Holiday Simple Valve Projects at G0SFJ

3 January 2026

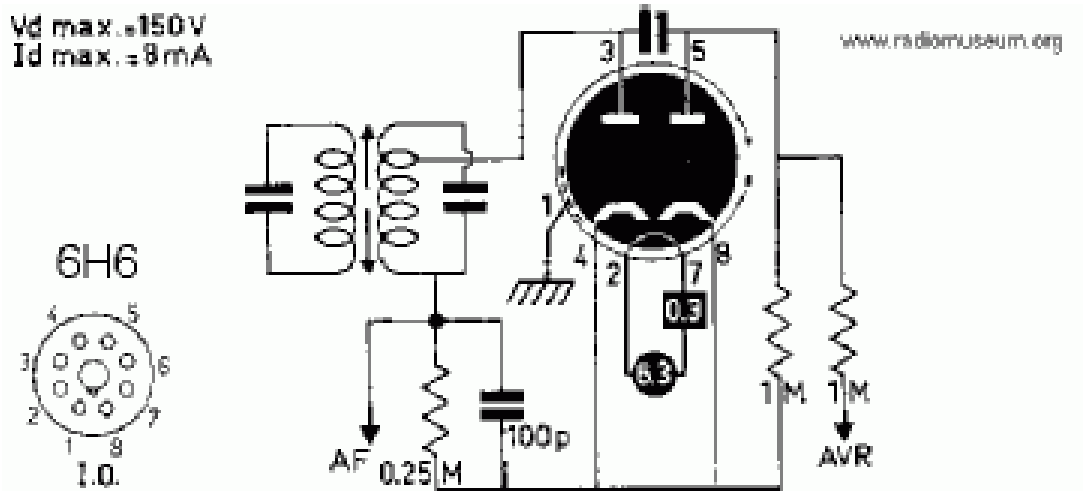
For some time now I have been revisiting old technology – that of the thermionic valve. Here are two simple projects that I have concluded over the holidays.

First of all, I cut holes in an old chocolate tin for two Octal valve sockets. Originally – perhaps this is a third project? – I wanted a visual aid to demonstrate what a valve from the 1940s and 1950s looked like, so I cut the holes in the top of the tin. Then these two projects came along

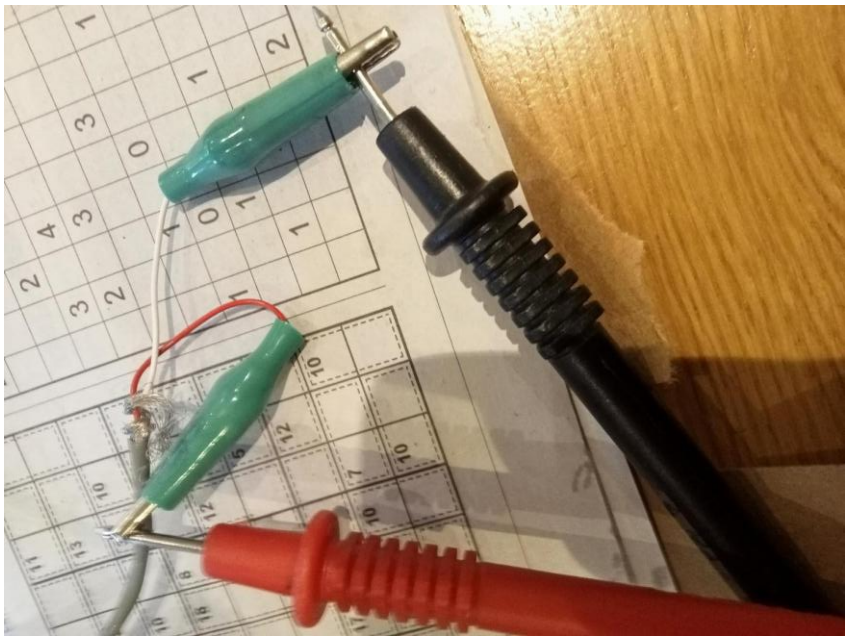
After demonstrating other valves, in Tbilisi, Georgia, I bought a Soviet radio valve, a 6X6C (Cyrillic script) (6H6S) brand new for just over 1 euro. He had a bag full but they were all the same. These have an octal base. I wanted to find out what it was and in the website Radiomuseum I found it. https://www.radiomuseum.org/tubes/tube_6h6.html

It's a double diode used in receivers as a detector. I think the Cyrillic C (Latin alphabet S) may have been a designation for military use.

The first project was to fire it up. The first "6" designates a 6 volt heater filament.



Ignoring most of this diagram, but noting the two diodes, the heater filament uses pins 2 and 7 and this is standard with all Octal valves. I used 4 * 1.5 volt AA cells which would just do 300 mA for a while, and found the two diodes, cathode to anode 4 to 3 and 8 to 5. I paralleled them and tested the performance with a multimeter. There ought to be a difference in reading between the + and – leads on the multimeter when used both ways around.



After a short warm-up I got these readings:

I found that there was a difference between the two settings of the multimeter, but it was very “noisy” in that lower image was constantly changing. Evidently a noisy detector! Perhaps it would be cleaner with only on diode? Note the capacitor in the above circuit diagram!

The second project is of more long-term use. It is a filament continuity tester. I parallelled pins 2 and 7 and inserted a mini buzzer across the positive line. By inserting the valve in the 2nd socket,, the circuit is complete, and the buzzer sounds. If the filament has broken the valve is useless, and the buzzer won’t sound.

I used a buzzer because it's nominally at 9 volts and will also work with 12 volt heater filaments. I did try a 12 volt bulb, it worked but was rather dim at 6 volts, especially when outside. You can just see it stuck onto the outside.

This valve is a 6K8GT. It came attached to a chassis bought very cheaply on ebay and I was concerned that the filament might have broken. But it hadn't.

6K8 valves were used in characteristic metal casing (not G) in the famous Paraset and this would also work although it might need shielding to stop it going into oscillation.

Conclusion and Next Steps

These two projects don't use the high voltages (HT) but do provide a handy valve tester. The next step is to build a simple tester that will gently apply higher voltages across the various plates. Watch this space!

73 de Andy G0SFJ