

Audio Restoration Project – Repair B&O Bang and Olufsen BeoMaster 5000 Receiver

This applies to all similar type numbers 2321 , 2322 , 2323 , 2324 , 2325 , 2329

Symptoms: This unit was shutting down by itself, when the volume was above 3.0. The sound generally was poor, and sometimes the radio bands would fail, leaving only white noise.



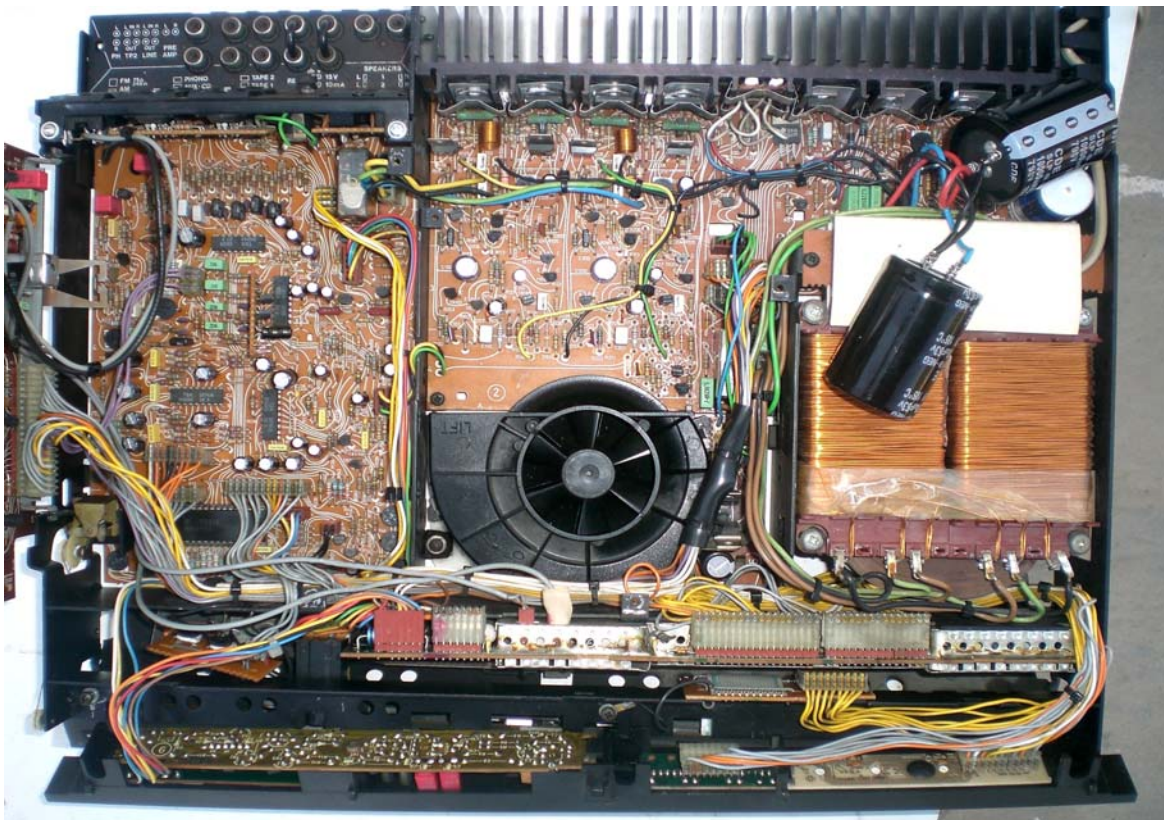
Here is the unit after a compressed air and detergent jetspray cleaning – the unit must be clean before I start work

My standard approach is always to dive head-first into replacing all electrolytic and tantalum capacitors; there are also a couple of well-known ROE film-capacitor failures in the power supply.



Here are all the capacitors and potentiometers which were removed from the unit

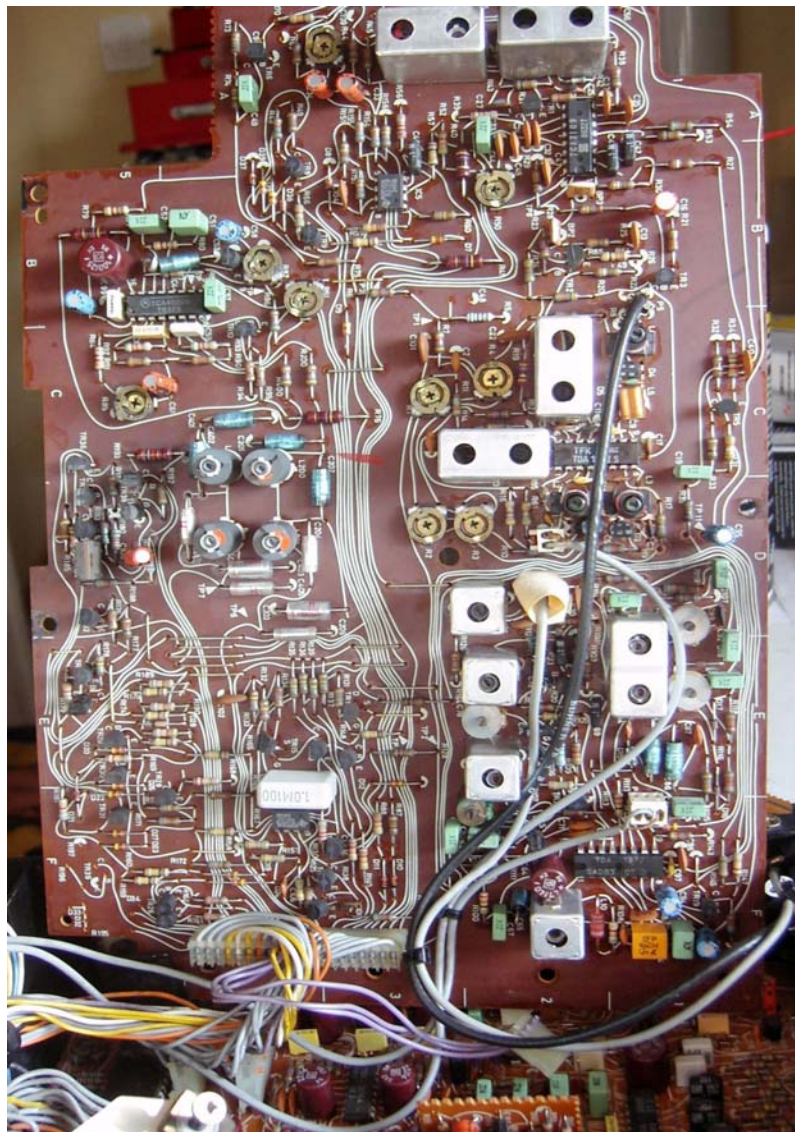
Sometimes techs criticize the fact that these expensive German Roderstein capacitors, which B&O used as original equipment, are no longer functional. I want to remind these chaps that these were excellent capacitors at the time, they lasted well over 10 years in a fully-functional state. We're now at 30 years since manufacture – I think it's pretty reasonable to expect that they are ready for the trashcan.



Here is the unit after complete restoration – at the left is the pre-amp PCB; in the center is the power-amp PCB with a temperature-activated cooling-fan; at the right is the power-supply; at the front are the CPU and front-panel control PCB's.

This is the RF and IF PCB.
 Note the oxidized trimming
 Potentiometers.
 All were replaced by Bourns
 3352 Cermet units

This PCB stands vertically
 for servicing, and hinges
 horizontally to lie above
 the Pre-Amplifier PCB



One needs to keep in mind that the average Chinese capacitor today in general consumer-electronic equipment cannot be expected to last longer than a year. Certain capacitors from high-quality German and Japanese manufacturers, such as Wima, Panasonic and Nichicon, can be expected to last 7-10 years. Expect to find Wima, Panasonic or Nichicon capacitors in only very expensive equipment.

This is the RF and IF PCB, after capacitor and trimpot replacement.

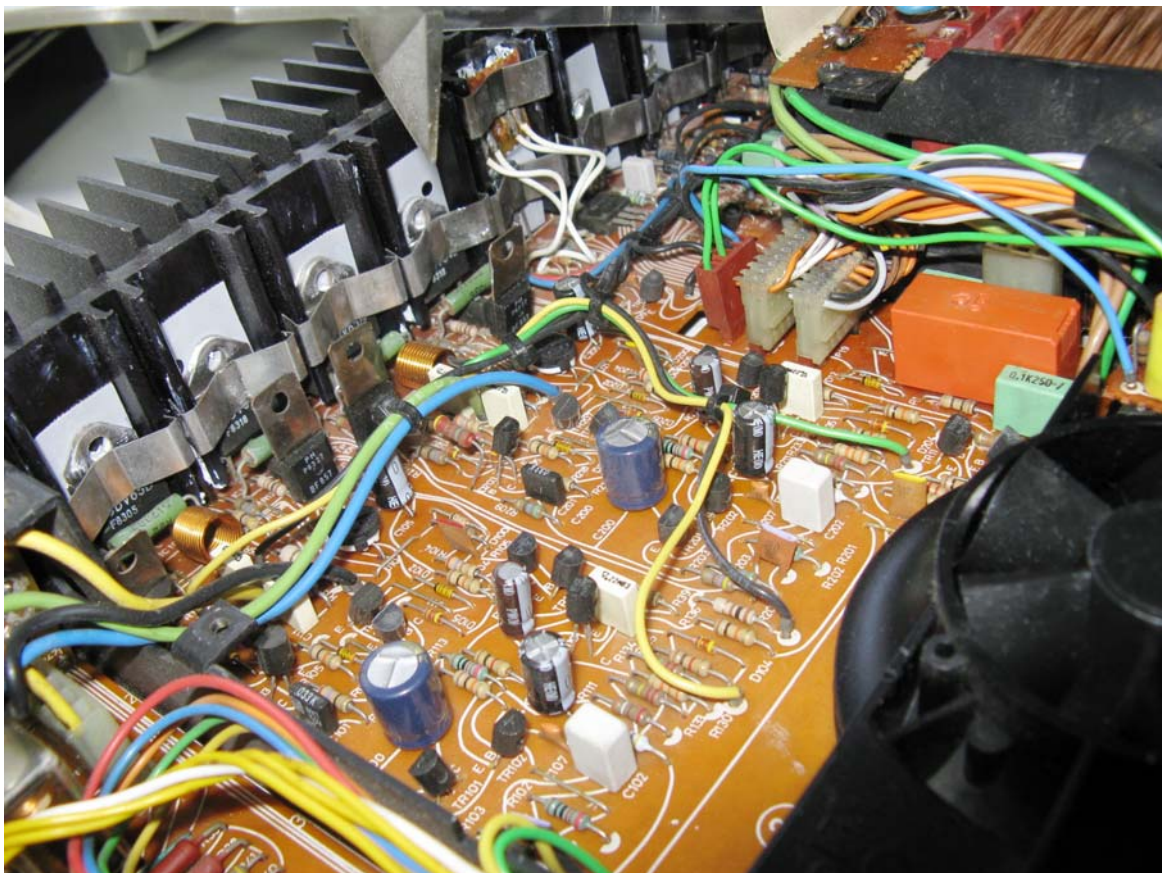
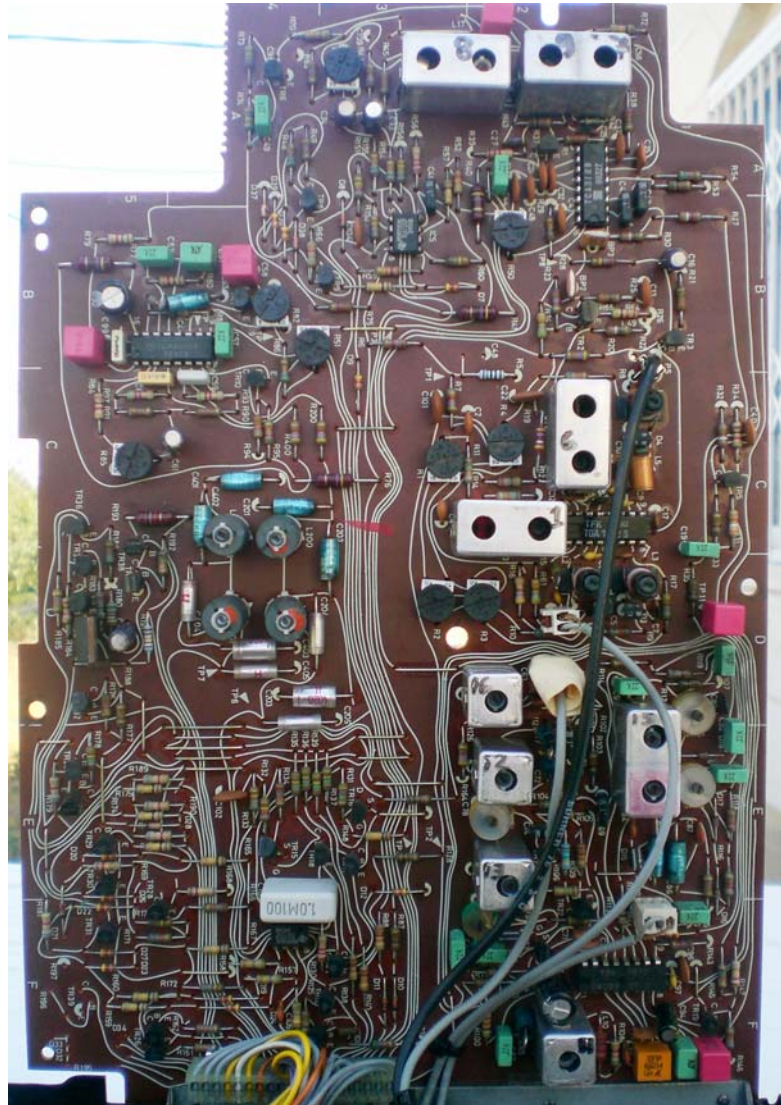
During the Tuner Alignment, the Service Manual cautions against adjusting Coil L14, which is factory set.

This coil is shaded in red, under the right-side grey cable.

Alignment was done, using a Tek 2465B oscilloscope, and an ST-1000A signal generator.

Below is the Power-Amp PCB. Note the new Schrack relay, and new silicon film at the heat-sink of each transistor.

The Bias-Emitter current was adjusted to 11mV to ensure cool amplifier operation



My standard replacement policy is as follows:

1. In the Power supply section – Panasonic EB and Nichicon PW.
2. The main power-coupling caps are usually Panasonic TSHA or Cornell CDE snap-ins.
3. In the Audio Path, Nichicon KT, Panasonic FM and sometimes FC, and all electrolytics below 6.8uF and smaller are replaced by Wima MKS2 non-polar film caps.
4. Elsewhere Panasonic FC and Nichicon HE and PW.

This policy works, and I've never been disappointed with the results. Note that they are all 105°C capacitors, with exceptionally long-life. Sometimes the customer will specifically request Boutique capacitors (Blackgate, Muse, Oscon), and I will install them as per the customer's request. However, I'm not convinced that the difference is really, really audible.

I don't use el-cheapo off-the-shelf Chinese capacitors with no track record. I don't like my customers complaining that their restored stereo isn't working. My goal is an absolute-zero comeback rate for at least 5 years.



This is the Tuner and Control PCB, with new Vishay 138 Axial capacitors. A 1N4148 diode at the 3V Battery control circuit also required replacement.

Parts for this restoration

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

<http://www.condoraudio.com>

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