

## Repair procedure for older versions IA150B and PA150B rev.8

The main problem in over 90% of the repair cases concerning these unit types has been that the electrolytic capacitors originally used dried out relatively quickly and caused internal oscillation similar to the IA/PA250BmkI problems as well as overheating voltage regulators, which in turn created multiple faults ranging from humming and switching noise to total AC burnout of resistors and capacitors.

The solution is therefore based on preventing the drying out and the following oscillation from occurring in the first place. This is ensured by using ceramic capacitors instead of electrolytic capacitors that cannot dry out, since these do not contain liquid.

The original specification featuring normal type capacitors capable of work temperatures up to 90deg C should have been fully adequate, since the main board temperature never rises above approximately 60deg C. The theoretical lifespan was therefore originally conservatively estimated to be not less than ten years.

The following electrolytic capacitors **marked red** need to be exchanged to the mentioned ceramic capacitors or tantal capacitors **marked green**:

C17 - 117 - 344 - changed from **3u3 50V** to **220n 50V**

C18 - 118 - 345 - 349 - 352 changed from **3u3 50V** to **2u2 35V Tantal**

C346 - 347 changed from **3u3 50V** to **100n 50V**

C348 - 350 changed from **3u3 50V** to **470n 16V**

This should according to R&D be the ultimate solution. It has been tested thoroughly in laboratory conditions, where the test units have been provoked in several abusive ways including high work temperature and higher voltage without boiling or oscillating. IA and PA150B now appear to be completely up to standard in terms of longevity compared with the rest of Thule's amplifier programme. We sincerely hope R&D's efforts will be of use to you all.

**Please note that these revisions are only useable on ver.8** (today's standard, changed in 1999).

Earlier versions should have their main boards changed if oscillation has occurred. These component changes have now been implemented in production.