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hupRF Panoramic Adaptor Installation - FT991

These notes are provided to assist with installation of the PAT in a Yaesu FT991 transceiver. The information given here is given in good faith, and has been extracted from the Yaesu FT991 Service Manual, and discussed with FT991 owners. Please note that hupRF has not had the chance to get inside a 991 yet!

The FT991 is different to it's predecessors, (817/857/897) in that although it uses a common first IF, it uses separate mixers for HF and VHF/UHF functions. Thus the IF tap function is easy to install, but 2nd Rx functions would require separate PAT's for HF and the other bands.

The PAT input connection and the power are both picked up from the Main board within the rig. Fig 1 below identifies the two connections, at the drain of Q1122 for the PAT input and at the end of R1734 for the switched R9V rail for the PAT Vcc.

It is difficult to see from the views in the Service Manual, but it is likely that the PAT can be mounted on top of CF1002 and CF1001, using double sided adhesive tape. If this is not possible, then it should be located as close as possible to Q1122. The input connection to Q1122 should be made with a fine single wire, not coax.

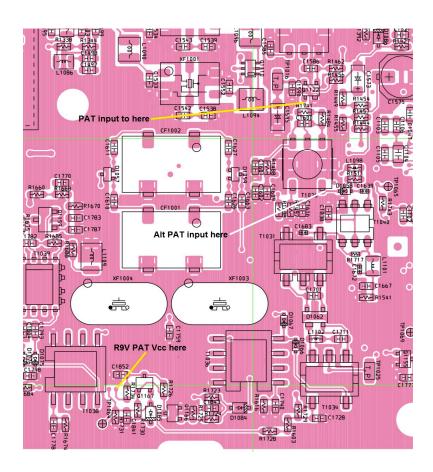


Fig 1 - PAT connections to FT991 Main Board

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Note that there is an alternative connection point for the PAT input shown in Fig 1. Fig 2 below shows an extract of the circuit diagram of the main board, so you can see the difference.

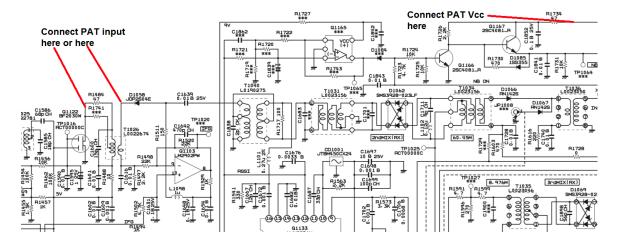


Fig 2 - PAT Connections - Schematic Circuit Extract

Connection to the drain of Q1122 may be critical, as the output transformer T1026 has a tuned primary. Adding the capacitance of the PAT input in parallel with this may cause some detuning, and possible loss of sensitivity. The output of the transformer is untuned, and therefore probably less critical, so this would be a good alternative place to make the PAT input connection.

A photo of an FT991 installation has been posted on the Yaesu Gallery pages of the PAT webpage, thanks to KU0D. This shows the connection to the drain of Q1122, and the Vcc pick up from the R9 line. The transformer T1026 is below the Q1122 device, and the lower right pin of T1026 is the correct alternative PAT input pick-up point.

I would recommend that the PAT board is mounted on the screen to the right of the one that has been used, so that the length of the PAT input wire is reduced.

The PAT output can be brought out via the rear panel using the Generic Plug Installation Kit, ready for connection to your SDR.

Before re-assembling the rig, note that there is conductive shielding foam on the inside of the covers. It is essential that the top side of the PAT board is insulated before the covers are replaced, to avoid short circuits.

This installation places the PAT connection after the 1st IF filter, so the available display bandwidth on the SDR will be limited to typically 50 to 60kHz.

Any pictures, or information, from actual installations would be much appreciated to improve the information available to users.

Please note that the pictures shown at Fig 1 and Fig 2 above are extracted from the Yaesu FT991 Service Manual, and the copyright of that organisation is recognised here.

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