

Epiphone Valve Junior mods

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The Epiphone Valve Junior amplifier seems to have been made for modding. Inexpensive, mechanically rugged, plenty of empty space inside the chassis. The stock speaker is a Weber Ceramic Signature 8, which is the same speaker I swapped into my silverface Champ a year ago to improve its tone.

This is a collection of relatively simple modifications to the electronic circuit. They can be performed by knowledgeable DIY'ers or professional amplifier technicians. The first thing to do is swap the stock EL84 out for a JJ or your preference of EL84. The Sovteks that I've seen in these do not sound good, at least in this application. I like the JJ.

If you are not familiar with the standard safety procedures for repairing tube amplifiers, refer this work to someone who is. There is enough voltage in the Valve Junior circuit to injure and even kill.

The component reference designators I use are visible on the PCB's top silkscreen.

[Stock Valve Junior Schematic](#)

Input mod

1. Remove R1 (68K), replace with 22K.
2. Remove R2 (68K).
3. Add jumper from input jack PCB header pin 2 to Ground side of R8.
4. Remove input jack, replace with one with nylon shell.
5. Add 1M (or 2M2) across tip and sleeve of input jack.

What this does

As designed, the single input of the Valve Junior is a copy of the #2 or Low jack on a typical Fender-type circuit. There is 68K in series with the signal, with 68K to ground to attenuate the signal and provide a path to ground for V1a's grid.

We are reconfiguring the Junior's input to resemble the #1 or High jack on a Fender.

What we have done in step 1 is increase the signal going to V1a grid by lowering the value of R1 (the Fender's series input resistance is effectively 34K; we're dropping it another notch).

In steps 2 and 4, we've also increased the value of the resistor to ground, and moved it to the other side of R1. This has the effect of bleeding less signal to ground *and* increasing the effective input impedance of the amp.

With more signal feeding the V1a stage, it contributes less noise, and just plain sounds better. This stage even after this mod has plenty of overhead. Passive guitar pickups will sound sparklier and more alive with the higher impedance.

In steps 3 and 4, we correct a grounding mistake. As designed, the ground path for the input jack is the chassis. The rest of the circuit on the PCB connects to the chassis near the opposite corner. This difference results in lots of hum coming from the input circuit. We isolate the input jack from the chassis and obtain a ground connection near R8.

Interstage gain mod

Install a jumper across R6 (1M). There is an extra set of holes marked for a capacitor that may come in handy for jumpering across R6. If you want to be adventurous, you can even install a single pole switch here to allow you to switch to higher or lower gain.

What this does

As designed, the amp throws away a lot of signal in the form of an extra voltage divider right before the volume control. This has the same effect as a 1M volume control set at midpoint. One volume control is plenty, and still works great. This mod allows more signal to get to V1b, also allowing it to operate more efficiently.

If you want an even earlier crunch, you may remove R7 as well.

Power supply filter mod

(be sure to discharge the power supply electrolytics before installing this mod!)

Solder a 47uF/450V capacitor in parallel with C6.

What this does

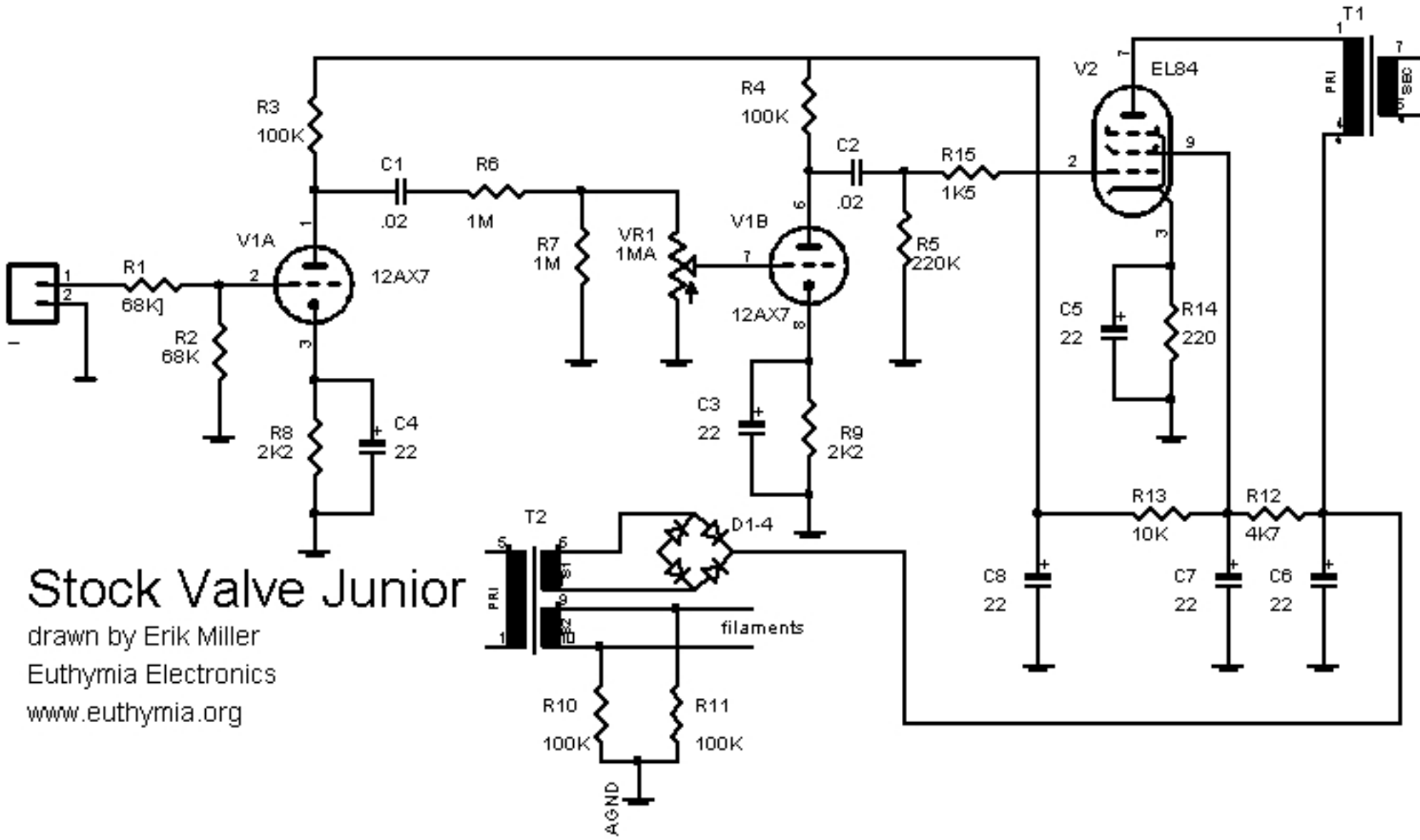
As shipped, the amp has a noticeable 120Hz hum. I traced it to excessive ripple in the first DC power supply node.

This mod increases power supply filtering, resulting in a reduction in the 120Hz buzz.

Output impedance switch

The unused red wire coming from the output transformer in the Valve Junior is actually for 8 ohm output. Drill a hole to the right of the speaker jack, install a SPDT toggle, connect the tip of the output jack to the switch wiper, and the red and brown wires to the two other lugs on the switch. This allows you to match the output impedance of your amplifier with that of an 8 or 4 ohm speaker cabinet by flipping the switch.





Stock Valve Junior

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