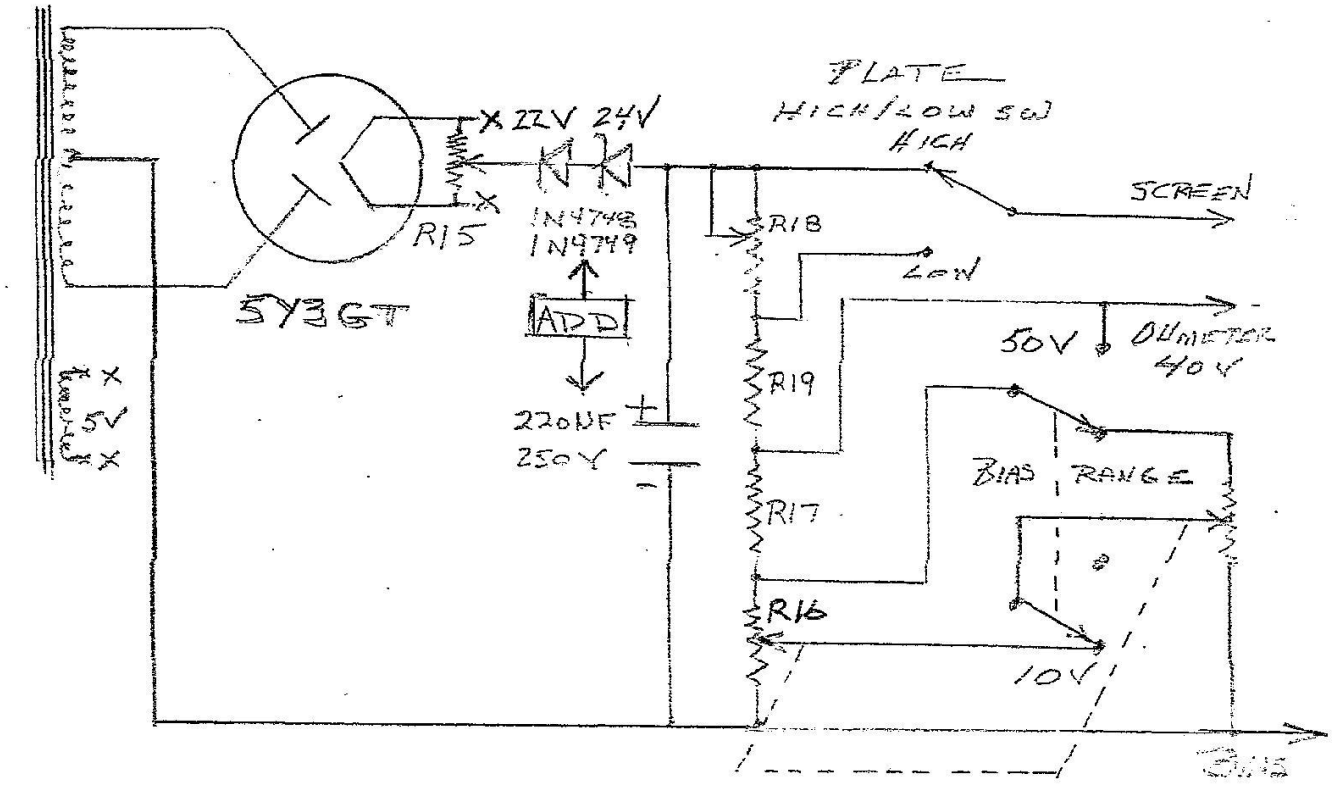
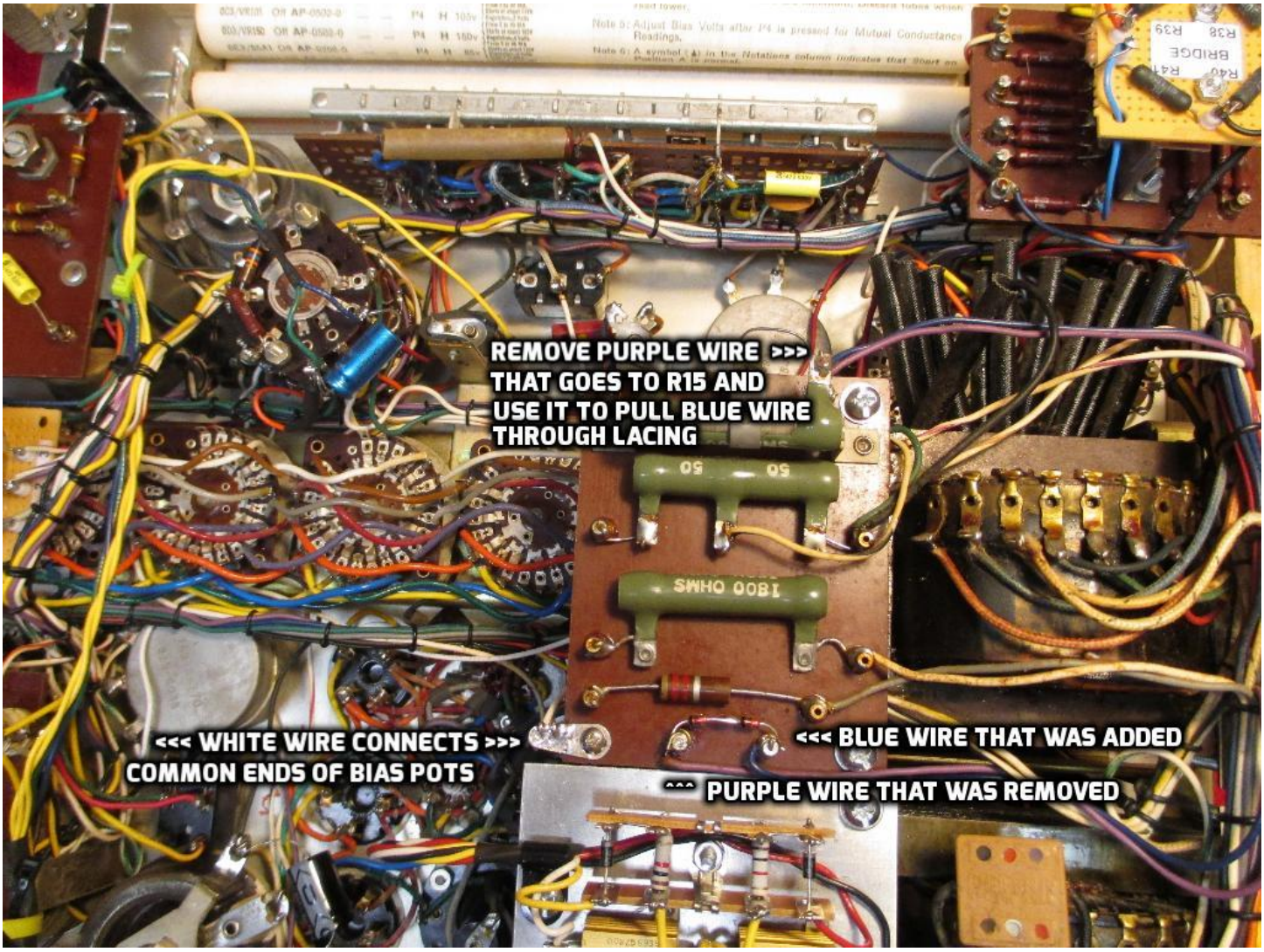
HICKOK 539B/C
© DC BIAS CONVERSION ©
November 3, 2018
William Eccher

The Hickok design for these testers occurs in the early 50's and that time large capacity at high voltage capacitors were both large and expensive. Of course reliability had to be another factor in their decision not to filter the PDC in the bias/screen circuit. In order to balance out the pulses in this circuit they added R15 as an adjustment that functions similar to R8 in the Plate supply. Getting these two adjustments calibrated correctly can be a challenge and likely the reason these testers were rated at +/- 10% at the factory. It is possible to get within +/- 5% for most tubes if all components are within specification, then R8 and R15 adjusted correctly.

The Western Electric KS-1575 version and later the Hickok RD1575 specified separating the bias and screen supplies with the bias being filtered. This was a compromise that only required a 100uF @ 50 volt capacitor, but they eliminated R15. For Pentode tubes any imbalance in the circuit would affect calibration.

Now with large capacity at high voltage capacitors inexpensive and reliable plus zener diodes to drop the excess voltage created by the capacitor I designed this conversion to filter both bias and screen voltages. R15 is still in the circuit, but it no longer has any effect so just leave it in its previous position. Physically It takes the advantage of two unused posts on the resistor board plus one added terminal to mount the components. Late model 539C"s will require 3 posts to be added. A simple and easy conversion that has a minimal effect on the Transconductance, but dramatic effect on the accuracy between testers.




REMOVE PURPLE WIRE >>>
THAT GOES TO R15 AND
USE IT TO PULL BLUE WIRE
THROUGH LACING
50
50
SWHO 00BI
<<< WHITE WIRE CONNECTS >>>
COMMON ENDS OF BIAS POTS
<<< BLUE WIRE THAT WAS ADDED
^^^ PURPLE WIRE THAT WAS REMOVED