G4HUP Panoramic Adaptor Installation – FT817

1 Build and test the PAT kit – use a 5v supply and you should measure a gain of 0dB at 70MHz.
2 Remove top cover from FT817 (7 screws) and disconnect the LS cable
3 Decide how you will route the IF signal out of the 817 - I decided to put an SMA socket on a clear part of the rear panel. See 'SMA mounting', below.
4 The PAT board mounts conveniently on top of a screening can towards the back of the 817 main board - see Fig 1. From this position, both the input from the filter and the +RxB connection are just short runs.

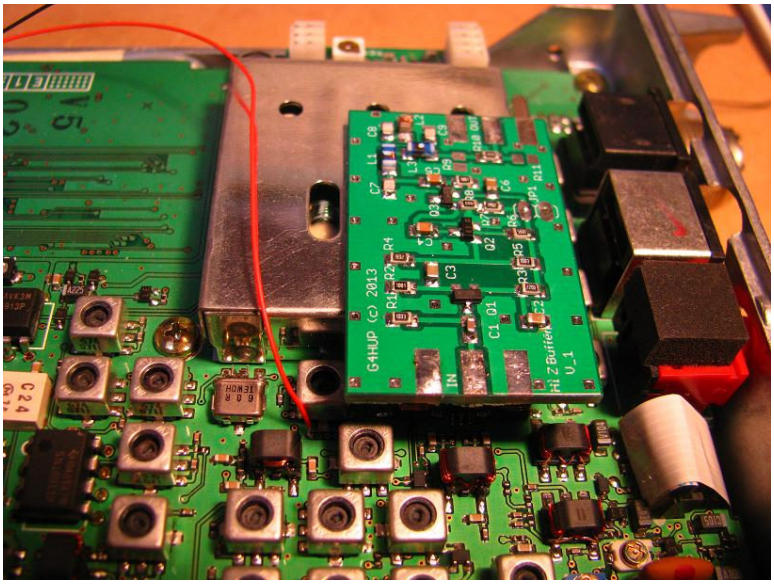

Fig 1 – Mounting position of the PAT board

5 The PAT board is held in place by double sided tape, so can easily be removed should it become necessary – it can be mounted in such a way that it does not obstruct any of the core adjustments around it.
6 Solder the +RxB wire (use very fine wire) to the PAT board before the DS tape is attached, to avoid damaging the tape due to heat.
7 Mount the board in place on the can.
8 Connect the other end of the +RxB lead to the via indicated in Fig 2 below – this is the only place on the top of the main PCB I've yet identified that carries +RxB! Check with a voltmeter that you have approx 4.93V present on Rx, and when you go to Tx it drops to around 0.1V.
9 Take another fine wire and connect one end to the outer connection of the filter that is nearest to the front panel. Connect the other end to the PAT input pad.
10 Use a small diameter coax (ideally RG178 PTFE, if you can get it) to connect the PAT output to the rear panel connector. If you have decided to use a flying lead, then route the cable through the rear panel.
11 Connect to your SDR/PC and test!
12 Replace the 817 top cover, not forgetting to re-connect the LS lead!

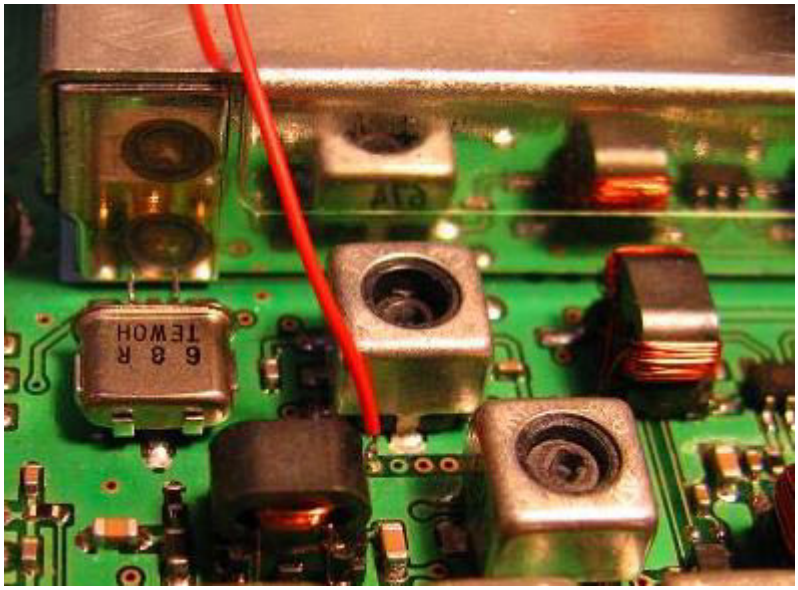

Fig 2 - +RxB connection on FT817 main board

SMA Mounting

These instructions could be used, with suitable modification, to mount any small connector to the rear panel.

There is space near the power connector. Place the centre pin of the SMA 20mm to the right of the centre line of the DC connector (as viewed from the rear panel), and mark out to drill the holes 5mm down from the top of the panel – see Fig 3.

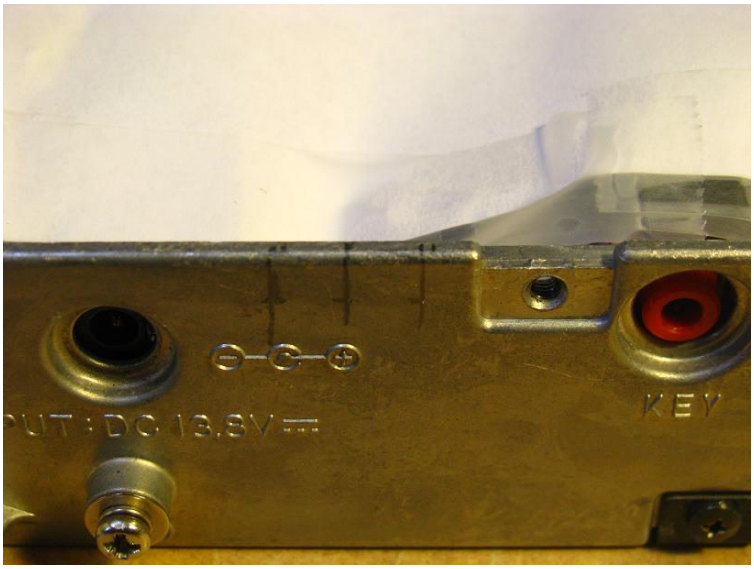

Fig 3 – Marked out ready for drilling – note protective paper over electronics

Use tape and paper to protect the inside of the rig from any swarf – drill the holes 2.5mm dia (US no 39) for the screws and 4.5mm dia (US No 15) for the centre pin insulator. Make sure that as you clean up the holes and remove the paper/tape that no swarf gets into the rig – give it a good shake and blow to remove any fine matter.
Mount the connector using a solder tag under one of the screws – see Fig 4.

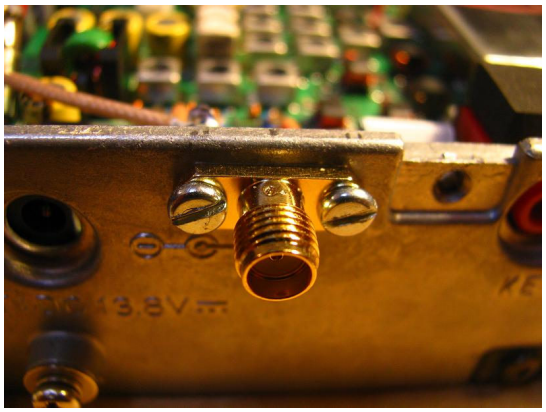

Fig 4 – SMA connector mounted on rear panel of FT817

Connecting up the PAT

Use a 163mm length of RG178 or 196 to connect the output from the PAT board to the SMA socket – make sure that there is no stress on the PAT board from the cable. Fig 5 shows how the cable should be made off for termination at each end – do not attempt to make a pigtail of the braid!

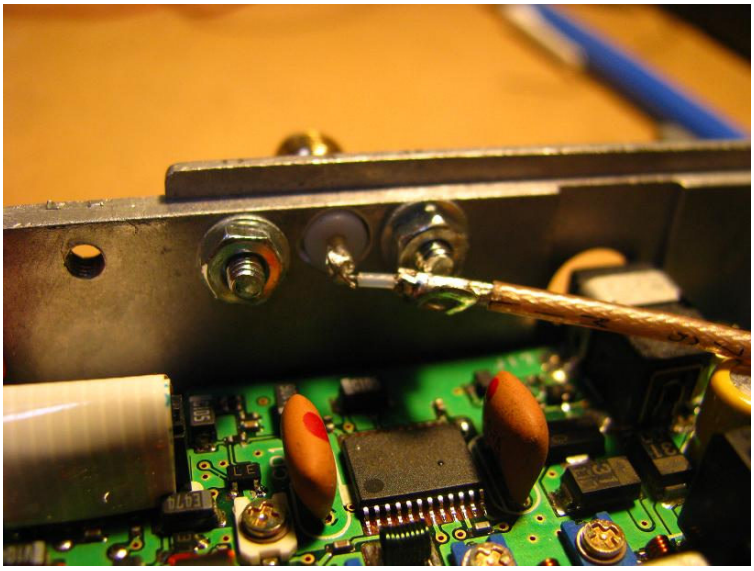

Fig 5 – Correct method of termination for the RG178 cable

Fig 6 shows a final view of the installed board and connections, and Fig 7 shows the output from the 817 viewed through a FunCube Dongle Pro and Spectravue. The frequency needs to be set to 68325kHz in FCHiD. Tuning is reversed as compared to the rig, and sidebands are reversed

too - if you want to decode LSB in Spectravue, you must select the USB filter! This is a 'feature' of the FT-817 IF, not of the PAT board! Since for the majority of the time at least, decoding will be done on the main rig, this is unlikely to be an issue.

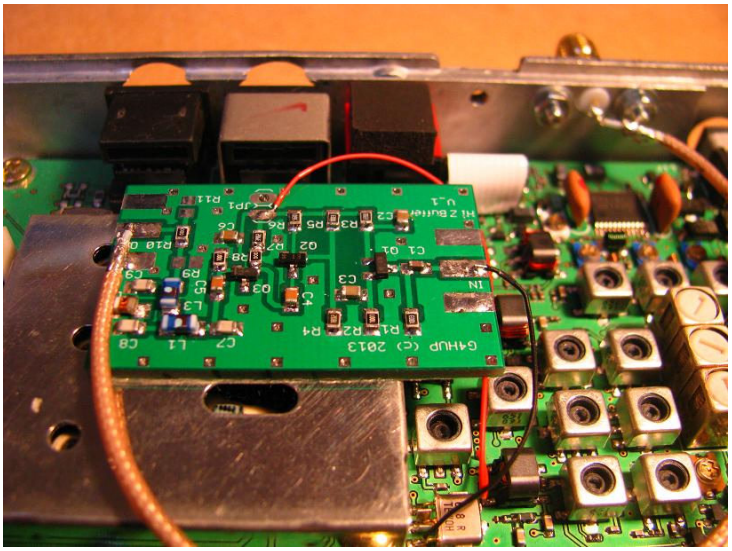

Fig 6 – PAT fully connected. Red wire is +RxB, black is input. Supply negative is via the coax braid.

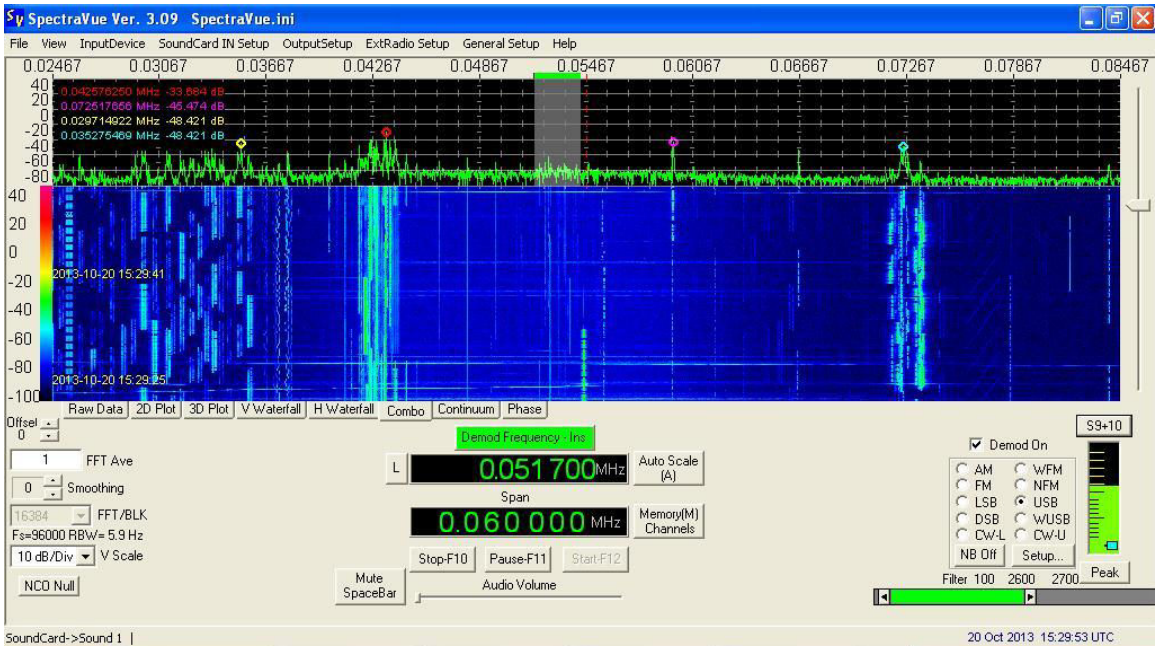

Fig 6 – Data segment of 20m from the FT817

Note the slight hump over the breadth of the display in Fig 6 – this is due to the passband of the 68.3MHz IF filter. As shown, a 60Khz wide display is obtainable, although sensitivity is greater towards the centre of the hump.