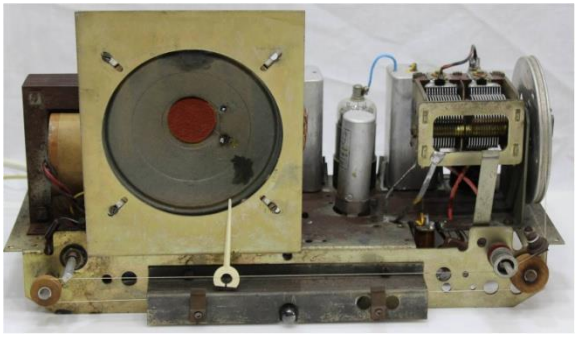
1951 Stromberg Carlson model 51A12

By Graham Parslow

Stromberg Carlson mostly made high end radios through the 1930s and 40s. By the 1950s the market was strong for kitchen radios and this became a major line for Stromberg Carlson. This Bakelite radio would have been a good choice for the kitchen because it is an easily cleaned no-fuss MW radio. A notionally similar radio, at least in size, is the 1950 Stromberg Carlson model 5A39 described in Radio Waves July 2015 (number 133, p5). The model 5A39 has elegant wood veneers, shortwave, tone control, better filtering of the HT and an enormous 6 x 10 inch speaker. The wooden cased 5A39 was therefore more appropriate for the lounge table top. By contrast the 51A12 has only MW, no tone control and a modest five inch speaker. The two radios (and a number of other Stromberg Carlson radios) share the same metal work for the chassis with mostly identical punch holes. This explains the in-fill of an octal punch hole on the 51A12 to accommodate the miniature 6BD7 valve.

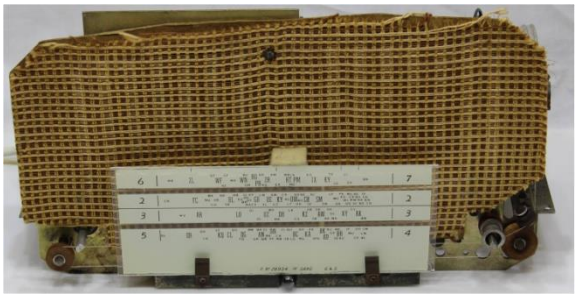
This radio was purchased through eBay in 2008 and serendipitously I was able to collect it in Adelaide as part of other travel. The sellers only knew that it had been lying around for some time and that it did not work. The initial appearance was a bit dusty with faded Bakelite.

I polished the cabinet, created a badge and changed the mains cable to a 3 core earthed lead. The wiring to the RF valve grids had degraded and was replaced. The dial cord was broken and my wife provided some strong cotton sewing thread to restring the radio. I now have proper dial cord, but the cotton thread continues to be serviceable so it has remained in place.



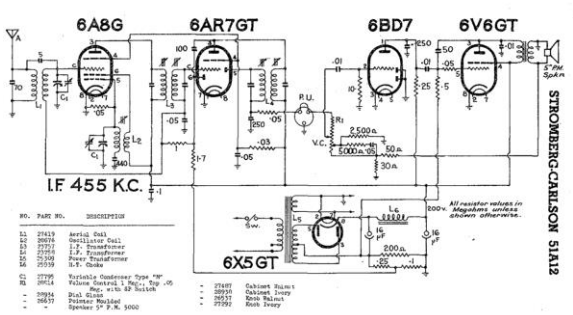
The front picture of the speaker shows two dark glue patches. The lower one is where I used PVA glue to repair a tear. The patch at the top is where a previous repairer had done likewise, but also padded the rear of the cone with a wad of cotton wool. That wad of cotton wool is now a permanent feature of the speaker because it is glued solid and the cone would be ripped if removed. It has little effect at low volume, although I suspect that it affects fidelity at higher volume. It is hard to tell precisely what factors degrade the quality at high volume.

The vertical station indicator can slide along the dial cord to be set in register with the dial glass. The dial glass is fixed in only one place by the Bakelite cabinet moulding so the glass has to be in the right place before inserting the chassis into the case. A screw that retains the grille fabric in place looks odd on the removed chassis, but when the radio is assembled it is hidden by the centre strip of the Bakelite cabinet.



An obvious less faded sector of the centre strip of the cabinet revealed where a badge had been previously. A new badge was created by photographing one from another radio, reversing the image and laser printing (backwards) onto a laser-compatible overhead transparency acetate sheet. This means that the image, that might otherwise be scratched, is protected by the acetate sheet on top of the image.

So it was that the radio was reasonably presentable, but obvious electrical repairs had not worked and it was completely silent. My trouble-shooting skills for radios were not as well practiced in 2008 so it was expedient to let it join the 20 or so display radios that I kept in my office at the University of Melbourne. A predictable question from visitors was “Do they all work”. The answer was “yes, except for the Stromberg Carlson.” Surprisingly the Stromberg Carlson was often a first pick for attractiveness by visitors even though the other radios were a distinguished group of collectables.

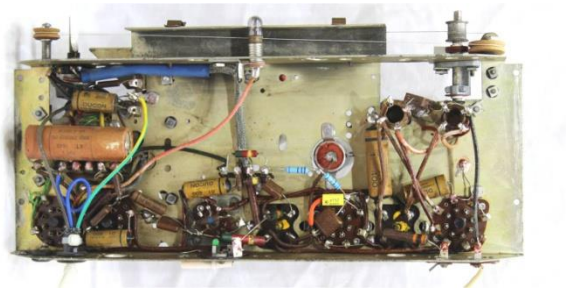


The one year earlier 1950 model 5A39 used ECH35, EBF35, 6SQ7, 6V6 and 5Y3 valves. The circuit of the 51A12 reveals a slight modernisation of the valve line-up for 1951. The rectifier is now an indirectly heated 6X5 valve, supplanting the use of a 5Y3 directly heated rectifier. Accordingly only one low voltage winding (6.3V) needs to be provided by the mains transformer. The HT circuit produced a measured anode voltage at the 6V6 output valve of 171V and the screen had 183V relative to chassis. The grid bias of -8.9V for the 6V6 is provided by passing the rectified HT to earth via a 200Ω resistor and directly connecting the cathode to earth. This saves the cost of a cathode bypass electrolytic capacitor.

Tying the two diode pins to earth for the 6BD7 appears to be an odd feature of the circuit, but those rectifiers are superfluous because the 6BD7 is used only as an audio preamplifier. The 6AR7 has the diodes used for rectification and AGC.

The radio remained as a display-only unit until the end of 2015. That was the year in which my retirement obliged a return of personal artefacts from my office to home. The Stromberg Carlson was duly placed on my workbench with the hope of bringing it back to life. It did eventually come back to life, but it spent a significant time being completely mute until the two culprits for inactivity were identified. Under the chassis everything in the audio circuitry checked out fine. A 400Hz signal of 200mV was fed into the pick-up terminals and faithfully arrived amplified at the 6V6 grid. The 6V6 screen and anode had appropriate voltages indicating that the audio transformer primary was fine. The audio transformer secondary with speaker connected measured in at about one Ohm indicating the secondary was OK. This logically left only the speaker voice coil in doubt so the speaker was disconnected from the transformer. Found it! The rear termination of the speaker was open circuit; yet hooking onto the voice coil wires at the front of the cone produced a reassuring scratchy noise and 3 Ohms resistance. Resoldering the voice coil wires to the flying leads restored the speaker. Spot corrosion had cut the continuity of the original junctions.

The radio remained almost as silent with a functional audio section. Every component in the RF section checked out by way of acceptable voltages and measured component values. The bulky screen bypass capacitor (0.05 µF) mounted across the 6AR7 was replaced to make checking voltages easier. Without any expectation of change two resistors of 1M and 680K were used in serial to replace a 1.7M resistor in the AGC circuit that was high at 2.2M.



The HRSA Training Notes from workshops run in the early millennium have now been reprinted. They contain the admonition that systematic trouble shooting should start with checking voltages (anomalies indicate faults) and checking valves. Finally for the 51A12 the 6A8 was substituted with a known good valve and all was well. Power consumption was only 33.5W, the same as it had been throughout the trouble shooting. Now there is a space on my

bench for another project and another
functional radio on display at home.