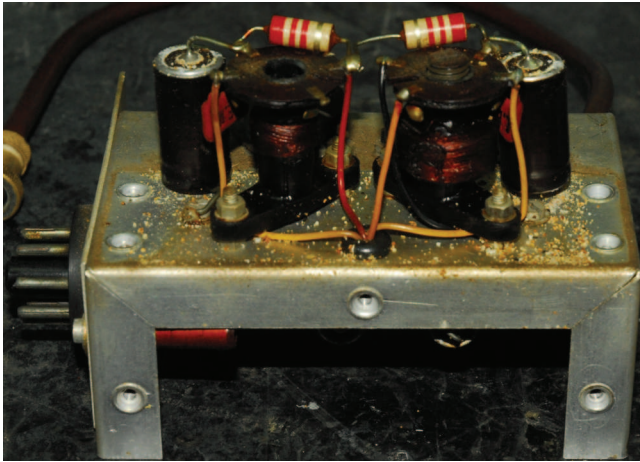
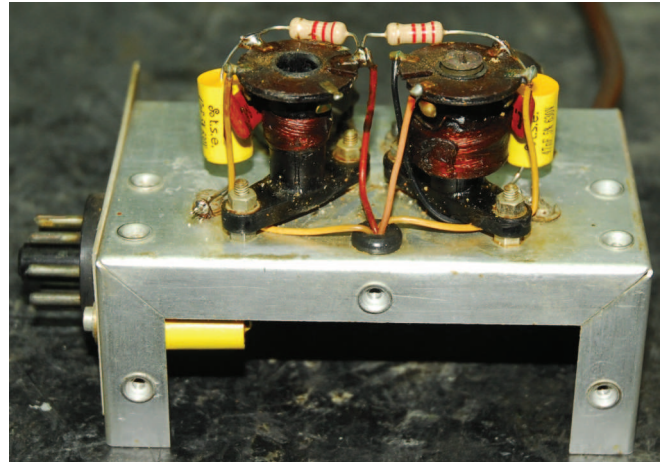


Racal RA17 Ser. No. N371, 4th report, 20/04/19

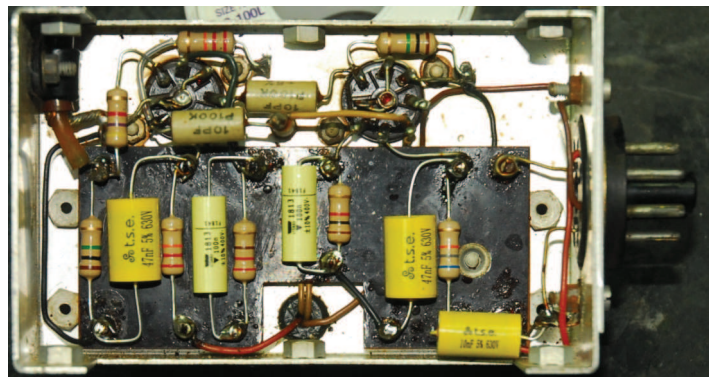
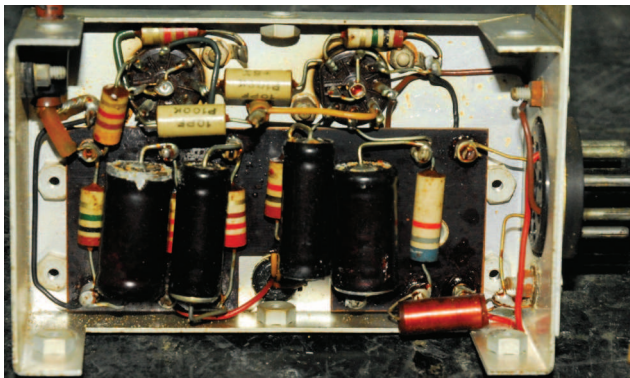
This is the fourth and final progress report on the refurbishment of RA17 MK1 serial number N371. Final alignment has now been carried out. This included re-shaping of the 40MHz band-pass filter and 100KHz IF filters. Several issues arose during this final stage. These have all now been resolved.



Before



After



As ever, I forgot about the 'enigmatic' Calibrator. Always the first unit to be removed and the last to be refurbished! The condition of the Hunts tubular capacitors was quite bad. There was also a lot of loose debris under the top cover. This is an original MK1 Calibrator module where the bottom cover should carry a Tufnol 'foot' which rests on the top of the 1st VFO module. In this case the 'foot' was missing, so I replaced the bottom cover with one sporting the 'foot'.

Moving on to final alignment: The crucial 40MHz band-pass filter was realigned with the aid of a network analyser. During re-shaping of the 100KHz filters, it was found that the balancing trimmer for the 100Hz crystal filter was shorting out. Fortunately this was easy to fix. However audio distortion was clearly present when resolving CW and SSB. Investigating this fault I discovered several anomalies associated with the AVC (AGC) and BFO/Detector circuitry. There are many theories abound relating to the various changes made to the AGC circuitry over the course of the RA17's life. RA17 N371 is one of the earliest examples that I have worked on to date. I have an original manual with a circuit diagram which clearly states that it is for serial numbers from 11 to 510. I have read somewhere that in the MK1, the IF-Gain control is disabled when AVC is selected (as in the RA17W). This was indeed the case with N371. However the circuit diagram in the manual would disagree. Where the diagram does agree is in relation to the final IF transformer where the secondary does NOT include a parallel trimmer capacitor and slugging resistor (more on this later).

Regarding the disabled IF-Gain control, I decided to re-wire the unit to reflect the circuit diagram. This was not simply that it should match the diagram but that it would render resolving SSB easier, where careful adjustment is required to prevent overloading the detector. The input attenuator does not provide sufficient control even when AVC is selected.