

2A3 SE Valve Amplifier Kit

User Manual

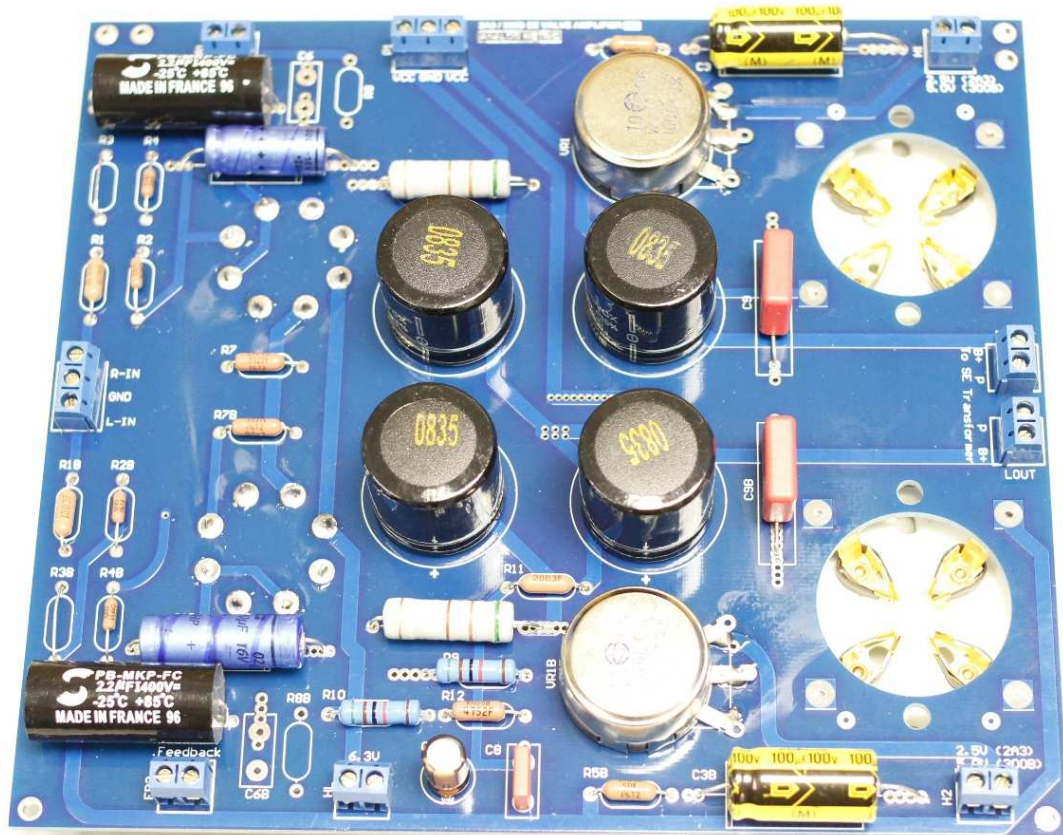
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SPECIFICATION

- Vacuum tubes: two 2A3 and two 6SN7 vacuum tubes.
- Voltage gain: 1.7dB
- Gain flatness: <0.9dB for 20-20kHz
- 3-dB Bandwidth: 31.2kHz
- Frequency range: 20-20kHz
- Input Impedance: 87k Ohms
- Input sensitivity: 3.5V RMS
- S/N Ratio:
 - > 98dB (5W, 8 ohms, 1kHz)

>110dB (5W, 8 ohms, 1kHz, a-weighted)

- THD+N < 4% @1kHz
- Maximum Output Power: 5W at 8 Ohms
- Output transformer 10-15W:
Primary impedance: 2.5k/3.5k Ohms 120mA
Secondary impedance: 4, 8 and 16 Ohms
- Stereo single-end input and output
- Power requirements: one or two 280V DC (total 300mA), 6.3V AC/DC (1.5A), and two 2.5V AC/DC (2.5A).
- PCB dimension: 196mm (W) x 175mm (L)
- PCB thickness: 2.4mm, double layer, 2oz copper.

PRECAUTIONS

- Do not use any body parts to touch the metal parts of the kit after power up or power off, since the high voltage capacitors may not fully discharge. It may cause serious electric shock.
- Use a power transformer with fuse (3A) socket to limit the supply current in case of short circuit or incorrect assembly.
- Double check the assembled components with the part list.
- Do not attempt to measure the voltage by multimeter with hand after power up. The probes of the multimeter should be mounted by some stands to the points of the measurement before switching on the power supply.
- Turn off the power supply if you observe any smokes or hear strange sound coming out from the transformer or board. If there is short circuit, the transformer will be getting very hot shortly.

PROCEDURES

1. Solder the resistors on the top of the board. The resistance label of the Dale resistors should face upward for easy of future debugging or modification.
2. Notice to the direction of the electrolytic capacitors C1, C3-5, C7, and C8 (the positive terminals are marked by red circle as shown in Figure 1). There is no direction of the thin film capacitors. Double check the direction of the electrolytic capacitors, as it may cause hazardous.

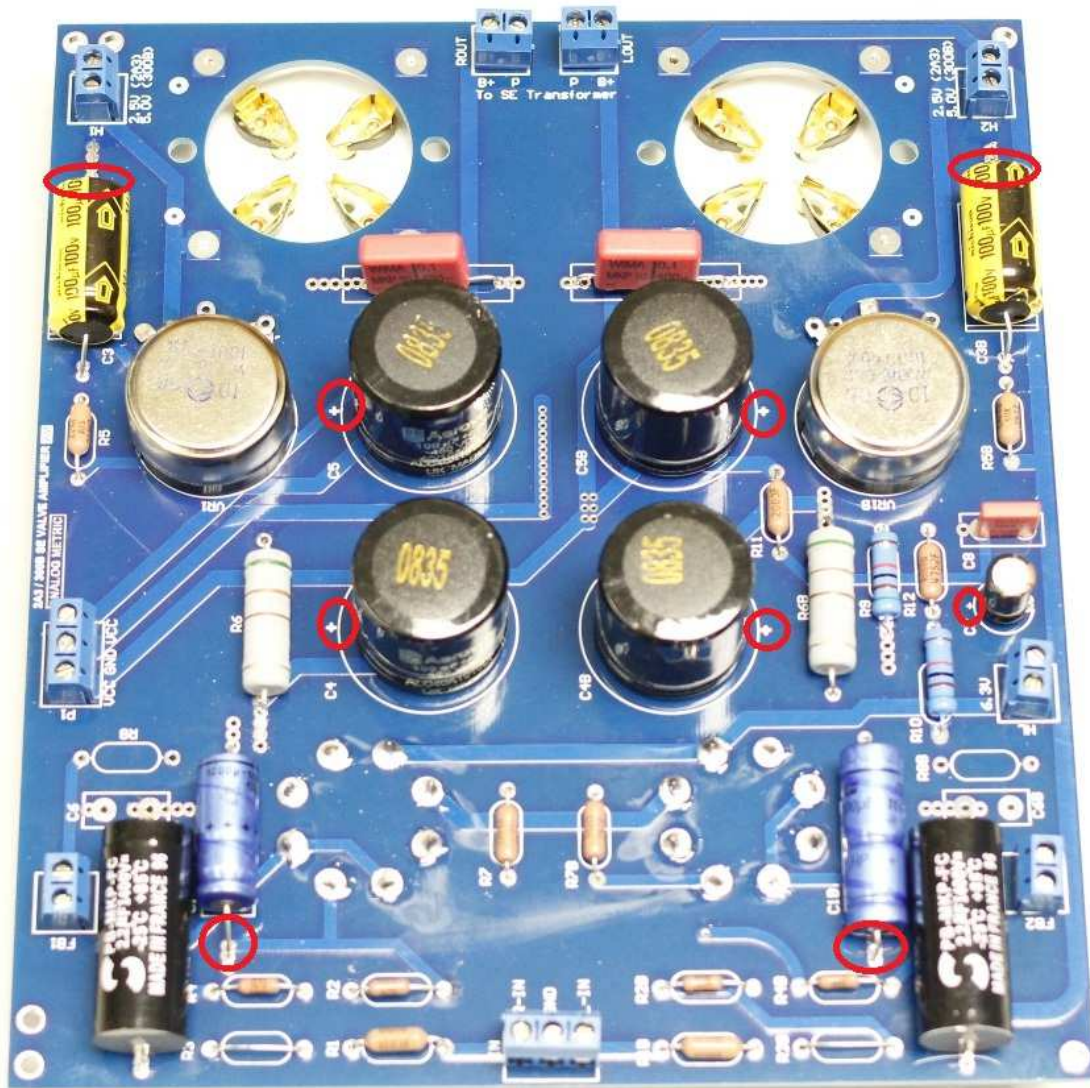


Figure 1: The positive terminal of the electrolytic capacitors are marked by red circles.

3. Solder the tube sockets. The bigger holes of the 4-Pin plate sockets correspond to the PIN1 and PIN4 of 2A3 (tube filament voltage). The direction of the 8-Pin octal tube sockets for 6SN7 match with the screen silk of the board as in Figure 2.

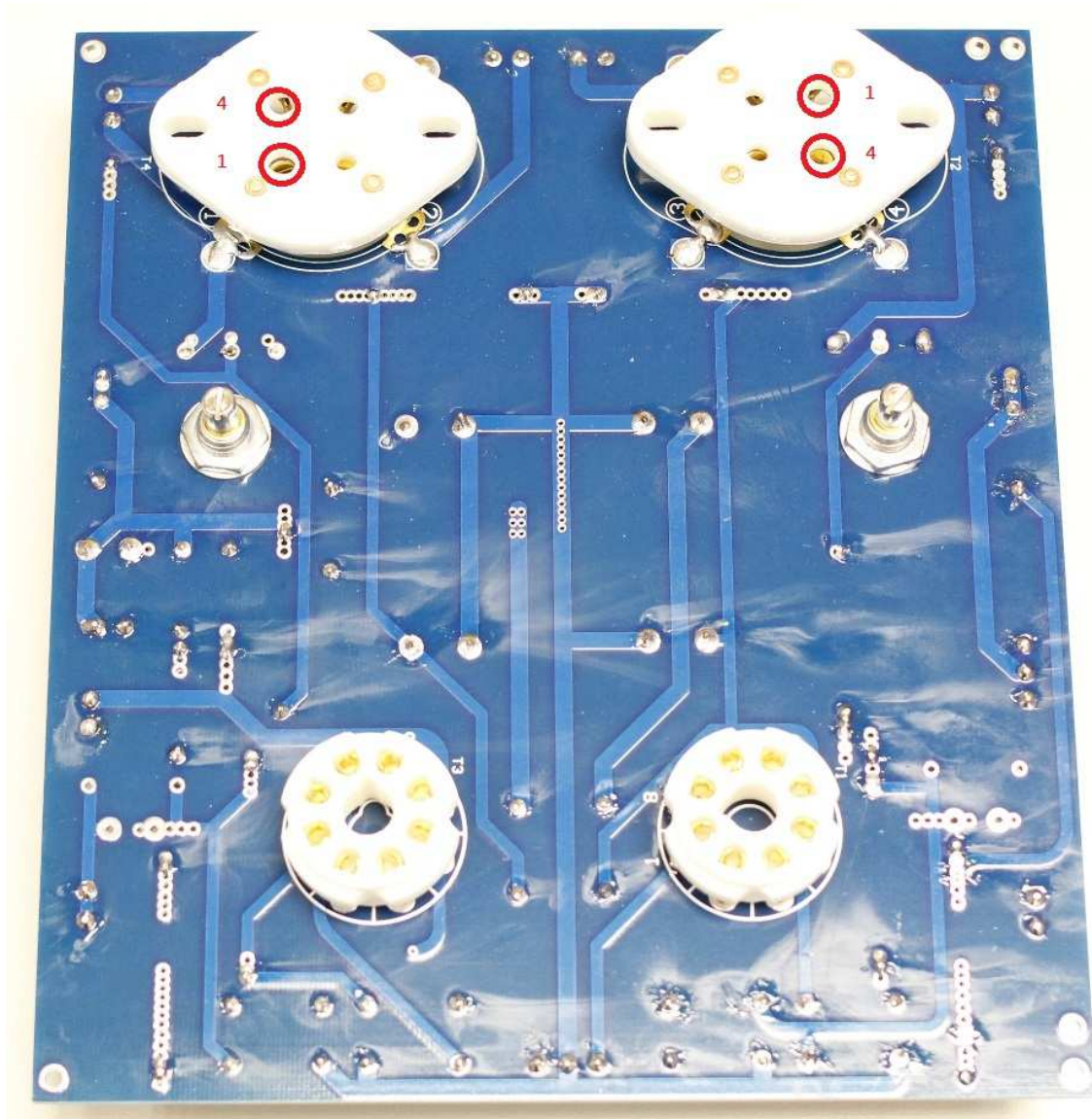


Figure 2: Direction of 4-Pin tube sockets for 2A3 and 8-Pin octal tubes sockets for 6SN7

4. Solder all remain components of the board.
5. Apply 6.3V DC (2A) to connector HL, two 2.5V DC (2.5A) to H1 and H2, and one or two 260V DC (total 300mA) to P1. The tube filaments grow up gradually when turn

on the power supply. Turn off the power supply if there is a suddenly dropping in the supply voltage at P1, H1, and H2, or HL.

6. Adjust the cathode current I_c by the resistor trimmer VR1 and VR1B as in Figure 3. Measure the voltage V1 and V2 across R6 and R6B, respectively, so that $I_c = V1/R6 = V2/R6B$ is set.

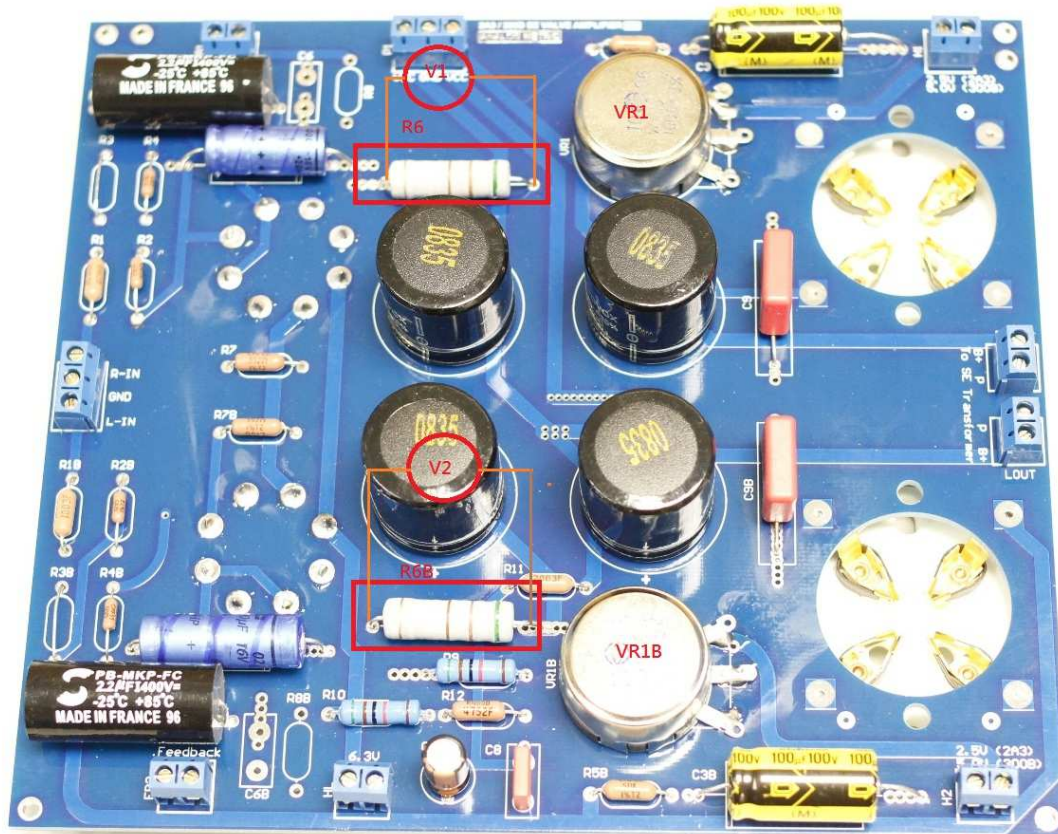
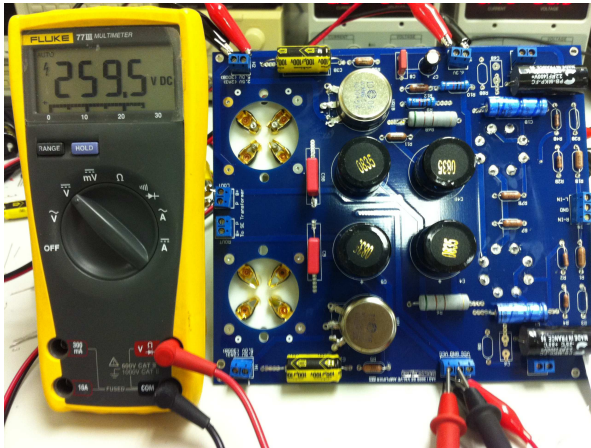


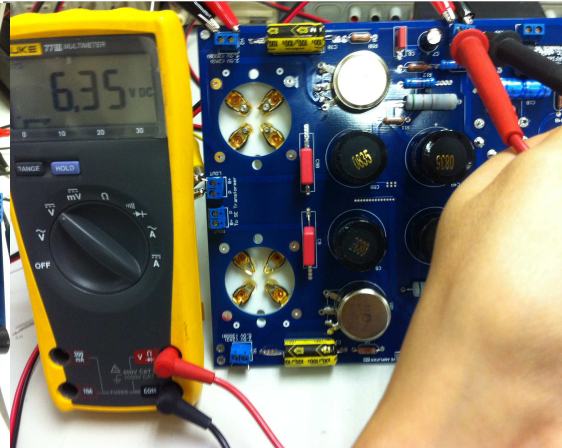
Figure 3: Adjusting the cathode current by resistor trimmer VR1 and VR1B.

7. Connect the S15 SE 15W transformer with 2.5K Ω or 3.5K Ω primary windings (120mA) to the ROUT and LOUT of the board .

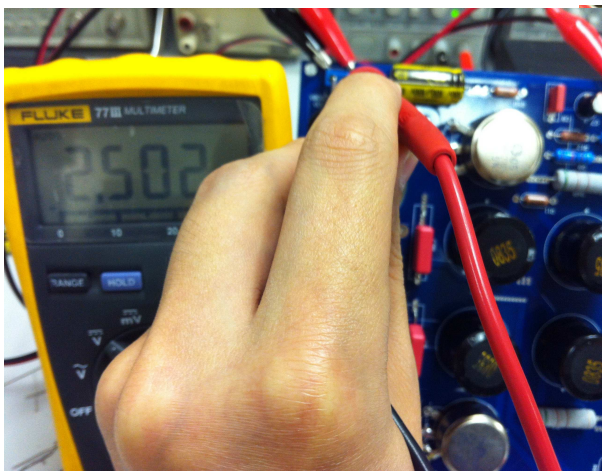
TROUBLESHOOTING



VCC for B+



HL for 6SN7



H1/H2

