W3RJW AM6154/55 Power Supply Modifications

W3RJW 2/04
Update 10/08

The original mods generated by N3AHI, WB4NMA and WD4JQV (circa 1983) work fine as written. However, over many years of converting the FAA amps I think there are a few easier ways to accomplish the same goals. Listed below is the procedure I use to modify the Power Supplies. Some of the original material is repeated for completeness. These mods are also adjusted to satisfy the 432 higher current draw requirements.

I. "Meter Board (Behind front panel)

R3 – Change from 2.7K to 15K
C1 – Remove"

II. "High Voltage Power Supply

A. On power supply board (A4)
   1. Make improved Ground for R1, R2"
   2. Replace 1/2 Watt R1, R2 (10 Ohm) with 2 Watt same value

B. "Short across one of the two 100K/95 watt Screen voltage dropping resistors." The shorted one becomes a spare for possible replacement later on (a known weak point)

III. Chassis Wiring

A. Remove the AC to AC converter module (A2)
B. Clip blue wire at E13 on A5 board (Runs down to R1 on switch)
C. Add wire from E8 (20vdc) on chassis **to** tie point E2 on Ac to AC converter module. (E8 is on the underside of the chassis rail between J4 and J6)

IV. Bias keying

A. Remove Bias Supply module (A3).
B. Remove all screws holding PC board to chassis. (Note: A long thin screw driver is required to remove the center mounting screw. This screw will not be replaced). Leave all wires attached.
C. Lift the ground ends of VR1 (1N3044B) and R16 (22K) from the PC board. Install a standoff insulator using the center mounting hole on the PC board. (This will serve as a new tie point for VR1, R16 and a new wire that will go to a new bias keying jack on the rear panel of the amplifier.) Break off the metal stand- off that is under the center mounting hole.
D. Attach the ground end of VR1 and R16 to the top of the standoff and to the new long wire that will be attached to the rear panel jack after the module is reinstalled. The rear panel jack can be any single contact connector (a RCA phono jack works)
E. New jack is now a key to ground (for transmit) circuit connection

V. Reinstall the modules and connect new wires.

V. Convert RF deck to 432 as per W3RJW

VI. A few of the original notes:

'When you are all done and have AC power on the amplifier you might notice that the meter isn't quite zeroed in the forward and reverse RF power positions. You can zero them by adjusting trim pots R9 (reverse) and R7 (forward). R7 and R9 are on the meter board behind the front panel.'

'There may be a small amount of plate current being drawn when in the stand-by mode. Depending on the tube, the bias cut off voltage may not be quite enough to completely cut the tube off. Small values of current should not cause concern. I have not had this problem with US made tubes.'

VII. Relationship between CUR-Plate meter reading and measured <u>cathode plus screen current</u> for one amplifier measured:

Meter	**Measured**
6	76 ma
10	140 ma
16	280 ma
20	400 ma
22	480 ma

VIII. Some typical meter readings of a working 432 amplifier

V-Plate	20
CUR-Plate	6 - Keyed no drive 20-25 - Key down
V-Screen	34-40
V-Grid	50 to Pegged UnKeyed 37-45 Keyed
V Htr	23-30
Exctr	15
Key	17

IX. Adjustments

The Forward power meter and the resting plate current can be set thru holes in the top cover.