

The Hawaii Homebrew Power Supply

Steve Johnston, WD8DAS

About 6 months ago I moved to the island of Kauai in Hawaii for a new job. Due to space constraints and high transport costs, I could only move a small subset of my lifetime collection of tools, equipment, and parts, leaving the rest in storage in Wisconsin. I promised myself that while on Kauai I would concentrate on repair and construction of solid-state projects, but I found that my craving for "real radios that glow in the dark" remained strong. Before building any tube projects I would need a suitable power supply, so my first homebrew hobby project on Kauai was a power supply for small tube projects.

My idea was to provide 6.3 and 12.6 VAC for vacuum tube heaters and 125 VDC for the tube plates and screens. In my simple design I wanted basic safety features like an enclosure, fuse, and bleeder resistor, but also easy-to-use output connections for experimentation. I aimed for low hum on the B+ with full-wave rectification and pi filter with two large value caps with a small series resistance between them. This will work well for low-current projects. More demanding loads would be better served by a series choke.

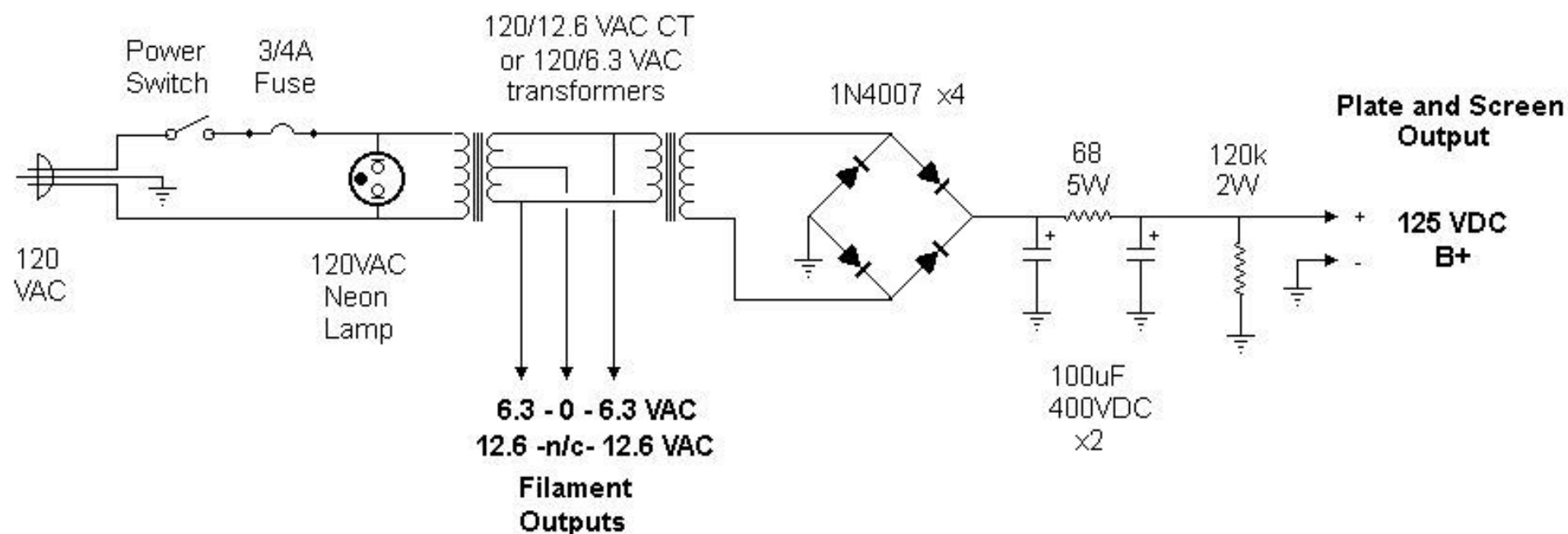
The key components are two filament transformers. In my scrounging I found one 12.6 VAC CT model, and the other was a 6.3 VAC CT type. I connected them back-to-back so that the 6.3 VAC winding was across half of the 12.6 VAC winding. I brought all three wires of the 12.6 CT so that the supply can provide both 6.3 and 12.6 VAC filament power. Interconnections here depend on what combination of transformers you can source. 6.3-0-6.3 or 12.6-0-12.6 are the most useful options. The primary of the second transformer provides 120 VAC for the B+ rectifier/filter section.

See the photos and schematic diagram for my final results.

Parts were scavenged locally. I'm finding vintage Hawaiian parts have more corrosion than I'm used to. The sea air has a disadvantage in this case! The project box (an old Radio Shack type) had been stored indoors but had lots of visible rust spots! Anti-rust spray paint was my answer. The tinned component leads and previously-soldered parts needed a lot of scraping or Dremel wire-wheeling before they'd take solder again.

The output barrier strip and the empty fork-lugs are meant for temporary attachment of alligator clip leads on the bench, not permanent use. If permanent connections are needed, I recommend that enclosed connectors be used to avoid the exposed 125 VDC. But for bench work the convenience of exposed connections is a fair trade-off as the technician is aware of the safety issues.

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6.3---0---6.3
12.6-N/C-12.6

FIL & PLATE SUPPLY

125 VDC
- +

10
.1uF 50V

6 2N2222A
2N2222A NPN TO-18 Metal Case
Mike's Electronic Parts, LLC.

6.3--0--6.3
12.6---12.6

120
6.3

