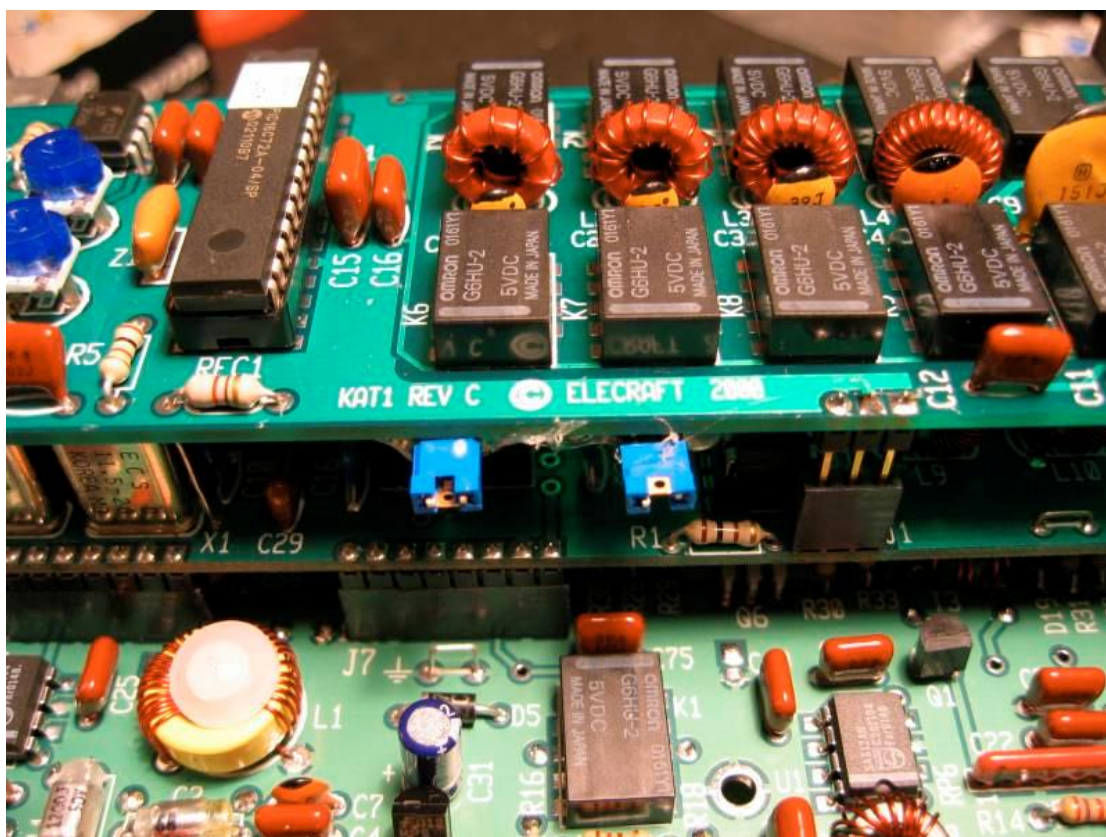


Increasing the tuning range of the KAT1 automatic ATU

While the KAT1 is adequate for end fed wire antennas on the lower bands and doublets on the higher bands, it struggles with the often quite reactive loads presented by open wire fed doublet antennas on 40m and especially 80m. The KAT2 tunes these loads with ease due to having more inductance and capacitance available than the KAT1, there is approximately four times the inductance and eight times the capacitance in the KAT2 compared to the KAT1.

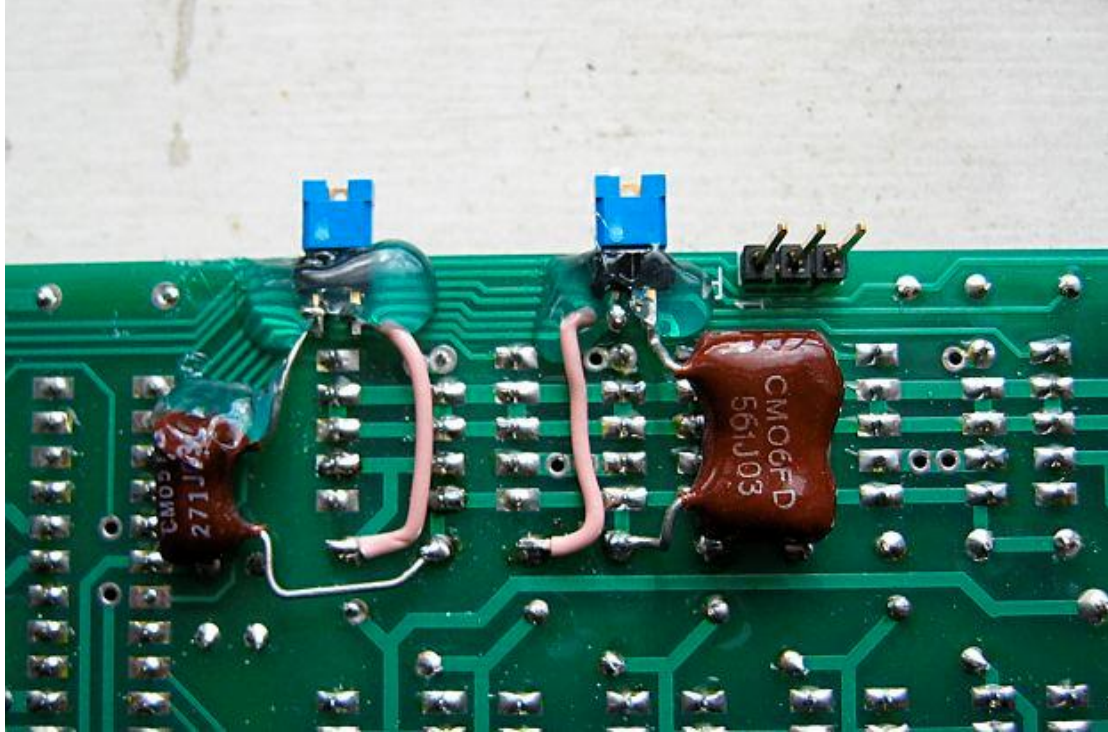
As the KAT1 is quite adequate on the higher bands, any modification needs to accommodate these higher bands as well as the lower bands. Fortunately, my K1 has an 80/40m board that is swapped to a four band 40/30/20/15m board for the higher bands. As swapping the board involves removal of the KAT1, an opportunity presents itself for removing, or adding, a couple of links.

The values of C1 and C2 in the KAT1 are quite low and contribute little to tuning an antenna on 80 and 40 metres. By adding capacitance across C1 and C2 the lower frequency tuning range can be extended. I used a 560 pF silver mica capacitor across C2 and a 270 pF silver mica capacitor across C1.



The exact values aren't critical and may need to be "selected on test" to allow tuning on a particular antenna. While "100 volt" ceramic capacitors may be readily available, higher working voltage capacitors are less likely to fail. Ceramic or silver mica capacitors are equally suitable. By removing the series link, the capacitors can be effectively removed from the circuit when using the higher band board.

Not having an internal battery, I have no idea if locating these links near the centre of the KAT1 board will interfere with the battery unit. If they are a problem, relocating the links elsewhere shouldn't present any issues. Care should be taken to avoid short circuiting the links and capacitor legs to the tracks on the print board. The 560 pF capacitor on the right has quite a thick body, the legs should be bent to allow a neat fit.



The links and additional capacitors are held in place with hot melt glue. If the board has to be returned to original specification, this can be peeled off without leaving a trace.

While I make no apologies for the “untidy” method of attaching the links, it is easy to remove all sign of the modification and it does look neat from above!

Any modifications are done at the owner's risk, this is not an official Elecraft modification.

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