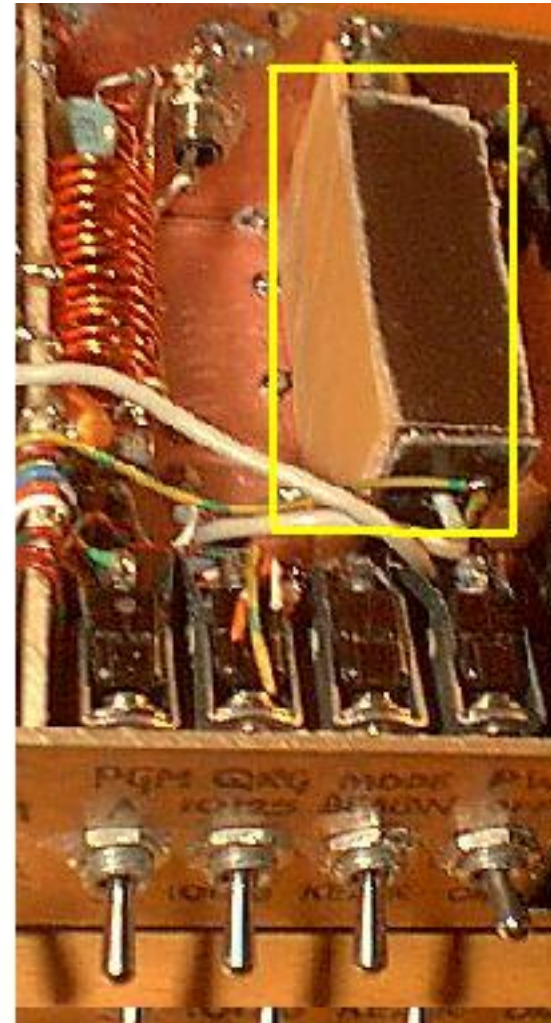


30m QRSS beacon: QRV: even more changes

Written by Hans Summers
Monday, 25 May 2009 03:02 -

Yet one more attempt to remove the troublesome chirp and stabilise the frequency! Since the oscillator chip was right next to the output pi-network I decided to try moving it further away, and putting it in a screened box made from single-sided PCB stock. The picture shows the oscillator board, before and after. Screened cable takes the oscillator output to the pa, and brings in the frequency control voltage.



Next, I attempted to linearise the frequency shift (see the same-frequency 7'th and 8'th steps on the screenshots above). The lack of shift occurs when the shift changes from step 7 to 8. Therefore it is due to the 10K resistor in the resistor network being slightly off-value.

To correct the abnormality I experimented with several different value resistors in parallel with it (not being able to find easily a sufficiently high-valued preset potentiometer in the junk box). The

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voltage at the output of the resistor network was measured to 2 decimal places on my DVM (at the junction of the 10K, 20K, 40K and 80K resistors).

I ended up with 3 parallel resistors to the 10K resistor: values 220K, 470K and 560K. The combined value of the added parallel resistance is therefore 118K. The chart below shows the measured voltage before (left) and after (right) the corrective resistors were added. You can see that the problem with the curve at step 7 - 8 is gone. The line still isn't completely perfectly straight now I have measured it in detail, but it will be good enough to remove the observed discontinuity on the screenshots.

