AL 80B/572 Grid Overload Protection

1. Remove the amplifier's power cord from the outlet. Check the high voltage on the amplifier's internal meter. AFTER THE HIGH VOLTAGE HAS REACHED ZERO you may safely disconnect all the station wiring and cables from the rear panel jacks. Place the amplifier in a well lit area with adequate work space.

2. Remove the cover of the amplifier and connect a 2 watt or larger resistor with a value between 10 and 100 ohms to the anode connector with an insulated clip lead. NEVER DISCHARGE THE ANODE DIRECTLY TO THE CHASSIS. Leave this resistor connected while working with the amplifier. **NOTE:** Safety goggles should be worn for eye protection.

3. The STBY/OPR switch in this amplifier is easily damaged by heat. The best way to solder to this type of switch is to "sweat solder". "Sweat Solder" is done by applying a small "blob" of solder to the end of the wire, then apply a small blob of solder to the switch. Lay the wire onto the switch and sweat solder to the switch.

4. Connect W1 (blue/white) wire to W2 of the AL80B's power supply PC Board. (See Fig. 1.) **NOTE:** If the power supply PCB does not have a W2 then connect to the plus of the grid meter.

5. Remove the white wire from the bottom of the STBY/OPR switch, and connect to W3 of the overload PCB. **NOTE:** Remember to use heat sparingly.

6. Connect the red/white wire (W2) of the overload PCB to the bottom of the STBY/OPR. (This is where the white wire was removed from in step 3.)

7. Connect brown wire (W4) on overload PCB to brown wire on the top of power meter. (This is the 12V supply.)

8. W5 is not used.

9. Remove screw on power supply PCB. (See Fig. 1.)

10. Add spacer where the screw was removed in step 9. Mount the overload PCB to this spacer.

11. Double check connections and remove safety ground.

12. With the overload PCB installed, if 220 - 230 mA of peak current is reached, the "XMT" LED will no longer light and the amplifier will go into a bypass condition. Repeated tripping of the grid overload circuit usually indicates that the loading control is set too far counterclockwise for the amount of drive being applied to the amplifier or that something in the antenna system is changing impedance (arcing) during peaks.

AL-82 / 1200 Grid Protection

1. Turn Amplifier's power off and disconnect the power mains.
2. Make sure the HV meter goes to zero with the Multi-Meter Switch in HV position.
3. Remove the cover of the amplifier.
4. It is safe practice to use a screw driver with an insulated handle (or equivalent) with one end of a 100 ohm 2 watt resistor attached to the metallic end. **Note: The resistor should be in series with the chassis ground and the metallic end of the screwdriver.** While holding onto the insulated end connect the open end of the resistor to chassis ground and the metallic part of screwdriver to the Tube's Anode.
5. Remove the Angle Mounting Brackets from the grid overload PCB. (if it was shipped with the brackets mounted to the PCB)
6. Remove the two front screws and one spacer from the Filter Capacitor PCB.

7. With component side up, align the mounting holes of the Grid Overload PCB over the two holes where the screw was removed in previous step and secure with the same screws and spacer.

8. Connect the (W1) blue with white stripe wire to + of the Grid Meter.

Note the following steps will refer to the terminal strip located between the Plate and Grid meters.

9. Remove the jumper that connects the red wire to the black with white stripe, located on the terminal strip between the two meters.

10. Connect (W2) red with white stripe to the black with white strip on the terminal strip between the meters.

11. Connect (W3) orange wire to the red wire on the terminal strip.

12. Connect (W4) brown wire to the yellow wire on the terminal strip.

13 W5 is not used in this application.

14. Check wiring connection and remove the shorting screwdriver from the anode of the tube.

Operation:The amplifier will go into Stand-by mode when the grid current approaches 350 mA. Toggling the switch to STBY and back to OPR will reset the amplifier. Tripping of the grid circuit usually results from the load control being set too low of a numerical setting.

This grid overload circuit measures peak grid current which is much faster than the response time of the meter. The operator may not observe the meter climbing before the grid overload circuit disables the amplifier.

GOP-100

AL-811/H Grid Overload Protection

1. Remove the amplifier's power cord from the outlet.
Make sure the High Voltage on the amplifier's internal meter reads zero.

2. Remove the cover of the amplifier and connect one end of a 2 watt or larger resistor with a value between 10 and 100 ohms to chassis ground. Connect the other end of the resistor to the metallic part of the tubes Anode connector using an insulated clip. Only one has to be connected. **NOTE:** Safety goggles should be worn for eye protection.

3. The STBY Switch and meter are easily damaged by heat. The best way to solder to the meter and STBY SW. is to "sweat solder". "Sweat Solder" is done by applying a small "blob" of solder to the end of the wire, then apply a small "blob to the connection it is going to connect to. Lay the wire on the connection and apply heat from a Soldering Iron until the two "blobs run together.

4. R516 is not used in this application. Remove R516 from the overload board. Remove the 4.7K resistor from the STBY Switch (Older models remove the red wire from the STBY Switch) and connect to W3 post on the overload board.

5. "Sweat Solder" the Red with white strip wire coming from post W2 of the overload PCB to the STBY Switch where the 4.7K resistor (red wire on older units) was removed in previous step.

6. *Looking from the front of the amplifier* locate the bolt that holds the right front foot onto the amplifier. Slide the Overload's "L" Bracket over the bolt with component side towards the front of the amplifier and secure with supplied Kep Nut. Be sure that the components do not touch the switches on the amplifier.

7. Connect Brown wire from W4 of Overload PCB to any one of the yellow wires on the meter by "sweat soldering". The yellow wire is the 12 Vdc supply.

8. "Sweat Solder" the Blue with white strip wire from W1 of the Overload PCB with the Blue wire (+ terminal) on the Grid Meter.

9. W5 on Overload PCB is not used.

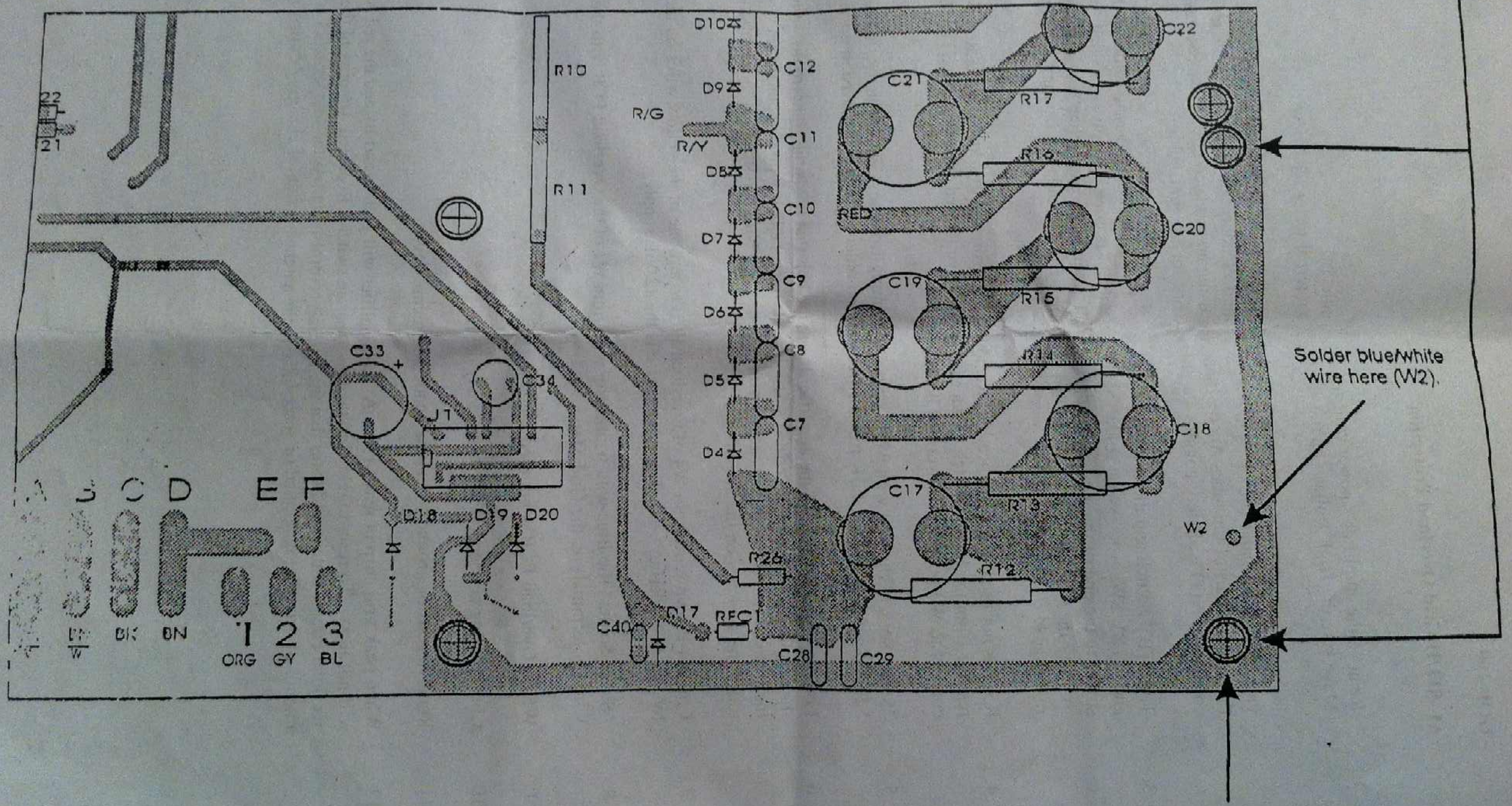
10. Check wiring connection and remove any debris.

11. Remove resistor ground from tube anode and secure cover.

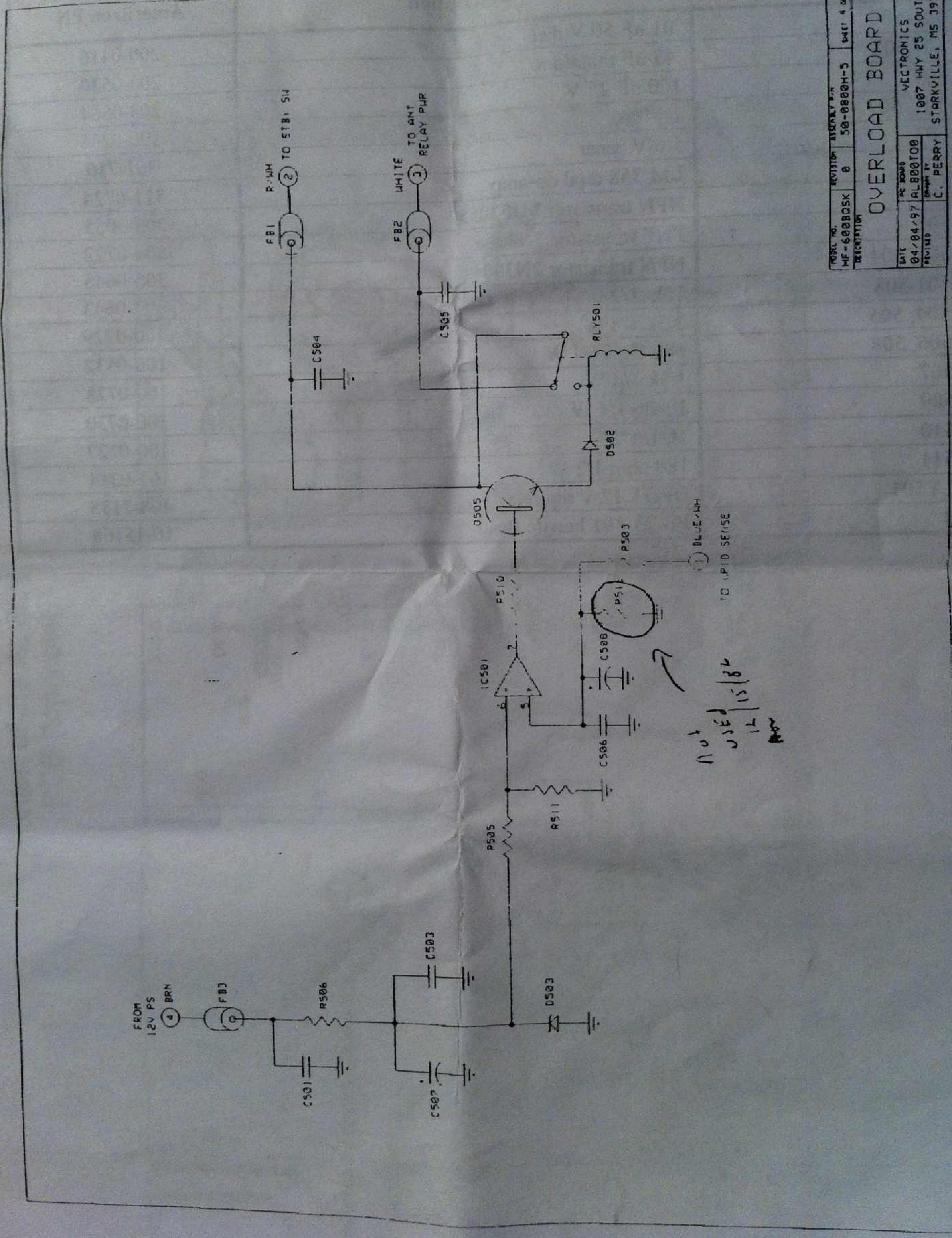
12. When peak grid current reach 190 mA the amplifier will go to stand-by and the red XMIT LED will not light. To reset toggle the Stand-by/Operate switch. Repeated tripping of the grid overload circuit usually indicates that the loading control is set too far counter clock wise for the amount of drive being applied or something in the antenna system is changing during peaks.

Figure 1

Portion of the AL-80B PCB (top view)



Timer / Overload Board (50-0080-5)

Designator	Description	Ameritron PN
C501-506	.01 uF 50 V disc	200-0416
C507,508	.47 uF tantalum	203-0530
C509	100 uF 25 V	203-0564
D501, 502	1N4001	300-0266
D503	5.6 V zener	301-710
IC501	LM 358 dual op-amp	311-0724
Q501	NPN transistor MJF3055	305-3055
Q502	PNP transistor 2N3906	307-0722
Q503, 504	NPN transistor 2N3904	305-0645
R501-503	10k 1/2 W	101-0643
R504, 505	3.3k 1/4 W	100-0729
R506, 508	680 ohm 1/4 W	100-0532
R507	1.8k 1/4 W	100-0728
R509	1 meg 1/4 W	100-0730
R510	1k 1/4 W	100-0727
R511	180 ohm 1/2 W	101-0384
RLY501	DPDT 12 V dip relay	408-2135
FB	FB 73-801 Ferrite Bead	10-15168

Overload PCB Schematic