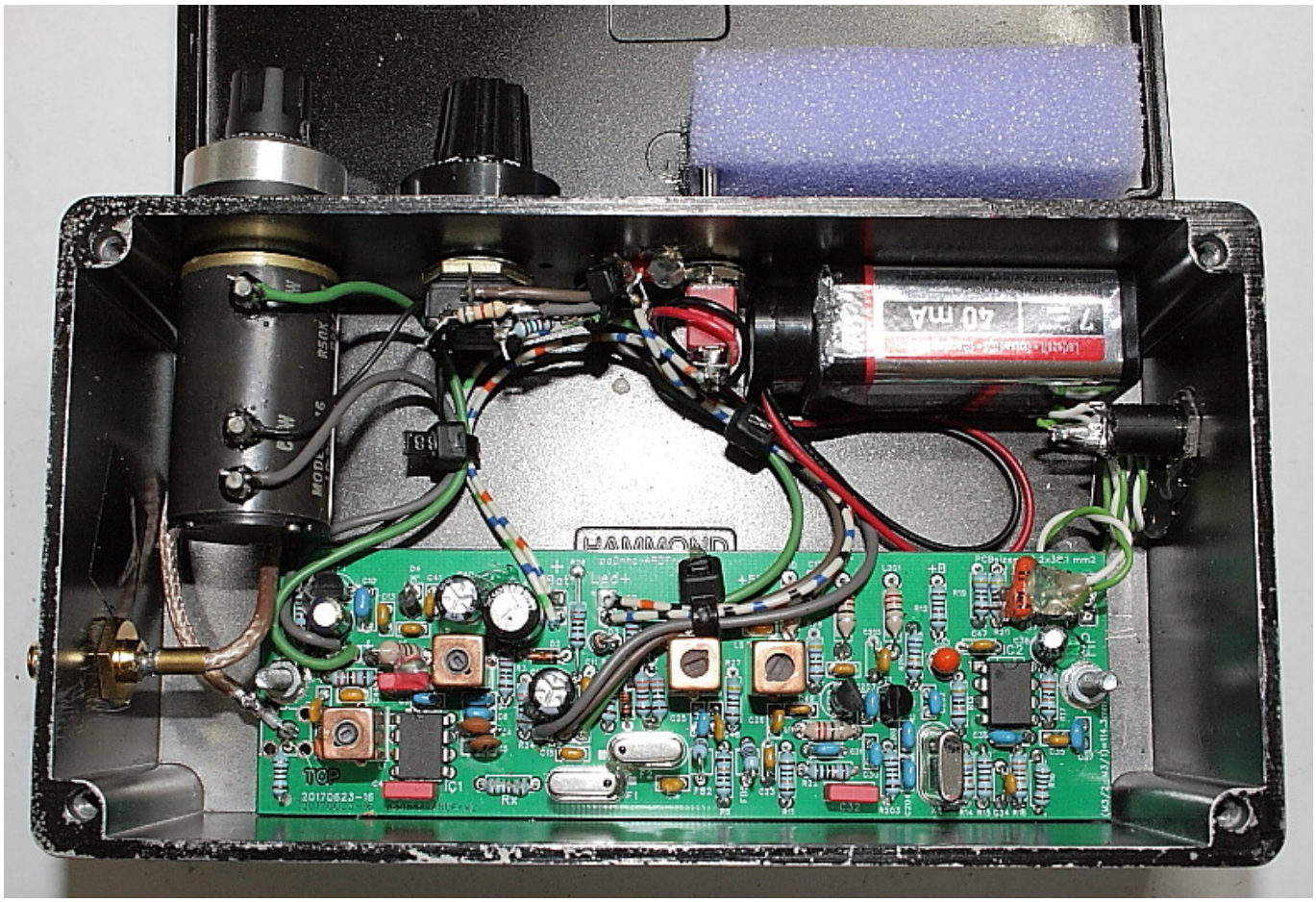
Pa0nhc ARDFrx2m2. PCB 20180123-14

Properties.

This version 2m ARDF receiver is a combination of the best properties of my 80m ARDFrx80 -7 and an earlier version of this ARDFrx_2m. The purpose for redesigning it was : a for you easier to finish project, using less components, greater distance between oscillator circuit and wiring, less temperature change in the oscillator circuit, and readily wound coils. Self wound coils on Neosid 7F1 and 7V1 coil bodies can also be used. Some components which could need to be exchanged for adjustment purposes, intentionally have bigger holes for easier de-soldering. Anyone who can follow written instructions and can solder, should be able to finish this project successfully.



Prototype

<u>In this design purposely NO scarce radio ICs are used.</u>
This receiver is a single super heterodyne. The three SMDs are especially selected for their availability and optimal properties for this critical application. All other components are wired or pinned for easy assembling. The coils are already wound, and availability is checked. Together with the highQ 10.7MHz IF coils, the cheap 10.7MHz IF crystal filter gives very good selectivity. A cheap and light weight screening housing can be made from a piece of square 45 mm ALU pipe, or dilled in a cheap aluminum die cast box. See “**Suggestions for housing**”.
The PCB is fixed in it with three M3 screws. A 9V battery makes abt. 10 hours continues operation possible. The antenna input is 50 Ohms coaxial with a SMA bus for easy disconnection and service.

Receiver properties

Sensitivity ::	-120dBm (S4, 0.22uV / m=80%) is clearly readable.
RF blocking level :	-35dBm (equal to S9+60dB !).
Gain adjustment :	Over 90dB range. -35dBm (blocking niveau of IC1) can still be attenuated Max. and min. gain can be set.
Selectivity :	B=12 kHz -3dB, better than +/- 250 kHz -80dB.
Audio selectivity :	150 Hz to 1.5 kHz - 3dB, slopes -18dB/oct. Output max. 4Vpp. To prevent ear damage, the max loudness produced by the headphone which is used together with your receiver, should be adjusted for max. 85dBspl sound pressure. See setup.
Battery :	9V 6LR61. Max. 20 mA for about 10 hours continues use.
Battery indication :	The LED battery indicator darkens when the tuning will become unstable due to low battery voltage.
Total mass :	500 grams.