

An R107, Back from the Dead by Mike Hoddy, GOJXX

Back in the heady days of my youth in the mid 70's I had a number of vintage receivers that kept me occupied for many hours. These included a Hammarlund Super Pro, a German submarine set (how I wish I'd kept that one, there's one in Amberley Chalk Pits Museum, Sussex) and an R107T in mint condition. I have a photograph of a long haired youth happily tuning around, but I'm not going to publish that!!

After many years of moving around the UK I have finally settled in Worthing and have a very small shack at the front of the house (approx. 12 x 5 foot) and for a while I have been kept company by an AR88D, R1155, Eddystone 680X, KW Vanguard and various other bits of vintage and military gear some of which I have never been able to fully identify.

A friend of mine, Simon Dabbs G4GFN, is heavily into Army radios and has a good collection of mainly British sets but one thing I did want for purely nostalgic reasons was an R107. To cut a long story short Simon went to a local radio club junk sale and found one going for a tenner which he offered to me. I went to see it and we did a deal for a Land Rover aerial box and a fiver and the set was mine.

In terms of condition it was very poor as it had been stored in what must have been a puddle for about 25 years with heavy rust on the inside and underneath and first impressions was that it was truly 'dead' and the kindest thing would be to scrap it for bits and see if I could get a better example. I had been spoilt by my original one, as that was immaculate. The only thing going for it was that it was complete apart from one EF39, Relay and an original smoothing capacitor.

Having lugged this home the first thing was to get rid of the years of dust, spiders, grass!!, and general loose debris having first checked that nothing important would get drawn up the Hoover. That being done I took another look around and it did appear that the main rust damage may have been ugly but it was cosmetic and apart from a few dents the front panel was OK including the decals. Some wiring had perished beyond use – especially around the valve caps – but the remainder was delicate but again was complete. I took the decision to at least see if anything was

working so with the aid of my young son, aged 8, we took out the dial bulbs which he tested (get



them young is what I say) carefully removed the valves in order and set them aside after marking them with a pencil. At that time I didn't have a manual or circuit diagram so was working blind.

An obvious area that appeared to have sustained some damage was the front dial both Perspex front and the dial proper. In fact the dial was distorted so much that the screws holding the plastic in place had burst through. I was not hopeful that anything could be done and the chance of getting a replacement was very small unless I was very lucky indeed. The R107 is made in three separate units, RF, IF/AF and PSU/AF. Removal requires the de-soldering of the connections at the rear, removal of screws underneath and the knobs. That threw up a number of other issues in that the screws holding the knobs in place were totally damaged as though someone had tried very hard and when the grub screws had broken they had left them to rust in the holes.

This meant that I couldn't remove the knobs on the RF unit to get at the dial and Perspex to check it properly. I soaked the screws in penetrating oil for a day or so in situ and tried again but they would not budge. Drilling out was tried but that also failed. I was determined to get the RF unit out at least to see if I could rescue the dial so took the sacrilegious decision to saw off the Aerial tuning knob as that was the only one holding me back as both the main tuning fast and slow knobs were thankfully removable.

After much pulling and pushing and not a few heart-stopping moments I managed to remove the RF unit from the chassis and put that to one side.

On closer examination it was obvious that the Perspex front had been cracked down the centre but after cleaning it looked reasonable and I decided to leave that in place. The dial however was almost bent into a banana shape and I carefully removed the small nuts and bolts to lift off the panel. If anyone knows of a way of straightening a panel that is approx. 60-year-old plastic and has delicate coloured dial motifs attached without damage I would be pleased to hear. First thing I did was carefully clean off the worst of the filth that had accumulated with cotton wool and lukewarm water – no detergent as that seems to damage lettering for some reason – and then spray the printed side with a plastic coating so that at least there would be some protection.

Rather than risk total destruction I kept the panel in a warm airing cupboard under some weights for quite a while but that didn't work. In the end I replaced the backing sheet from the dial with white plastic and then re-fitted the original bolts with washers to pull the dial sheet back into place. This had the effect of limiting further damage, as the plastic is quite brittle and kept the dial flat.

The wiring was further checked out in the unit, I cleaned off as much surface rust as possible without damaging anything else and checked the valve bases for cracks and pin damage. These seemed to be OK as did the underneath components. There are a number of oddities with the R107 in that the units are modular and the only real way of gaining access to the valve bases on the RF and PSU unit is by removal of the whole module and side plates even then there is very little room to move.

There is evidence of corrosion around earth tags and joints but mainly the set was as you would expect from a receiver of this age being badly stored. All the decoupling capacitors are of the waxed paper variety but to replace them would be a major exercise. I replaced the RF unit back in the chassis, rewired the valve caps, re-installed the dial lights and reconnected the wiring at the rear.

Power on at last

One of the areas that concerned me also was the PSU as I would not have been surprised if that had been faulty but again it was complete and some one in the last 25 years had replaced the 8+8mmF smoothing capacitor with a modern equivalent. So with all the valves removed and the transformer isolated I attached a Variac to the input and very slowly increased the mains input to about 80% of normal mains input. The transformer didn't flinch as this was happening and I kept a very careful watch on the current and

voltage output just in case something unpleasant was about to happen.

No bangs were heard or any unpleasant burning smells so I took the risk and started to check all the voltages out from the transformer. There were no problems so the next stage was to replace the 6X5G rectifier and test the DC voltage that is available on the back panel of the PSU unit.

In between time I was trying very hard to get a manual and thanks to Radio Bygones for their mailbox but mainly to Colin Guy for the VMARS copy of the whole manual being available on the web page – now I was really ready. Incidentally be aware that sometimes you end up with the manual for an HRO variant if you specify R107 from some manual suppliers.

I managed to source a 6K7G to replace the missing EF39 and with a full compliment of valves I repeated the voltage check on the PSU. It never ceases to amaze me just how well built some of this kit is given the pressures that people were under and the urgency for developing these sets yet few short cuts were taken. All the voltages were correct within reasonable levels and that made me decide to carry on now and finish the electrical restoration even if cosmetically the receiver looked tatty.

Certainly the VFO worked first time even with the unknown state of the de-couplers and a strong note was heard on my monitor receiver (TS940 – even I have some modern (12 years old) kit) and the frequency was close enough for an initial check. I traced a signal through the chain and apart from a possible issue with the AF filter attenuating the signal it basically was working. There was no audio from the speaker and this was traced to faulty LS on/off connector, corroded switch and damaged speaker.

There was plenty of audio through the Tel. output socket and once I replaced the speaker that also worked. What I need now is to find an original replacement for the speaker but at present it is working. One thing I have noticed is that the aerial tuning control, a small 50pF capacitor, will cause the set to oscillate in certain positions quite badly and I am not sure whether that is a fault or is a design issue – any ideas? The next steps are to get the knobs off the set or find replacements, run through the performance and bring it back to original specification and then tidy up the cosmetics.

So despite many years of serious neglect and damage this R107 is now working and pulls in reasonable signals, as did my old one, I'd love to partner this with a Type 12 sender but then I would need to move!!