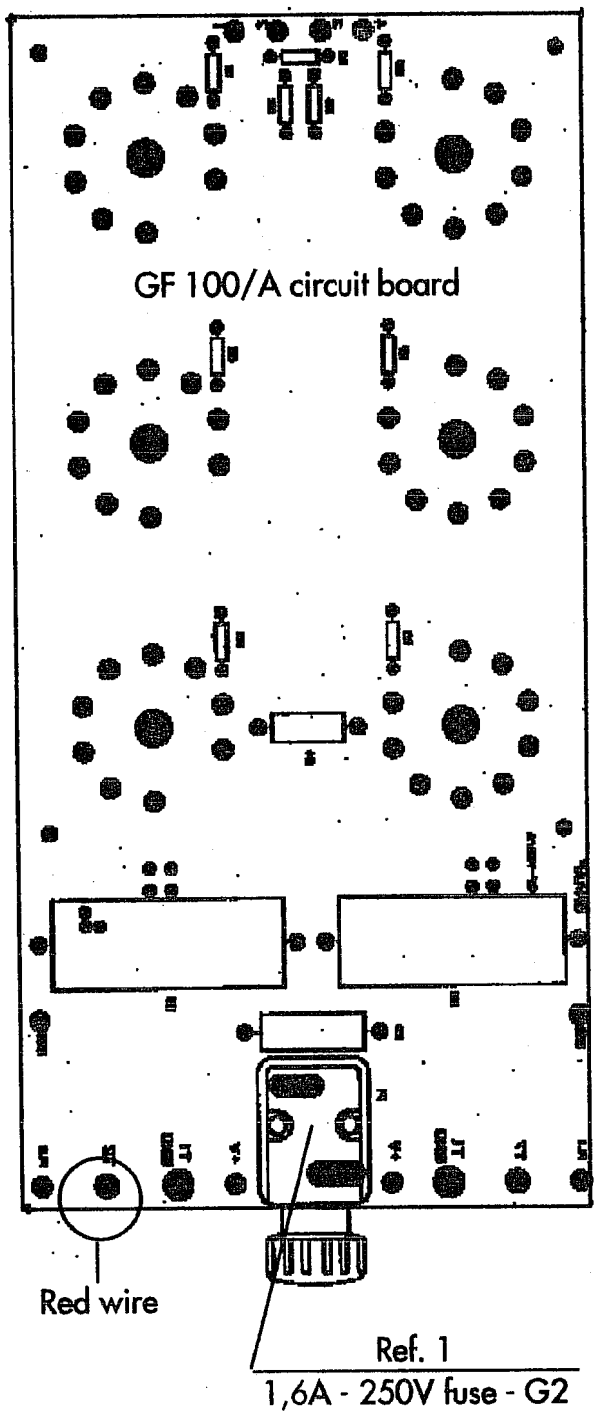
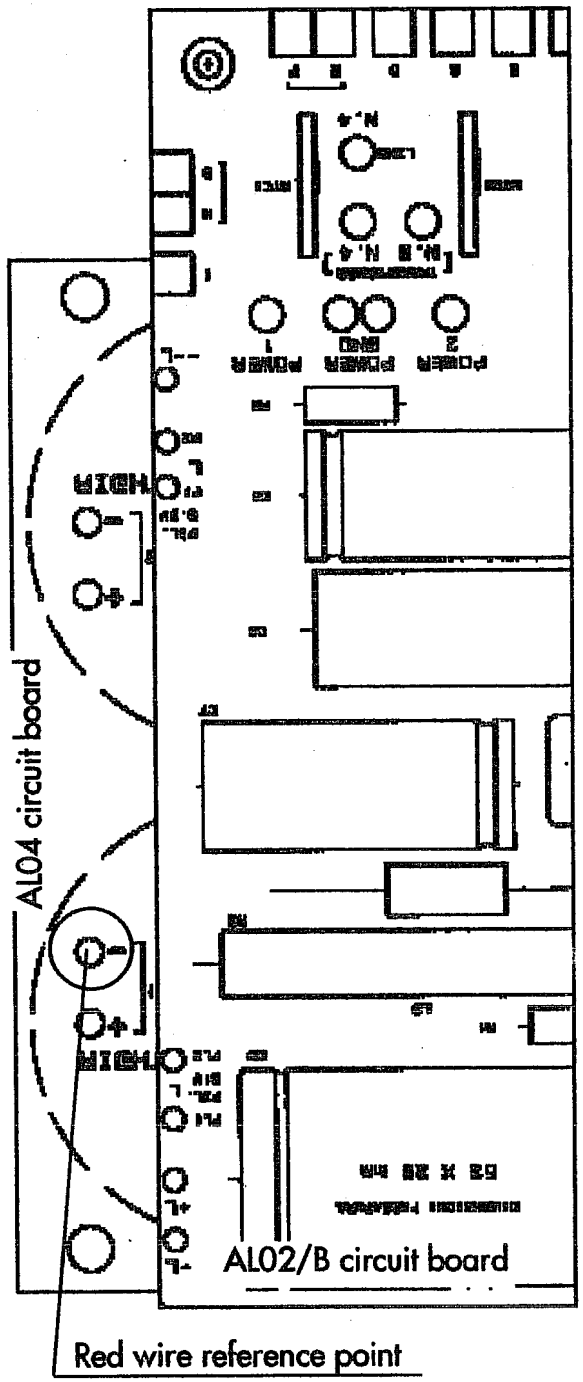




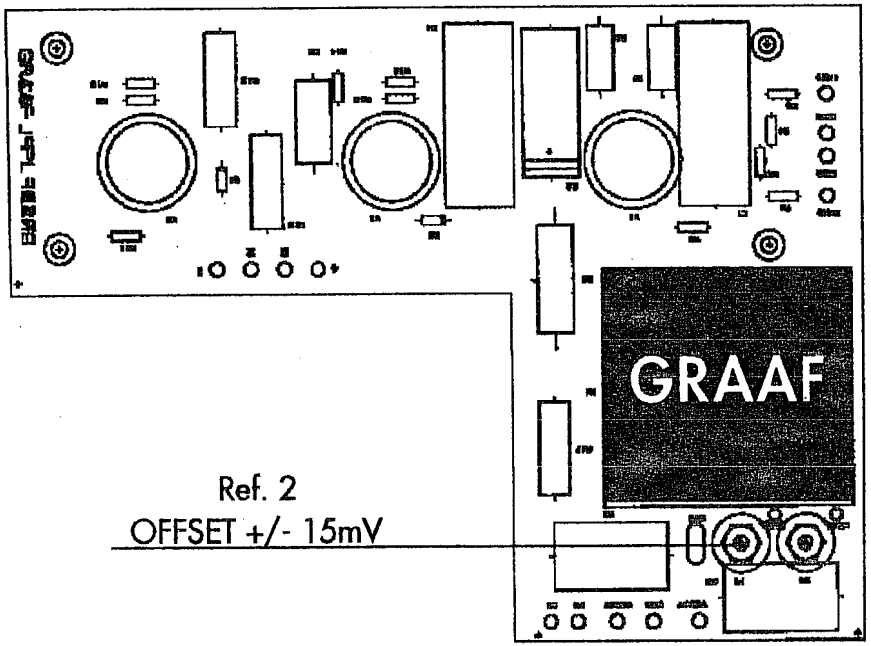
IMPORTANT: To have the best performances the amplifier must have the same voltage of the AC line of the country where it is working. To check if the GM 100 has been correctly set, follow the indications of the voltage selection table and check the connection between the transformer wires and the power supply circuit board.

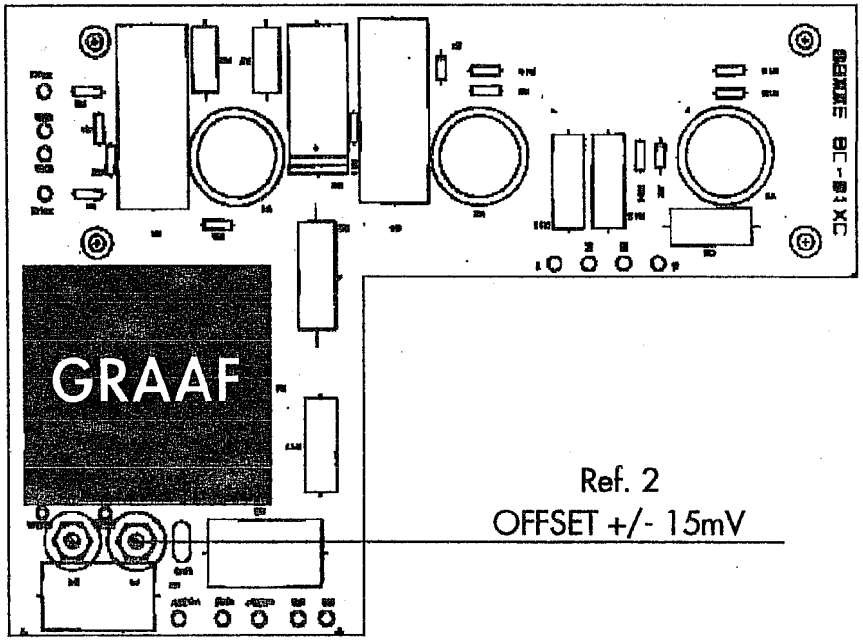
For a correct check of the bias and offset it's necessary to carry out the following procedures:

1 - Turn the amplifier upside down for a easy approach to the trimmers and to the fuses.
2 - In order to carry out the measurements, remove the fuse Ref. 1 from the channel not in checking (for example: if you work on the left channel, you'll remove the right fuse)

BIAS

3 - To measure the bias, take a voltmeter in range mV-DC.
Place the negative plug on the RED WIRE reference point placed on the GF100A output circuit board and the positive plug on the reference point of the red wire placed on the AL 04 circuit (which is below the AL02B power supply circuit board);
4 - Regulate the bias trimmer P2 until you obtain a measure varying from 20mV to 22mV.



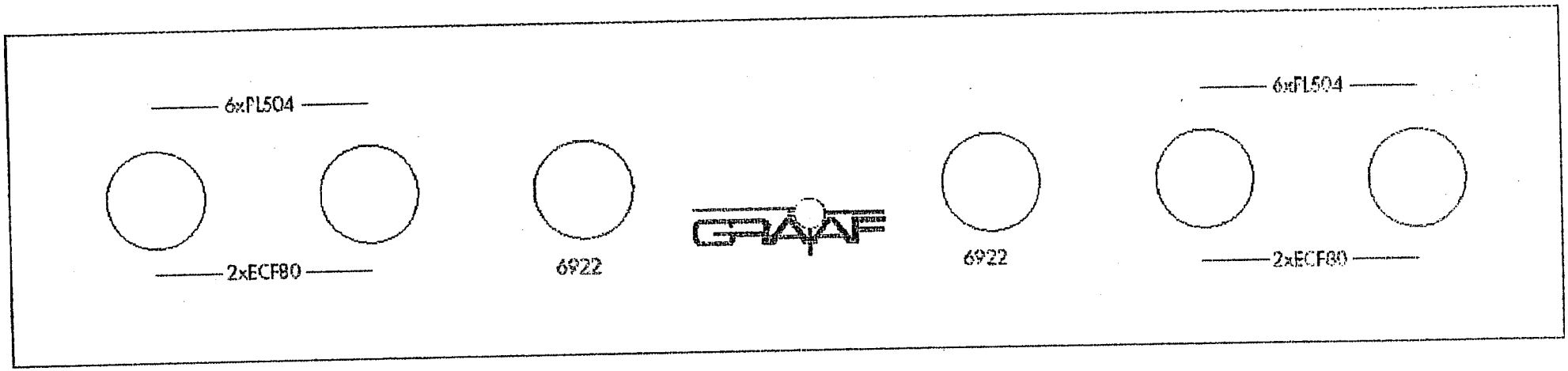


OFFSET

5 - To check the offset connect a voltmeter in range mV-DC to the output binding posts and regulate the offset trimmer (Ref. 2) until you obtain a value of +/- 15 mV near to 0.

6 - Introduce the fuse in the channel where you are not working and repeat the same operations on the other channel (Ref. 1).

7 - Complete the procedures on both channels while the fuses are in. Carry out the bias and offset measurements on the right channel, on the left channel and repeat this operation until you obtain a value varying from 20 mV to 22 mV for the bias and +/- 15 mV near to 0 for the offset.



TUBES REPLACEMENT

The following operations must be performed upon replacing tubes:

6922 - No additional bias and offset reset required. We advise you to check the balance between the two channels.

ECF80/6BL8 - Reset the bias and offset.

PL 504
Color code: *All PL 504's are matched by color code which is marked on the bottom of each tube. Tubes should be ordered through Graaf by this color code and indicating the serial number of the amplifier.*

1 - In case you replace one single PL 504 with a tube of the same color, you don't need to carry out the bias and offset setting operations.
2 - In case you replace several PL 504's with tubes of the same color, it's better to carry out the bias and offset setting operations in order to obtain the best performances.
3 - In case you replace an entire set of tubes (the set color is not important) you have to carry out the bias and offset setting operations.

In case a filament in the tube goes out, the tubes in line (3) will turn off without causing any damages to the amplifier.

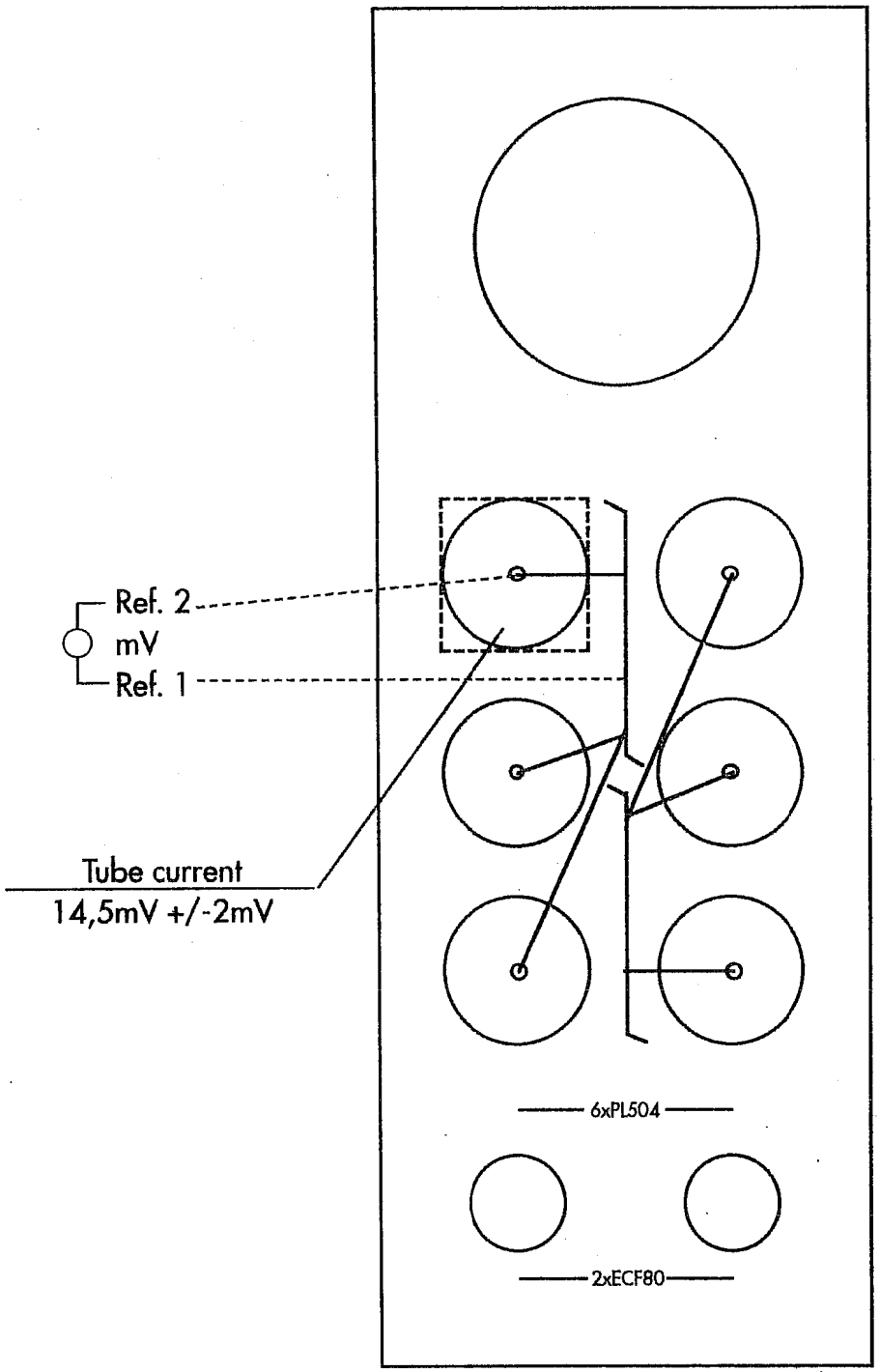
REPAIRING PROCEDURE

In order to make the GM 100 repair easier, you must fill in the technical reparation chart that you will find in the next page and send it by fax to Graaf company in Italy.
Our technicians will immediately analyse the problem and send back the right procedure for the solution of your trouble.

WHEN THE AMPLIFIER IS IN OFF STATE YOU MUST:
1 - Turn the amplifier upside down.
2 - Remove the two fuses from the output circuit boards.

SWITCH THE AMPLIFIER ON:
3 - Take a digital voltmeter in range DC Volt.
4 - Place the negative plug of the voltmeter on the chassis ground.
5 - Fill in the reparation technical chart writing the measures obtained on the tubes sockets of the channel you have to repair.

After the repair, carry out the bias and offset checking operations.



CHECKING PROCEDURE OF THE OUTPUT TUBES ANODE CURRENT

How to measure the tube currents to check the unit.

After replacing several PL 504 power tubes, check that the anode current of the new ones is the same as the others. In order to carry out the measure it's necessary to use a voltmeter in range mV - DC with the positive plug on the metal common strip connection of the tube plates (REF. 1) and the negative plug on the anode of the tube you are measuring (REF. 2). The measure of each tube should be 14,5 mV +/-2mV.