

G4HUP Panoramic Adaptor Installation – FT920

Important Note: In addition to the PAT board/kit and the installation kit you will also need a short coax cable with a Taiko Denki TMP connector on it - this can be obtained from your Yaesu Spares agent.

1. Build and test the PAT kit – use a 12v supply and you should measure a gain of a few dB at 70MHz. The FT920 uses a 68.985MHz 1st IF
2. Remove bottom cover from FT920 - 6 screws on the bottom and loosen one on each side – as per instructions in Yaesu FT920 Manual.
3. Decide how you will route the IF signal out of the FT920 – there are no convenient ventilation slots directly on the rear panel, but there is plenty of space to mount an SMA connector. See ‘SMA mounting’, below.
4. Alternatively, it is also possible to run a flying lead out through one of the side panels – there are ventilation holes on the back of each side panel. This is the exit method shown in these notes.
5. The PAT board mounts conveniently on top of one of the crystal filters on the 920 Main Unit - see Fig 1. From this position, both the input and the +Vcc connections are just short runs.

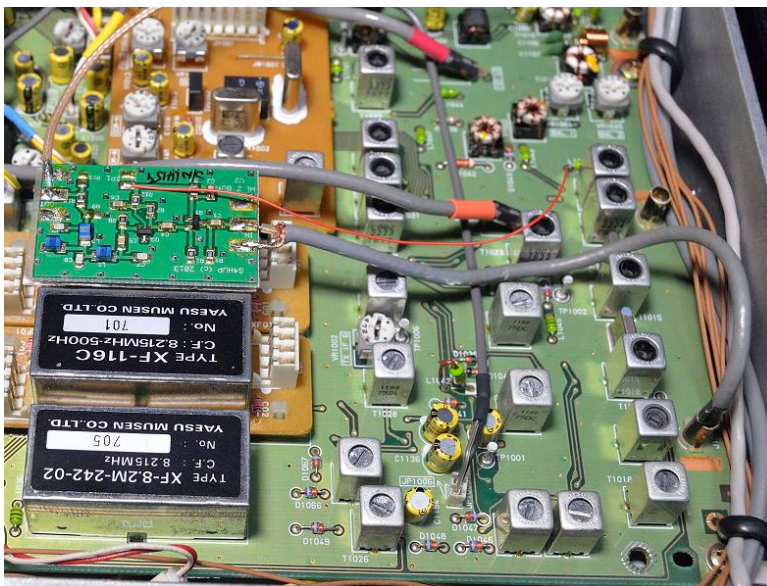


Fig 1 – View of PAT inside FT920, showing it mounted on one of the crystal filters and the connection routing.

6. The PAT board is held in place by double sided tape, so can easily be removed should it become necessary – although it is shown mounted on a filter case, it does not obstruct anything else, and since filters are not very often removed, it is out of the way.
7. The IF connection from the rig is taken from connector J1008 on the Main Board. This is towards the front of rig, on the right hand side, as you look at it. Do not use J1007, as this is the raw mixer output, with no filtering, and you will also see other ‘signals’ present on your SDR. You will need a

lead with a TMP plug on it – **this is not supplied as part of the installation kit.**

8. The FT920 does not use a switched RxB line – the 12V rail is active during both Rx and Tx. It does however, use separate Rx and Tx IF's, so the signal path is not shared.
9. The Vcc supply for the PAT is picked up from the cold end of L1041, as shown in Fig 2 below. This will be found on the right hand side of the rig, just behind the matching transformers for the filters. J1007 can be seen in the photo.

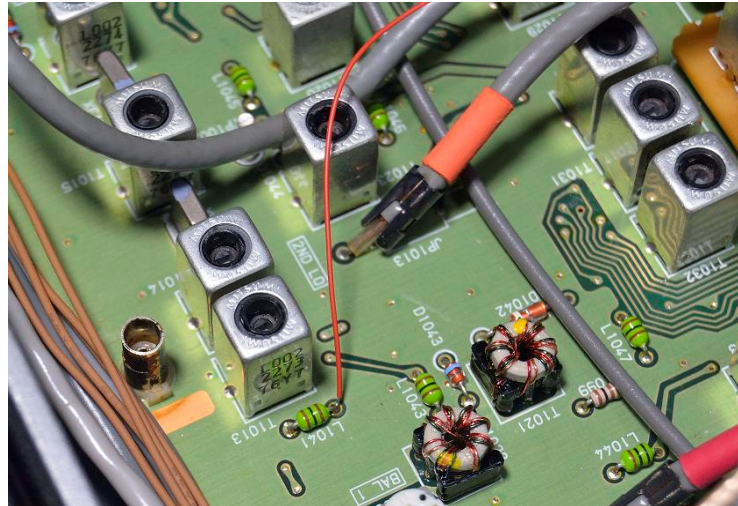


Fig 2 – Pick up point for Vcc, on L1041.

10. The output from the PAT board is taken via an RG178 tail over the side wall of the chassis, and out through one of the ventilation holes of the side panel. The cable is inserted from the back outside, and fed up through the gap. Once connected a small tie-wrap can be used to hold it secure against the cable form that already runs along the side wall. See Fig 3. There is sufficient clearance between the bottom cover and the top of the chassis wall that the cable will not be damaged when the cover is replaced, but make sure that the cable is not too tight and is clear of the side lip of the cover.
Note – do not use a cable of larger diameter than the supplied RG178A – the clearance gap between the bottom cover and the chassis wall is small, and larger cables will be crushed when the cover is replaced.
11. Connect to your SDR/PC, tuned to 68.985MHz and test!
12. Replace the 920 bottom cover.



Fig 3 – Output cable routing from the FT920, over the chassis wall, and secured with tie-wrap to existing cable form

SMA Socket Mounting

There is plenty of space on the rear panel if you should wish to mount a connector, instead of using the flying lead supplied in the Installation kit. Just make sure that the connector position does not foul the bottom cover of the rig when it is replaced.

Terminating PTFE Coax cables

These instructions could be used, with suitable modification, to correctly terminate any of the PTFE coax cables, such as RG142, RG178, RG188, RG196, RG316, etc. The termination method ensures good quality RF connections up to higher microwave frequencies

- Using a scalpel, cut the sheath back at the required length.
- With a hot iron, tin the exposed braid fully.
- With the scalpel, score around the point where the braid must end.
- Use long-nose pliers to bend the end of the coax outside the score line – the braid will crack on the score line and the excess can be slid off the dielectric.
- Strip the dielectric to reveal the inner.

Fig 4 shows a correctly terminated cable installed in an FT817 – follow the same principles here.

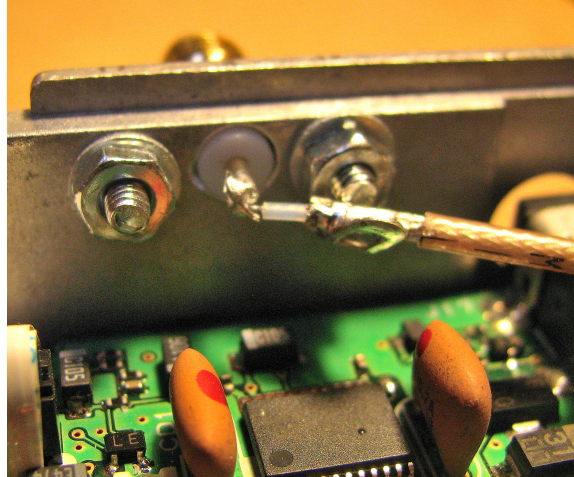


Fig 4 – Correct method of termination for the RG178 cable

Table 1 below shows the measurements recommended for the cable end preparation for the FT920 installation and Fig 5 below gives further clarification.

Cable	FT920 Connection	Sheath	Braid	Dielectric	Inner
Output	PAT	8mm	3.5mm	2mm	3.5mm

Table 1 – Cable stripping details for FT920 installation

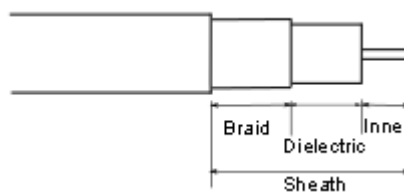


Fig 5 – Cable termination preparation details