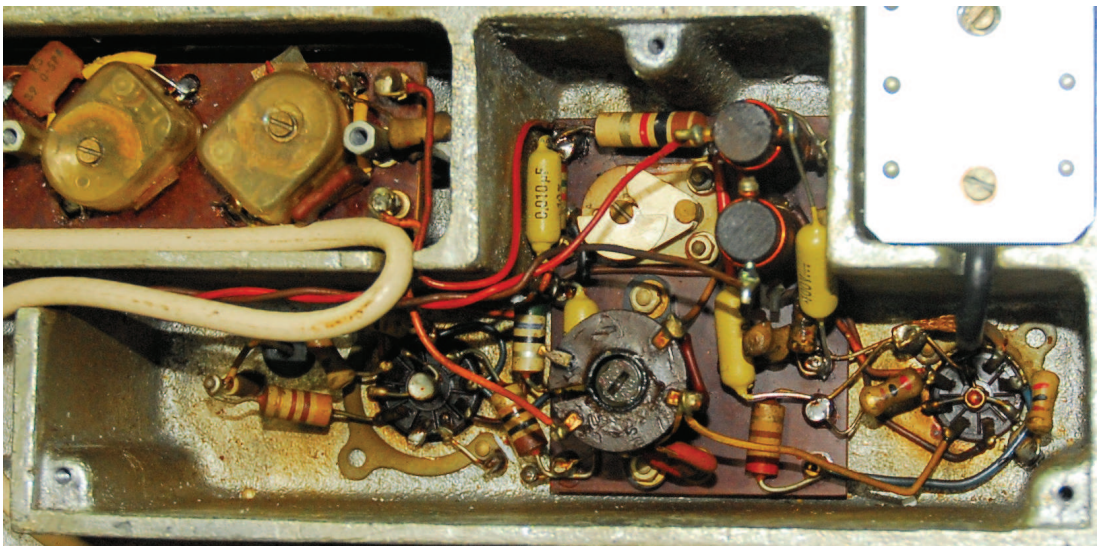
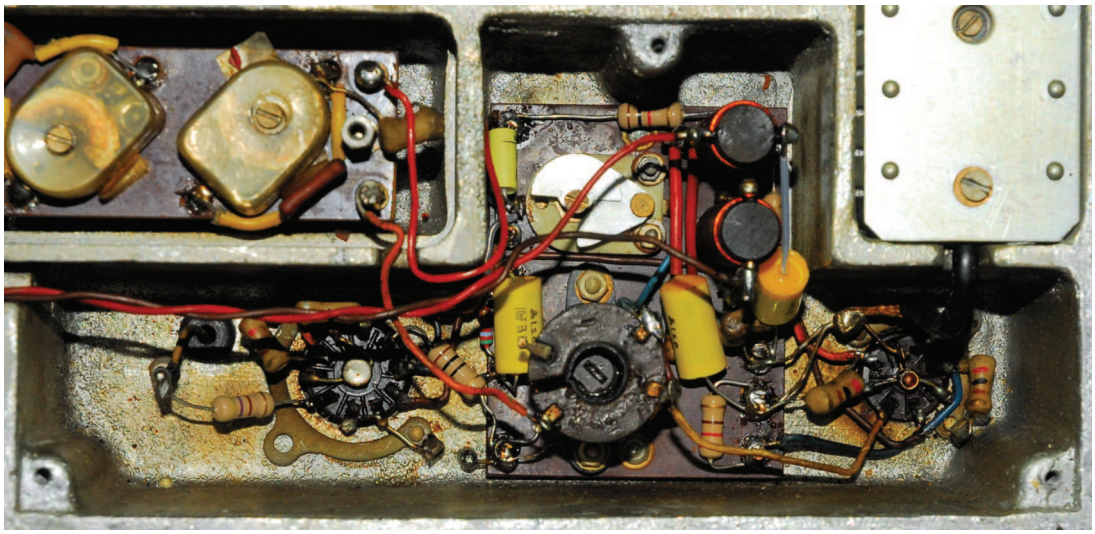
The 2nd Mixer ... This is a particularly tricky compartment to work in due to its shape. Initially I had thought that the 10nF capacitor to the left of the trimmer capacitor was wired incorrectly, but no. Due to its size (larger than the original) the ‘new’ one from the 1970s, was wired to a different ground terminal. However, the 1K resistor at the top came off far too easily. This metaphorically rang alarm bells. If this resistor required replacing, the most common reason would be a short-circuit trimmer capacitor drawing excessive current through the 1K resistor. I was correct. At several points on its travel, the trimmer capacitor did exhibit a short-circuit. Two things can cause this ... Either conductive debris between the vanes, or damaged vanes. The latter proved to be the case. This is likely to have been caused by a trim-tool slipping out of the slot and pressing down on the vanes. It is very likely that this is the fault which resulted in the heater choke being over-heated. Once the trimmer is damaged like this, the best approach is to simply replace it. This requires the entire tag-board assembly to first be removed from the chassis ... Not difficult but tedious due to the number of wires.



Before



After... Replacement trimmer capacitor fitted

The receiver was again tested ... Sensitivity appeared good, but there was still noise on the recovered audio. The actual source of the noise turned out to be linked in a way to the Racal-sanctioned modification to the aerial socket where the braid is effectively isolated from the chassis. If this had been a slightly newer RA17 this fault might not have arisen. However due to the mechanical nature of the attenuator switch in RA17 N371, isolating the aerial connector from the chassis effectively removed the ground connection from the rear plate (ground). Although the signal path is not affected, removing the ground from this plate adversely affects the function of the attenuator to the extent that it has very little effect. To correct this issue it was thus necessary to ensure that both input and output coaxes on the attenuator have their braids soldered to the end-plate on the attenuator switch. Once this was done, the noise on the recovered audio disappeared completely.

The next and final report will carry details of the final re-alignment including the re-shaping of the various filters; i.e. The 40MHz Band-Pass filter and the 100KHz IF filters.

Ian Ropper, GM0UHC, April 1st 2019