

## Valve collection

Written by Hans Summers  
Saturday, 22 August 2009 23:25 -

---

A few pictures of the numerous valves I seem to have accumulated on my travels. How come I have so many valves? Well, in the early years of Summers Laboratories Inc, funding was somewhat in absence so other sources of components had to be found... In those days I would obtain old electronics equipment from anywhere I could get my hands on it. This included rubbish dumps, jumble sales where you could pick up working radios and TVs for a few pence, and family friends getting rid of old or broken stuff. Once, I even happened to be in the local electrical store, Jacksons, where an old lady was being given back a radio she had previously taken in for repair. According to the electrical shop, it was beyond repair, and they were sorry. Naturally I volunteered to relieve the old lady of the disfunctional radio. When I took it home I put a battery in it and it worked perfectly. After that I wasn't particularly impressed by the technical abilities of the staff at Jacksons, but they were still useful if you needed a particular battery or bulb, or perhaps a piece of wire or mains plug.

I used to spend hours painstakingly dismantling this equipment and sorting out the parts. Almost all the projects I subsequently made used these 2nd hand parts, I only rarely actually bought a new component, and only then if I absolutely could not make do with something from my junk cupboard.

This minimalist way of working has a great philosophical attraction I find, such that today when cashflow is a little better, I still tend to adopt this approach where possible! Later, I found many old digital circuit boards, from which I could salvage many useful integrated circuits (ICs).

The Summers Laboratories used to see phases of intense construction, from which emerged many of the other things you'll find on this site, and similarly severe periods of deconstruction. At time the activity was so intense that the whole floor of the lab (=my bedroom) was completely covered with the half-dismantled carcasses of old TVs etc, with only a 2 foot wide corridor leading from the door to my bed!

I didn't always dismantle things immediately. Usually first I would see if they worked. If they did and were sufficiently impressive they might be kept, intact. But more usually I would learn huge amounts by taking them apart, about how they were made and how the circuits were designed. Once I had an old and very large colour TV. The receiver part of it didn't work well but the screen lit up. I had the idea I might convert it into a huge oscilloscope, so I fixed up some amplifiers to drive the scanning coils on the back of the screen. It actually worked in a way, but the shapes drawn on the screen bore little resemblance to the real waveforms I thought SHOULD be displayed. After thinking about it for a bit, I realised this was most probably

## Valve collection

Written by Hans Summers

Saturday, 22 August 2009 23:25 -

---

because those large coils can't vary their magnetic field quickly. In a TV the vertical coil scans the screen at 50 frames per second. The horizontal scan rate is 15,625 Hz. Probably if I had settled for the 50 frames per second, and tipped the TV so it was standing on one end, I could have made it work a lot more nicely. I would then have scanned the vertical coil for the X axis and the horizontal coil, which can move more quickly, for the Y axis. I have a feeling though that one would still need very carefully designed amplifiers. In a real oscilloscope electrical fields inside the tube deflect the beam. Electrical fields are a lot easier to move than the magnetic field displacement used in TVs. Well, out of that I learnt a lot and had plenty of fun doing so.

{gallery}valvecollection/small{/gallery}

### Small valves:

A few small valves, some of these would typically be found in old radio receivers or televisions. However

{gallery}valvecollection/large{/gallery} **Large valves:**

A few of the larger valves. Of course, the older valves are the larger they are, but sometimes the large o

{gallery}valvecollection/misc{/gallery} **Miscellaneous valves:**

A mix of some of the small ones and the larger ones, for comparison. See the PL500, another TV valve.

{gallery}valvecollection/loads{/gallery} **Loads of valves!**

Most of my valves reside in these three boxes. The other photos on this page were a fairly random selection