

PS-1 Regulated Power Supply

The PS-1 is a high quality low voltage regulated power supply. It is recommended for use with solid state preamplifiers, active crossovers, filters, CD players, and other circuits with low-to-medium current requirements. It is the same supply used in our IOC2 kit. The PS-1's voltage can be fixed from +/- 2 volts to +/- 24 volts by the selection of a few resistors, and its output is capable of supplying up to one ampere of current. The regulators are rated at 3 amps, so if your current requirements are higher than 1 amp, a larger transformer can be substituted without altering the present circuit configuration. The supplied toroid transformer can be used with both 120Vac/60Hz or 240Vac/60Hz operation. The figure below depicts the schematic diagram of the PS-1 circuit. This power supply is similar to the one designed by Walt Jung and Gary Galo and published in TAA and uses the Linear Technologies LT1085CT/LT1033CT voltage regulators. These regulators are low dropout, high efficiency devices highly recommended for audio applications. The main differences between the TAA design and the PS-1 are: The PS-1 uses a smaller VA rated transformer and a lower value output filter capacitance (the 4A transformer was really overkill); More bypass capacitors are used throughout the PS-1 circuit to prevent transients and other supply-related noise from reaching the audio circuitry; we have added the ultra-fast rectifier diodes, and most importantly the PS-1 is less expensive. Several options are available below:

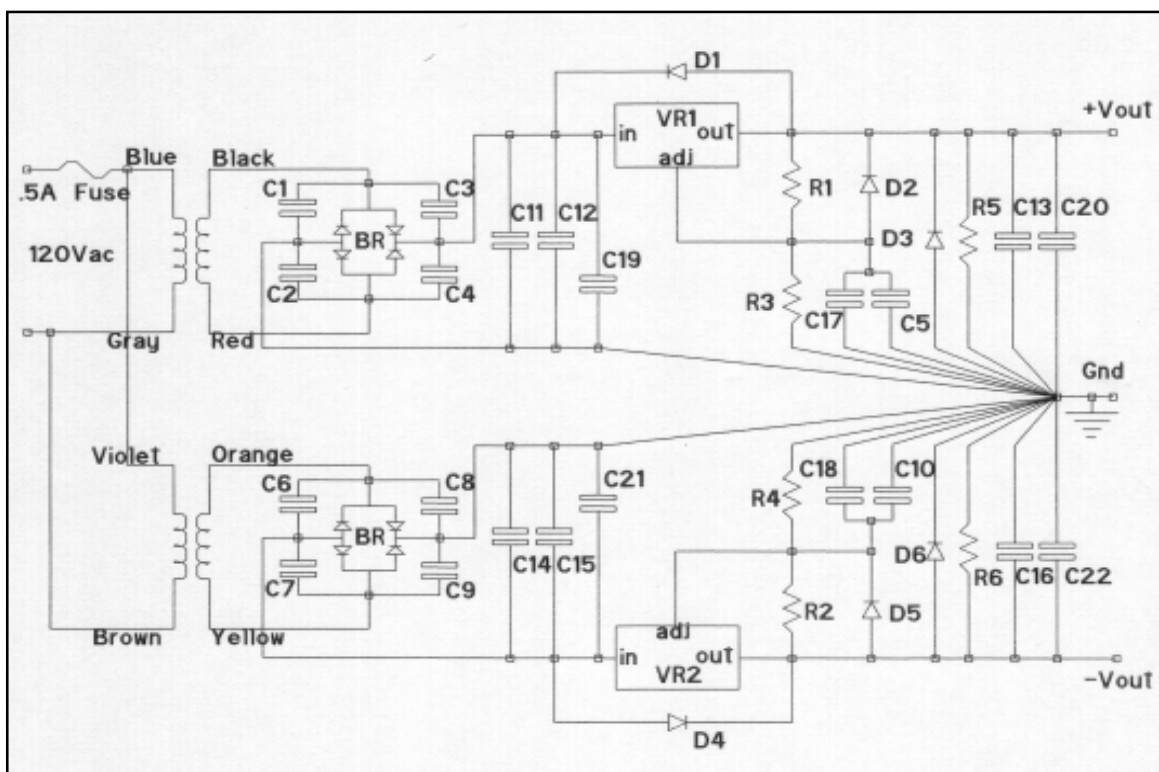
PS-1	(Includes all parts, circuit board, toroidal transformer)	\$150.00
PS-1A	(Includes all parts, circuit board, Less transformer)	\$100.00
PS-1B	(Circuit board only)	\$ 18.00

*** Please specify desired output voltage. Typical outputs available are +/-5V, +/-12V, +/-15V, +/-18V, +/-24V*** and we can provide others, but please specify as this will reduce delays in processing your order.

PS-1 Parts List

C1-C10	0.01uf/63V	WIMA Polypropylene capacitors
C11-C16	2200uf/35V	Elna Electrolytic capacitors
C17, C18	100uf/35V	Elna Electrolytic capacitors
C19-C22	0.1uf/160V	WIMA Polypropylene capacitor
R1,R2,R3,R4	Select	1% Metal film resistor (Roederstein)
R5,R6	1.0 Kohm	1% Metal film resistor (Roederstein)
BR1-BR8	3A/200V	HEXFRED Ultra-Fast rectifier diodes
VR1	LT1085CT	Adjustable positive voltage regulator (Linear Technologies)
VR2	LT1033CT	Adjustable negative voltage regulator (Linear Technologies)
D1-D6	1A/100V	Diode
T1	22+22V/1.5A	Toroidal Transformer

Miscellaneous heatsinks, one circuit board, 3' each (rd, wh, blk) 18ga teflon coated hookup wire, standoffs



PS-1 Power Supply Schematic Diagram

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PS-1 Assembly Instructions

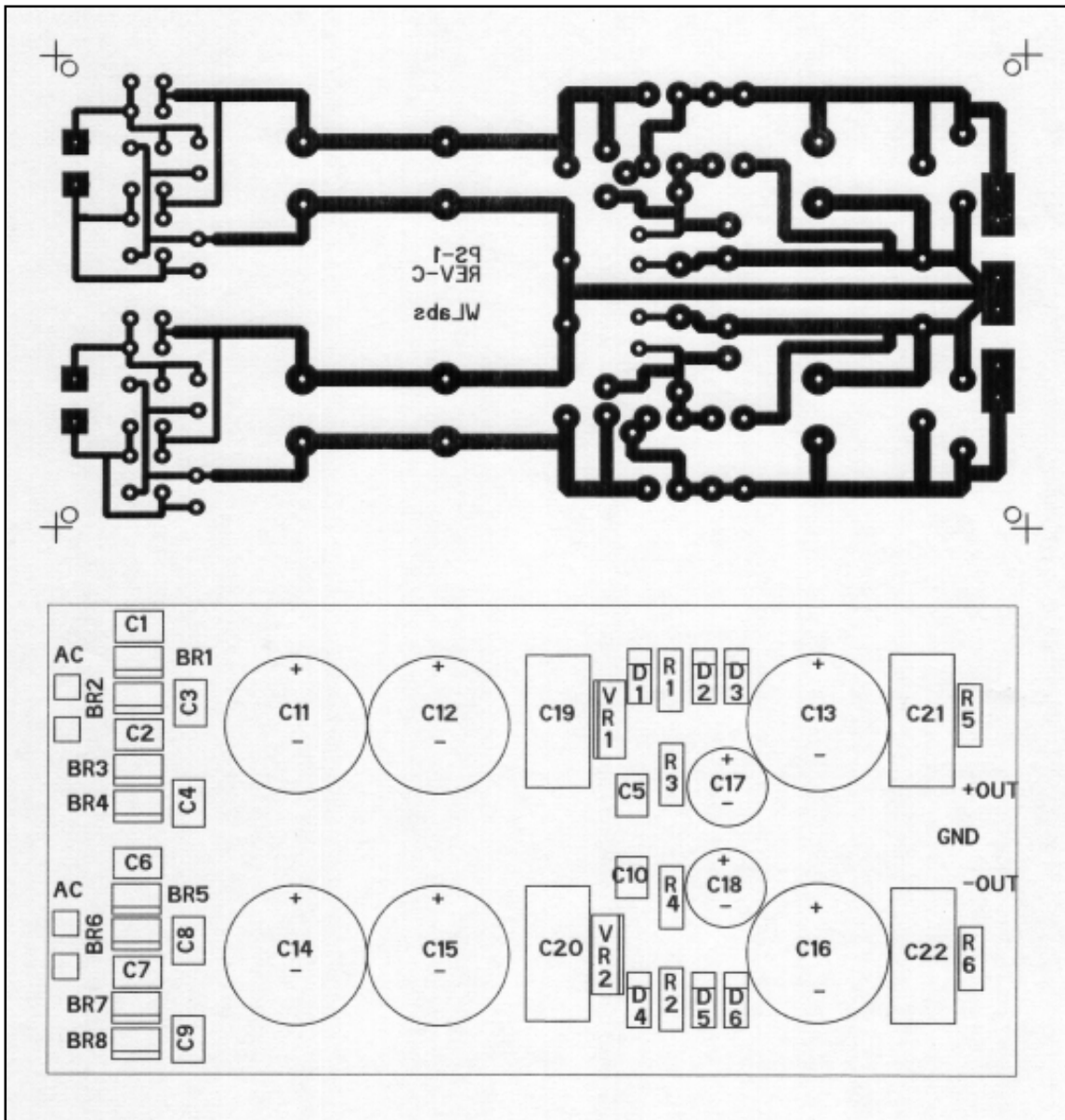
The PS-1 is a small, relatively simple circuit that can be assembled in approximately one hour. Please follow the stuffing guide shown below and note polarities of the bridge rectifiers, electrolytic capacitors, diodes and voltage regulators.

The following equation can be used to calculate the resistor values required for a specific output voltage:

$$V_{out} = 1.25 (1 + R3/R1) + R3 (50E-6)$$

The table below lists resistor values for several common voltages. If you order our kit, be sure to specify which voltage you will be using, and we will send you the correct values.

Resistance	Voltage	Resistance	Voltage
R1/R2 = 1.00 Kohm	R3/R4 = 2.74 Kohm	R1/R2 = 0.95 Kohm	R3/R4 = 12.1 Kohm
R1/R2 = 1.21 Kohm	R3/R4 = 10.0 Kohm	R1/R2 = 1.91 Kohm	R3/R4 = 33.2 Kohm
R1/R2 = 1.00 Kohm	R3/R4 = 10.5 Kohm		
	+/- 5 Volts		+/- 18 Volts
	+/- 12 Volts		+/- 24 Volts
	+/- 15 Volts		



PS-1 Power Supply Stuffing Diagram (Board Dimensions 3" x 6")

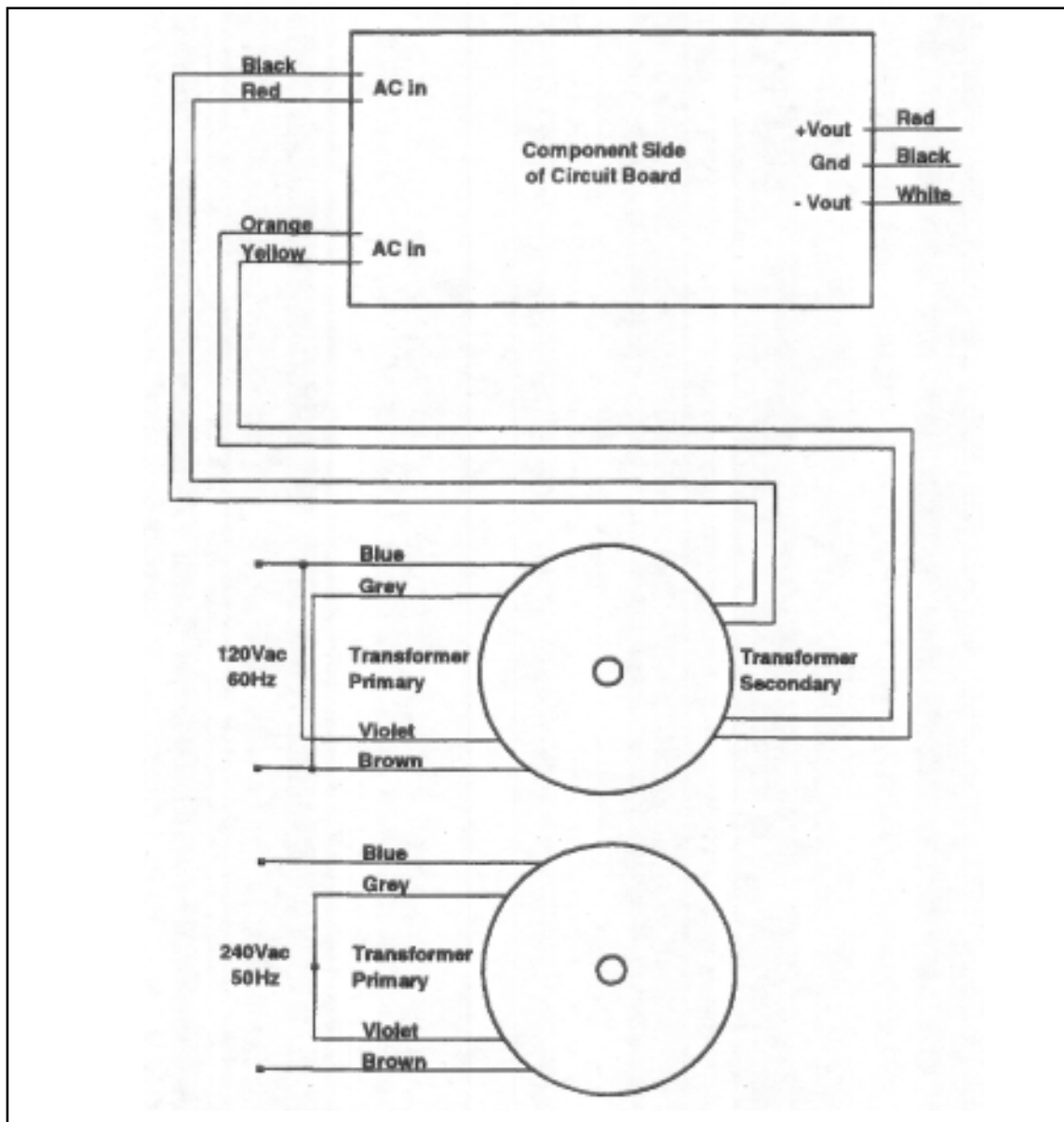
Recommended Assembly Sequence

We recommend you follow the assembly sequence outlined below. Before starting check your kit for all components.

- 1) Install and solder resistors and diodes (note polarity of diodes).
- 2) Install and solder Wima bypass caps C1-C10 and C17/C18
- 3) Install and solder the rectifier diodes BR1-BR8 (note polarity).
- 4) Install and solder the electrolytic capacitors (note polarity).
- 5) Attach heatsinks to the regulators VR1 and VR2
- 6) Install regulators and solder (note that VR1 is installed in the opposite direction of VR2).
- 7) Attach transformer wires to the circuit board as outlined below (note the transformer can be wired for both 120Vac or 240Vac).

PS1 Checkout and Test

Inspect all solder joints under a bright light. Look for voids, bad joints and solder bridges. Power-up the PS1 before connecting to your circuit. Check the +/- output voltages with a voltmeter to insure correct operation.



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