



REHAB

**COMMUNICATIONS
POWER SUPPLY**

**MODEL
P-2000**

P-2000 restore

The P-2000 power supply for the SR-2000 transceiver is a straight forward design with no special or unusual circuits. As with all vintage power supplies for tube-based rigs all electrolytics should be replaced with modern capacitors. (Marked with a # symbol on schematic below) **DO NOT USE NOS OR NIB COMPONENTS.** You should search for very low ESR capacitors. By low ESR I mean 100 milliohm or less. Capacitors of 0.05 ohms or less are available and are most desirable. As a general rule I replace all the High Voltage leads internal to the power supply and rewire the high voltage pigtail from the power supply to the rig.

The capacitors C301 through C305 are safety capacitors. If they are replaced use X1/Y2 caps only.

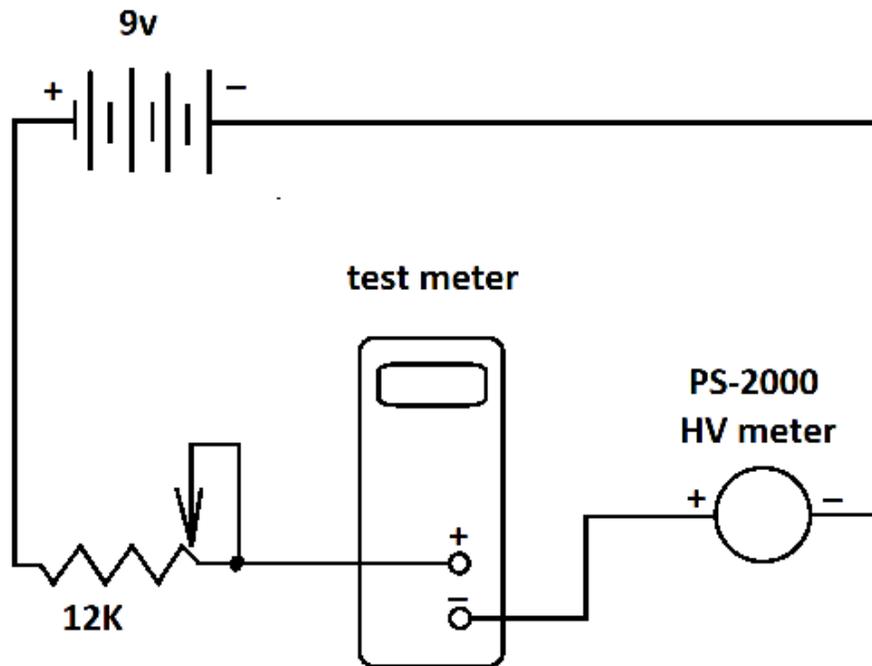
(Marked with * on schematic.)

The high voltage plug (P302 on the high voltage pigtail) and J5 on the rear of the SR-2000 are held together by a metal screw. Both screws should be replaced with nylon screws. It is common for arc over to occur because of metal screw.

I made pc boards to replace capacitor mounting boards. Worked quite well and look good also.

HV meter test

Disconnect the P-2000 from ac power and the SR-2000. Disconnect the leads from the HV meter. Connect a 9v battery and an ammeter in the configuration pictured below. Start with the pot set for max resistance.

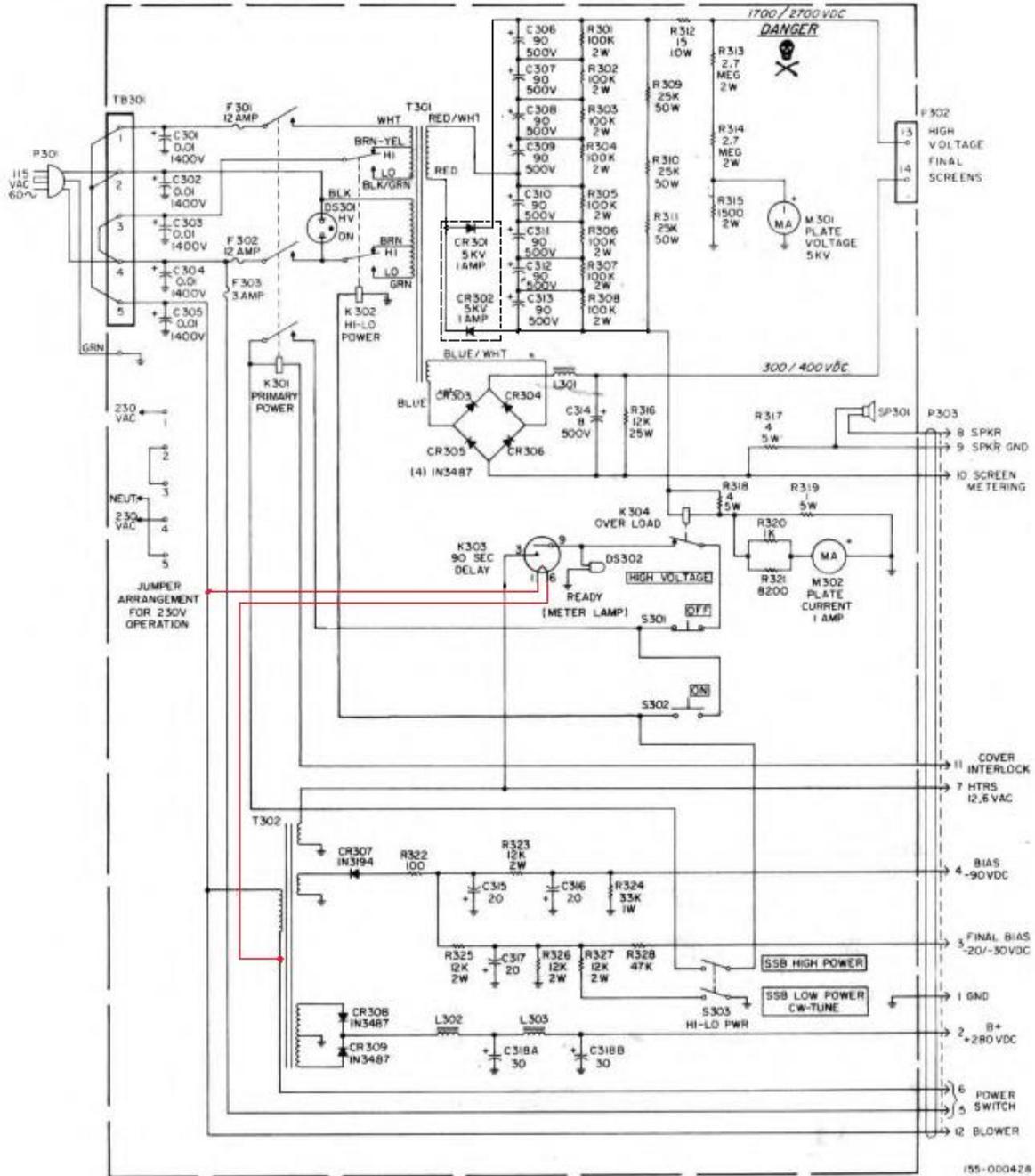


Adjust the 12k pot for 1ma on the test meter and the HV meter should read full scale.
Adjust the 12k pot for 0.5ma on the test meter and the HV meter should read 1/2 scale.

P-2000 MODIFICATION TO REPLACE 12VOLT THERMAL DELAY WITH A 115V THERMAL DELAY

The original 12vac thermal delay tubes are difficult to find and very pricey. Here is a simple mod to utilize the common 115vac thermal delay tubes. This mod uses the 115NO90T or the 115NO120T thermal delay tubes.

Wiring change to replace the 12NO90T thermal delay with a 115NO90T or 115NO120T
 Disconnect pin 1 of K303 from pin 3 of K303, leave pin 3 connected to the filament winding of T302. Connect pin 1 of K303 to one side of the primary of T302. Disconnect pin 6 of K303 from ground and rewire it to the other side of the primary of T302





The nylon standoffs came from ACE hardware.

I had some 30/30uf @ 500vdc on hand, but they can be purchased from <http://www.leadselect.com/parts-capacitors.html#electrolytic>. Minor chassis mod is required.

From <http://www.tubesandmore.com/>

C-EC50-50-500CE CAPACITOR, ELECTROLYTIC, 50/50 μ F @ 500 VDC,

FOOD FOR THOUGHT. The original capacitors are 90uf/500v with an ESR of 1.5 Ω . I found dual 50uf/500v capacitors with an ESR of 0.15 Ω at a lower price than the 90/500 caps. Paralleling the dual caps yields 100uf at an ESR of 0.075 Ω .

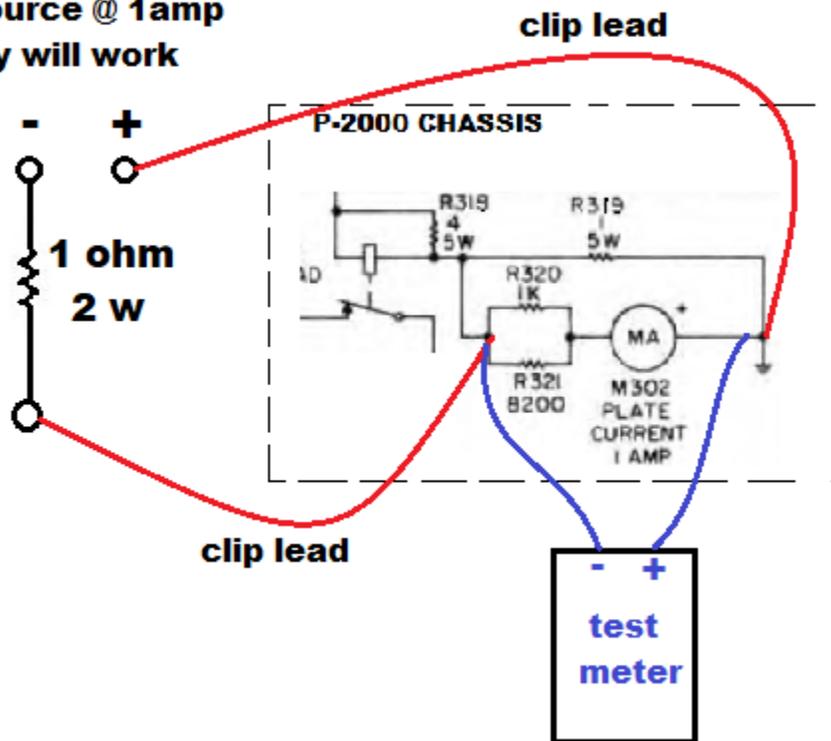
From Newark Electronics, <http://www.newark.com/jsp/home/homepage.jsp>.

90F1427 Manufacturer Part Number : TVA1508

Description: Aluminum Electrolytic Capacitor; Capacitor Type: General Purpose; Voltage Rating:250VDC; Capacitance:20uF; Capacitor Terminals: Axial Leaded;

Proper tuning and operation of the SR-2000 is dependent upon accurate indications of the plate current and screen current meters. Due to the age of the rigs, errors of 50 to 150% in the meter circuits are common. It is critical that plate current metering resistors; R318, 4-ohm, 5 w; R320, 1k, 1/2w; R321, 8.2k, 1/2w and R319, 1-ohm, 5w should all be tested. R320 and R321 should be replaced with modern 2% film resistors. There is a simple test for the plate current meter circuit. This test is done with the power supply turned off and disconnected from the SR-2000 and the case removed from the power supply. A **negative** 1.5 vdc is applied to the junction of R319, 320 and 321 through a 1 ohm 2-watt resistor. If all is well the test meter will read about 0.750vdc and the front panel meter will read 0.750 amps. The exact voltage is dependent on the actual value of the voltage applied and the actual resistance of the 1-ohm resistor you used. The key is the 1 to 1 relationship of the test meter millivolts measured and the front panel milliamps displayed.

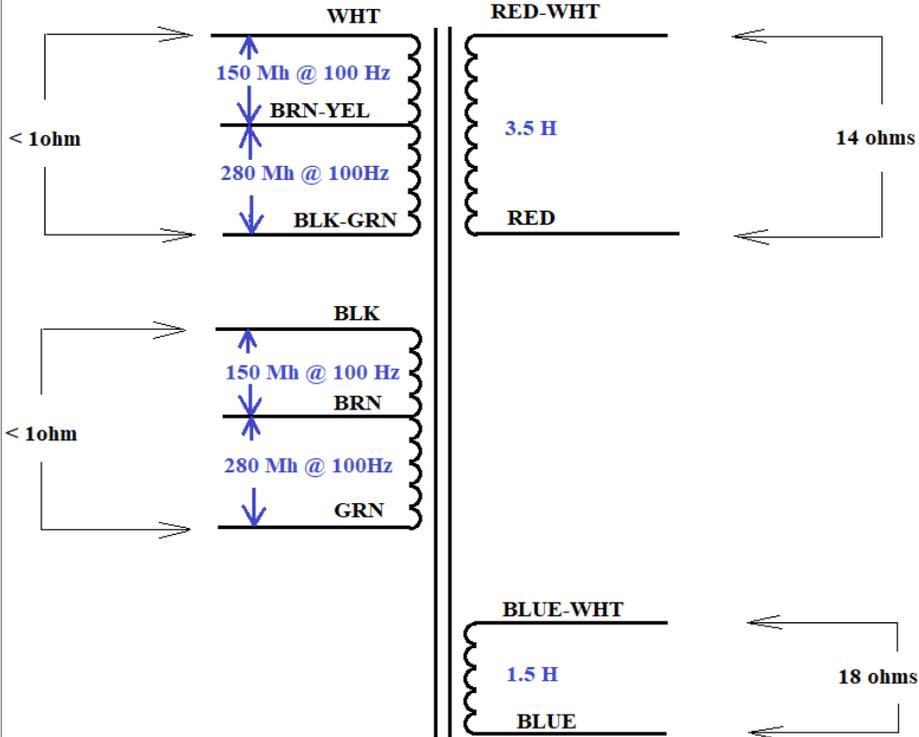
1 to 2 volt source @ 1amp
D cell battery will work



R317 the screen current metering resistor should also be checked. The resistance from pin 9 to pin 10 of P303 should be 4.00 ohms.

HV xfmr and filter choke specs

T 301



L 301

