

CONSTRUCTION

Lampemètre FC 2010

Test your valves TSF, TV & hi-fi

by Christian Fabert (Sepellière44)

Part 2

V. Construction

For a precise image of the sizes, all the plans mentioned below are available in PDF format on the author's website: <http://tsfsepelliere44.e-monsite.com> (pdf links can be found at the at the end of the document)

a. Front panel construction

It is 20/10 thick aluminum and measures 435 x 315 mm. To avoid long and tedious tracing, use the layout plans as shown in Figure 14 (Facadel.pdf and Facadel.pdf plans).

The diameters of the drill holes for the supports are given for information only because they depend on the support models used. Point all axes using a center punch. The cutouts of the displays and the matrix will be traced using a cutter.

The tube supports will be drilled using tools (cookie cutter, conical cutter, or stepped forest), see Figure 13. The rectangular cuts will be made with a jigsaw equipped with a blade for aluminum. The rest of the drilling will be done using forests. Figure 15 shows the finished front panel with all of its cutouts.

Construction of the selection matrix

Use 16/10 'and 8/10' epoxy glass (recovery of defective printed circuits during engraving, for example), brass laminated bars and a few screws to fix them.

Brass laminated bars should be reduced by 7 to 6 mm (Figure 16).

Figures 17 to 26 show all the details of this construction.

The drilling plan as well as that of the assembly are available in PDF format on the Web site.

Then proceed to mount the tube supports, the matrix, potentiometers, switches, fuse holders and LCD displays.

Wire the tube supports as shown in Figure 31. Connect all the pins 1 together, same as pins 2, 3, etc. Then connect the pins from 1 to 10 on the "column" part of the matrix. We can use figure 29 for wiring the matrix.

Then fix the transformers and the printed circuits. Wire the potentiometers, switches, transformers and fuses with the help of the diagram in figure 30. The printed circuits and the layout of the components are shown in FIGS. 32 to 37.

Figure 28 gives the template of the matrix.

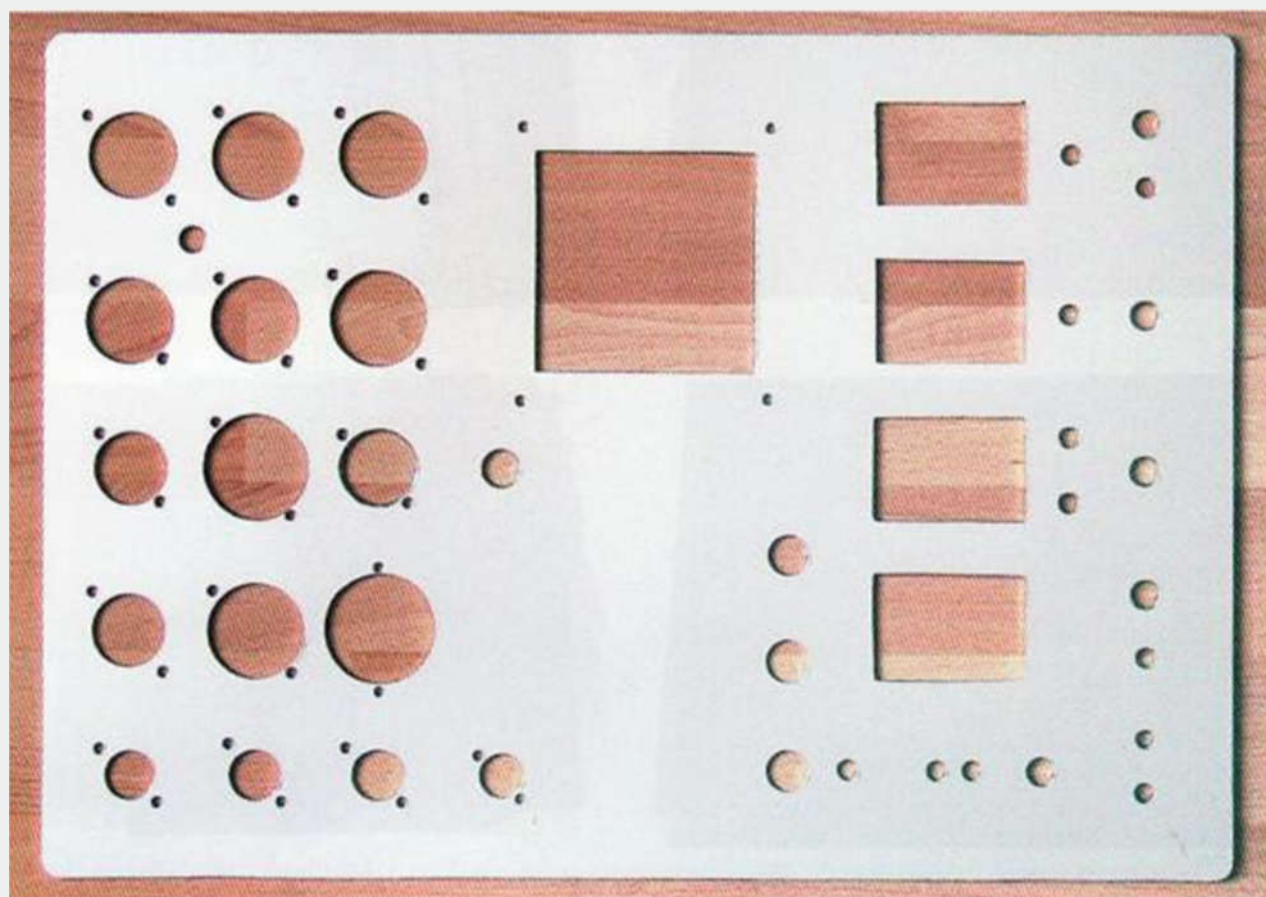
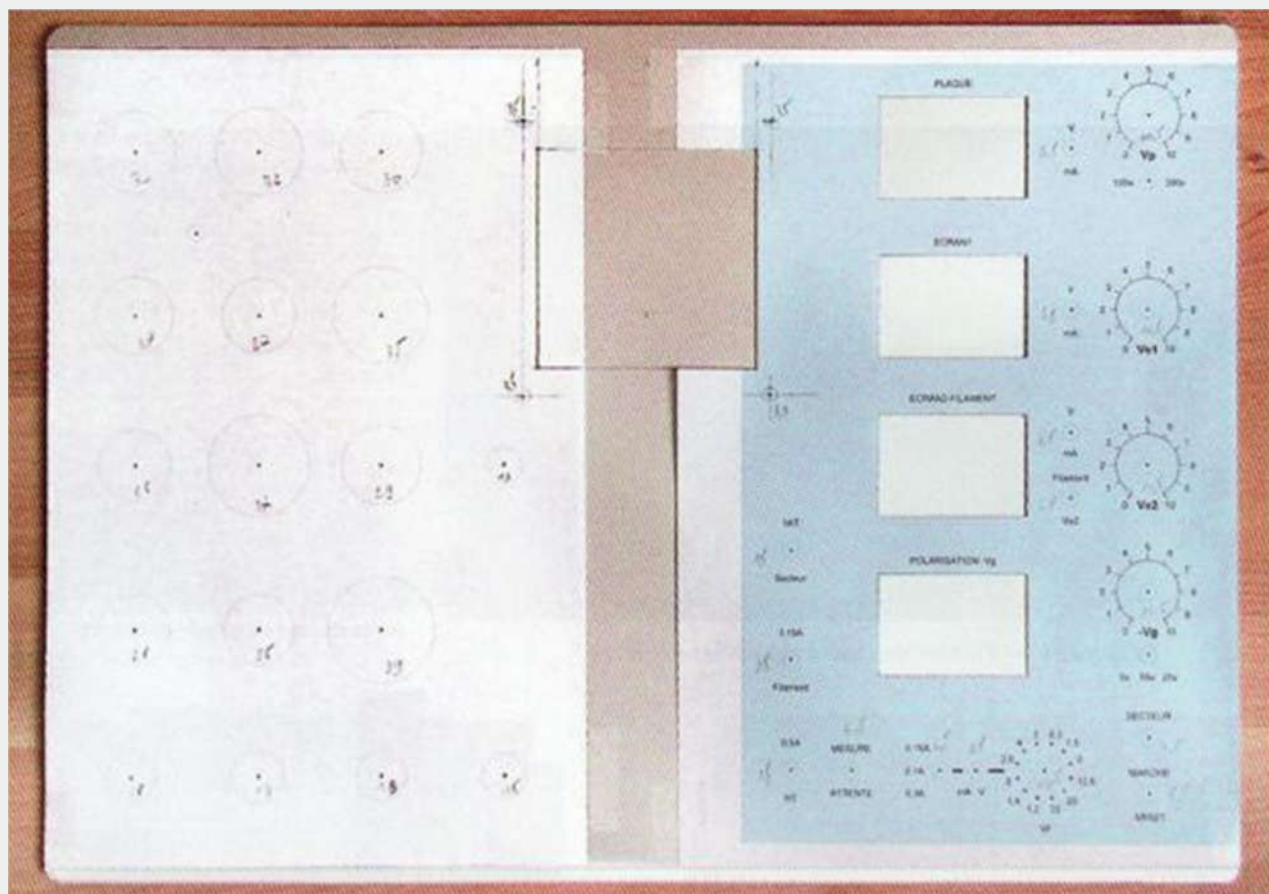


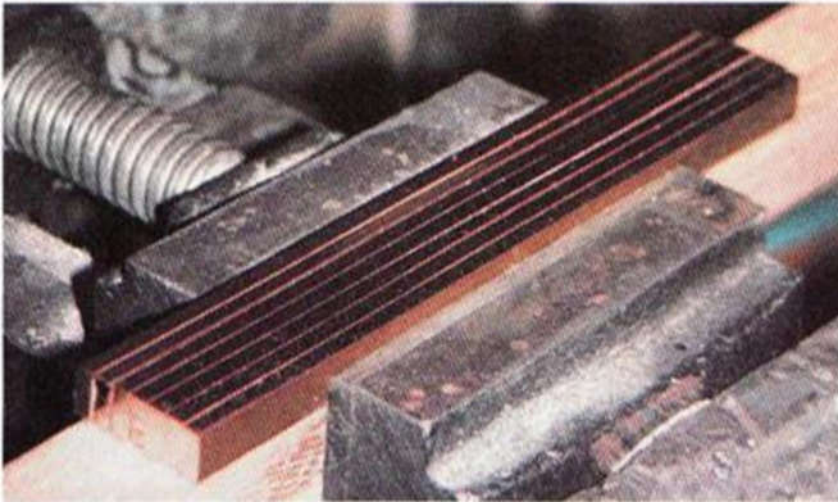
Figure 13. - Tools for cutting tube bases.

Next page, 4/10 scale:

Figure 14. - Plan of the cutouts and holes in your panel.

Figure 15. - The finished panel with its cutouts.





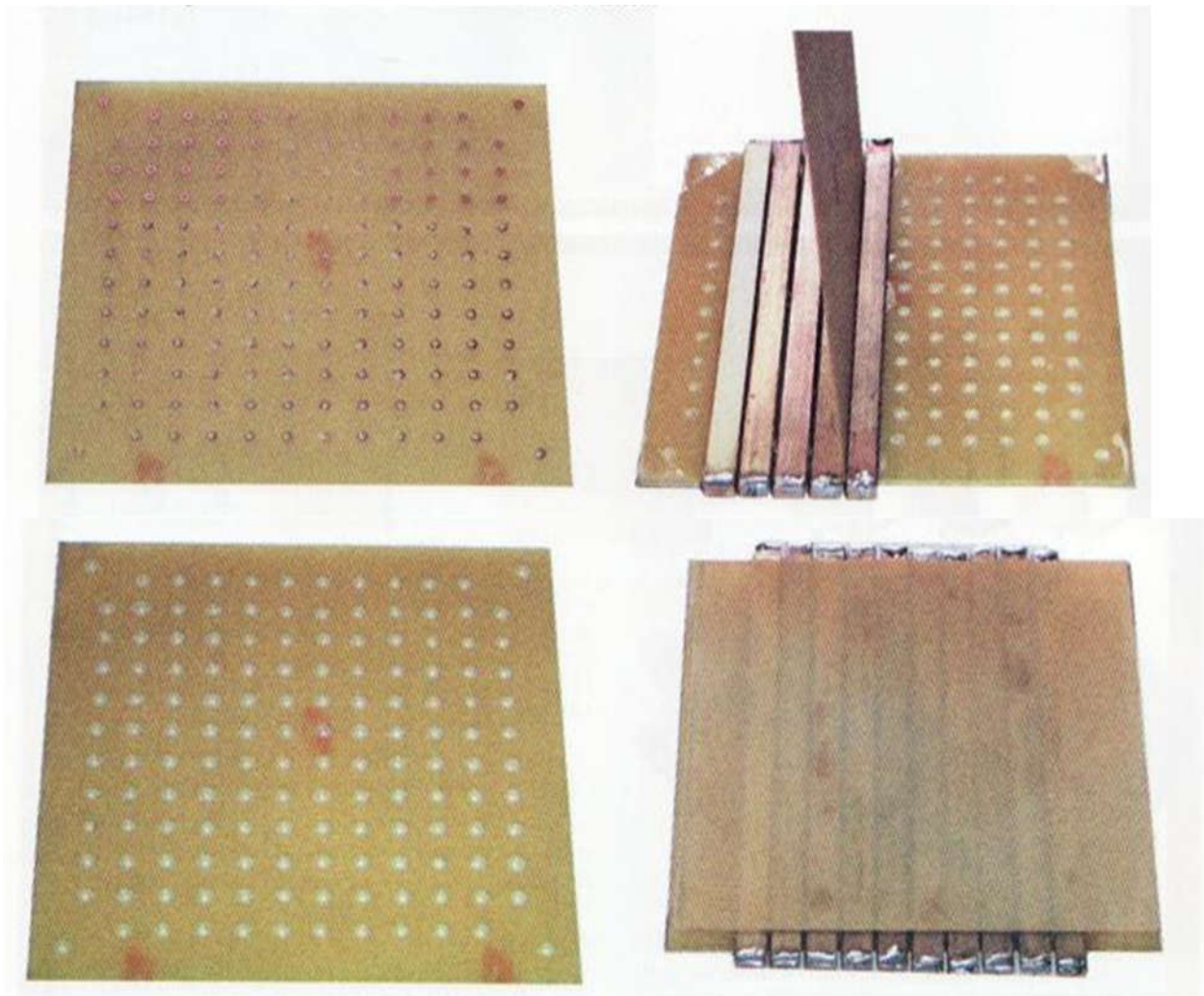
The rest of the wiring will be done in accordance with the plans of Figures 4 to 6 of the first part. I hope that the construction of this tester will bring you all satisfaction and especially the pleasure of having built it yourself.

(*) I would like to thank Jean-Paul Delattre for providing the 1% resistances.

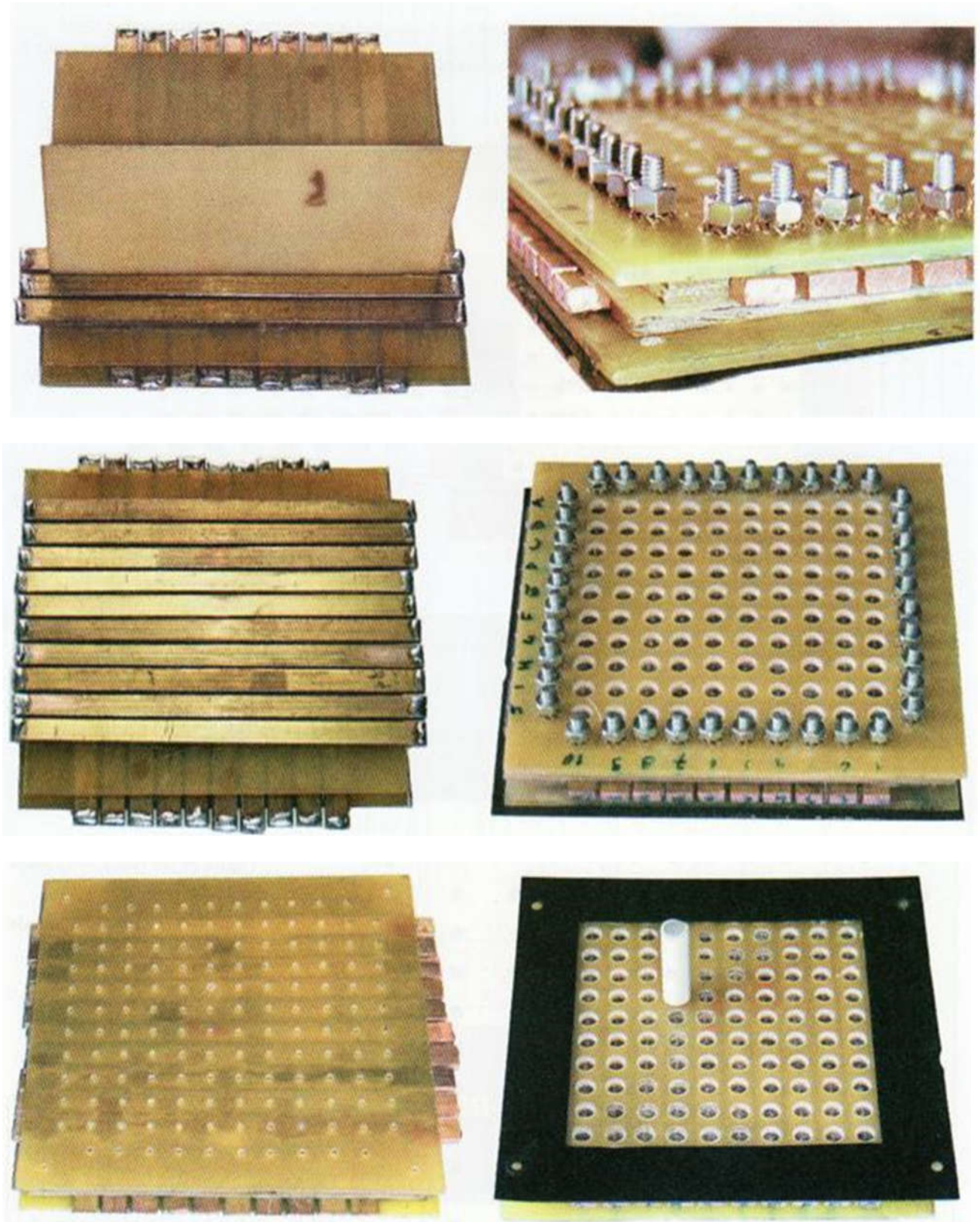
Christian Fabert (Sepellière44)

NB - To carry out this construction, the reader must have access to a well-equipped mechanical workshop. This implies a drill press equipped with a very stable plate, because a matrix, "hacked" - with the hand drill would be even more a source of setbacks than the disc switches of the Metrix.

Figure 16 - Finishing of brass laminated bars.



Figures 17 to 20. - Details of the stages in the construction of your matrix.



Figures 21 to 26. - Continuation of the detailed stages of construction of your matrix..

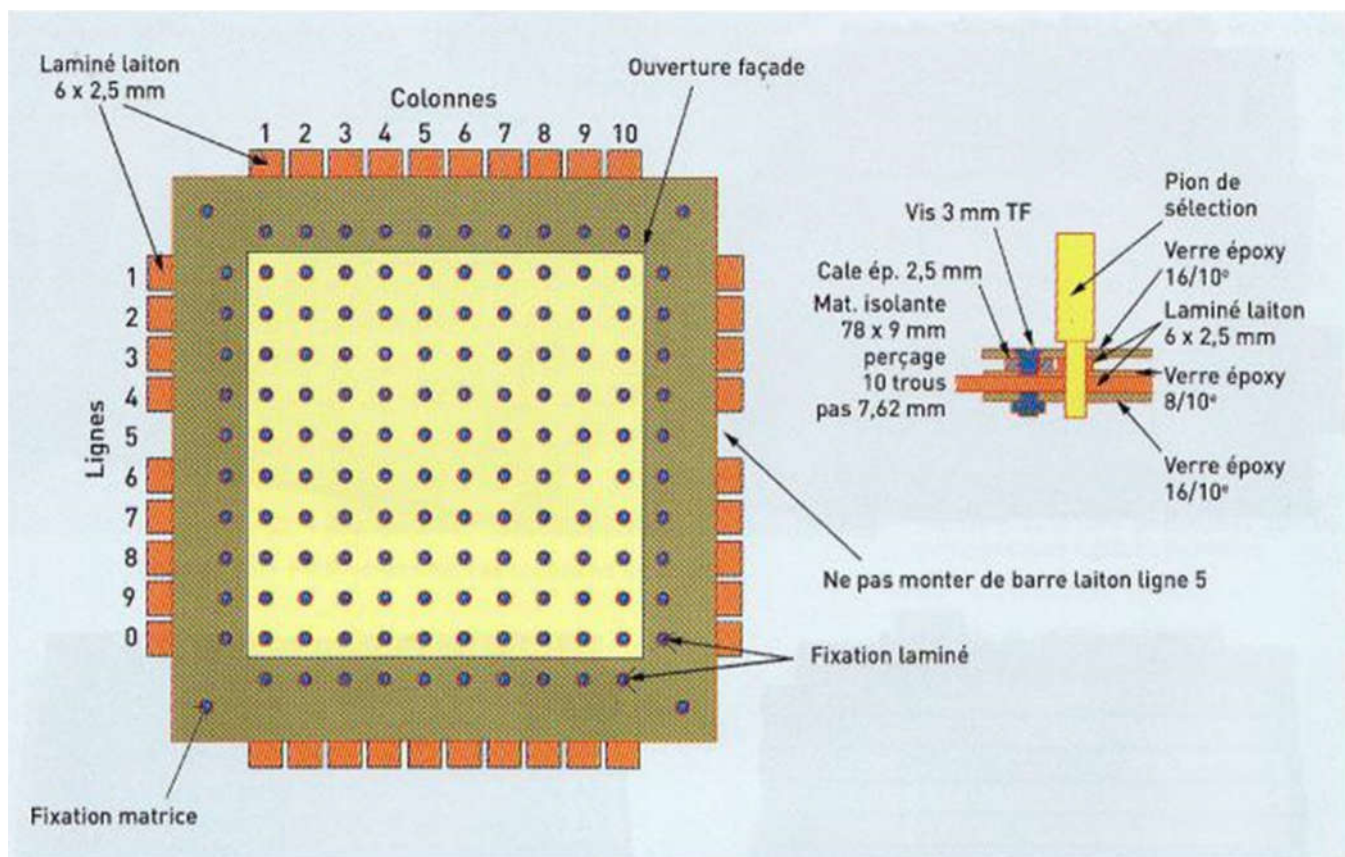
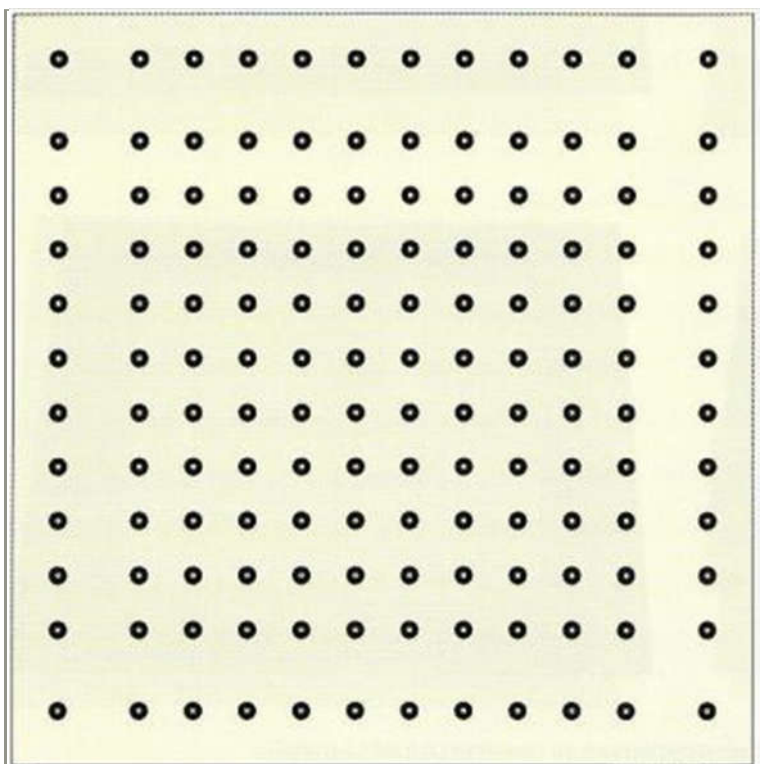


Figure 27. - Detailed sketch of the assembly of the matrix.



- Figure 28. - Template of the matrix at 1/1 scale.

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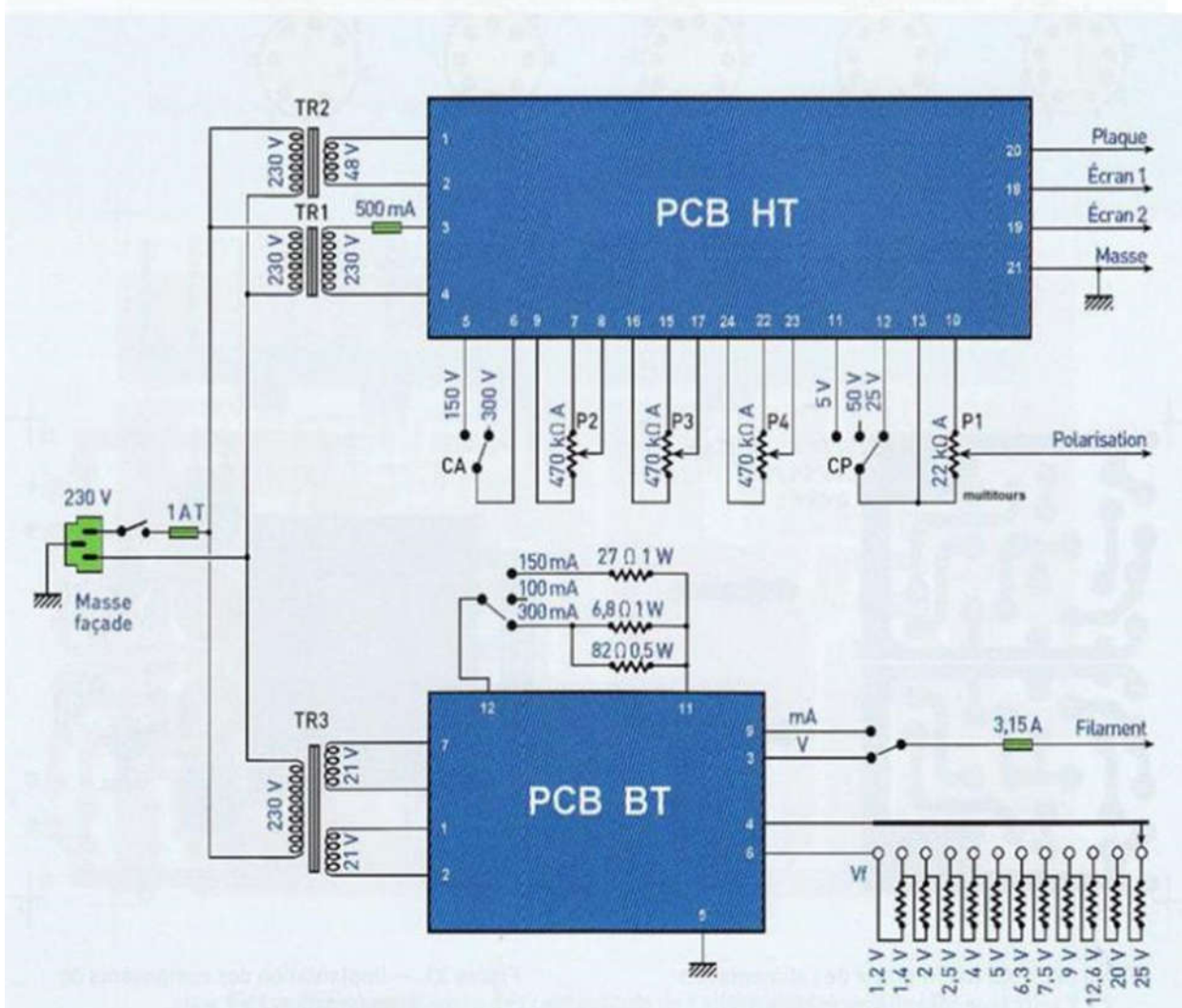
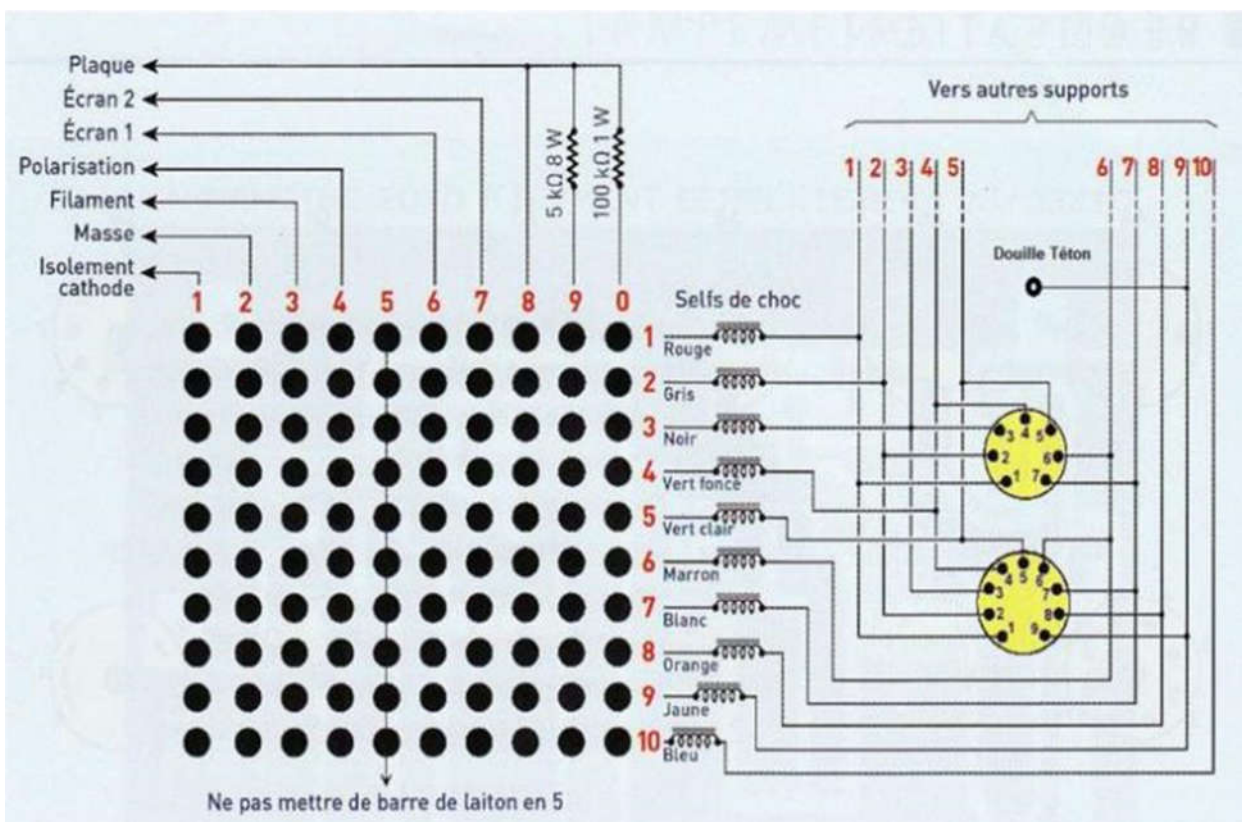
Figure 29 above). - Wiring of the matrix.

Figure 30 (bottom). - Wiring diagram of the valve tester

Erratum Part 1

Figure 2: read variable filament voltage from 1.2 to 25 volts

Figure 6: read 2 x 9 V '1.5 VA (and not 2 x 9 V 1.5 .



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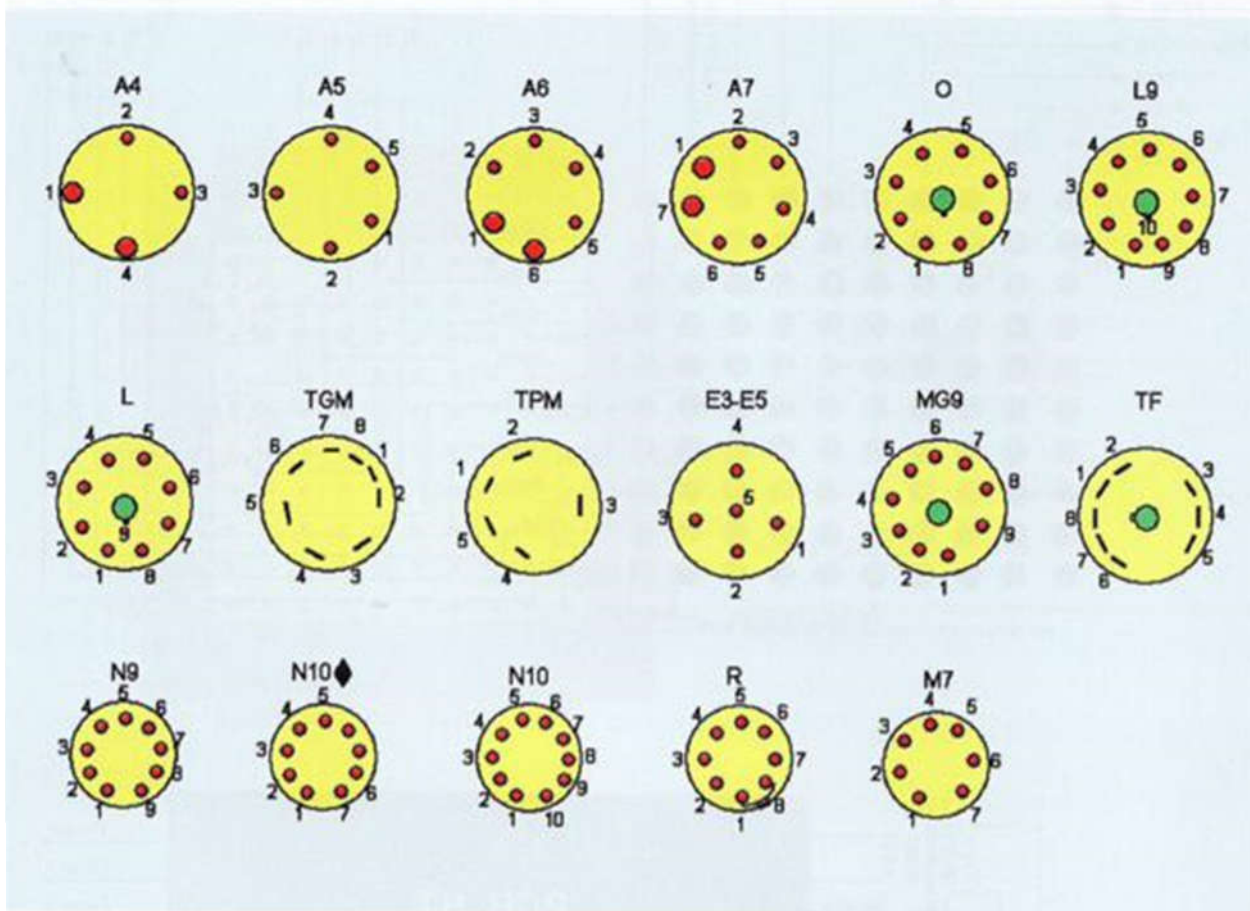


Figure 31. - Wiring of the tube bases (view on the wiring side)

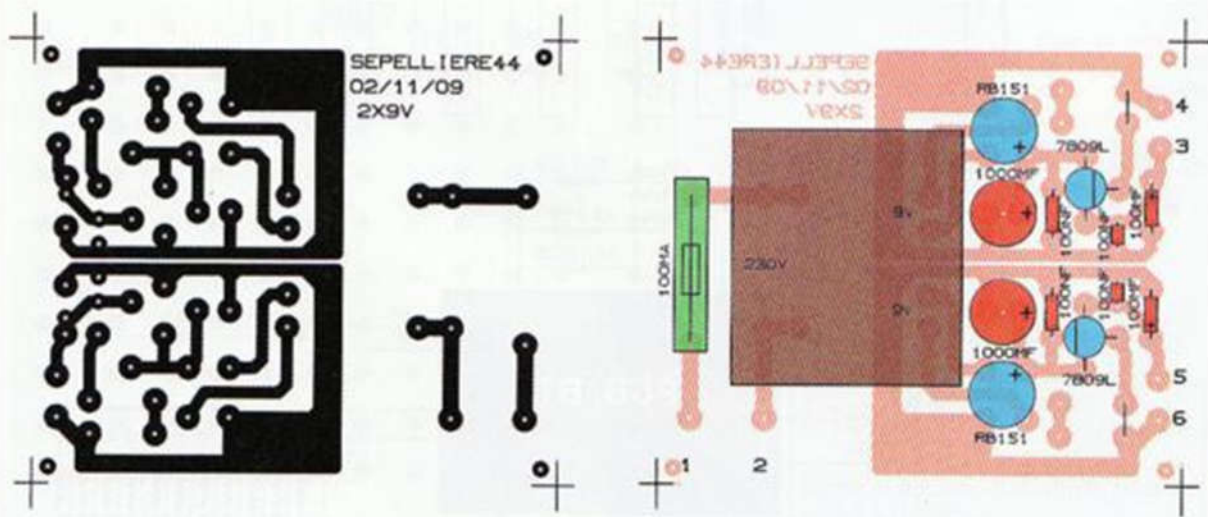


Figure 32. - Power supply circuit board
2 x 9 volts (copper side view, scale 1:1)

Figure 33. - Layout of the components of 2 x 9 volt power supply.

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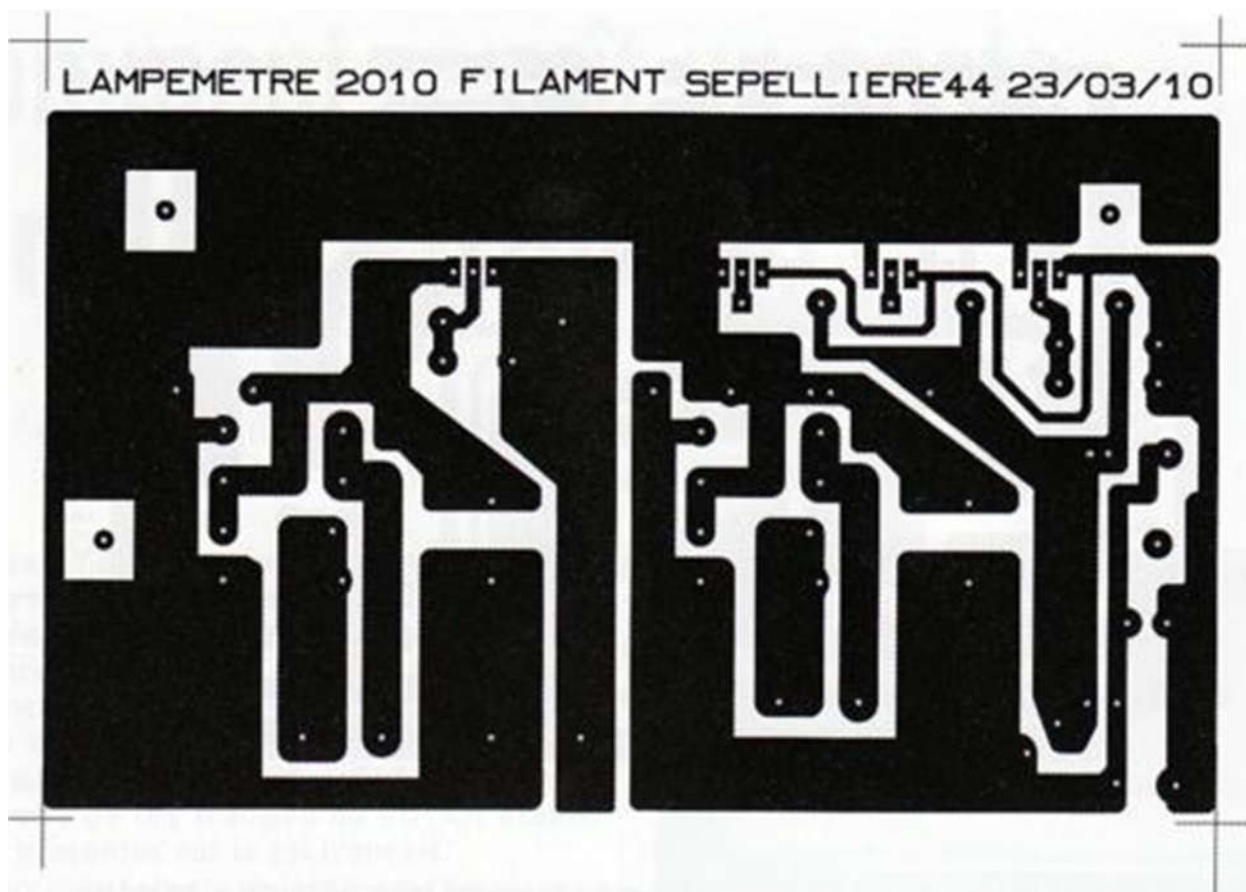


Figure 34.— Printed circuit of 1 "filament supply (copper side view, 1/1 scale).

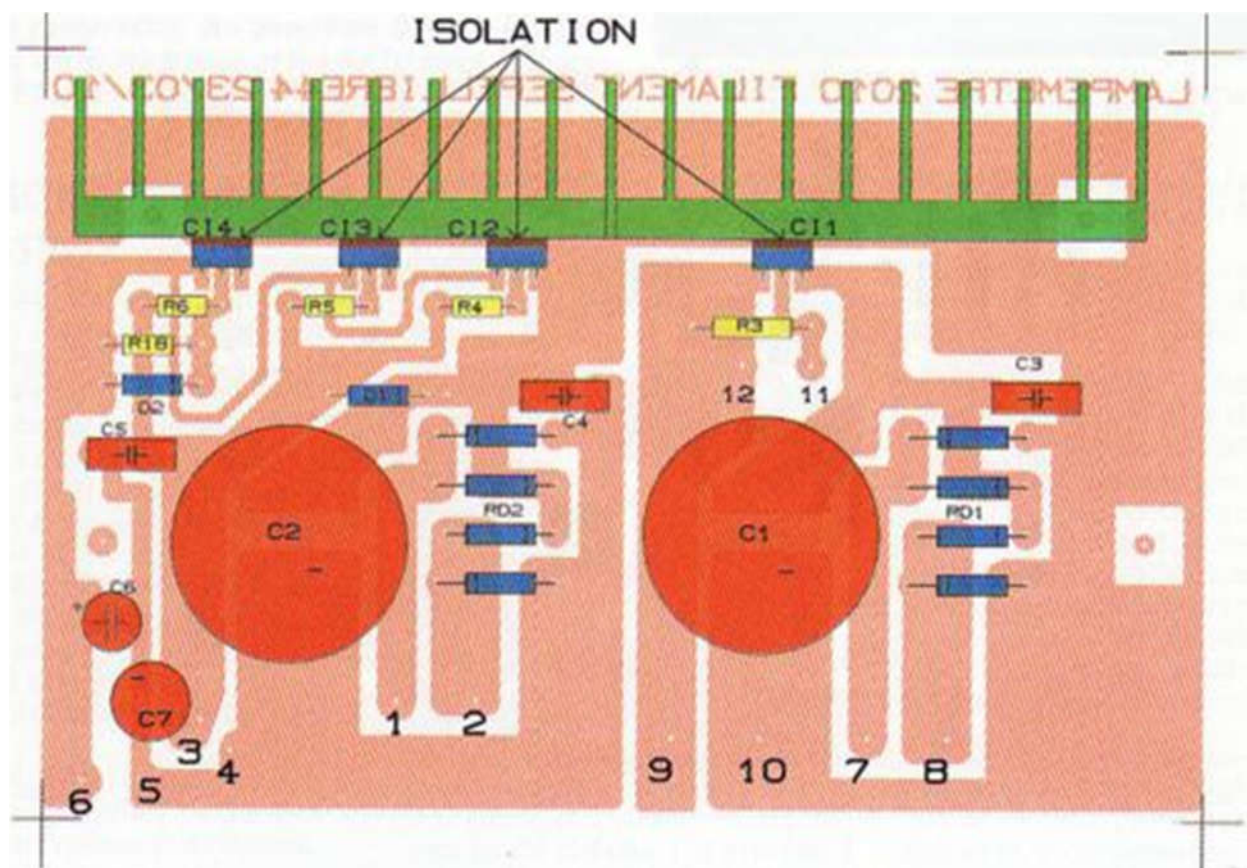


Figure 35.— Layout of the components of the filament supply.

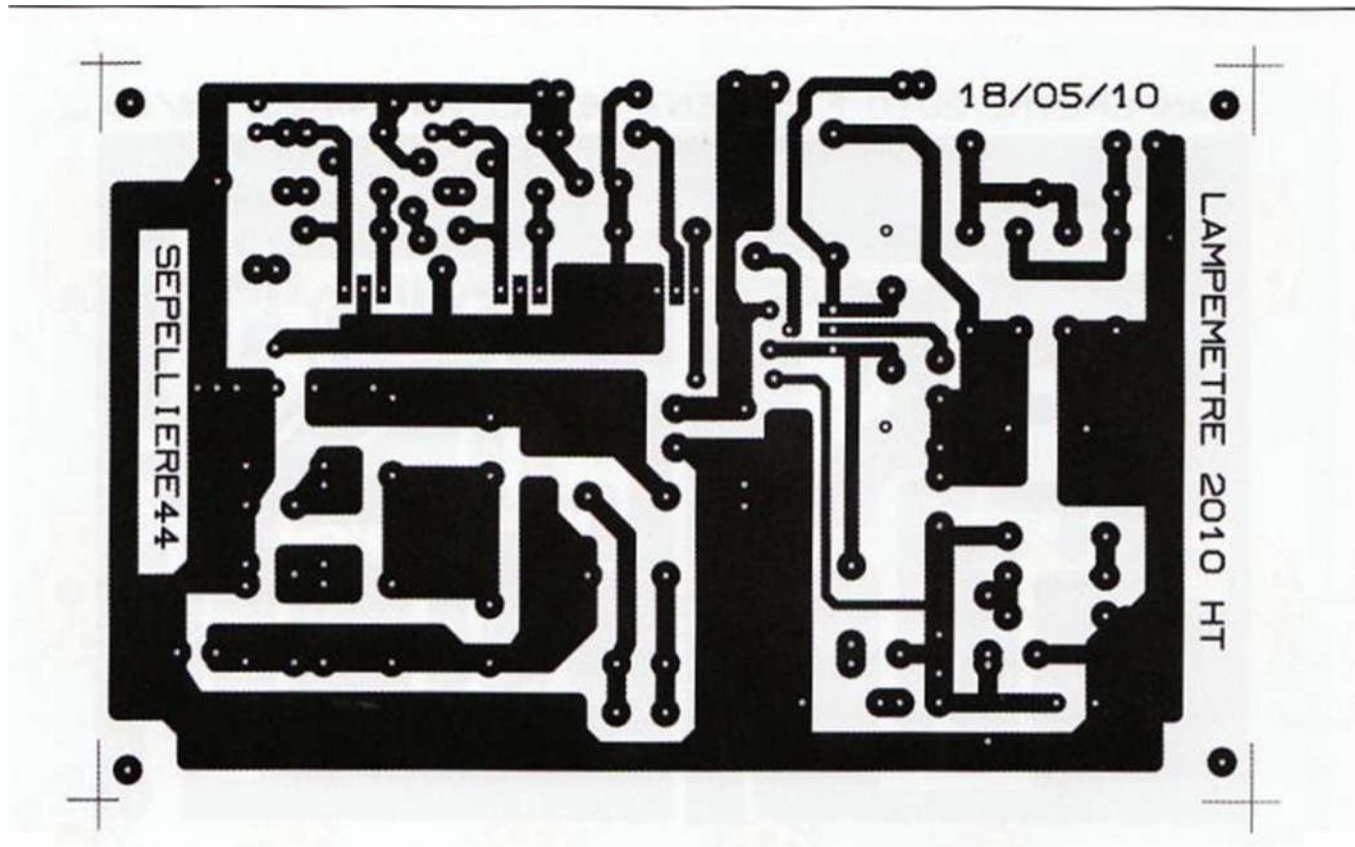


Figure 36.— Printed circuit of the high voltage power supply (copper side view, scale 1/1).

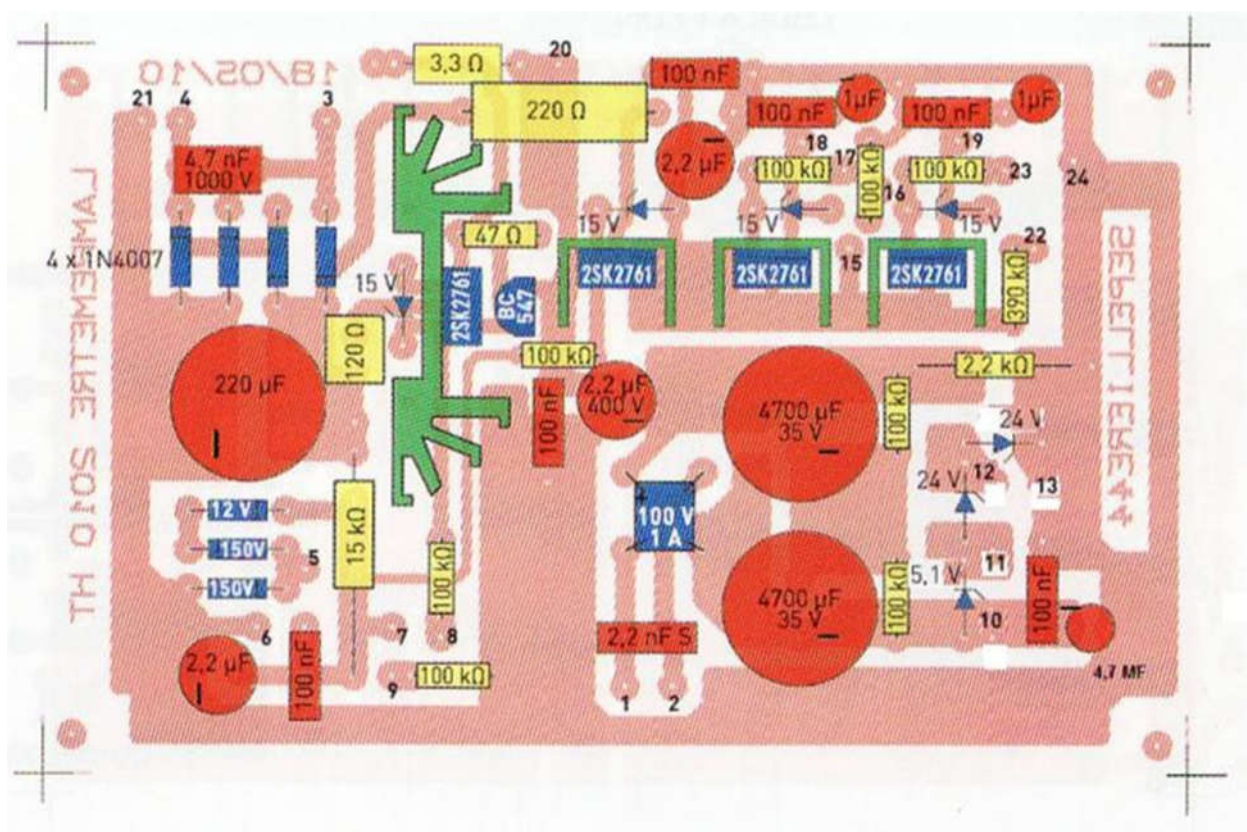


Figure 37. - Installation of high voltage power supply components.

Printed circuit plans in PDF files



[Lampemetre 2010 CI HT.pdf](#)



[Lampemetre 2010 CI BT.pdf](#)



[Lampemetre 2010 2x9v CI.pdf](#)

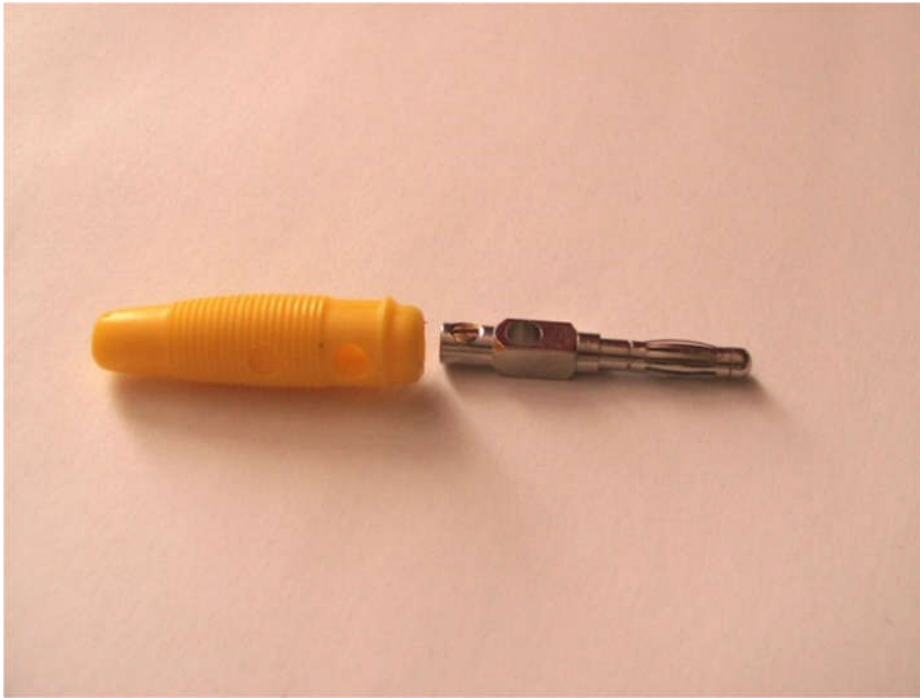


[Lampemetre 2010 Matrice_gabarit.pdf](#)

Galva software with the FC 2010 library for facades

Appendix

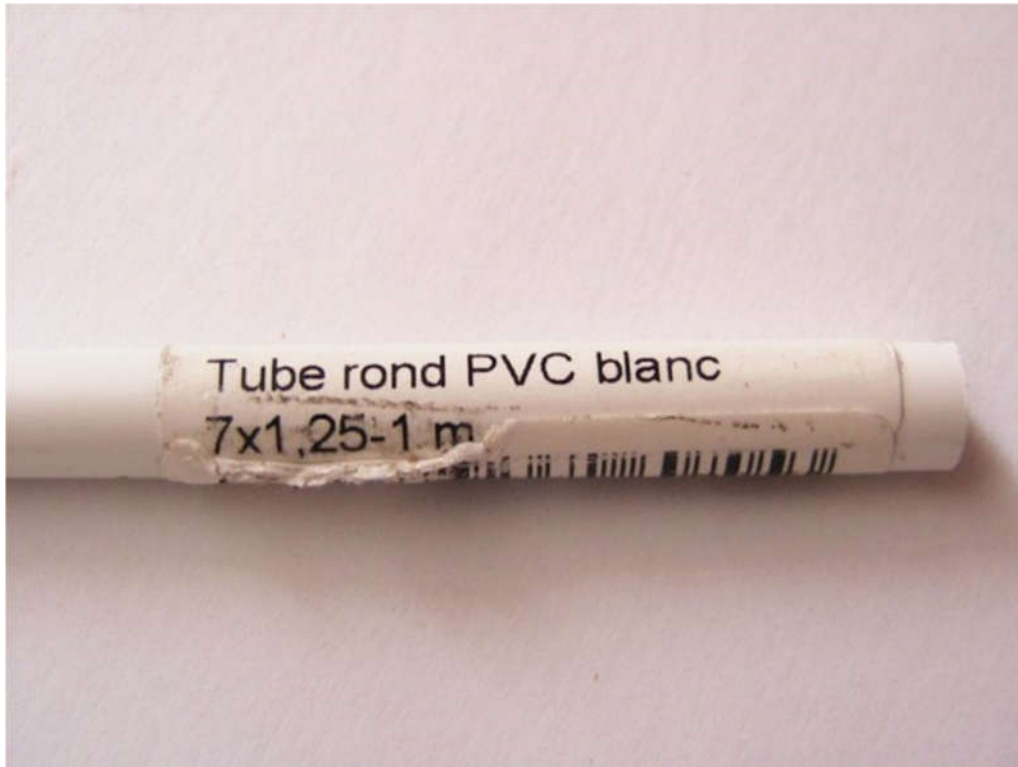
For the selection plugs, 4mm banana plugs with sprung contacts were used (see photo). The insulating part was not used because of problems of size due to the pitch of the matrix so use a round insulating tube of 7x1.25 long 1m (see photo)



Matrix plug



Matrix plug modified



Tube used for the Matrix plugs

Notes on making the matrix

The brass laminates are held in place with a few dots of super-glue. Then drilling the ends of the laminates (fixing holes).

Secure with 3mm screws, then drill the entire die. Mark the position of the laminates using a felt pen.

Disassemble for chip cleaning and reassembly of the die.

Reported Anomaly

An anomaly has been reported between the HT pcb on the component side (fig 37) and the corresponding diagram (fig 4). “The error comes from the design of the pcb in the bias circuit part where the 5.1v Zener must be in place of the lower 24v zener. In addition, terminals 10, 11, 12 and 13 should be renamed respectively 13, 12, 11 and 10. (On the diagram we can see very clearly, for example, that 13 and 24 are grounded while on the board it is acts of 10 and 24, which is therefore false.)”