Dentron MLA-2500 GI-7B Conversion Based on W4ZT, W4EMF, K4POZ Conversions

This is yet one more Dentron MLA-2500 conversion. By and large this one follows the steps outlined by W4ZT, W4EMF, and K4POZ and their work is gratefully acknowledged. In addition, I have made a few changes that may be helpful to others going down this same road. These changes are explained below. This will probably be easier to follow with a printout of the W4ZT et al. schematic at your side. The schematic is available at http://gi7b.com/mla2500/mla2500mod.pdf

MLA-2500 GI-7B Tube Sockets using 8875 Holes

The first change was to use the original 8875 socket holes. The K4POZ sockets are excellent and can be used with the original chassis. Here are the steps after removing the 8875 sockets.

First, remove the bottom section of the K4POZ socket. This bottom section will mount underneath the chassis (see Figure 1).

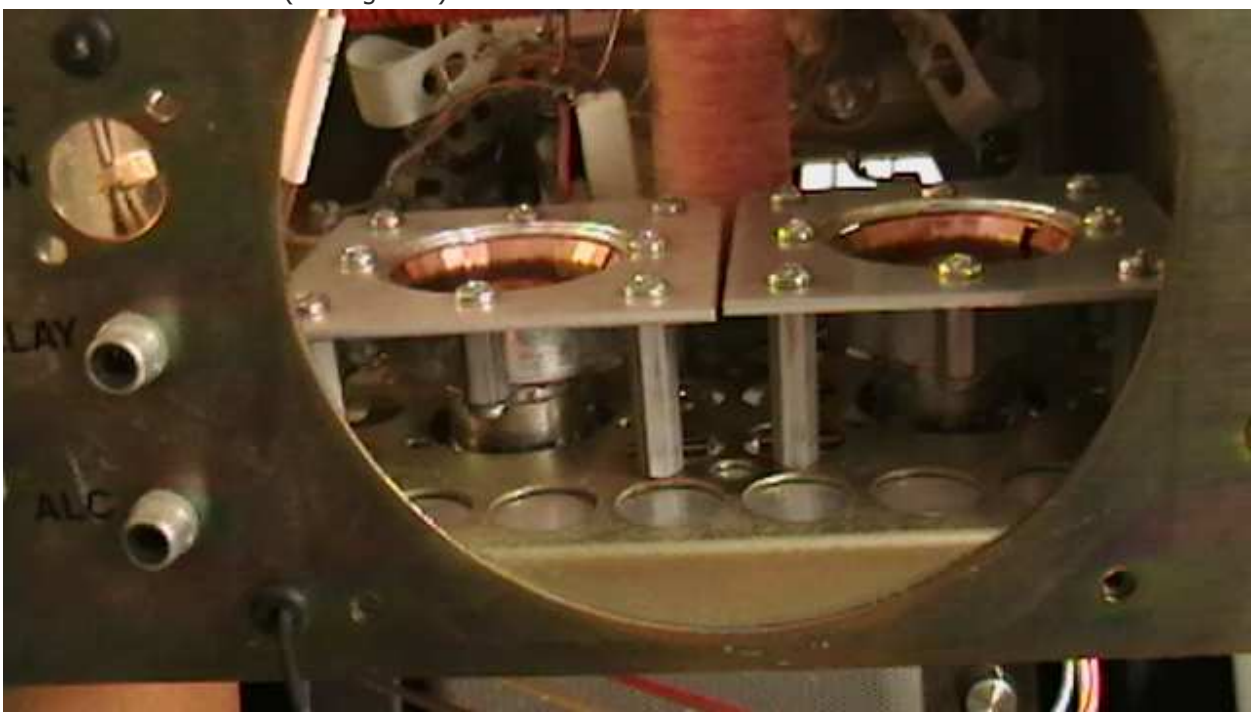

Figure 1

Next, make some rails out of aluminum stock (Lowes, Home Depot, etc). The bottom part of the socket will mount on these rails. Drill holes in the rails such that the bottom part of the socket attaches to the top portion using the K4POZ socket hardware. The rails will need to be carved a bit so they don't short the filament/cathode connections to ground.

Next, the cathode connection of one socket must be moved to the other side of the heater connection. This change will make wiring the sockets in parallel much easier. Figure 2 shows the sockets mounted and wired.

Finally, with the sockets in this position, there is very little space between the sockets and the plate choke. In order to install a rigid air dam for cooling, the plate choke must be moved forward, toward the front of the amp. Remove the plate choke and drill a hole 1/8 in. in front of the original hole. And, while you have the plate choke out, you might want to move the glitch resistor to a position underneath the chassis so it is more easily accessible. Figure 3 shows the air dam in place.

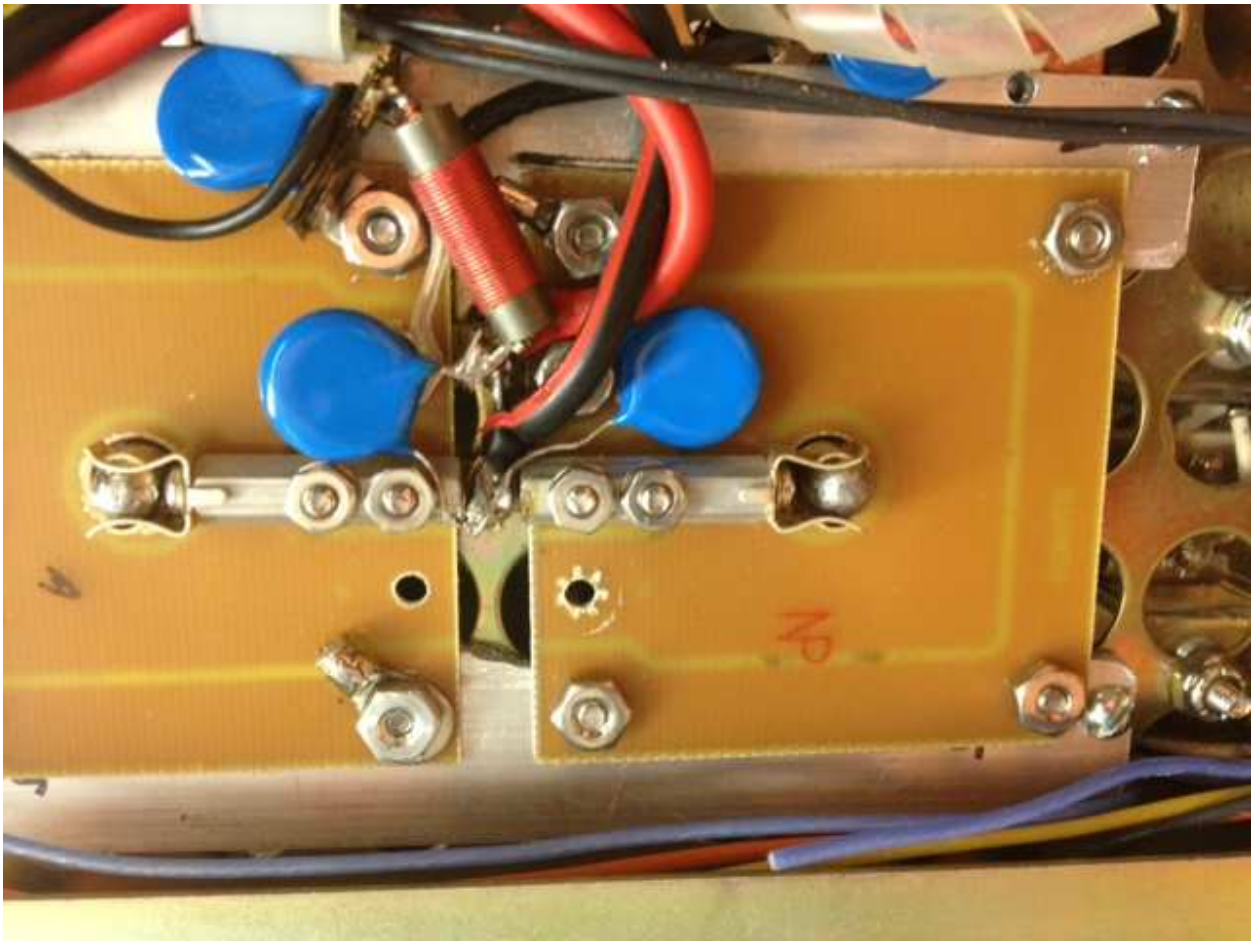

Figure 2

Figure 3

MLA-2500 Meter Board Modifications to Read Grid and Plate Current

The second modification was to modify the meter board so the meter will properly display plate and grid current. The changes are based on the W4ZT arguments about the proper methods for this. Figure 4 shows the modifications on the original MLA-2500 schematic. Figure 5 shows the actual meter board after the modifications; however, the picture is backwards compared to the W4ZT et al. and original MLA-2500 schematic since the board is upside down in order to show the wiring and traces.

Make these changes based upon the meter circuit in the W4ZT schematic (references to left and right are per schematic not the picture):

1. The grid and plate shunts, SH1 and SH2, should be 1 ohm
2. Cut the trace between the middle conductors and the bottom conductors of the Plate Volt switch.
3. Cut the trace from the bottom right conductor of the Plate Volt switch to ground
4. Cut the trace from R19 to the top left conductor of the Grid Current switch
5. Run a new trace from the top left conductor of the Grid Current switch to ground
6. Run a new trace from R19 to the bottom right conductor of the Plate Volt switch

The changes already in the W4ZT schematic are:

The connection (red wire, Figure 5) from the Plate Current switch to the positive terminal of the meter
Cutting the trace from the right center conductor of the Plate Volt switch to the top left conductor of the Plate Current switch
Adding a trace from the right center conductor of the Plate Volt switch to the left bottom conductor of the Plate Current switch
Adding R19

To calibrate the meters, add spade lugs in the B- line (plate current) and between SH1 and SH2 (grid current). Of course, spade lugs could be added in the B+ line to read plate current as well but that is a bit dangerous. The spade lugs make it easy to insert a meter for calibration or recalibration. Calibrate the plate current meter with resting current of 100ma and with enough drive to produce at least 500 ma.

It is important to calibrate plate current with both low and high current; otherwise, it might appear to read correctly at low current but be off the scale at higher levels. Calibrate the grid current meter with enough drive to produce around 100 ma of grid current.

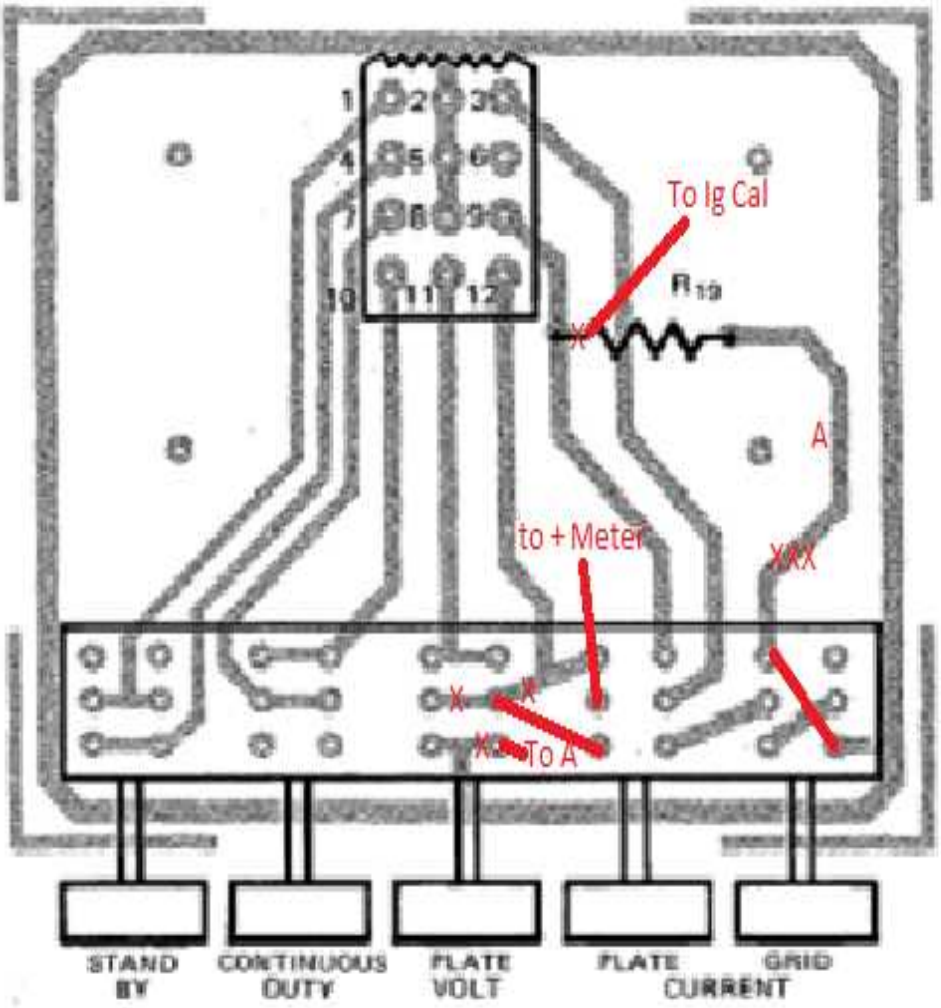

Figure 4

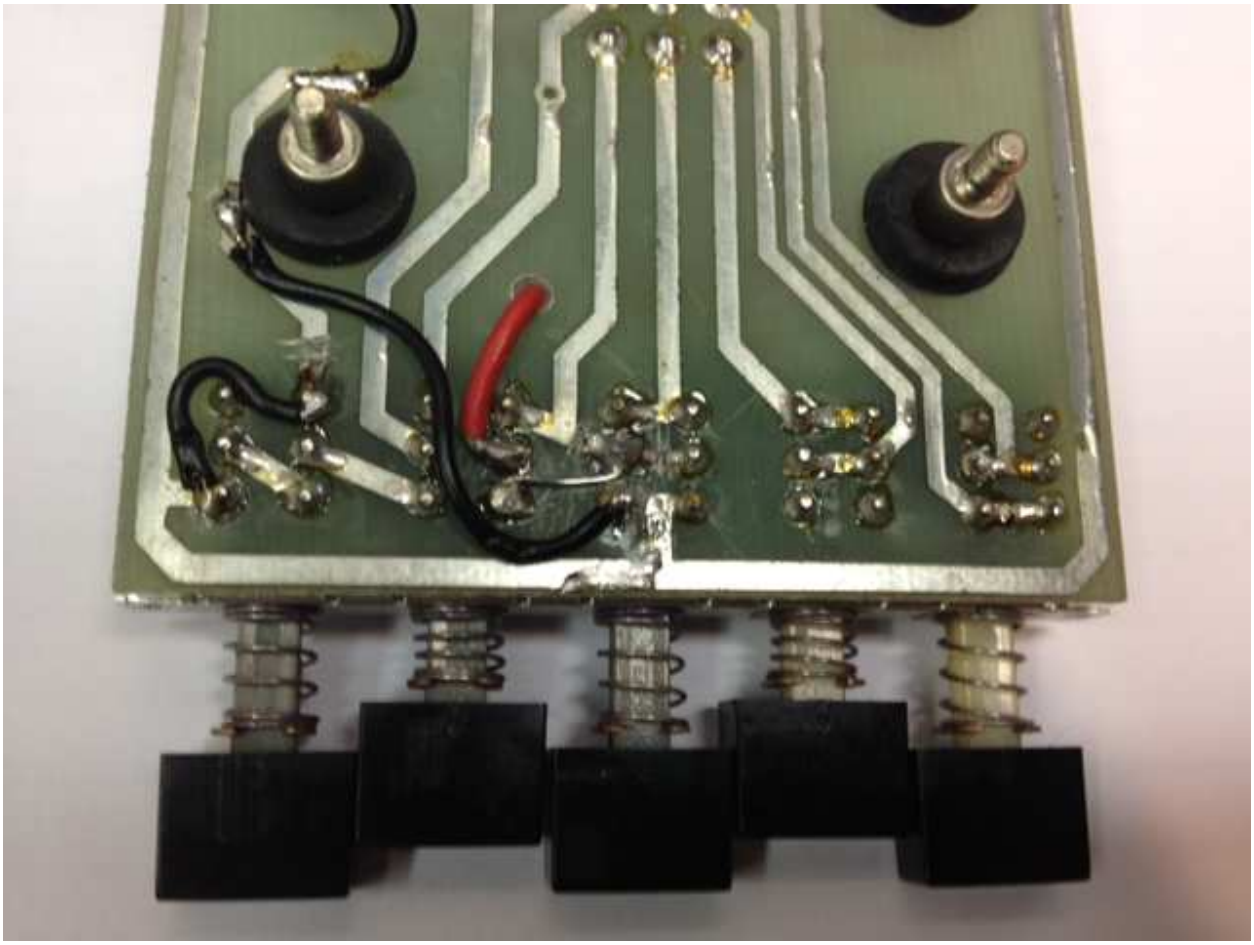

Figure 5

MLA-2500 Tuned Input

The next change is to add tuned input. I thought long and hard about how to do this with the tight space in the amp. The first idea was to add a TU-6B relay-controlled tuned input board. I pulled the bandswitch, added a wafer, and wired eight positions and a common. While I was at it, why not add two WARC bands; hence, eight positions. The idea was to mount the TU-6B board in a box on the back of the amp. But, it turned out there was just no good way to do that.

So I threw in the towel and bought an LDG Z-100Pro and mounted it on the back. Then, a push button was added to the front of the amp so the LDG could be tuned from the front. This arrangement works quite well and the transmitter sees 1.5:1 or close to it.

40 Meter Pi Net Modification

Even though the amp tuned on 40 meters it wasn't ideal. Maximum output occurred with the Load capacitor almost fully meshed. A 100pf, 7.5kv fixed, doorknob capacitor was added in parallel with

C42 (100pf, 7kv but mislabeled as C41, line 17 in parts list). This additional capacitance changed the maximum output position to more acceptable, midrange settings of the Load capacitor.