PM-200 POWER SUPPLY MODULE v3.2
ASSEMBLY & INSTALLATION INSTRUCTIONS

WARNING: Voltages inside the amplifier CAN & WILL KILL YOU! You MUST know how to work around HIGH VOLTAGE safely. If you do not, get assistance from someone who does. You MUST also be able to read your specific amplifier schematic and understand the design, theory and wiring of your amplifier to properly perform this upgrade.

PM-200 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.

(_) Solder components to the top (silk screened) side of the printed circuit board (PCB) according to parts layout diagram and silk screen on the top of the PCB. All parts mount flush to the PCB **except** for R1A-R6B. **Make sure resistors R1A-R6B are mounted approximately ¼" above the PCB.** In addition, solder one end of the 5" #20 **BLUE** wire to the underside of the PCB at pad **"V"**.

PM-200 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 any input, output and control cables that may be connected to the back of the amplifier.

(_) **Be sure that all high voltage has been properly bled to ground before removing any covers or putting your hands inside the amplifier. You CAN BE KILLED by the high voltage inside this equipment!**

(_) Remove the chassis from the case and remove the perforated sheet metal RF shield from the top of the chassis. Remove the tubes and place them in a safe place.

(_) Place the amplifier on its side (transformer down). Unsolder all wires connected to the original power supply PCB. These are the **RED** and **RED & YELLOW** HV secondary transformer wires on the top side of the PCB, a **GRAY** wire and a **YELLOW** wire from the top side of the PCB (these wires pass through the hole in the PCB), the **(3) 4.7MΩ resistor assembly** connected between hole "**B**" on the bottom side of the power supply PCB and lug #2 of terminal strip "J" and the heavy **BLUE** HV wire connected to hole "**A**" on the bottom side of the power supply PCB.

(_) Once the (3) 4.7MΩ resistor assembly has been removed it can be discarded as it is replaced on the new power supply PCB.

(_) Remove the (9) #6-32x3/8" screws, washers and nuts that secure the original PCB in place. Save this hardware as it will be used to secure the new PCB.

(_) Place the amplifier right side up and remove the 5 control knobs from their shafts.

(_) Remove the 3 nuts and washers that secure the band switch, meter switch and sensitivity potentiometer and save them.

(_) Remove the (4) #6-32x3/8" Phillips-head screws, washers and nuts that secure the front panel. Save this hardware.

(_) Gently tilt the front panel forward. You may have to carefully pry it loose with a small screwdriver because the paint from the front panel may stick to the chassis. Place the front panel down in front of the chassis.

(_) Lift the original power supply PCB from the front so that it tilts upward about 1".

(_) Using diagonal cutters, cut the original PCB from the front left corner all the way back to the wire hole. This will break out a path for the wires to exit. Be careful not to cut any wires during this process. This will free the original PCB so that is can be removed without further unsoldering of wires.

(_) Carefully work the original PCB out of the power supply compartment and discard it.

(_) Install the new power supply PCB and work it into position with the wires passing through the slot in the PCB.

(_) Secure the PCB on the right side with 2 or 3 of the #6-32x3/8" screws, washers and nuts. Tighten enough to hold the PCB. They will be tightened later.

(_) Reinstall the **YELLOW** and **GRAY** wires in their respective holes in the bottom side of the new power supply PCB and solder on the bottom side.

(_) Swing the front panel back into position and reinstall the (4) #6-32x3/8" Phillips-head screws, washers and nuts.

(_) Reinstall the 3 control flat washers and nuts and tighten.

(_) With the amplifier on its side (transformer down), install the remaining #6-32x3/8" screws, washers and nuts holding the new PCB in place. Tighten all screws. You will have one screw, nut and washer left over.

(_) Put the **RED** and **RED & YELLOW** transformer wires through their appropriate holes in the top side of the new power supply PCB and solder on the bottom side.

(_) Place the amplifier upside down.

(_) Refer to the pictorial on page 5. Locate the 2-lug terminal strip "J" just to the rear of the new power supply PCB. Remove the 15KΩ resistor and clean the holes in the terminal strip lugs. **Note: There is still a blue wire connected to the insulated terminal lug (lug #2).**

(_) Connect the free end of the 5" #20 **BLUE** wire connected to solder pad **"V"** on the new PCB to the **insulated** lug (lug #2) of the terminal strip. **DO NOT** solder yet.

(_) Connect the supplied 15KΩ ½-watt resistor between lug #1 and lug #2 of terminal strip "J". Solder all connections.

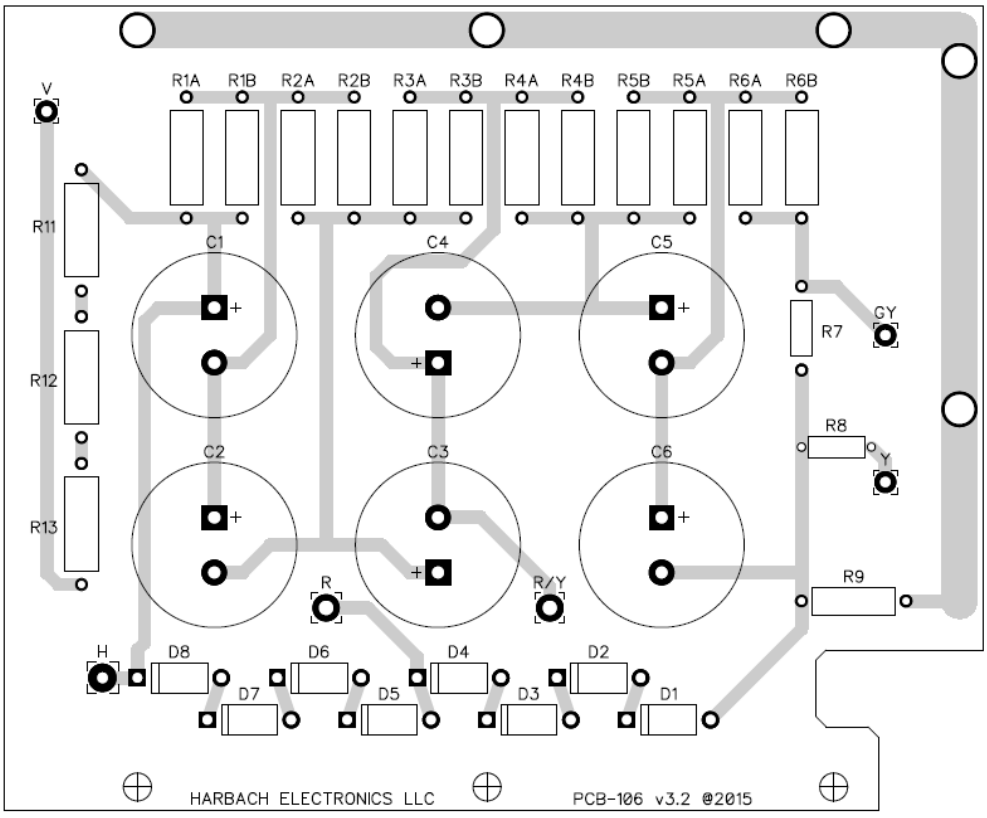
(_) Solder the heavy **BLUE** HV wire to the solder pad marked **"H"** on the underside of the power supply PCB.

(_) Carefully inspect all work. Replace the front panel knobs (make sure they are properly aligned with the front panel markings).

(_) Reinstall the tubes and the perforated sheet metal RF shield on the top of the chassis and put the chassis back into the case.

This completes the installation of the PM-200 power supply module. It will provide you with a better power supply that provides the necessary B+ filtering and regulation. Your amplifier should not experience any power supply problems in the future.

PM-200 POWER SUPPLY MODULE PCB PARTS LAYOUT (PCB-106)



PM-200 BILL OF MATERIALS (BOM)				
Verification	**Part Number**	**Quantity**	**Description**	**Designation**
[ ]	PCB-106	1	PM-200 Power Supply PCB v3.2	N/A
[ ]	CAP-111	6	220µF 450VDC Electrolytic Capacitor	C1-C6
[ ]	DIO-102	8	3A 1000 PIV Diode (1N5408)	D1-D8
[ ]	RES-109	1	1Ω 3W Resistor	R9
[ ]	RES-117	12	82KΩ 3W Resistor	R1A-R6B
[ ]	RES-118	1	910Ω 2W Resistor	R7
[ ]	RES-119	1	15KΩ 1/2W Resistor	N/A
[ ]	RES-152	3	4.7MΩ 1W Resistor	R11-R13
[ ]	RES-153	1	3.6KΩ 1/2W Resistor	R8
[ ]	WIR-107	5”	#22 Stranded Blue Wire	N/A

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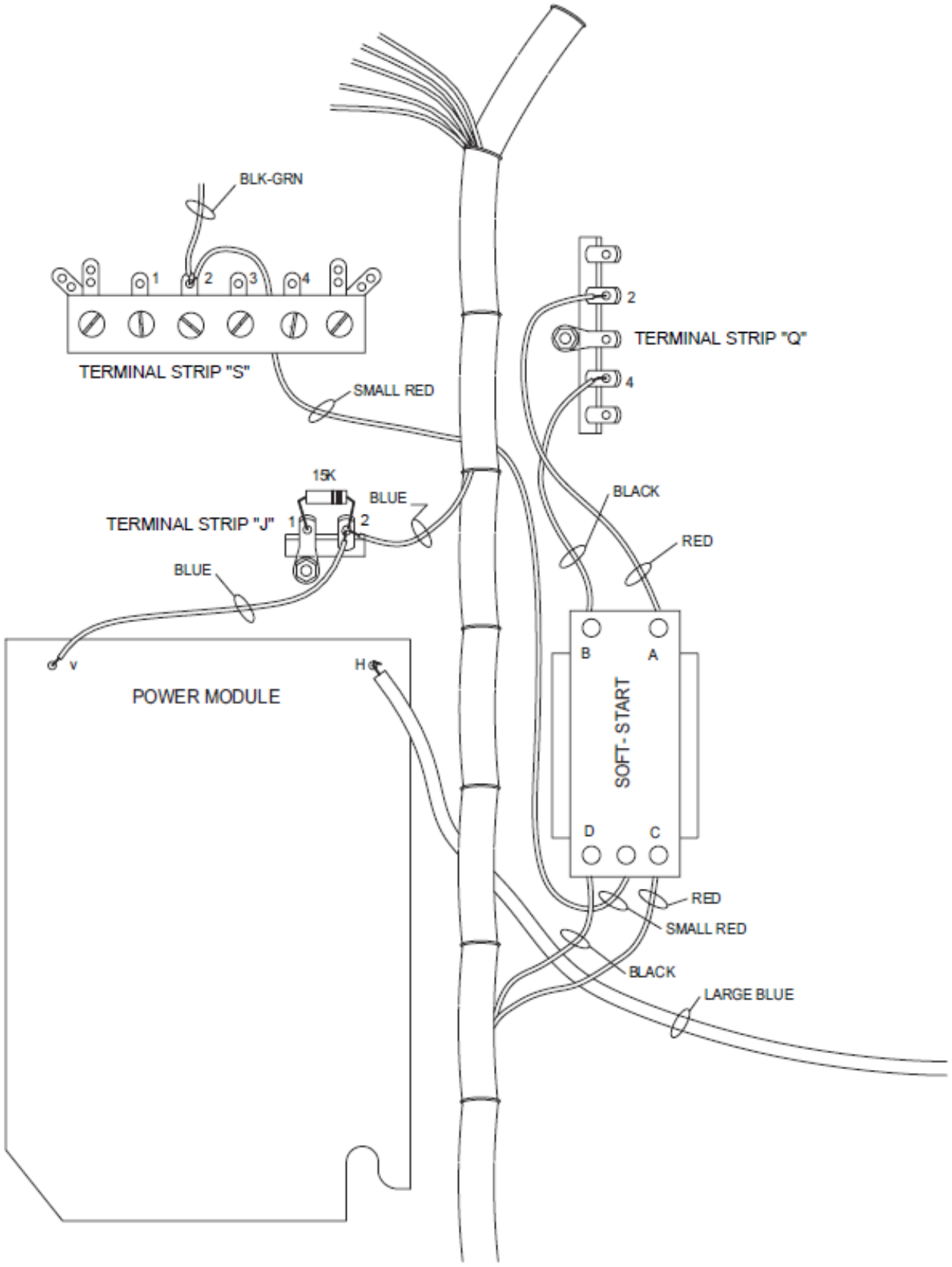

SB 200 POWER MODULE AND SOFT-START UNDER-CHASSIS WIRING AND PLACEMENT