

# PM-800 POWER SUPPLY MODULE v3.1 ASSEMBLY & INSTALLATION INSTRUCTIONS

**WARNING: This upgrade is not for the inexperienced in amplifier theory and repairs as the voltages inside the amplifier CAN and WILL KILL YOU! Different versions of the LK-450/500/550/800 amplifiers used different wiring colors and parts layouts. You MUST be able to read your schematic and understand the design, theory, wiring and construction of your particular amplifier to properly perform this upgrade.**

## PM-800 POWER SUPPLY MODULE ASSEMBLY

- ( ) **Read, re-read and fully understand these instructions prior to beginning this upgrade.** Make sure to perform the steps in the order they are listed. Also, be sure to label wires as they are disconnected from various points inside the amplifier. This will help when the time comes to re-attach the wires that will be disconnected during installation of the kit.
- ( ) Go through the Bill of Materials (BOM) and compare that list with the parts in the kit to make sure all parts are present. If you are missing any parts, please contact Harbach Electronics, LLC.
- ( ) Assemble the PM-800 according to the parts layout diagram and silkscreen on the printed circuit board (PCB). All parts mount on the top (silk screened) side of the new PCB **except resistors R4-R10. Resistors R4-R10 MUST be spaced approximately ¼” below the PCB for proper heat dissipation. Use any kind of spacer you have to help secure the resistor while soldering it, but make sure the resistors are ¼” below the PCB!** A suggested assembly sequence is resistors R4-R10 (mounted on underside of PC board), then diodes D1-D17 (mounted upright) (**pay attention to polarity!**), followed by resistors R18-R21 (mounted upright), then electrolytic capacitor C3 (**pay attention to polarity!**) and finally electrolytic capacitors C4-C10 (**pay attention to polarity!**).

## PM-800 POWER SUPPLY MODULE INSTALLATION

- ( ) Unplug the amplifier power cord from the AC mains and let any high voltage stored in the electrolytic capacitors bleed down. Verify the HV has bled down as shown on the HV meter. Remove the top cover. Be sure to use a shorting bar to short the HV to ground to make sure the HV is bled completely off. You are now ready to proceed with the installation of the new power supply module.
- ( ) Before removing the original power supply PCB from the amplifier, make notes as to the placement of wires on the PCB. This is important as all wires connected to the old PCB will need to be connected to the corresponding connection points on the new PCB. You should use the new PCB as a reference. These points are labeled A, B, C, D, E, F, G, H, I, J, K and XFMR (2 pads). Some of these connection points may not be used as different versions used slightly different wiring schemes. In most amplifiers, the XFMR (2 wires) and K (B+) leads are soldered to the underside of the power supply PCB. The connection at J may be a wire or resistor lead depending on the combination of metering resistors used during assembly at the factory.
- ( ) Remove all screws holding the old power supply PCB in place. Most units have 7. Unsolder all wires connected to the old power supply PCB (make sure they are each labeled!). Remove the old power supply PCB from the chassis.

- Remove and save all the mounting posts from the old power supply PCB. Four (4) posts will be used to secure the new power supply PCB in place. Install one (1) of the spacers on each corner of the new power supply PCB.
- Carefully unsolder and remove R2 and R3 from the old power supply PCB one at a time. Then install them in the appropriate locations on the new power supply PCB. These resistors are also mounted upright. Some versions of the old power supply PCB may have R2 and R3 reversed. Read or measure the value of both resistors. R2 is the plate current shunt resistor which should be the smaller value. R3 is the grid current shunt resistor which should be the larger value.
- Reattach the appropriate wires to points A, B, C, D, E, F, G, H, I, J, K, X1 and X2 on the new power supply PCB. The two leads from the HV transformer that attach at solder pads X1 and X2 should be soldered on the underside of the new PCB.
- Solder the HV plate wire to solder pad K on the underside of the new power supply PCB. To avoid a B+ short to chassis ground, be sure that nothing uninsulated protrudes from this pad as it is very close to the center chassis partition.
- Once all wires have been attached to the new power supply PCB, mount the new PCB in the amplifier using 4 mounting screws removed earlier. Be sure to dress the wires away from any HV components.
- Review the installation and recheck your wiring and soldering at this point!!!**
- Replace the top cover of the amplifier.

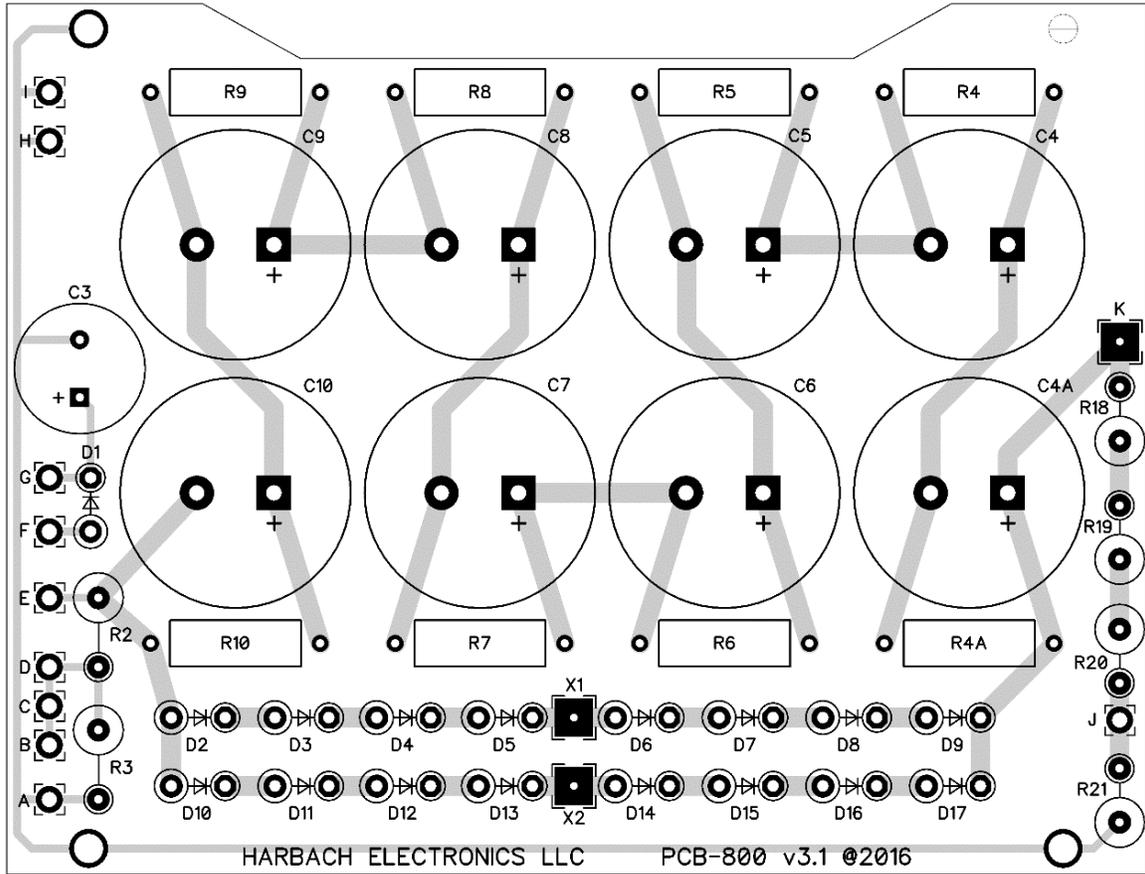
This completes the installation of the PM-800 power supply module. It will provide you with additional years of reliable service from your Amp Supply LK-Series amplifier.

**For comparison purposes, the following wiring information is provided. Note: This may or may not be accurate for your particular model and/or version, but is provided to assist in troubleshooting. These were the wires in the LK-450 used to develop this kit.**

Also see the schematic on page 4. Thanks to Jason Cooper, KN7AZ, for the schematic!

<b>A</b>	WIRE FROM PLUG J1 (GROUND)
<b>B</b>	WIRE FROM J1 (PLATE CURRENT METER)
<b>C</b>	WIRE FROM GRID SIDE OF MULTIMETER SWITCH
<b>D</b>	WIRE FROM ZENER DIODE/BIAS BOARD
<b>E</b>	WIRE FROM J1 (PLATE CURRENT METER)
<b>F</b>	WIRE FROM FILAMENT XFMR CENTER TAP (LOW VOLTAGE AC)
<b>G</b>	WIRE FROM STANDBY/XMIT SWITCH
<b>H</b>	WIRE FROM VOLTAGE SELECTOR BOARD (LOW VOLTAGE AC GROUND)
<b>I</b>	WIRE FROM FILAMENT XFMR (GROUND)
<b>J</b>	WIRE FROM HV SIDE OF MULTIMETER SWITCH
<b>K</b>	HIGH VOLTAGE B+
<b>X1</b>	HV AC FROM TRANSFORMER
<b>X2</b>	HV AC FROM TRANSFORMER

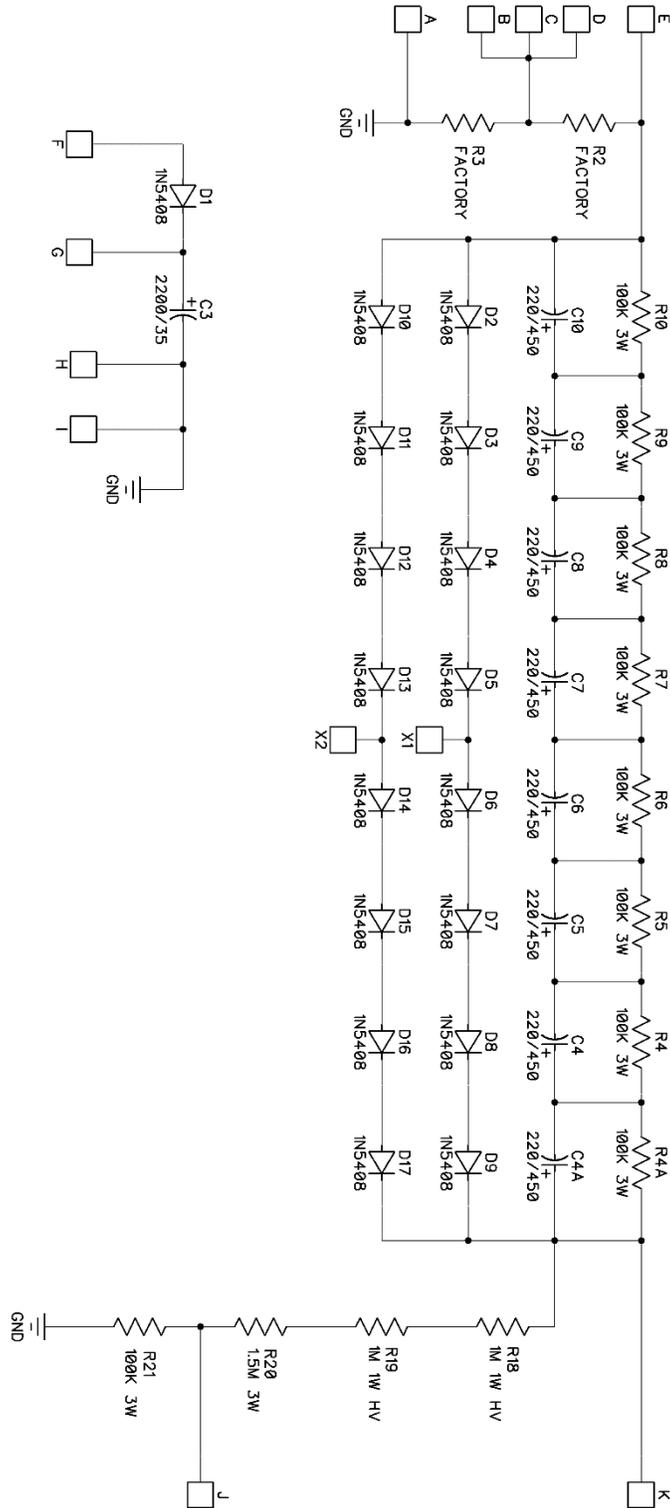
## PM-800 POWER SUPPLY MODULE PCB PARTS LAYOUT (PCB-800)



### PM-800 BILL OF MATERIALS (BOM)

Verification	Part Number	Quantity	Description	Designation
[ ]	PCB-800	1	PM-800 Power Supply Module PCB v3.1	N/A
[ ]	CAP-400	1	2200 $\mu$ F 35VDC Electrolytic Capacitor	C3
[ ]	CAP-111	8	220 $\mu$ F 450VDC Electrolytic Capacitor	C4-C10
[ ]	DIO-102	17	3A 1000 PIV Diode (1N5408)	D1-D17
[ ]	N/A	1	Plate Current Shunt Resistor	R2
[ ]	N/A	1	Grid Current Shunt Resistor	R3
[ ]	RES-101	9	100K $\Omega$ 3W Resistor	R4-R10, R21
[ ]	RES-302	2	1M $\Omega$ 1W HV Resistor	R18-R19
[ ]	RES-450	1	1.5M $\Omega$ 3W Resistor	R20

# PM-800 POWER SUPPLY MODULE SCHEMATIC (PCB-800)



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