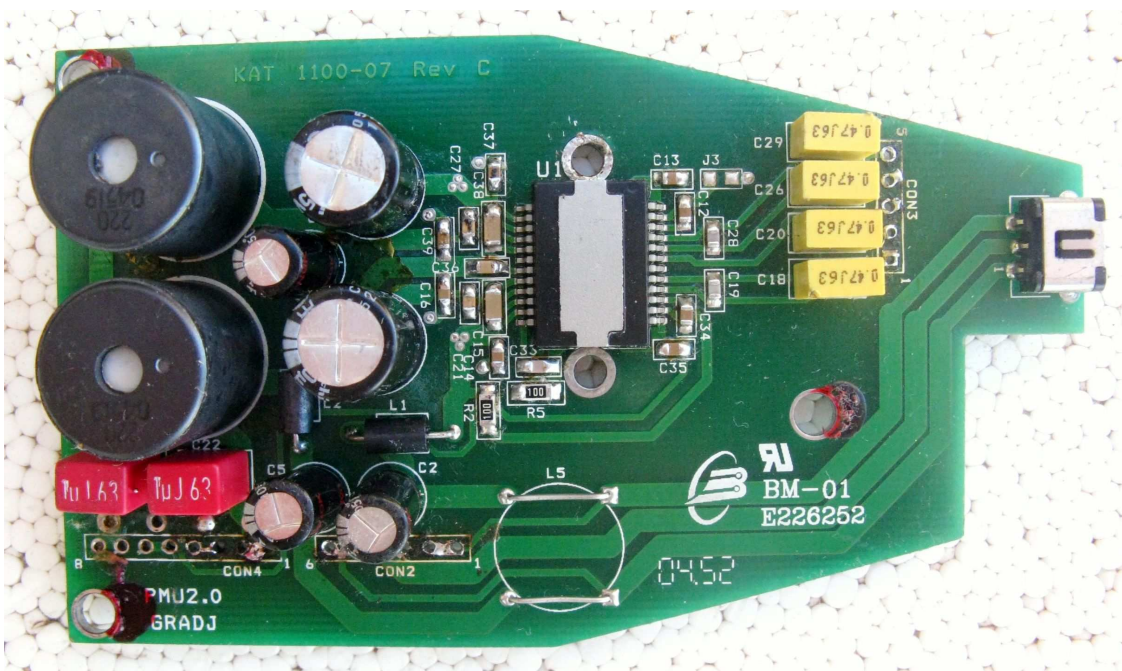


2. Upgrade the Electrolytic Capacitors

My first Go-To solution is checking all the electrolytic capacitors. On this unit, they are made by Capxon and Orient, two well-known players with well-deserved reputations for sub-standard components.

But once again, their ESR tested OK – not great, just OK. So that was not the problem.

However, I decided to replace them anyway with Nichicon HE and KT audio capacitors, to ensure reliability and long-life after the repair.



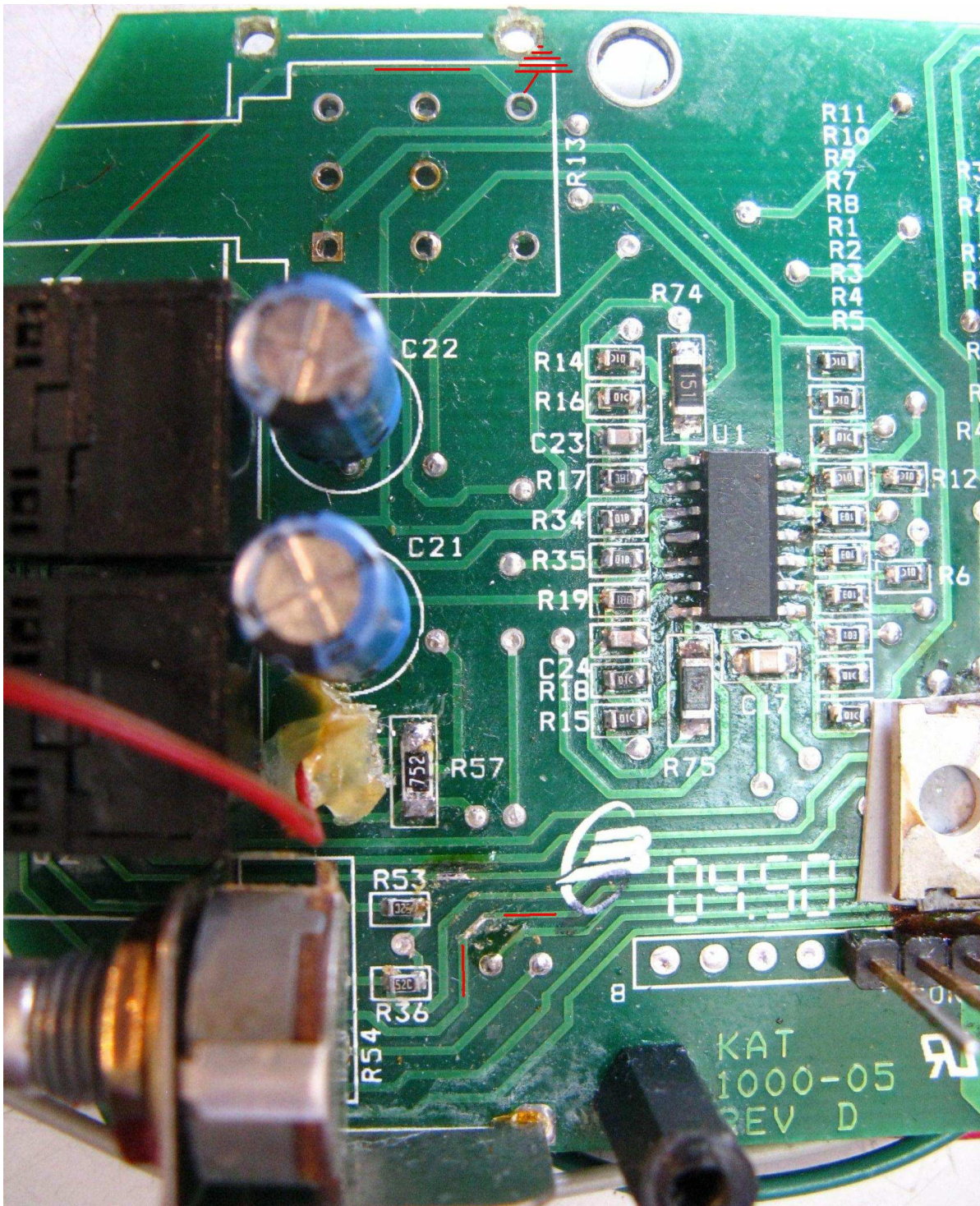
3. Check Power and LED

I connected power and did a quick check of the power circuits – everything looked OK.

So, now I proceeded to check the On/Off rail. Of course, one end of the rail terminates at the LED. I tested the LED, and it illuminated just fine, so that was not the problem.

I had to remove the On/Off/Volume Potentiometer-Switch from the PCB to determine which traces went where, in order to locate any possible problems.

I scratched the green mask off a couple of traces, in order to check continuity, and here I ran into a problem.

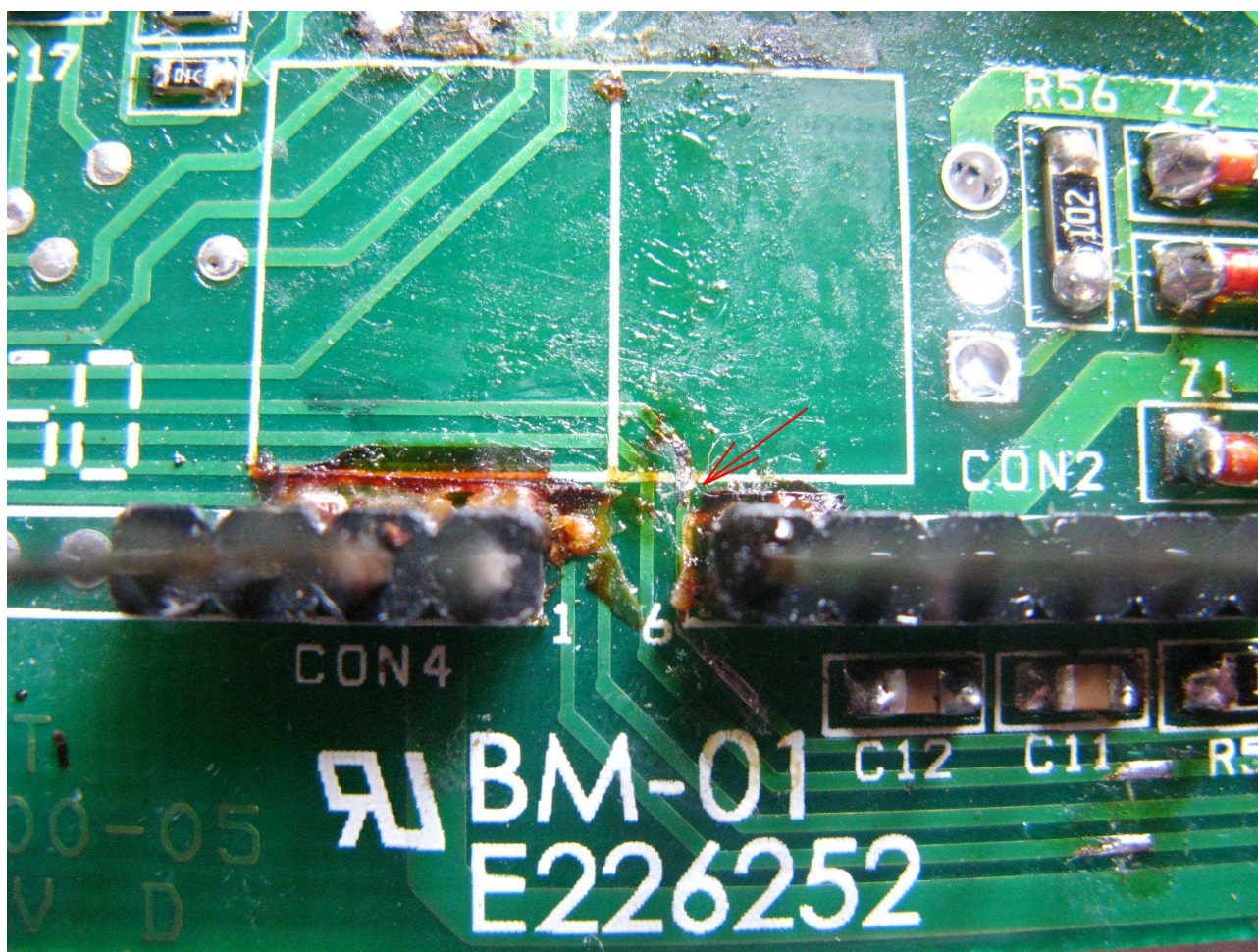


4. Check for Continuity

The On/Off rail disappeared under the TIP32 transistor. So I removed that. I checked for continuity again, and there was none!

Here, as is quite common in Chinese electronic assembly, the factory assemblers had been very liberal with glue to hold down the TIP32. And I'm sure that there were plenty of scratches in the green mask, from less-than-careful assembly.

So we have a well-known and deadly combination for electronic components – Burnt glue (due to the heat of the adjacent TIP32) is conductive and highly corrosive, and it caused a break in that On/Off rail.



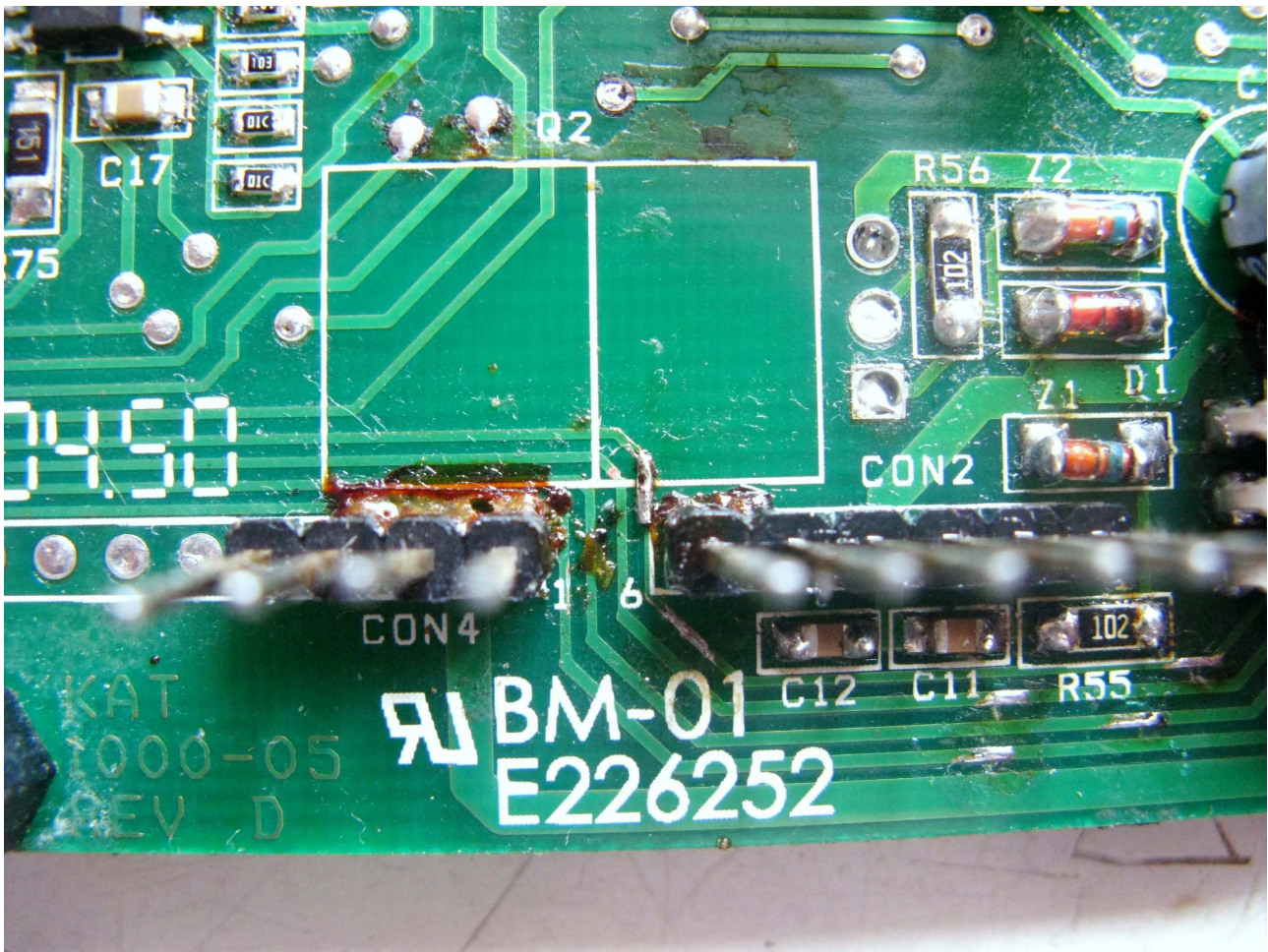
As a probable random occurrence, this is not a problem which I would expect to be too common with this particular unit.

However, the destructive results of burnt glue are more and more prevalent these days, and so broken copper traces are an increasingly common occurrence in electronic equipment sourced from China.

If a technician sees burnt glue on a PCB, it pays to investigate that area for likely shorts or breaks.

5. Repair the Corroded Trace Break

I cleaned up the area to fresh copper, and then repaired the break, which connects the LED and On/Off rail to Ground in order to complete the circuit, and the unit returned to full-working condition.



6. Upgrade the Bridge Rectifier Diodes

I did an additional upgrade according to the customer's request. In the separate Transformer-PSU block, the bridge rectifier is made up of 4 1N5400 3A silicon diodes. There is nothing special about them, and they do the job.

I replaced those with 4 Vishay SB3H100 Schottky diodes, with far better performance for audio, and with a small side benefit – because they have a VF Drop of only 0.3V, there is an additional 1 volt on each of the +18V and -18V power rails. It's always nice to get a tiny bit of extra power in an active speaker!

Parts for this restoration

Parts and advice are available for owners who wish to tackle this project by themselves.

<http://www.condoraudio.com>

yachadm@gmail.com