

## High Voltage DC Power Supply Phil Salas – AD5X

Since I'm now playing with some vacuum tube transmitters, I need higher voltage DC power supply voltages for some of these transmitters. Voltage doublers and triplers can provide higher voltages from the output of a 13.8VDC-to-120VAC inverter. You should ALWAYS use an inverter or an isolation transformer rather than plugging into your AC mains outlet for safety reasons. At the very least, you can have a real shock hazard if your AC mains hot and neutral wires are reversed. So remember – **high DC voltages and improperly connected AC line voltages are very dangerous.** Be Careful!

For my transmitter power supply, I built a dual 325/450VDC power supply to handle my various requirements. The schematic is shown in Figure 1, and the parts list is shown in Table 1. The voltage doubler part of the circuit consists of D1, D2, C1, and C2. C3 and D3 make this circuit into a voltage tripler. So I can pick off either the doubled or tripled voltage from the circuit. I used high value resistors (470K) for bleeder resistors so as to minimize heat dissipation of the resistors. However, be aware that it takes about 10 minutes for the capacitors to completely discharge after AC power is removed.

I hot-glued the capacitors in the deep side of the plastic box. The terminal strip is mounted with a #4 sheet metal screw to an internal mounting hole in the plastic box. The switch and fuse are mounted on the side opposite the DC connectors. See the photos for views of the internal wiring and the front outside view. The front lettering was done using Casio "White-on-clear" labeling tape.

That's all there is to it. If you need a high voltage plate supply for that vacuum tube project, give this a try. But **PLEASE** be very careful around these potentially lethal voltages.

Phil – AD5X

To DC/AC inverter or isolation transformer only.

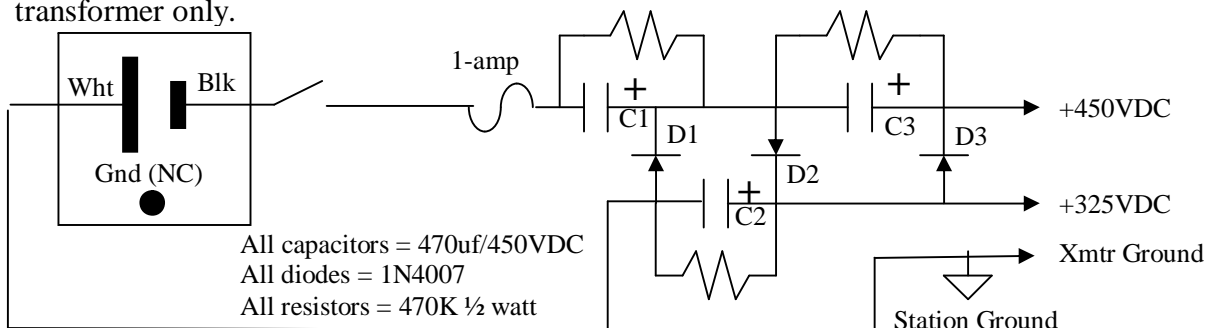
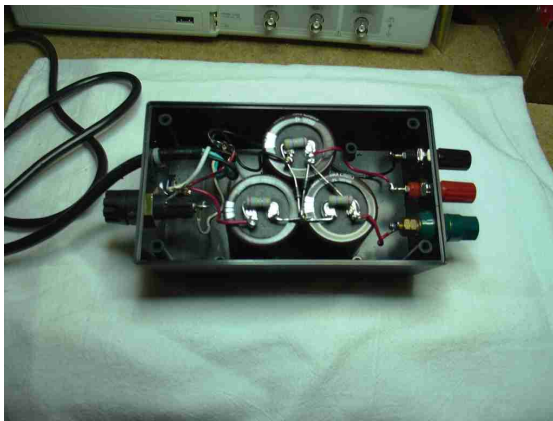


Figure 1: Dual Voltage DC Power Supply

Table 1: Parts List

<u>QTY</u>	<u>Description</u>	<u>Source/Part Number</u>	<u>Price each</u>
1	Serpac 153 plastic box	Allied 882-0014	\$7.77
1	Red Banana post	Allied 528-0138	\$1.93
1	Black Banana post	Allied 528-0139	\$2.01
1	Yellow Banana post	Allied 528-0142	\$2.39
1	Terminal Strip	Allied 750-6621	\$0.78
3	1N4007	All Electronics 1N4007	5/\$1.00
3	470K ½-watt resistor	All Electronics 470K-1/2	10/\$0.50
3	470uf/400V electrolytic	All Electronics CR-474	\$2.75
1	Toggle Switch	All Electronics MTS-4	\$1.00
1	GMA Fuse Holder	All Electronics FHPM-45	2/\$1.00
1	1-amp fuse	All Electronics GMA-1	5/\$0.75
1	AC line cord	All Electronics LCAC-115	\$2.50
1	DC/AC Inverter	All Electronics INV-80	\$17.00



High voltage power supply internal wiring. Front view of the high voltage power supply.