

Genelec 1031A Healing Session

8 years ago I bought a pair of Genelec 1031A old studio nearfield monitors. After running 8 years one of them had a 'cracking' sound, bass speaker shutdown problem. I decided to take them off the wall and do some repair & rework.

The repair was tedious: It was a crack in one of the SMD parts on the bass driver board. Very nasty failure that took tedious time to find. But once found this motivated me to rework these 1031A's a little to improve them for the next 10 years. One motivator is that I have decent SMD capacitors and other good stuff at hand, like 2u2/100V X7R Ceramic C1210 shape. Very interesting part to improve mid-high and high frequency response. For owners of these monitors all of these modifications are a good advisor. For repair of the (undocumented) small driver boards, see the notes at the bottom. OK, here we go:

§ Filter Board

- * Replaced the two Tantalum capacitors for 10u/35V fresh new tantalum capacitors
- * Added 100n 0805 right at the connector position over the +/- 15V power inputs
- * Added 4x 100n soldered over the +/- 15 power rails on top of all opamps

And at the input of the filter board, on the main board:

- * Removed the two tantalums C105 and C106 and soldered 2x 10u/25V X7R 1206 on bottom
- * Replaced the two tantalums C29 and C30 for fresh new 10u/35V tantalum capacitors (near IC1)

§ Protection stuff

- * 250V Varistor on primary side of transformer. This is to protect the Genelec for extreme voltage spikes on the mains
- * C16 and C14 tantalums (near IC2) removed and replaced with 10u/25V X7R 1206 on bottom side
- * C13 and C15 tantalums removed and replaced with 1u/100V X7R 1206 on bottom side

§ Power Supply

The top Board with the two big capacitors:

- * Added 4x 2u2/100V X7R 1210 capacitors, two for the +52V and two for the -52V soldered over the 100n caps solder pads on the solder side
- * Resoldered the whole board due to 'skinny' solder joints (hardly no solder on pads)
- * Big 10000u/63V caps were not replaced. Voltage is around 52V, so this is with enough margin to let these capacitors last for another 10 years (hopefully...)

Another reason was the difficulty to find replacements for them: They are 35mm diameter, 45mm high with 10000u/63V 85°C. Better types always will be bigger. They simply will not fit.

The +/-15V regulator section:

- * Replaced C27 and C28 for fresh new 10u/35V tantalum capacitors
- * Added 1u/100V X7R capacitor both on the 7815 and 7915 between input and ground for better filtering
- * Removed C17 and replaced it with a 10u/25V X7R 1206 capacitor on the bottom side
- * Removed C18 and replaced it with a 1u/100V X7R 1206 capacitor on the bottom side
- * Replaced C19, C25 and C26 1000u capacitors for new ones 1000u/35V 105°C Panasonic FC-caps

§ The two amplifiers

The two small Driver Boards:

- * Replaced the two elco's for decent 33u/100V 105°C FC-caps made by Panasonic
- * Added 2u2/100V X7R 1210 capacitors on the empty spaces for clearer top high audio, (in parallel with the two 33u/100V caps)
- * Resoldered the pin header with flux & fresh solder
- * Checked all solder joints, also resoldered the driver transistors with flux & fresh solder

The parts on the main board:

- * Replaced the two old tantalum capacitors C1 and C7 for new fresh 10u/35V tantalum capacitors

After remounting and final check:

- * Readjusted the offset (pot on driver boards) and the Quiescent Current (pots near heat sink) for both amps

§ Loudspeakers

- * Both woofer rubbers were partially loose: glued the whole thing again with greatest care

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§ Power Amplifier Driver Repair

There was a failure on one of these small boards. During repair I found out a couple of things:

All SOT23 devices are transistors:

2SC2713 NPN-transistor with device marking DG

2SA1163 PNP-transistor with device marking DC

The two zeners for the biasing are 5V6

Watch out the resistors: They can crack due to mechanical mistreat.

And now they are ready for another 10 years of good quality music in my workshop ;-)

Navelpluis