

NZVRS Entry in SQCRA International Restoration Competition.

Restoration of a Philco Model 89E Code 121 Cathedral Radio

Everything screamed at me “don’t do it, it’s too far gone”. However not one for shying away from a challenge, I did do it. The cabinet had been extremely badly affected by water which caused most of the front to de-laminate and distort extensively. The rest of the cabinet was also in a very sorry state with bottom moulding badly mutilated.

The chassis and speaker were badly rusted, one valve shield was missing but everything else appeared to be intact & reasonably original. Who knew what else awaited me?

The Philco model 89 code 121 wireless is a six valve, two band superhet, dating from 1932. It uses a type 36 tetrode valve as a self oscillating mixer. (Autodyne) The report in the Ryder’s manual is that these sets were very prone to stop oscillating for no apparent reason and they devote a whole page to the problem and suggested fixes. The later code 123 set used a 77 pentode in place of the 36 tetrode in a bid to overcome this trouble. The restored set has never shown any tendency to stop oscillating.

The valve line-up is 39/44 RF amplifier, 36 1st detector/oscillator, 39/44 IF amplifier, 75 2nd detector and 1st audio amplifier, 42 output & 80 rectifier. I often wonder how would the wireless world have survived without the 80!



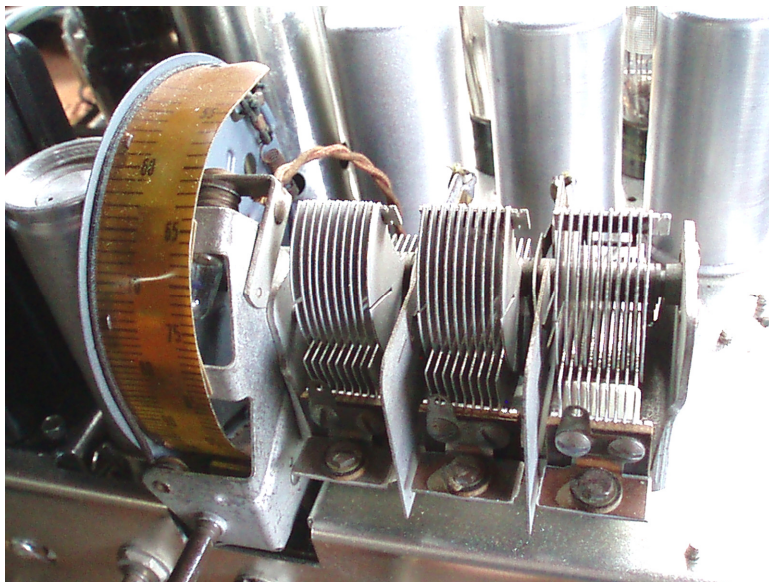
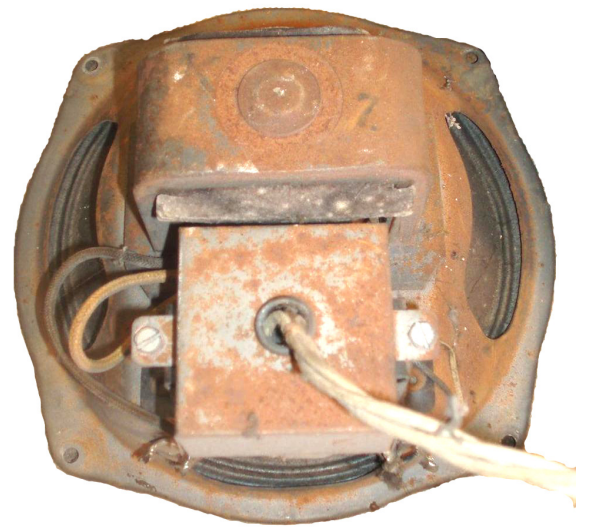
First up, and only because it was the easier of the two tasks, was to strip the chassis in preparation for re-plating. The speaker was also completely dismantled, as the metalwork was badly corroded. I used acetone to release the glue holding the cone to the frame. The cone was in perfect order.



The electromagnets in these speakers are pressed and swaged together so the dismantling is a lengthy & invasive procedure. Next, all components were checked for value and found, in all but a few cases, to be of no use. Even the

paper capacitors used to replace the originals were leaky & differed wildly from their stated values. Fortunately, all coils, the speaker electromagnet coil and all of the transformers tested satisfactorily for

continuity & insulation resistance. Once the chassis, speaker frame, valve shields and other hardware were sent for re-plating, clean-up of the individual parts occupied some considerable time. All block and electrolytic capacitors had to be emptied and repacked. The power transformer leads were still in good condition so all that was required was to clean and repaint the covers. The three coils for aerial, mixer & oscillator and the two IF coils, were cleaned, taken to work and left in the oven for a week at 60°C. Following this all soldered connections were redone and the coils dipped in paraffin wax to seal them. This was one of Ryder's recommended fixes for the oscillator problem. One of our Christchurch Vintage Radio Group members has a low pressure grit blaster which is ideal for cleaning up tuning condensers and this was put to good use here with excellent results.



The replated parts finally turned up and chassis assembly was complete in a relatively short time. Wiring took considerably longer. Where possible, I like to use original wiring, and in this set, much of the original wiring was in good order and so I was able to re-use it.

The speaker had taken time to get apart, but it took much longer to put together. The alignment of the cone before gluing onto the frame with ADOS F2 was challenging to say the least. However perseverance paid off. The original speaker wiring was in very bad order so new, replica wiring was fitted to the speaker and it was wired into the chassis. – No plug on this model. After a final check of the

wiring and the fitting of a new mains cable, it was switch-on time. The set didn't exactly roar into life but it certainly made some encouraging noises and the voltages all looked good. Some minor alignment adjustment later and it was operating satisfactorily. Sensitivity is not great but with an aerial attached it performs well on both bands. Once again Nostalgia Air provided invaluable circuit and alignment information.

Now to what was going to prove to be the much more difficult part of the restoration!

The cabinet, as I said at the beginning, had been very badly affected by water. The front veneer had almost completely delaminated and the underlying layers were also delaminated and, by far the most difficult to fix, had warped and twisted extensively. The only way forward was to almost completely dismantle the front into its multitude of broken and twisted parts. After the cabinet was taken apart, I made the decision to completely replace the main body with new, New Zealand native Rimu plywood but the front needed to be restored. Two of the main tools in this part of the job were steam and clamps, not to mention much time and patience. Each little piece of twisted timber was steamed, clamped between two plates and left to cool and dry. Slowly but surely, the front came together but the original walnut veneer was beyond re-use. I was able to source some excellent quality replacement, walnut veneer from a NZ company, and so the most difficult part came to surprisingly successful conclusion.

Routing the decorative grooves was a nail-biting experience! Bending the plywood into the curved shape for the body was helped considerably by steaming it several times as the cords tying it were progressively tightened.



Once the cabinet was back together, a new moulding, machined specially for me at considerable cost out of mahogany, was glued to the bottom. The cabinet restoration was complete after the application of a new PHILCO transfer and chassis layout drawing. Several thin coats of polyurethane later, the cabinet was glowing beautifully. I reused the grille cloth that came with the wireless because, although it isn't original, it was in very good condition. The three small rose knobs were missing but I was able to barter some replacements.



What has this restoration taught me? Above all, that patience is not only a virtue but a necessity for this type of detailed work. So often it was so tempting to remove the clamps before I should have – just to have a look! I managed to resist temptation and the results speak for themselves. Looking back, this was a challenging but enjoyable and very rewarding project that from start to finish took six months.

The demonstration video is available at <http://www.youtube.com/watch?v=IDcHODt6Kbw>









MODEL 89, 19
Schematic
Alignment
Changes

PHILCO RADIO & TELEVISION CORP.

Models 89 and 19

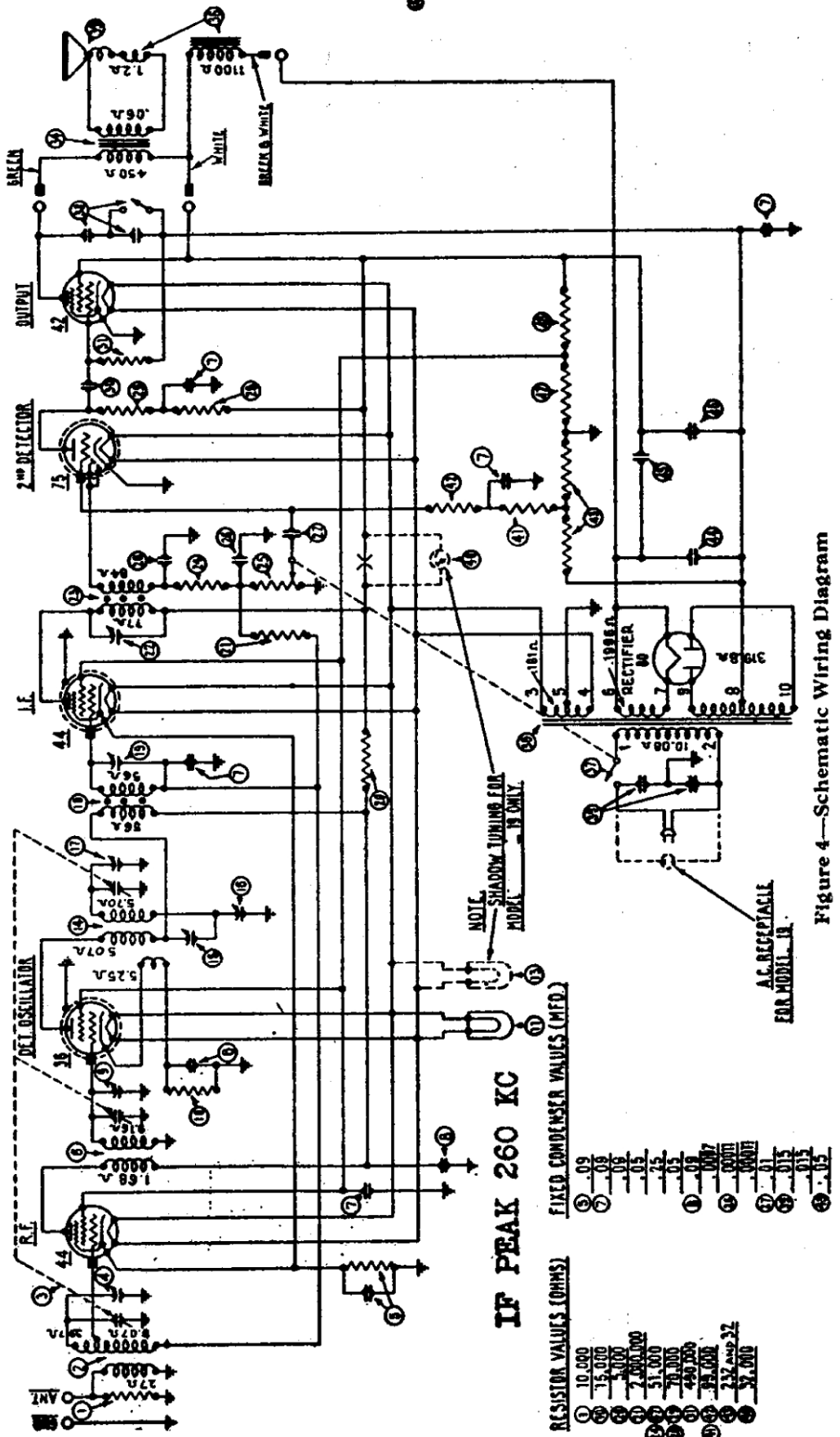


Figure 4—Schematic Wiring Diagram



