

NO5K's DME 3Watt, 10 GHZ Xverter build & minor modifications



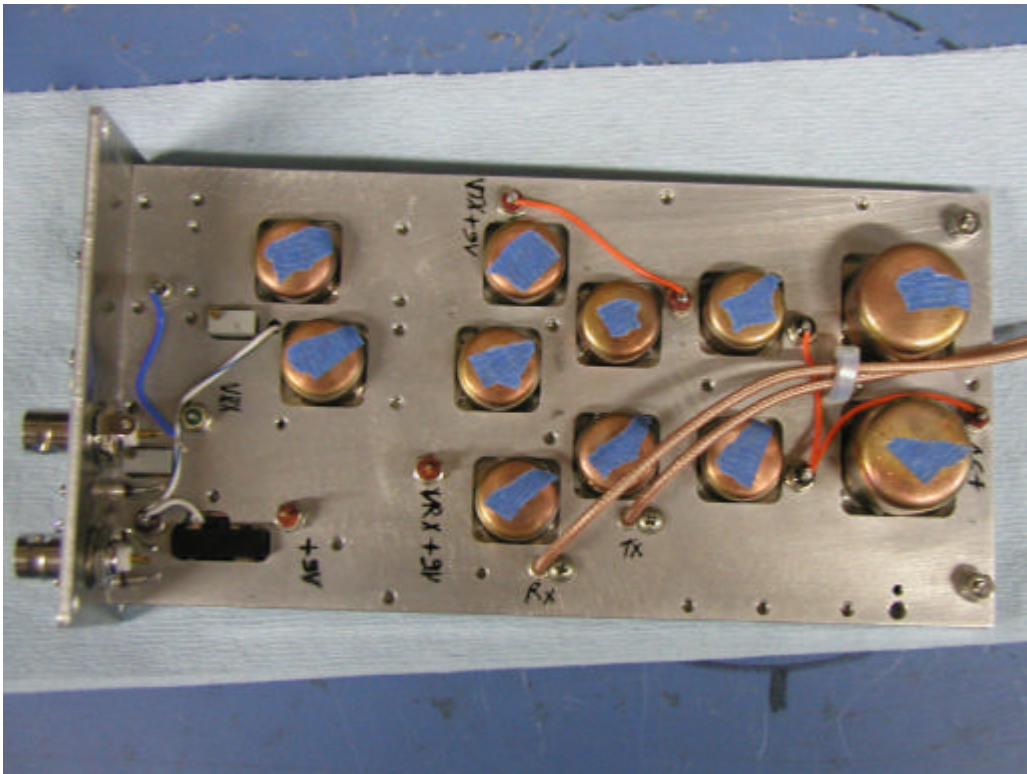
Preheating aluminum substrate and PCB to 190F facilitates quickly soldering pipe caps.

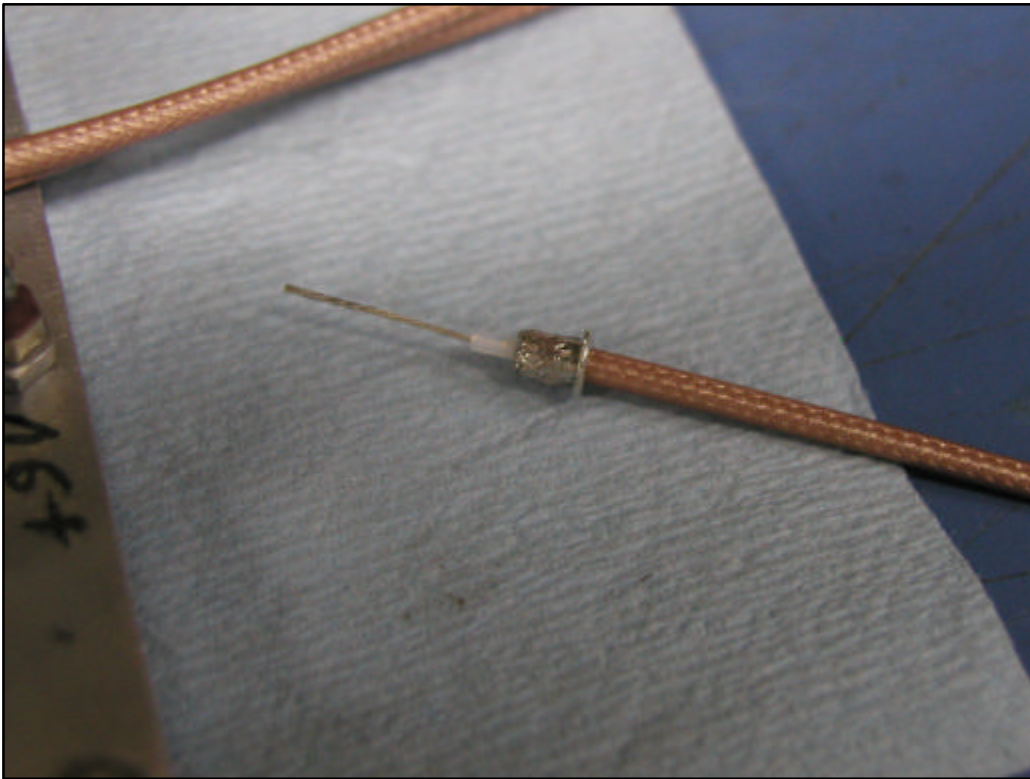


Cooling down after about two minutes of work.

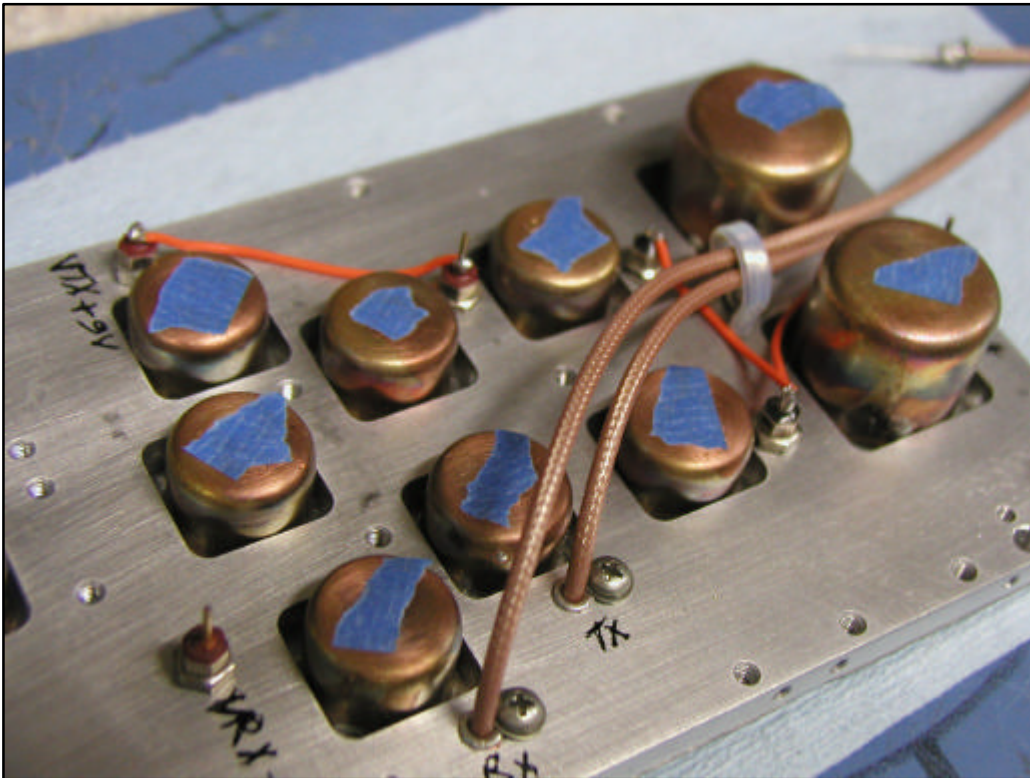


Holes from PCB to substrate tapped and feed-thru capacitors installed.





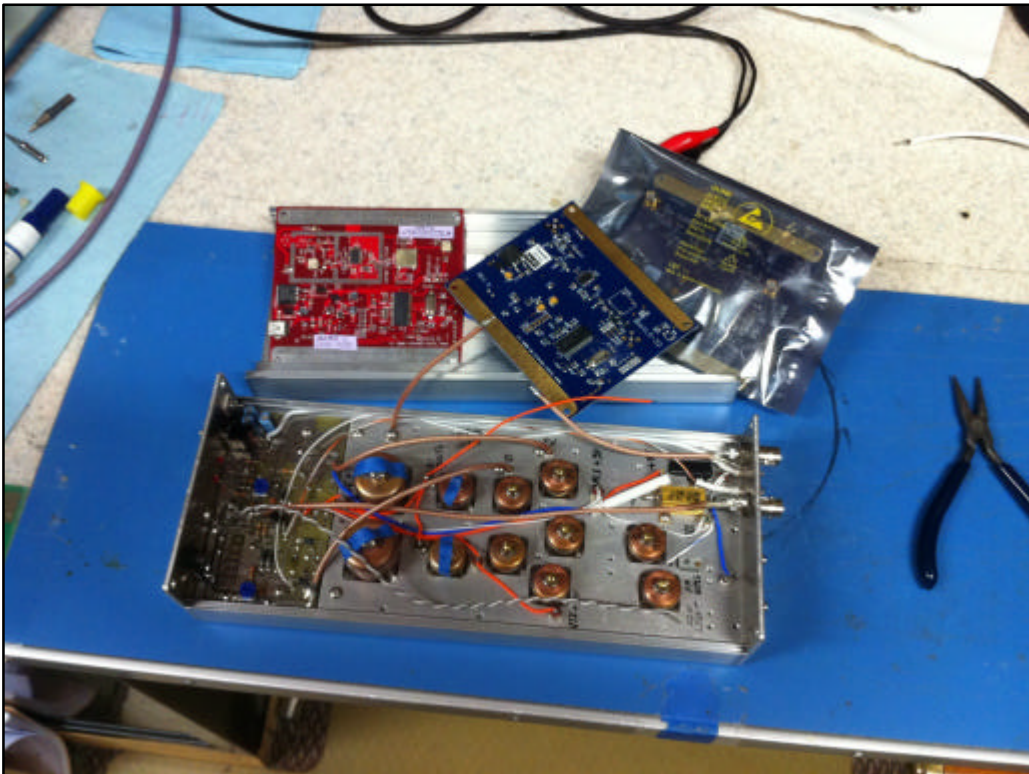
Coax prepared and soldered to rivet. (Control the OD)



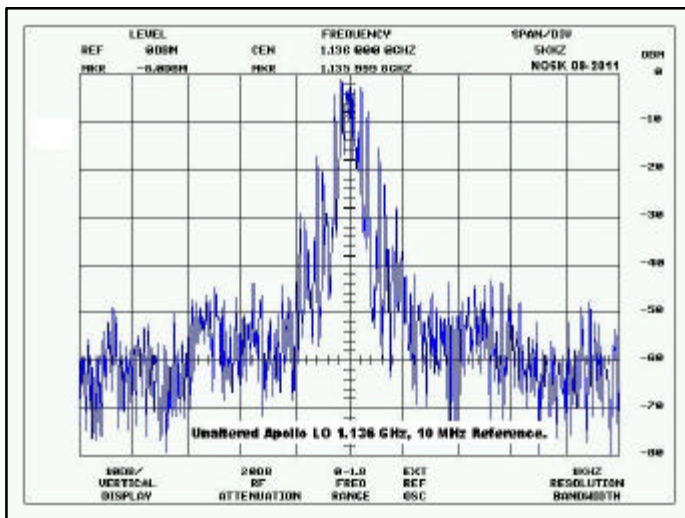
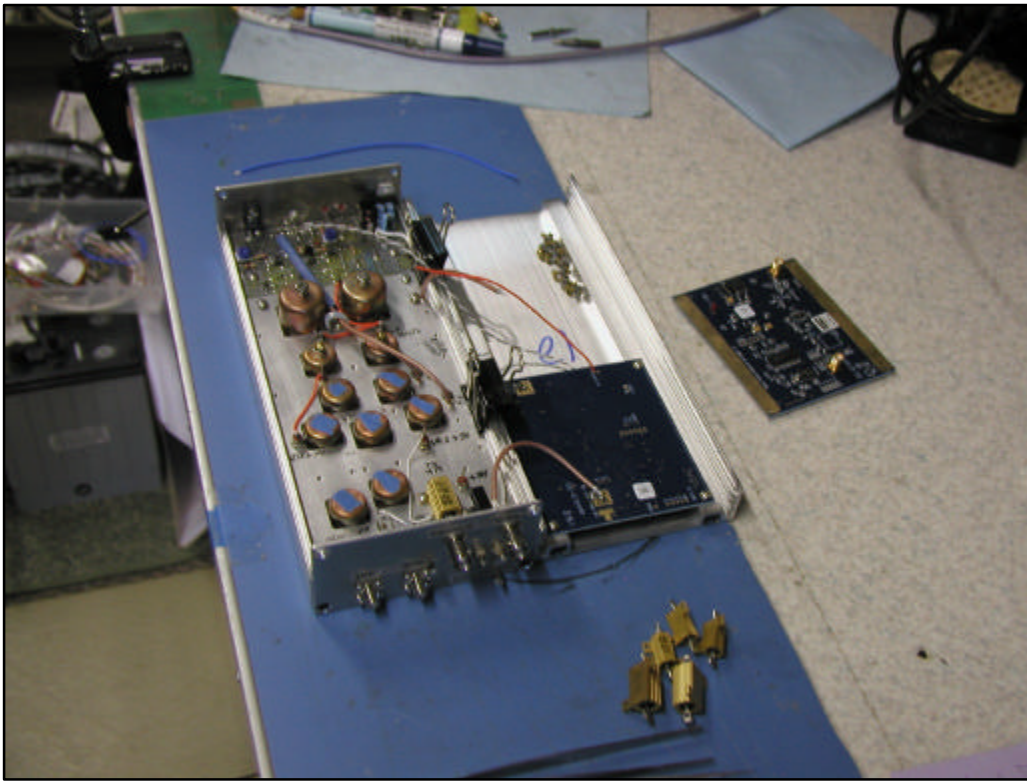
Satisfactory long-term conductivity and serviceability.



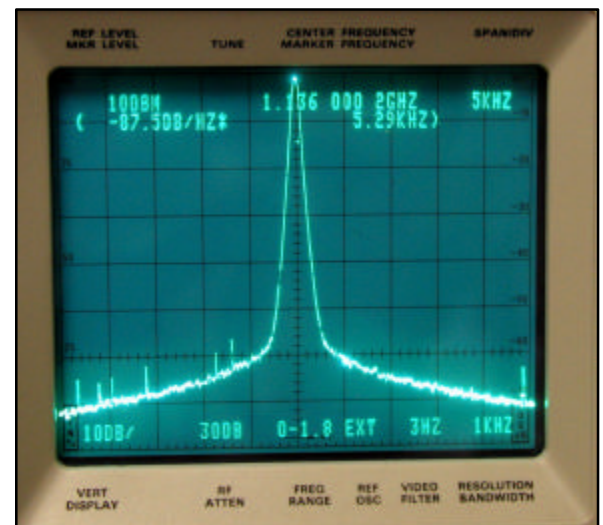
Testing LO and Mixer with lab GPS.



Available selection of LO Boards for evaluation.



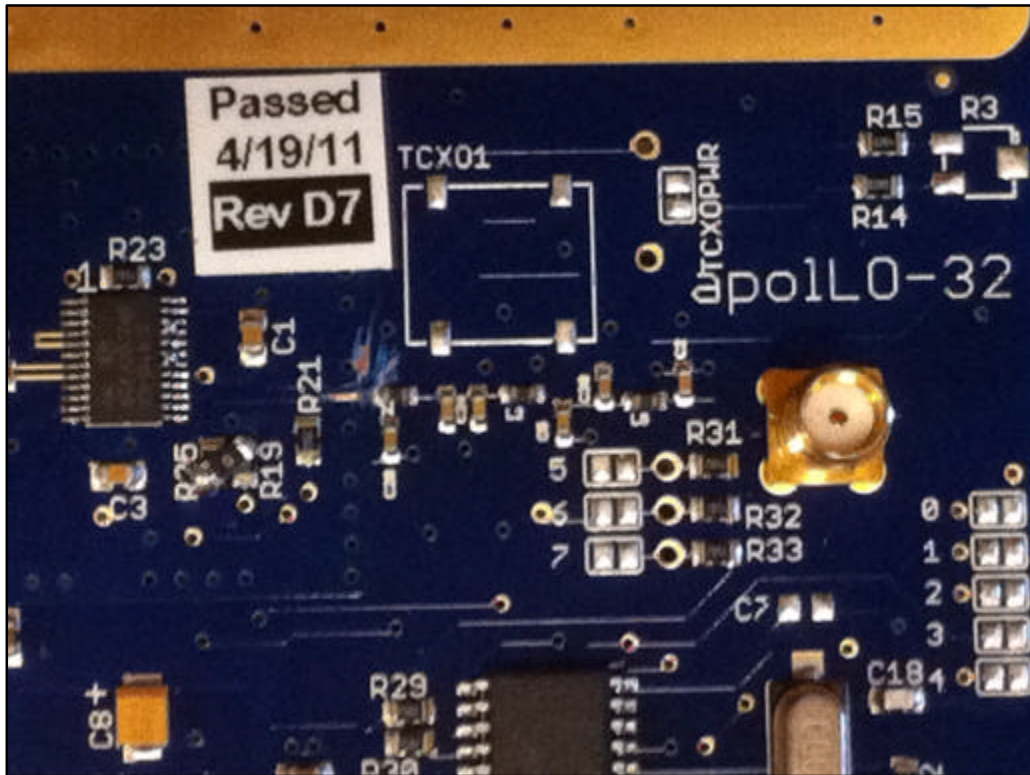
GPS Reference induced Phase Noise, Stock Apollo



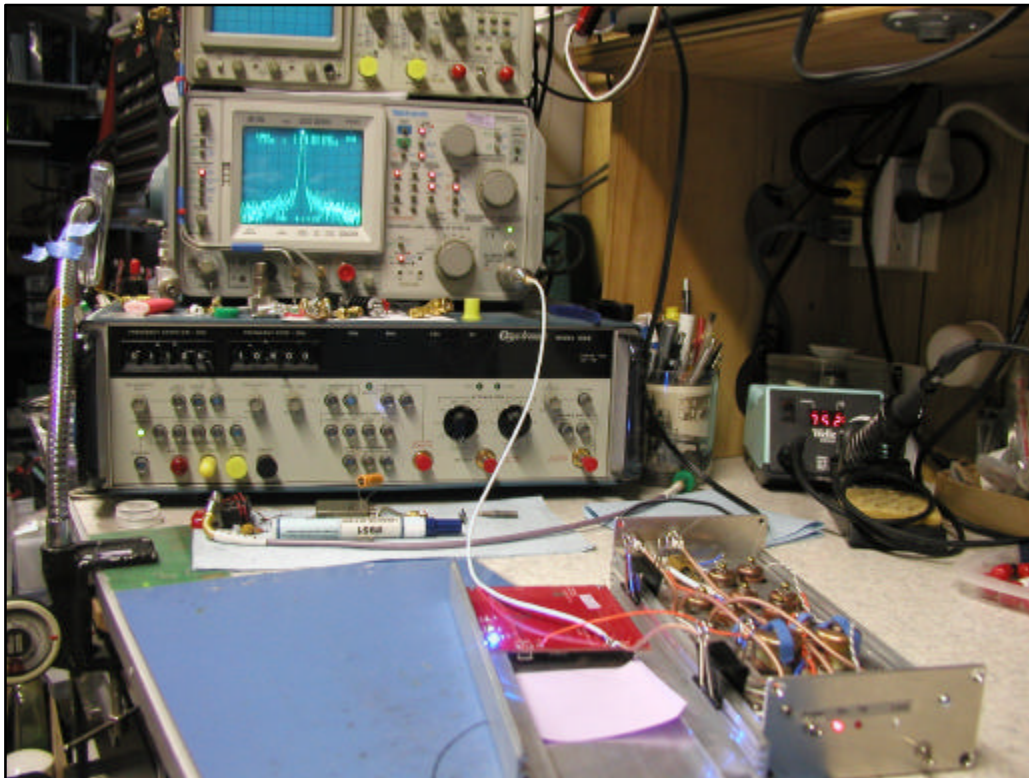
Phase Noise from 0.5PPM TCXO

Initial start-up using my lab GPS Reference showed excessive low frequency modulation of the 1,136 MHz signal. The original Apollo Board with no added LPF produces clean output with a TCXO. The same excessive LF modulation is present in my original red-board when used with certain External Reference signals..

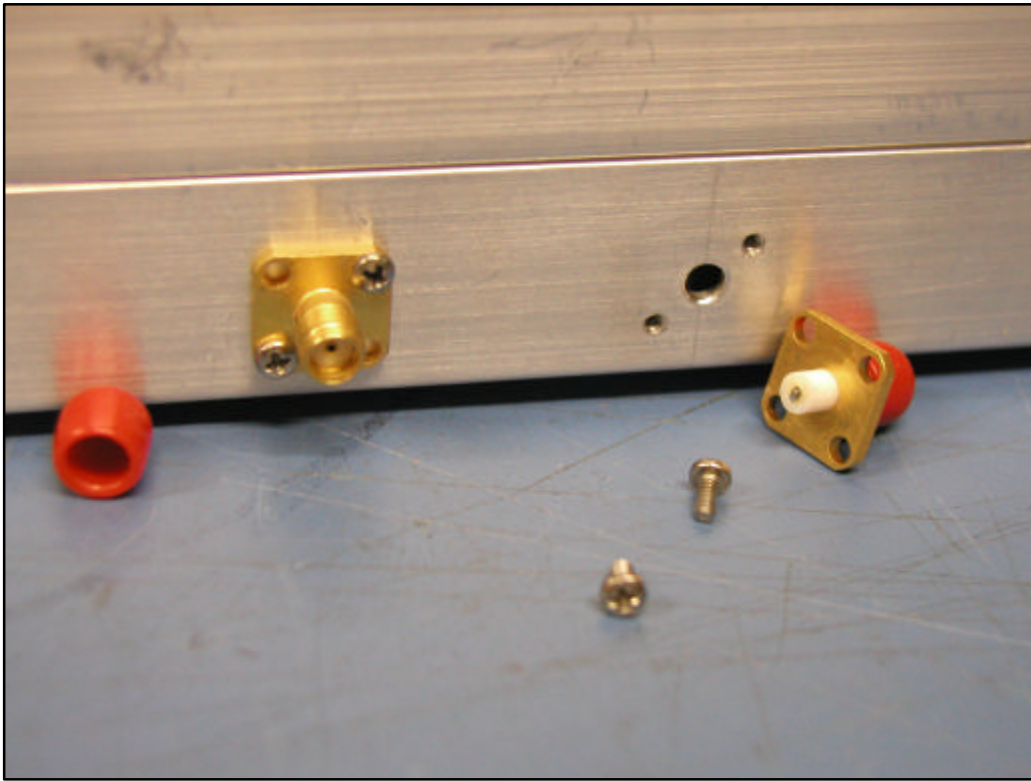
Reading the Si 4113 Data sheet shows that there is DC Bias on the Reference Input. Cutting the trace leading to IC1, P\$15 (XIN) and inserting a 1 nFd capacitor reduces the susceptance to low frequency modulation from the reference input. The Decoupling Capacitor reduces the LF noise to some degree even when using a TCXO.



1 nFd blocking capacitor inserted in Reference Input.



Final configuration with original 2008 Red Board and 0.5 PPM TCXO



Three sniffer-probes added to accurately check 1,136, 3,48 and 10,244 signals.

Probes do not touch or interfere with the PCB circuitry, simply a calibratable signal pick off point.
Measure twice^{^3} and drill once.

