

At the Repair Bench – Henry 1KD-5 Amplifier - January 2023

Let me start out this month's case history with an apology. No repair should take as long as this one (and one other, to be discussed in another article) did. There is no real excuse other than that the job was a bear to do, and I kind of dragged my feet on digging into the guts of this thing. I am talking about the Henry Radio 1KD-5 HF linear amplifier.



This was a circa 1977 model, heavier than you can believe, with a one-tube grounded-grid circuit. The tube is a 3Z500 tube of about four and a half inches diameter, nestled inside an external glass bell chimney. The tube socket is buried deep inside the unit, behind a board that carries the tuning coils for the amplifier.



I am getting ahead of myself. Let's start at the beginning. The owner brought this unit to me, explaining that the tube would light, and then go out, then light again, and then go out, and would repeat this behavior while switched on. He also told me that he was in no hurry to get it back.

I set up my 30A 230V outlet with the correct receptacle to match the Henry's power cord, and fired it up to confirm the reported behavior. It took just about a minute or so before the on/off action became evident, so I set out to find the cause. As it turned out, *that* was the easy part. Some gentle pressure on tube while it was out would cause it to light up again.

The problem was that the tube socket, a humongous ceramic thing about three inches square and about three-eighths of an inch thick, had fatigued with age and the effects of heat. The result was that the contacts that grip the tube pins had relaxed quite a bit – enough so that when they got hot, the circuit

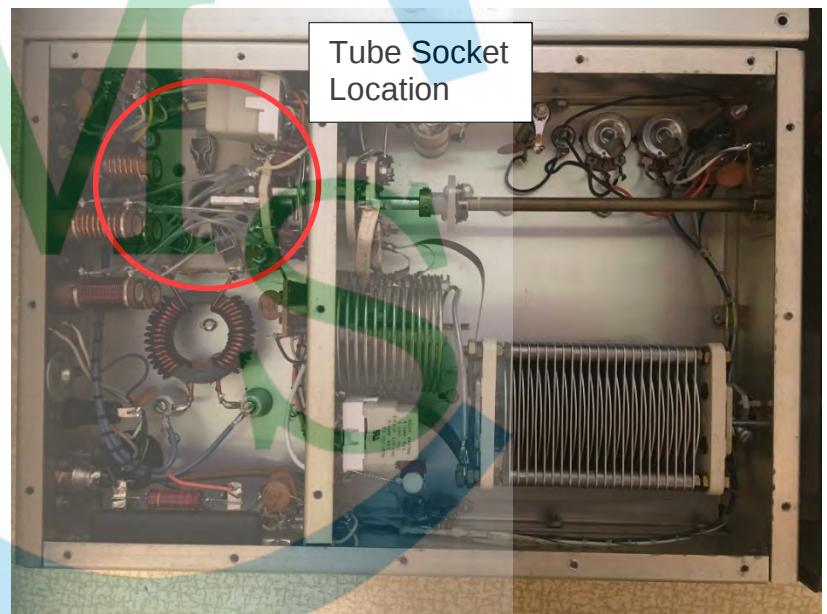


would open until they cooled down, at which time the circuit would close and the process would repeat. Solution? A new tube socket.

I tracked down a source for the socket, but I had to wait for the socket to come in from China, and I had to order two of them at an exorbitant price to get the one that I needed. I buttoned up the amp and set it aside to wait for the part to come in.

Fast-forward a few months. I have the part in hand, and I finally put the Henry back on the bench. Major disassembly of the unit was required to enable access to the tube socket. I removed the glass chimney and the tube and set them aside for safe-keeping. The chimney is probably irreplaceable at this point, and the tube runs anywhere from two to four hundred dollars, depending on availability and seller. I did not want anything to happen to them!

After removal of the sheet metal covers and shields, I had to laboriously remove the forced-air cooling system fan and motor. Next, it was necessary to dismount the tuning coil board and carefully move it out of the way. A large toroidal transformer was next to be removed for access to the tube socket, which had two of its heavy wire leads soldered to the tube socket terminals. My 240-watt soldering gun was required to desolder these connections. Now I was able to get to the tube socket and ground lug mounting hardware and remove the machine screws, lock washers, and nuts. Finally, again using my 240-watt gun, I was able to desolder the capacitors from the connecting tabs of the tube socket and lift the socket out.



At the solder station, I moved the ground lugs from the old tube socket to the new one. I also drilled the tube socket solder lugs as necessary for the heavy wire from the toroidal transformer to fit. Then it was time to reassemble the whole shooting match, which was quite a tedious task due to hardware locations and difficulty in

reaching some of the screws to install lock washers and nuts on them. I finally got the tube socket mounted, and then soldered its capacitor connections in place. I reinstalled the toroidal transformer and soldered its leads to the tube socket.

Reassembly of the rest was the reverse of the disassembly procedure, with the exception that I replaced many of the sheet metal screws due to their holes having been stripped or worn oversized.

After final reassembly, it was time to test and align the amplifier, which went exactly according the manual instructions with no surprises. All in all, it was a rewarding repair, though I could never charge the owner the full amount of time spent on the unit.

Sometimes, repairs are just tedious replacement of connecting parts rather than active or even passive components. This was one of those times. None the less, it was a necessary repair in order to bring the amplifier back to operational status.

See you next month!