

Stereo Single-Ended EL34 Hi-Fi Amplifier

Looking for a single-ended hi-fi amp that really ROCKS? You'll notice that this cathode biased amp shares the same general layout and chassis as our single-ended 2A3 project but the output stage uses a single triode-strapped EL34 per channel (see the 100 ohm resistor connecting lug 3 and lug 4) rigged to the 2.5K ohm primary tap of a Hammond 125ESE output transformer. You can also use KT88s, 6550s, KT66s, KT90s, EL37s, 350Bs and other popular octal based output tubes with no modifications, although you may want to experiment with different output transformer primary impedances to optimize/personalize this stage. The sound of the EL34 is a bit more 'forward' than a true directly heated triode but still smooth and rich with plenty of single-ended mojo. This amp is pretty easy to build, offering lots of opportunities to experiment with the sounds of different types of parts (e.g. Angela/SCR Metalized Polypropylene Caps, Sprague Atom conventional electrolytics, etc.). One of our goals was to offer another project that could be put together by almost any *experienced* tube hobbyist with inexpensive, non-exotic 'off the shelf' parts. A good circuit, well constructed, will shine no matter what parts you use. Yes, this notion is guaranteed to infuriate brainwashed High-End tweak parts purists. So what?

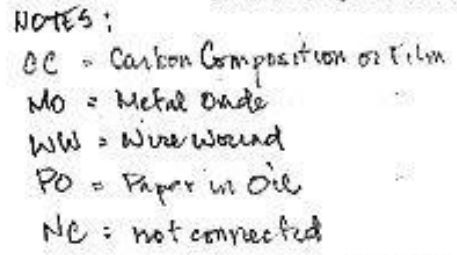
Note that our experience prototyping this project illustrates rather boldly the possibility of variation from 'cookbook' specs of inexpensive 'off the shelf' power transformers. Yes, the 272HX is supposed to put out 300VAC per side on the high voltage secondary but we actually measured 322VAC with 120VAC out of the wall, 311VAC with 115VAC in. Also, the 272HX will run a bit hot in this circuit, even though the load is well within capacity; this is 'normal', believe it or not. If this troubles you, use N.O.S./Mil. Spec. iron with similar specifications if you can find it.

I've tried lots of different output tubes in this amp and my favorite so far is the "Siemens" EL34. Sounds like a 'mini Marantz'! Save those old Mullards for a guitar amp that needs 'em.

Wiring the power tube sockets? From the schematic and the pictures below you'll note that lugs one and eight are linked together and that a short length of yellow wire connects to the one end of the 880 ohm 25W cathode resistor along with the positive leg of the 100uF100V capacitor. Lugs two and seven are for the EL34 filament. The brown wire from the primary of the output transformer connects to lug three, the PLATE, along with one end of the 100 ohm 1/2W resistor. The other end of this 100 ohm 1/2W 'triode connection' resistor connects to lug four; "G-2" of the EL34. Lug 5 connects to one end of the 1K 1/2W resistor that runs over the terminal strip where the other end of that resistor meets one end of the .22/600V signal capacitor as well as one end of the 330K 1/2W resistor. There is no connection at lug six. As you look down into the chassis with the amp turned upside down, note

that the right side power tube socket is where the two twisted green 6.3V from the power transformer connect to lugs two and seven. A twisted pair of white and black wires run from lugs two and seven of the right side power tube socket over to lugs two and seven of the left side power tube socket. Another pair of twisted black and white wires runs from lugs two and seven of the left side power tube socket over to the filaments of the 6SL7s.

VOLTAGES FOUND INSIDE TUBE AMPLIFIERS CAN KILL YOU! IF YOU DON'T UNDERSTAND PROPER ELECTRICAL SAFETY PRACTICE, DON'T BUILD THIS AMP!



PS & Bypass Cops = Sprague ATBMS

The mono amps I built used reclaimed power transformers and 7.6 henry chokes smaller than the specified Hammonds but they work fine. The rectifiers used were GZ34s. Some people have reported improvements bypassing the cathode electrolytics on the 6SL7 and EL34 with 4.7uF film caps. The cathode resistor value of 880Ω is wrong and if used will result in the EL34 running to "cool". 470 to 500Ω is about right. If more power is needed 6550s can be use but the reclaimed PT runs a bit warm. A good compromise might be a KT77, the reissue Gold Lions are reputed to be good.

The OPT was originally rotated 90 degrees from its current position. There was hum induced in the original position but the currently it's fine. The choke is under the chassis. The "eye" tube on the front panel monitors output but is a bit frivolous.



The white tip jacks seen between the PT and OPT are connected to ground and the EL34 cathode for a voltage measurement to monitor current.

Another good thing to do is place an inrush limiter on the primary side of the PT. A CL-90 available from either Digikey or Mouser would work well.