

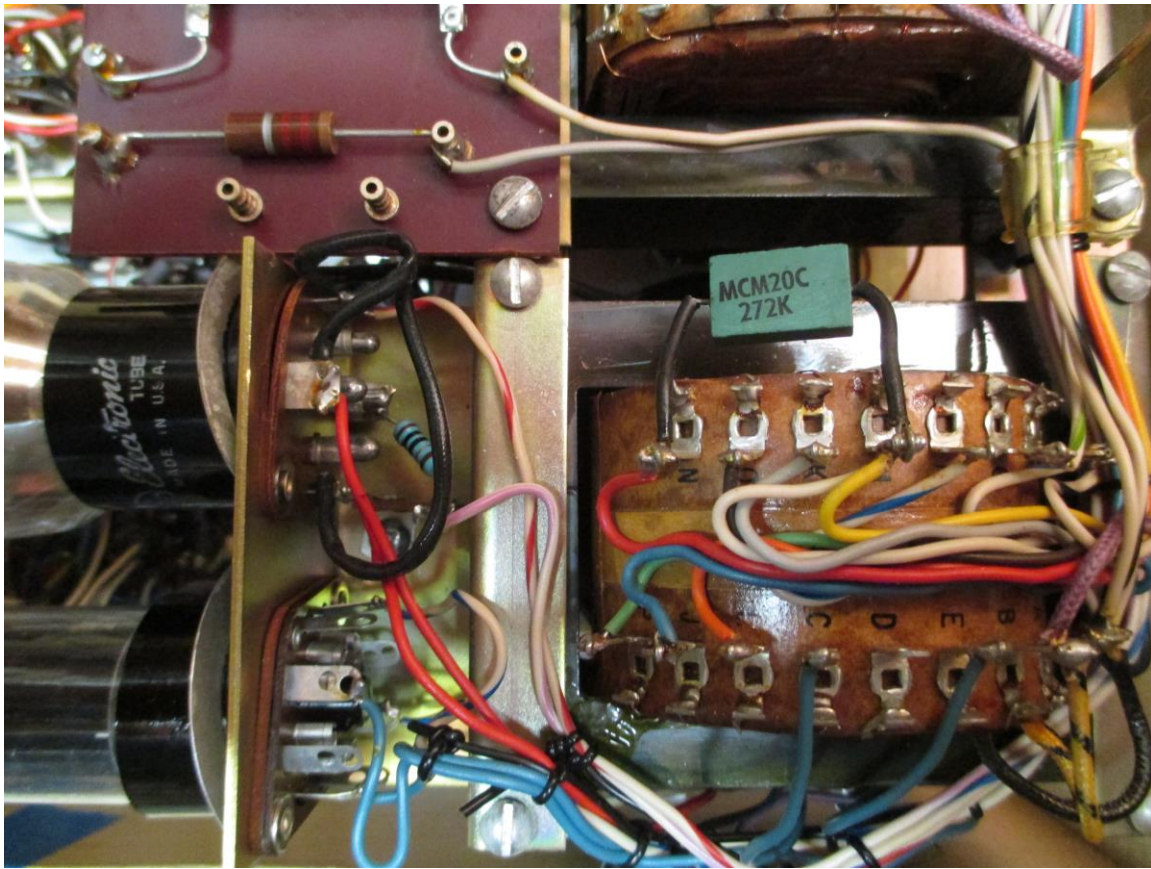
**HICKOK 539B/C
POWER TRANSFORMER DC BALANCE MOD.
By William Eccher**

There is between 7 and 15 ohms difference between the 2 plate windings of the power transformer. This unbalance is created by the layering of the windings and the need to balance the AC output. As you can see this does not create a significant error until the plate current gets to around 40 mA. This can be corrected by installing the appropriate resistor in series with the lower resistance winding. You need to re-balance R8 once this resistor has been installed.

PLATE TO CATHODE LOADING	CURRENT DC mA	Gm METER
10K	13	R8 Adjusted to 0
8K	17	0
7K	19	0
6K	22	0
5K	26	0
4K	32	Slightly high
3K	42	½ div high
2.5K ***	52 ***	1 “ “
2K	62	2 “ “

NOTE: * 6L6 PLATE CURRENT = Appx 50 Ma**

Reference the attached Power Transformer terminals and measure both of winding resistances. Pick a resistor close to the value needed to make the low winding equal the high resistance winding. Use 1/2 or 1 watt resistor as the wattage is very low. I prefer to install the resistor at the tube socket. Remove the wire from the appropriate plate, attach a terminal strip to the existing hole in the socket mount and connect the resistor from the terminal strip to the plate, then connect the wire to the terminal strip end of the resistor. The other option is to install the resistor in series at the transformer terminals end either terminal J or P depending on the winding with the lower resistance.



This picture shows a late 539C where the resistor is mounted on a terminal strip close to the 83 tube socket. It could also connect in series with either J or P terminals, which are the blue and green wires next to the red, which are the lower left terminals on the power transformer. If this method is used clip do not try removing the appropriate terminal and the ohm resistor inserted in series. Care must be taken to insulate with heat shrinkable and careful positioning to prevent shorts. **CAUTION** Cut the wire at the terminal rather than risk twisting the terminal and perhaps causing transformer problems.

This modification allows balancing of the Control/Screen Grid pot R15 without a scope by using a good 6L6GC with no HK leakage, removing the AC signal and zeroing the Main Meter. The All-In-One Test and calibrate manual gives this method as an option, but states its not as accurate, however with this mod I found it to be just as accurate as using a scope. The new All-In-One II manual will cover this in detail.

Hickok Power Transformer

