Install a modern DSP Noise Blanker on your Collins KWM-2

From F6EXG

The original KWM-2 Noise Blanker option is hard to find, costly, needs a separate antenna and results are modest…

Having experienced the DSP noise blanker from B.H.I. on my tiny FT817, I decided to find a simple solution for my Collins rig.
The good news is that there is a "NB" control on the transceiver. We can find the NB power and control signals on J24- 9 pin socket.
The supply is done by rectification of the 6.3V "tubes heaters".
However, on my KWM-2A, the measured voltage being 5.8V, I replaced the rectification / filtering by a Schenkel doubler, in order to get about + 9VDC.

The principle is to "insert" the DSP in the audio path, and the simplest way is taking the audio signal coming to the AF potentiometer, send it to the DSP input, take the DSP output and bring it back to the AF potentiometer instead.

Please read the DSP brochure on the manufacturer website:

https://www.bhi-ltd.com/

The DSP needs some interfaces that can be constructed on a piece of "prototype board" as shown on the photos.
Once the installation is completed, there are few adjustments:
- Input level (to avoid saturation of the DSP),
- Output level (to recover a similar audio level with or without N.B.),
- Jumpers to select the amount of noise cancellation, or better, remove these jumpers and install a 3 DIP switch control on the interface board's top (see photos). N.R. level will be adjusted by lifting the rig's top cover and set the wanted code on DIP switches.

This is a "week-end project" that will not alter the value of your Collins equipment:
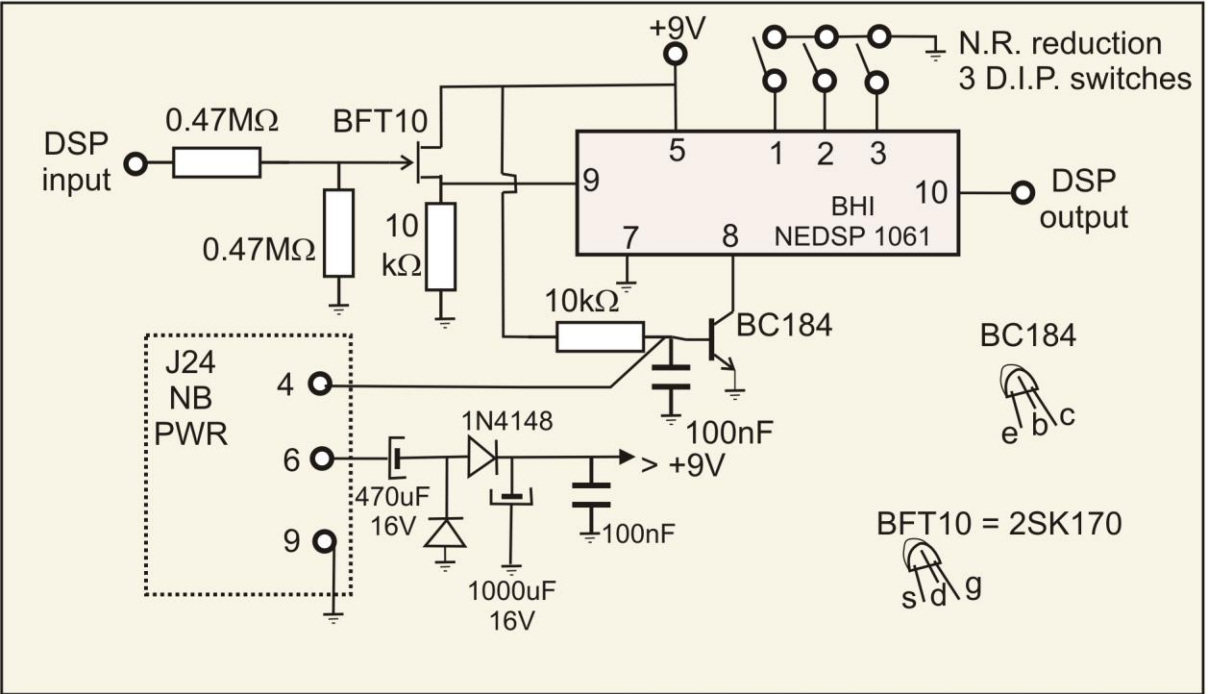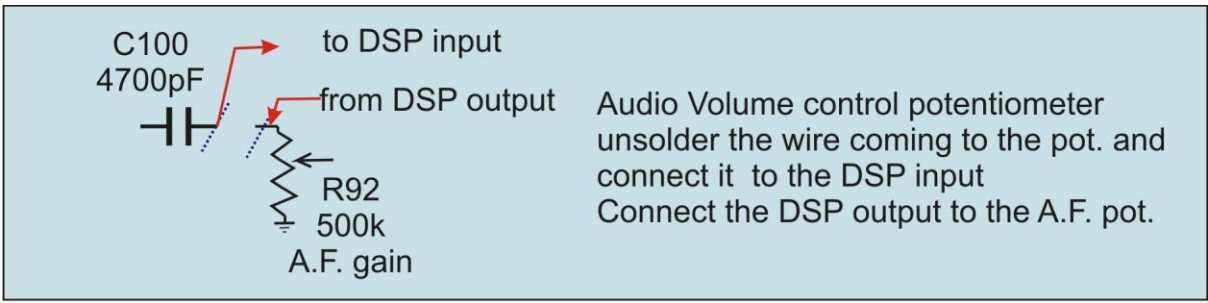No drilling, only one shielded wire to unsolder from the AF level potentiometer.

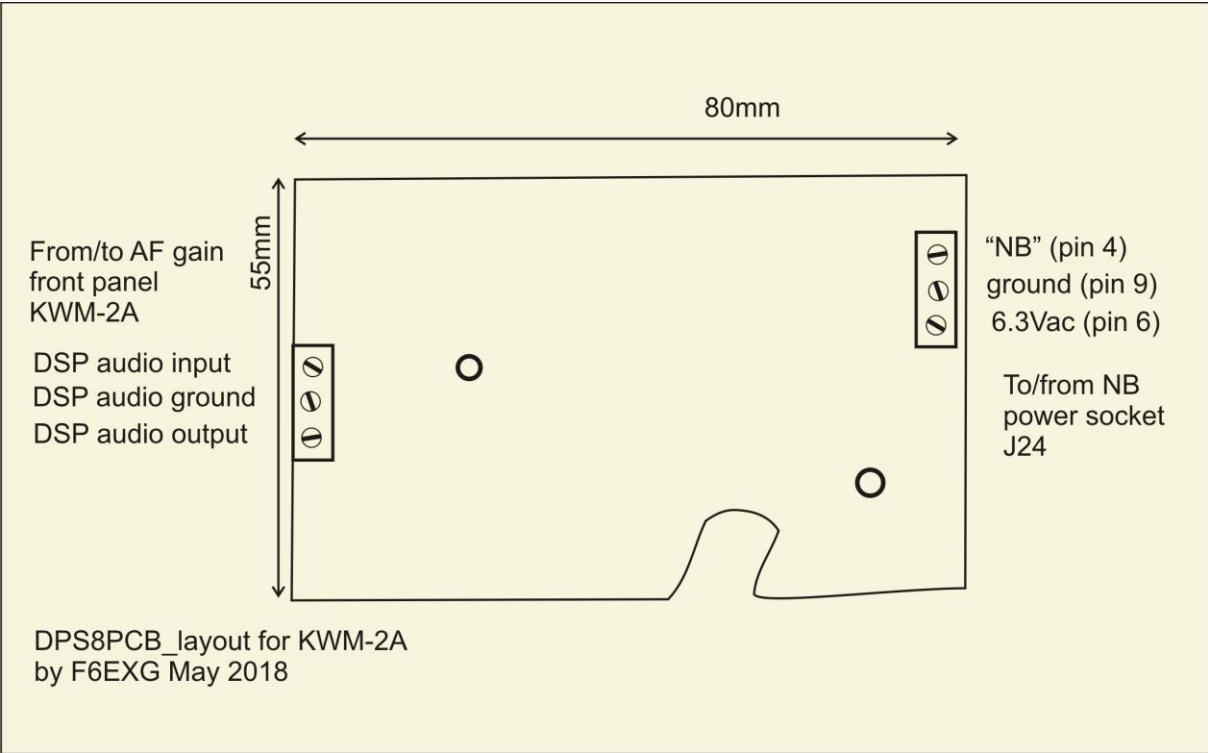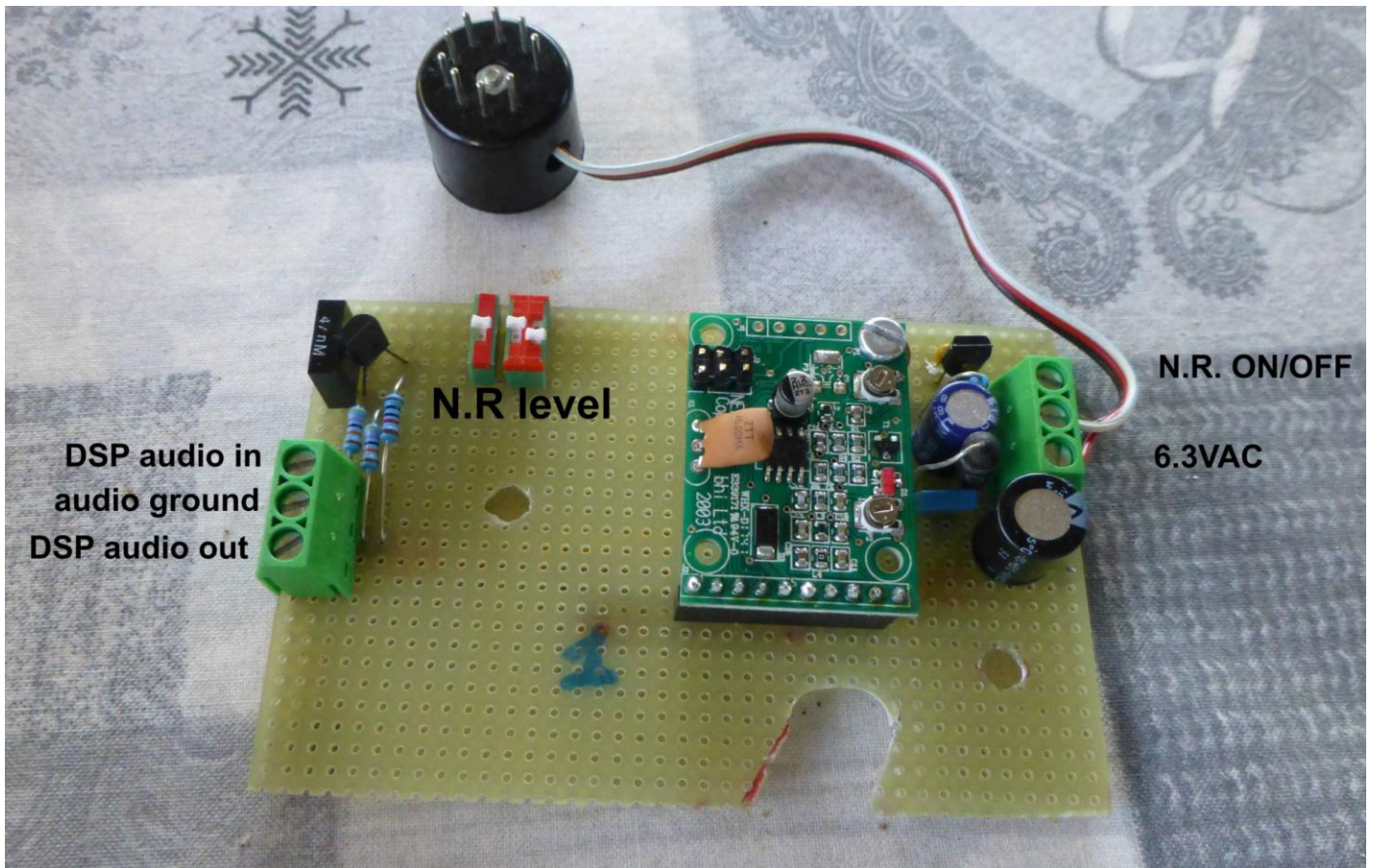Enjoy this new feature, it is amazing.
73, Roland
C.C.A.E.# 0246

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C100
4700pF
to DSP input

from DSP output   Audio Volume control potentiometer
                   unsolder the wire coming to the pot. and
R92   connect it to the DSP input
500k   Connect the DSP output to the A.F. pot.
A.F. gain

+9V   N.R. reduction
                             3 D.I.P. switches

DSP   0.47MΩ   BFT10
input   5   1 2 3
                             9   10   DSP
0.47MΩ   10   BHI   output
           kΩ   7   8   NEDSP 1061

           10kΩ
J24   BC184   BC184
NB   4
PWR   1N4148
        6   100nF
        470uF   > +9V
        16V   BFT10 = 2SK170
        9   100nF

        1000uF
        16V

BC184
e b c

BFT10 = 2SK170
s d g

Interface card example:

80mm

55mm

From/to AF gain   "NB" (pin 4)
front panel   ground (pin 9)
KWM-2A   6.3Vac (pin 6)

DSP audio input
DSP audio ground   To/from NB
DSP audio output   power socket
                         J24

DPS8PCB_layout for KWM-2A
by F6EXG May 2018

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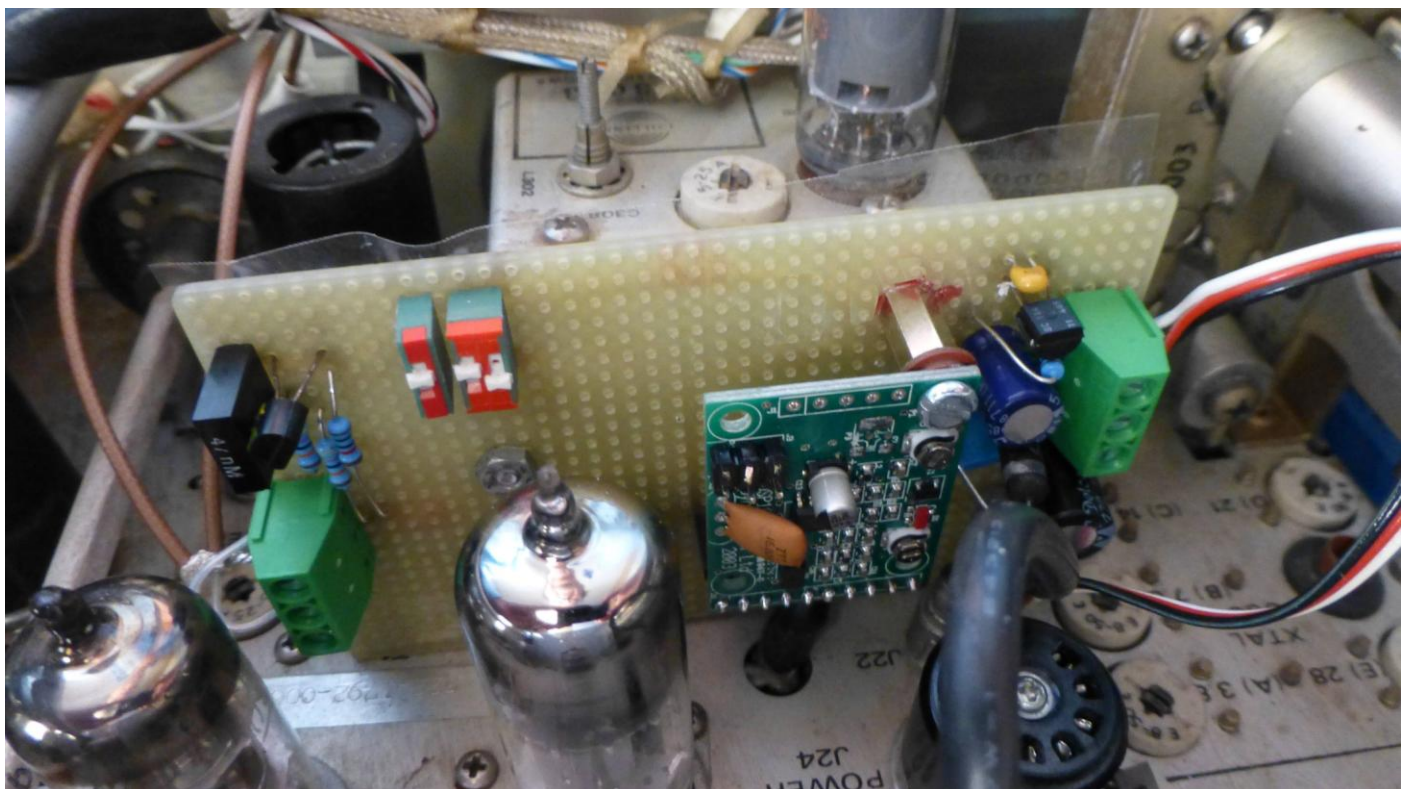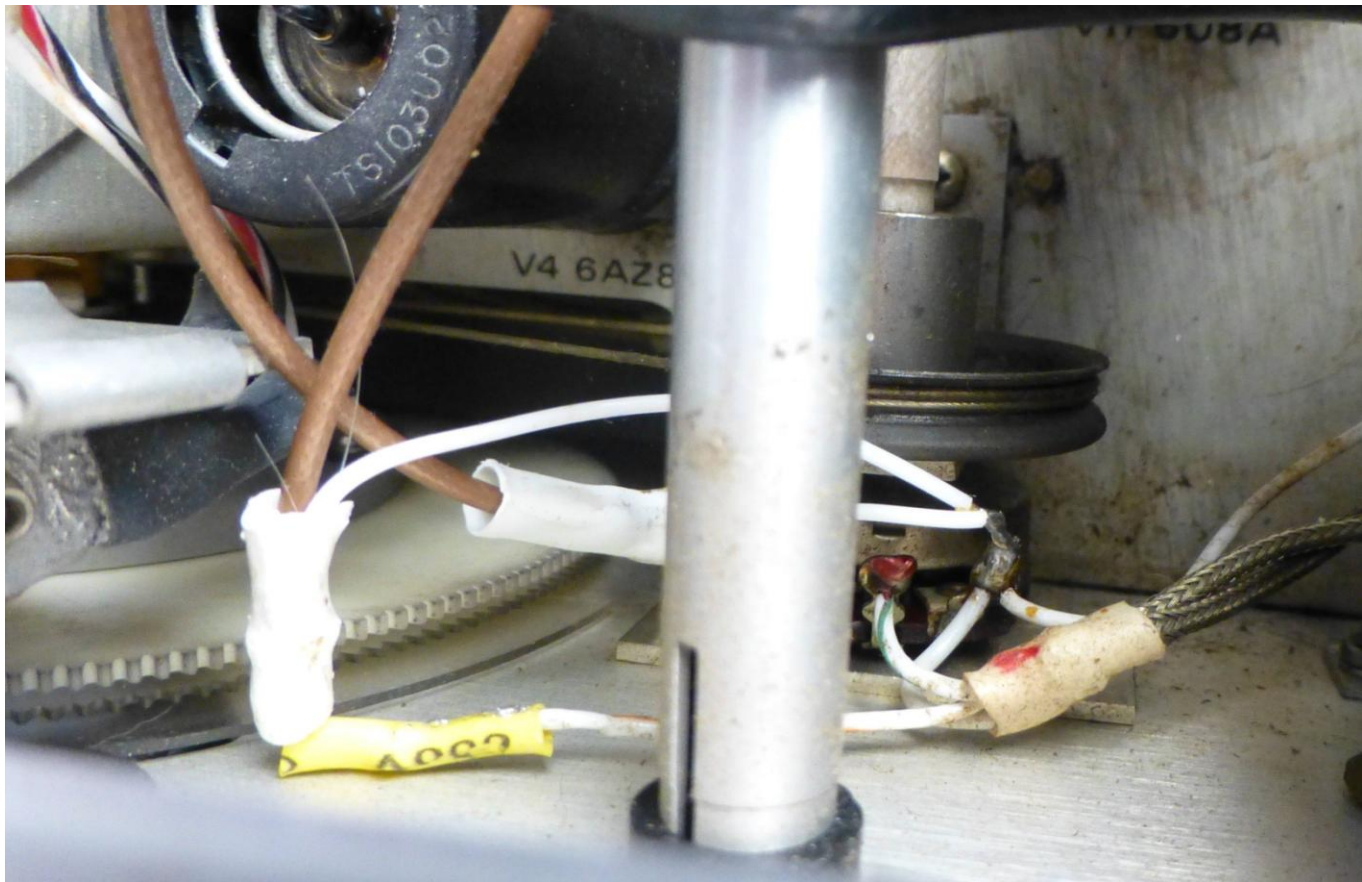
B.H.I. mounted on the interface card:

Installation in the KWM-2A :
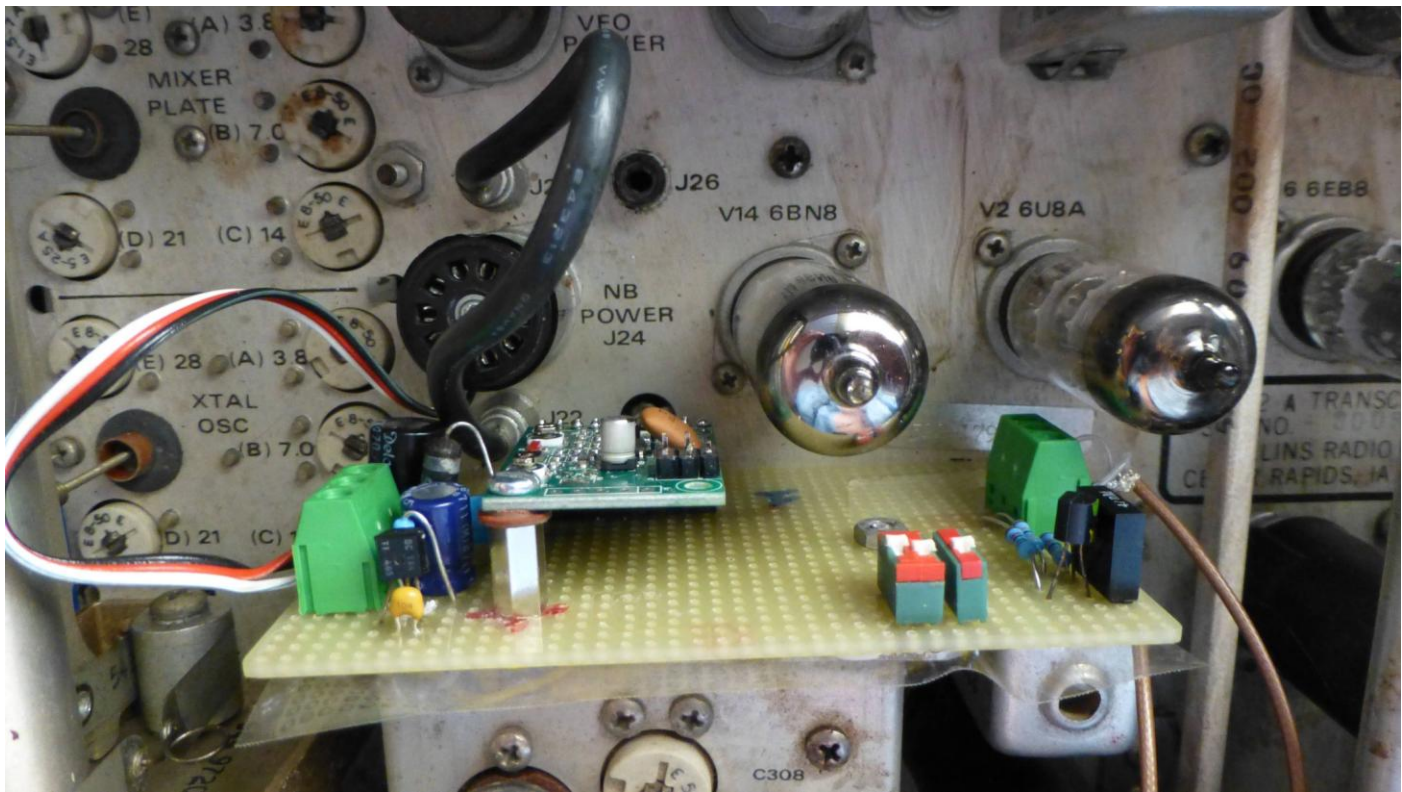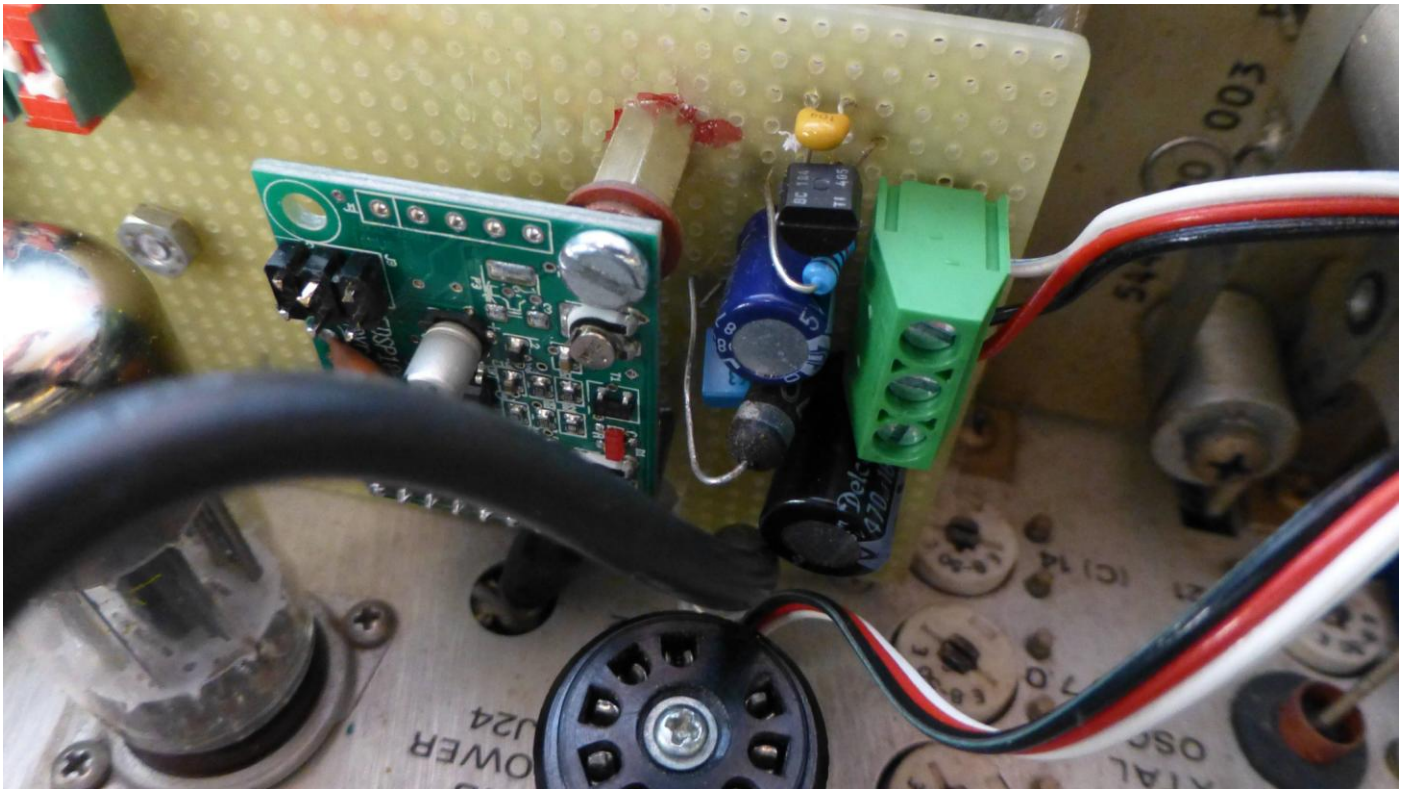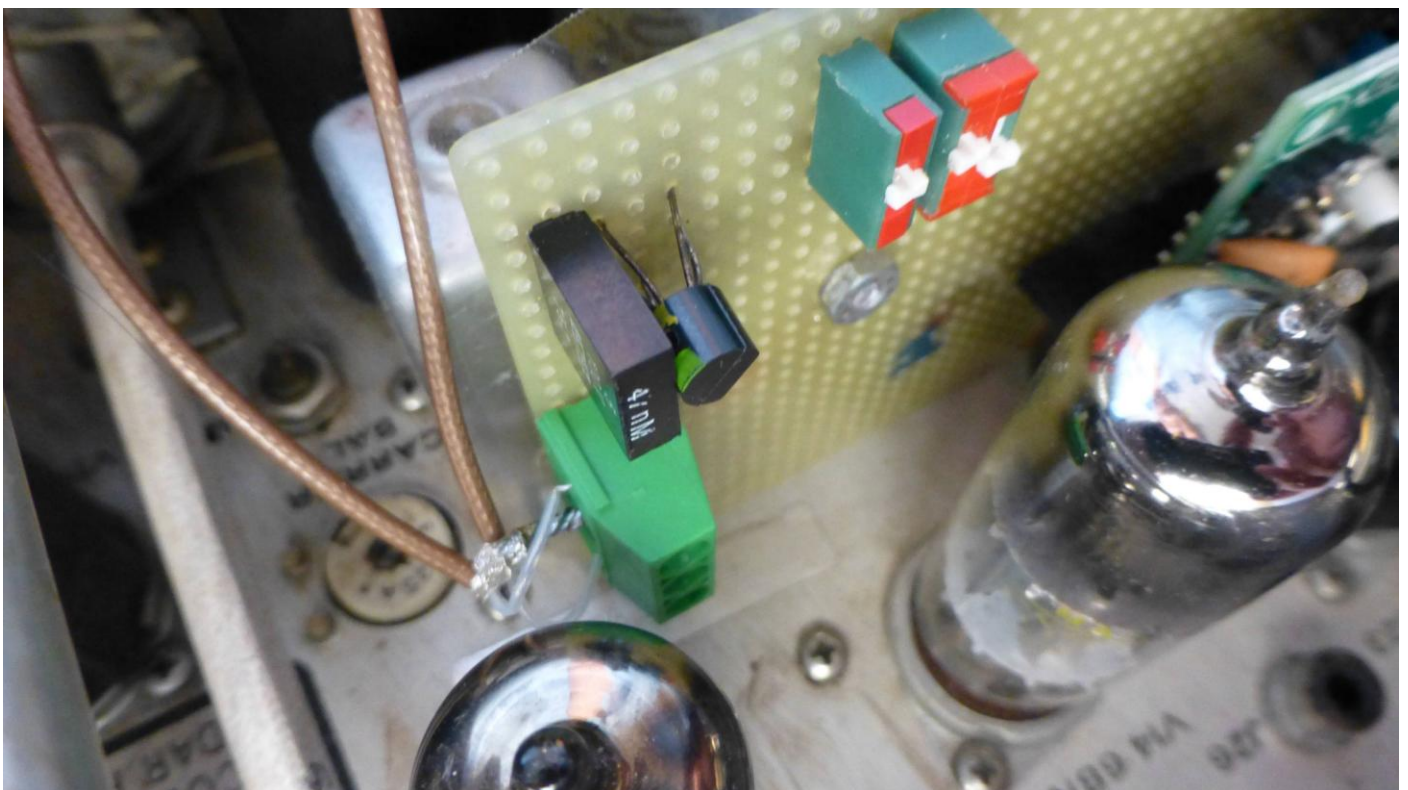
Audio is taken from the "AF gain" potentiometer:

Supply is taken from J24 "NB power":

Audio input / output:

Re-installation of the fan kit:

The Fan kit power supply is also taken from the « N.B. power » socket: