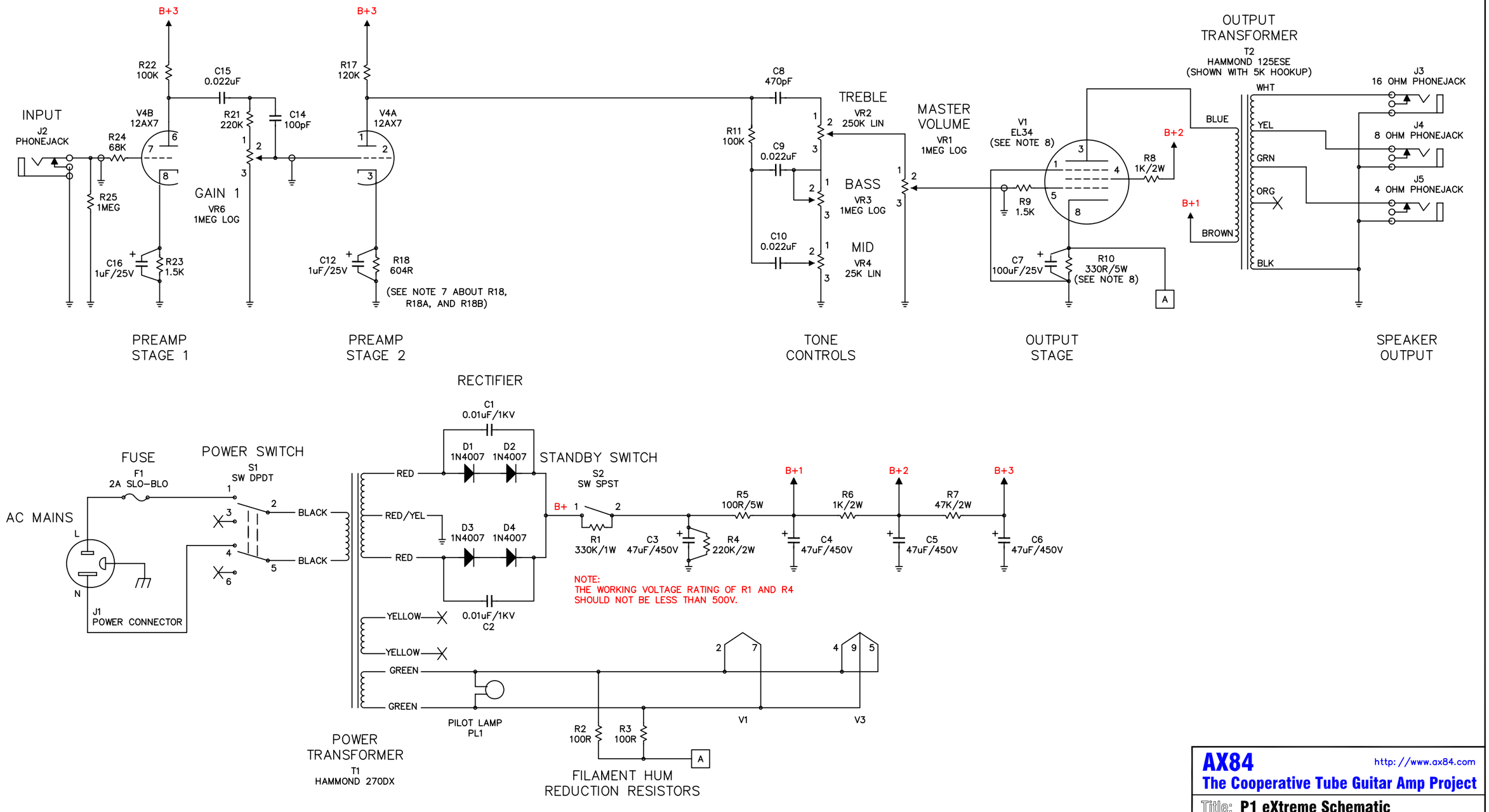
CAPACITOR, DIODE, RESISTOR, POT. AND TUBE NUMBERING NOTE:

GAPS HAVE BEEN LEFT IN THE CAPACITOR, DIODE, RESISTOR, POTENTIOMETER, AND TUBE NUMBERING IN ORDER TO MAINTAIN CONSISTENCY BETWEEN THE P1, HIGH OCTANE, AND P1 EXTREME AMPS. A MISSING COMPONENT INDICATES THAT IT IS NOT USED ON THAT AMP, BUT IS USED ON ANOTHER.

Revision	Description
05.11.23	Issued For Construction
06.02.23	Changed R5 To 5W Rating Added Note About R1 And R5 Voltage Rating Changed The Wording Of General Note 7
06.03.16	Corrected S4 Headroom Adjust Switch



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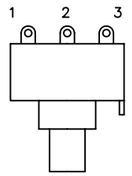
The Cooperative Tube Guitar Amp Project

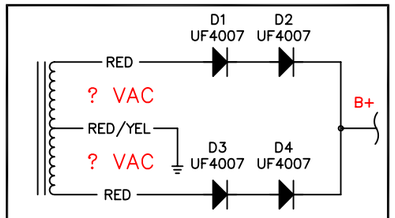
Title: **P1 eXtreme Schematic**

Sheet 1 Of 3 | Revision 06.03.16

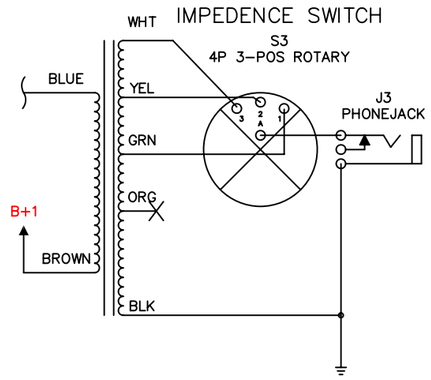
Revision	Description
05.11.23	Issued For Construction
06.02.23	Changed R5 To 5W Rating Added Note About R1 And R5 Voltage Rating Changed The Wording Of General Note 7
06.03.16	Corrected S4 Headroom Adjust Switch



01 **POTENTIOMETER PINOUTS - TOP VIEW**



02 **UF RECTIFIER OPTION**



03 **HAMMOND OT 5K HOOKUP (ROTARY)**

GENERAL NOTES:

1. ALL RESISTORS 1/2W MINIMUM UNLESS OTHERWISE NOTED.
2. ALL COUPLING CAPACITORS 400V OR GREATER.
3. 47uF/450V ELECTROLYTIC POWER SUPPLY CAPACITOR VALUES/VOLTAGES ARE NOT CRITICAL. SUGGESTED VALUES: 20uF-50uF AT 450-500V.
4. THE HAMMOND 270DX POWER TRANSFORMER IS USED IN THIS AMP. IT CAN BE REPLACED WITH THE HAMMOND 270EX OR 370FX (FOR 220-240V MAINS) ALTHOUGH THESE TWO UNITS WILL NOT FIT THE MOUNTING BOLT PATTERN ON THE CHASSIS DRILL PLAN. THE HAMMOND 270DX MAY BE REPLACED BY OTHER TRANSFORMERS WITH THE FOLLOWING SPECIFICATIONS:

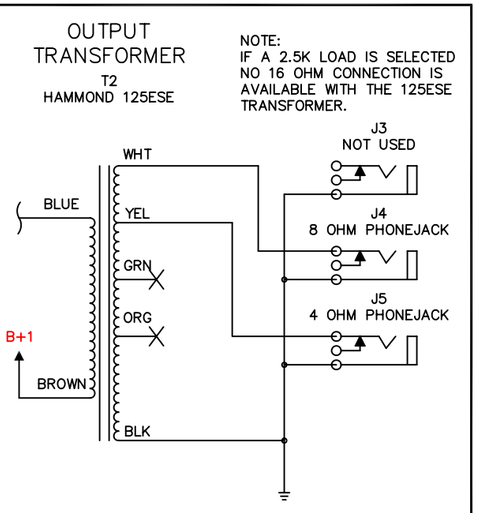
   275-0-275V @ 90mA OR MORE SECONDARY B+ TAPS 6.3V @ 3A OR MORE FILAMENT TAPS
5. THE HAMMOND 125ESE OUTPUT TRANSFORMER IS USED IN THIS AMP. IT MAY BE REPLACED BY UNITS WITH THE FOLLOWING SPECIFICATIONS:

   SINGLE-ENDED OUTPUT
   2500-5000 OHM PRIMARY IMPEDENCE
   80mA OR MORE MAXIMUM D.C. BIAS
   4, 8, AND 16 OHM SECONDARY TAPS
6. C1 AND C2 ARE NOT REQUIRED IF D1, D2, D3, D4 ARE UF4007 RECTIFIERS.
7. R18 MAY BE FORMED BY R18A AND R18B IN PARALLEL. R18, R18A, AND R18B VALUES HAVE BEEN CALCULATED FOR A "TYPICAL" 12AX7, AND MAY BE OPTIMIZED. FOR MAXIMUM PREAMP HEADROOM, FIRST ADJUST THE VALUE OF R18A, SO THAT THE ANODE (AKA "PLATE") VOLTAGE OF V4A IS 2/3 OF PREAMP RAIL VOLTAGE (B+3). THEN FOR REGULAR EXTREME OPERATION, TWEAK R18B, SO THAT WITH BOTH RESISTORS IN PARALLEL (SWITCH CLOSED), V4A'S ANODE VOLTAGE IS 1/2 OF B+3. REDUCING RESISTORS' VALUES WILL REDUCE V4A ANODE VOLTAGE. R18A AND R18B VALUES MAY BE DECREASED FURTHER FOR MORE DISTORTION. B+3 VOLTAGE WILL CHANGE BETWEEN SWITCH POSITIONS, SO TRIAL AND ERROR MAY BE REQUIRED.
8. THESE ARE THE GUIDELINES FOR R10 WHEN USING VARIOUS OCTAL POWER TUBES. IT IS RECOMMENDED THAT THE RESISTOR VALUE BE OPTIMIZED FOR POWER DISSIPATION AND TONE.

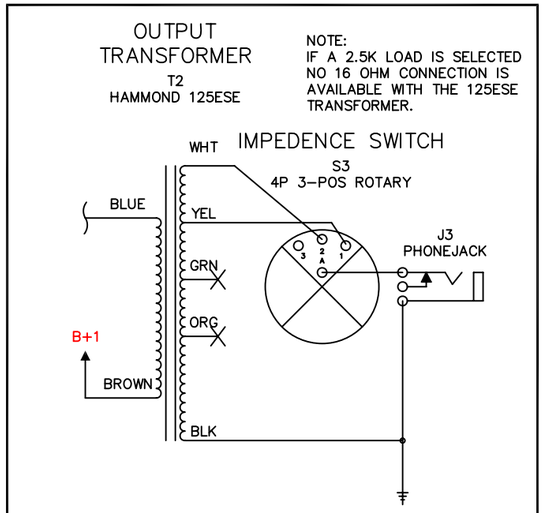
KT88, 6550	200R/5W
EL34, 6L6	330R/5W
KT66	400R/5W
6V6	600R/5W

SUGGESTED OUTPUT LOAD IMPEDANCES:

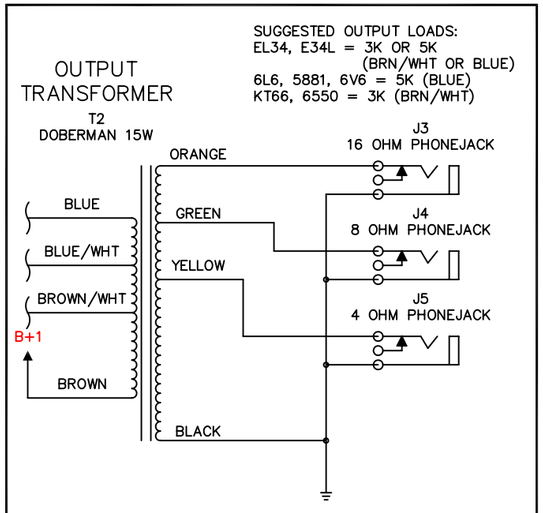
EL34, E34L	2.5K OR 5K
6L6, 5881, 6V6	5K
KT66, 6550, KT88	2.5K



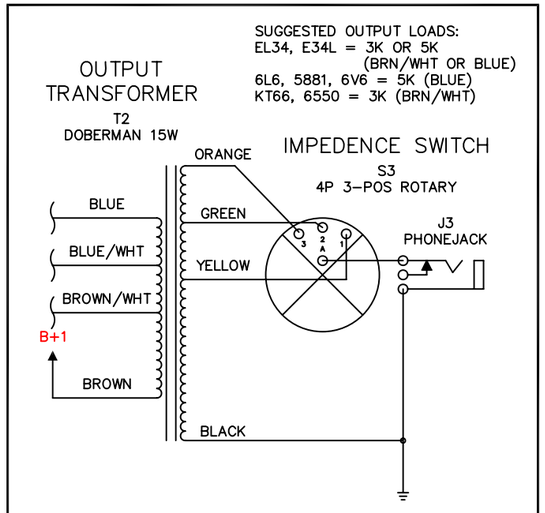
04 **HAMMOND OT 2.5K HOOKUP (MULTI-JACK)**



05 **HAMMOND OT 2.5K HOOKUP (ROTARY)**



06 **DOBERMAN OT HOOKUP (MULTI-JACK)**



07 **DOBERMAN OT HOOKUP (ROTARY)**

PROTOTYPE VOLTAGE READINGS

Ref	Desc.	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	EL34	N/A	Filament	376V	366V	EL34	N/A	Filament	25.4V	N/A
V3	12AX7	136V	N/A	0.70V	Filament	Filament	181V	N/A	1.39V	Filament

Mains = 121V | B+ = 388V | B+1 = 382V | B+2 = 373V | B+3 = 274V

AS-BUILT VOLTAGE READINGS

Ref	Desc.	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	EL34		Filament				N/A	Filament		N/A
V3	12AX7				Filament	Filament				Filament

Mains = | B+ = | B+1 = | B+2 = | B+3 =

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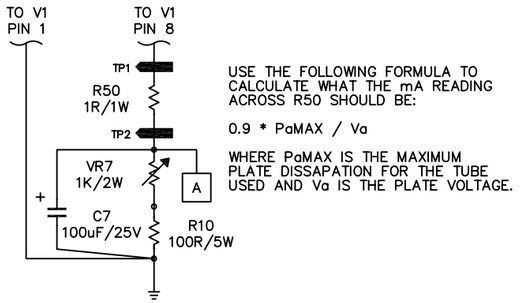
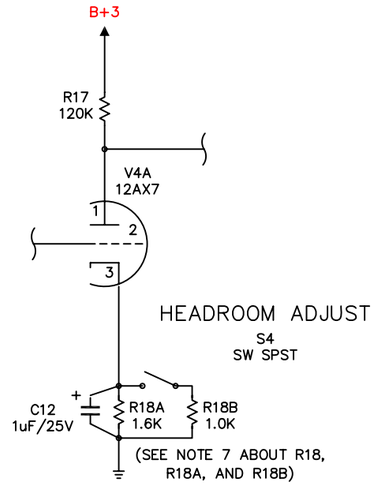
The Cooperative Tube Guitar Amp Project

Title: **P1 eXtreme Detail Sheet 1**

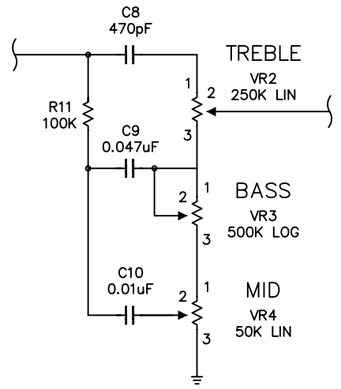
Revision	Description
05.11.23	Issued For Construction
06.02.23	Changed R5 To 5W Rating Added Note About R1 And R5 Voltage Rating Changed The Wording Of General Note 7
06.03.16	Corrected S4 Headroom Adjust Switch



08 Variable Cathode Bias Option



09 Headroom Adjust Switch Option



10 Alternate Tone Stack

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The Cooperative Tube Guitar Amp Project

Title: **P1 eXtreme Detail Sheet 2**

Sheet 3 Of 3 | Revision 06.03.16