

First aid when you buy an HP5065A Version 1.2

The first HP5065A were produced around the late years 60. Over time some flaws, related to engineering and the choice of components, are highlighted.

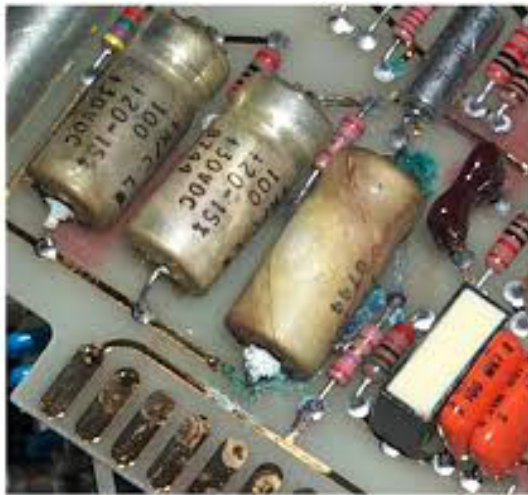
The main ones are the following:

- The capacitors used primarily on power lines of +20 Volts tend to lose the liquid inside and in the worst cases can corrode the copper circuit boards.
- The power rectifier diodes heat up too much and tend to burn the fiberglass boards where they are mounted.

Only one of these two issues has been partially resolved in more recent sn.

The Capacitors

The following picture display one of the worst situation you can find.



These capacitors need to be replaced even if not visually appear to leak, this is to ensure the safety and reliability of your standard. Their characteristics are: 100uF 30 volts. You can also use higher voltages.

The capacitors are mounted on the following boards and modules:

- A3 C37
- A4 C1
- A6 C2
- A7 C3
- A8 C9,C10,C20
- A15 C8,C9,C10

Note: 001 option is not included in this list. Check on site.

The problem of these capacitors has never been solved at the factory, even in more recent sn.

Also replace C23 and C24 on the A11 board even if they read OK. Their value is 20uf 50V. *

It is however well check, especially with older sn, the capacitors C2 and C3 mounted on the chassis. These capacitors are connected to the rectifiers for leveling.

A good way to test it without disconnecting them, is to measure, using a multimeter, the residual AC voltage in parallel to the capacitors. If the measured value is higher than 1 Volt probably the capacitors have lost their original characteristics.

A symptom of this problem may be the green light off despite all measurements of "circuit check" appear correct.

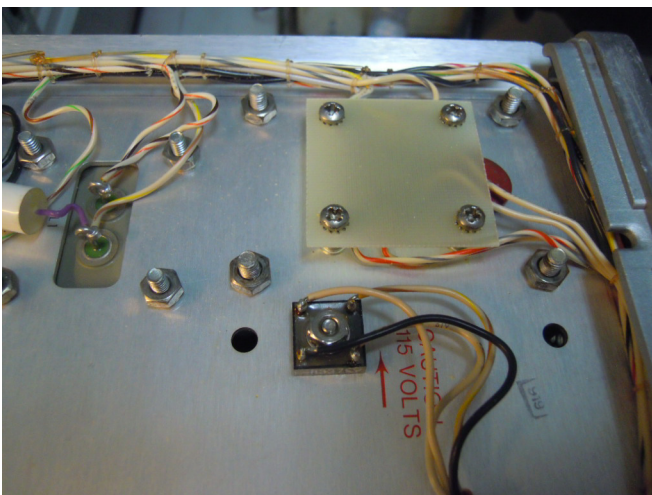
The Rectifier Diodes

The board A15, A18 or A2 in case of option 002 installed, uses some power diodes as AC rectifier and Power summing.

These mushroom-shaped diode, heat lot and tend to burn the printed circuit on which are mounted. More recent versions, HP have replaced CR1-4 with a bridge rectifier mounted on the chassis.



Burned PCB



Bridge mounted on the chassis

The update is very simple and for wiring, just disconnect the four-wire from A15 and attach them on the new chassis-mounted rectifier bridge (300V 5A).

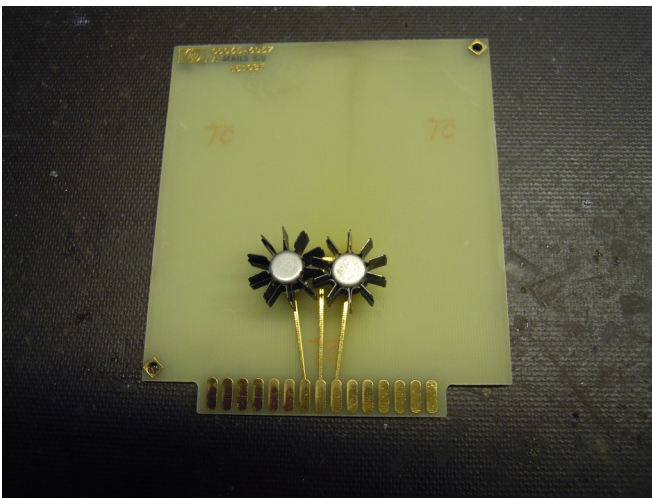
The other two diodes, of the same type are mounted on A18 or A2 if the option 002 is installed.

The current will go through one of two diodes depending on whether the HP5065A will be powered by AC or DC and the heat generated will burn the card as in the case of the bridge rectifier.

For standard A18 board see: CR1,CR2.

For option 002 board A2 see: CR12,CR13.*

The easiest solution in this case is to install a star shape heat-sink on each diode. The case of the diodes are electrically connected between them, so even if the two heat-sink touching between them is not important.



Heat-sink installed

The service manual is an excellent tool to facilitate these simple actions.

* Some errors in the HP5065A Operating and Service manual pn 05065-9041:

- page 8-55 figure 8-21 board A11, wrong picture of the board A11.
- page 7-3 figure 7-2 board A2, the diode CR12 is missing in the schematic. It is connected between T14 emitter and CR10//pin7 (external DC).

All these steps will help keep fit for a long time your HP5065A.

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Thanks to Corby Dawson for the technical support.

Addendum:

HP5065A Standard and special options

01 digital clock
01M mechanical clock
02 internal battery backup
03 combine 01 and 02
03M combine 01M and 02
H04 remote alarm on Continue Operation fail (BNC on the rear panel)
H10-1 one 10 MHz output (www.timeok.it)
H10-2 two 10 MHz output
Specific.H42 combine 02 and 5.12MHz output