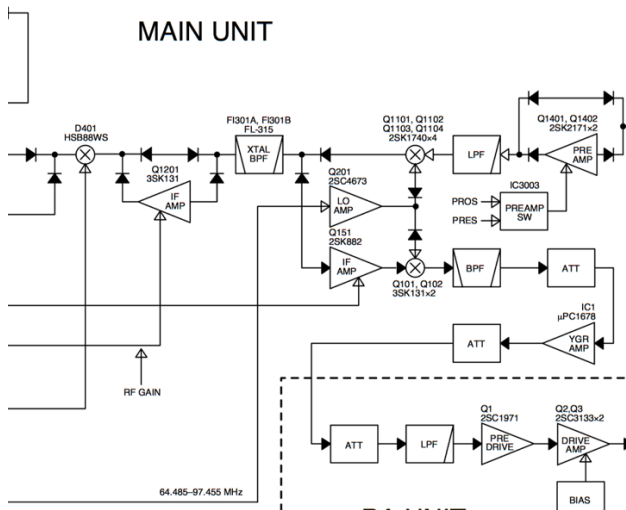


hupRF Panoramic Adaptor Installation – IC718

These instruction cover installation of the PAT board in the 1st IF of the ICOM IC718 – 64.455MHz – this gives access to all receiver options on the main receiver.

Although the rig uses separate mixers in the Rx and Tx paths, the 1st IF filter (FL301B) is common to both directions. The connections shown here pick up the output of the filter after the diode switch, so significant Tx signal should not be present. However, it is recommended that PAT is powered from the R8V line, which will automatically mute it on transmit.

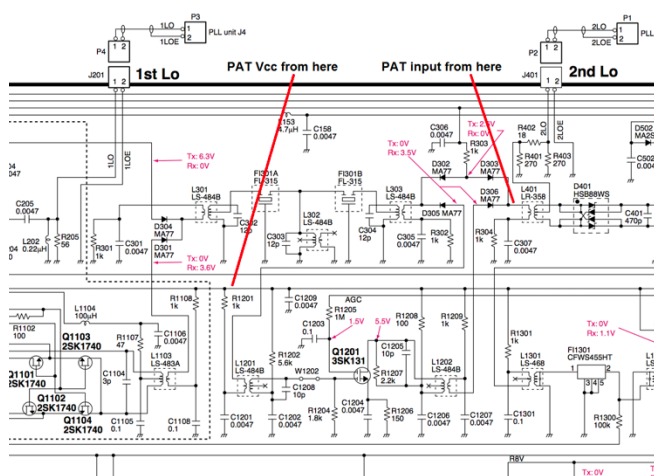
Basic instructions are given for installing the PAT as an IF Panoramic Adaptor Tap – used in this mode your SDR must be tuned to the 1st IF of the radio, and then your display will track the tuning of your rig – however, the displayed frequency will be that of the IF, not the radio. Because the connection point on the IC718 is after the IF filter, the bandwidth available to display is restricted by the filter.



In the block diagram to the left, the PAT input signal will be picked up just before D401, the second mixer.

There are no convenient test points provided by ICOM, so the signal and power must be picked up directly from the Main circuit PCB.

The PAT output can be brought out by either a socket mounted in one of the ventilation slots of the rear panel, or by a flying lead with a free plug on the end – this latter method is easier.



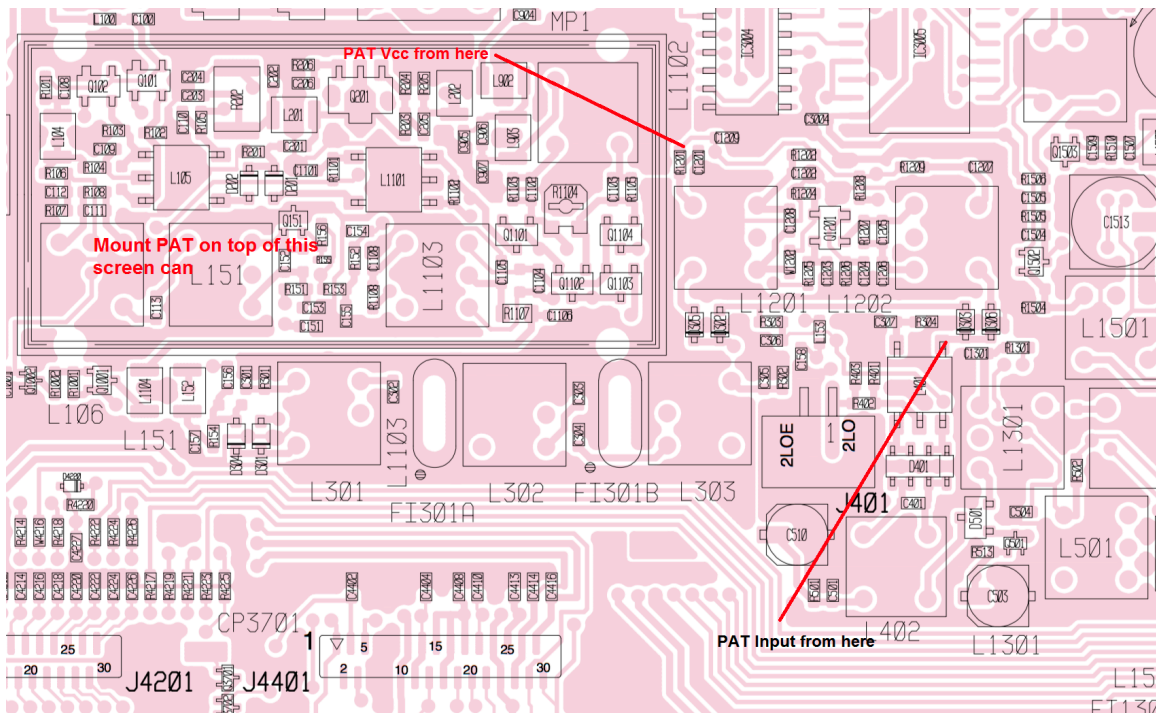
The circuit diagram to the left shows the pick up point for the PAT input and the connection point for the Vcc power, taken from the R8V line. In practice, this measures about 6.9V on Rx and 0V on Tx.

- 1 Build and test the PAT kit – use a 9v supply and you should measure a gain of approx 1dB at 70MHz.
- 2 Remove top, bottom and inside top covers from the IC718
- 3 As stated above, the output can either be by a socket mounted in the vent slot or by a flying lead. The pictures below show the mounting of a socket in the vent slot – this is quite fiddly, but saves any drilling of the panel.



Fig 1 – position of SMA connector on rear panel

- 4 The PAT board can be located on a screening can as indicated on the PCB diagram below. This also shows the two connection point to the circuit. Make sure that the Input end of the PAT is to the right in this diagram to keep the lead short.



- 5 The PAT board is held in place by double sided tape, so can easily be removed should it become necessary for any adjustment of the cores below it.

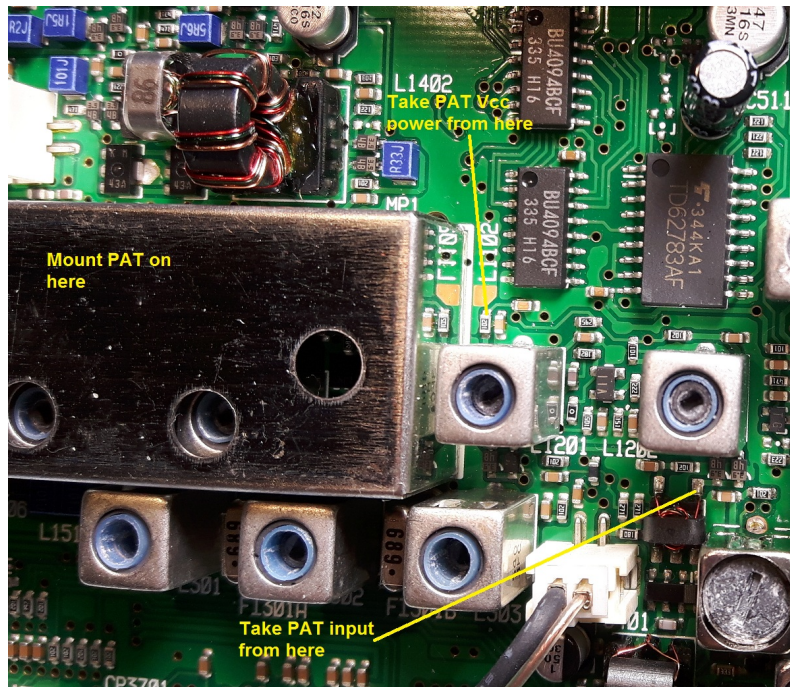


Fig 2 – Location of PAT inside IC718

- 6 The connection points on the PCB can be accessed without removal of the PCB, but a fine tipped iron will be required to reach the small pads that must be soldered to. The black wire in Fig 3 is the PAT input signal, whilst the red wire in Fig 4 is the power, taken from the R8V line.

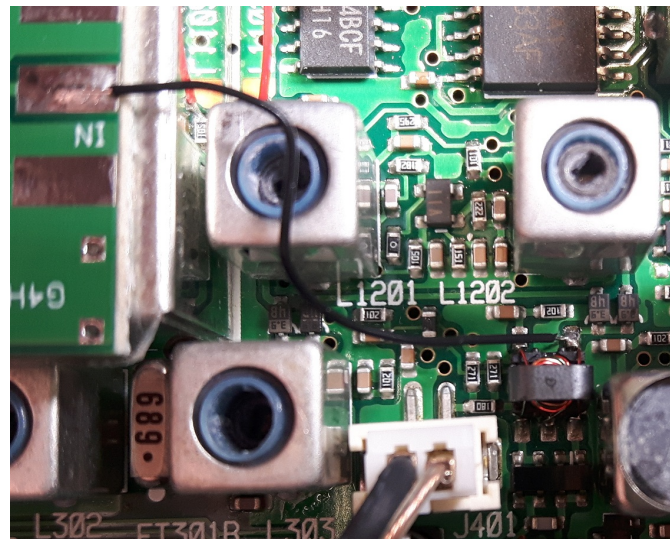


Fig 3 – PAT input connection

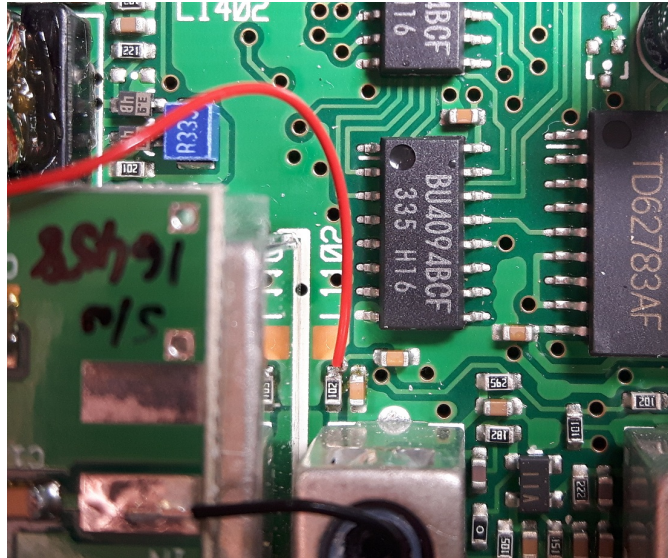


Fig 4 – PAT power connection

- 7 It is easier to pass the RG178 cable through to the output if the two TMP connections at the rear of the Filter PCB (top side) are temporarily removed. Don't forget to replace them!
- 8 The output connection from PAT to the rear panel will need approx 100mm of RG178A miniature coax. If the PAT is mounted as shown in the pictures, the path is quite short and direct. If you use a flying lead output, it is recommended that you use a small cable tie to secure the lead as it exits the rear panel – this avoids any stress on the connections.

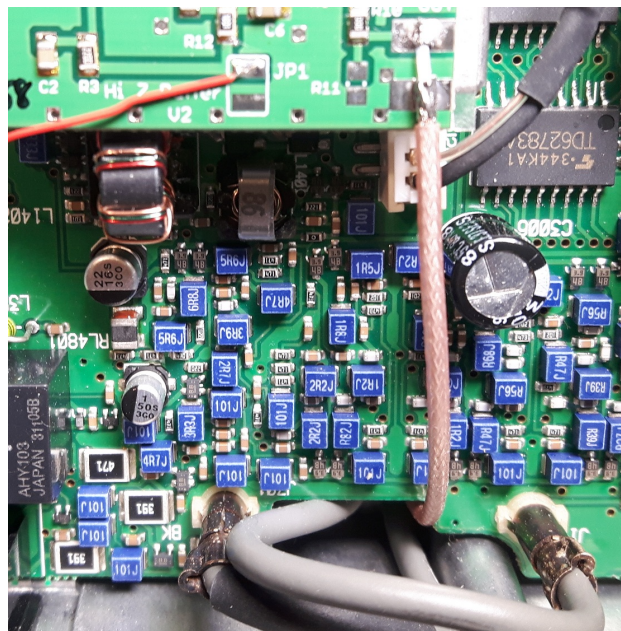


Fig 5 – PAT output connection

- 9 Dimensions for preparing the ends of the cables are given in Table 1 and Fig 9. Do not pigtail the ends of the coax, but make them off as in Fig 2. See also details at the end of this note.

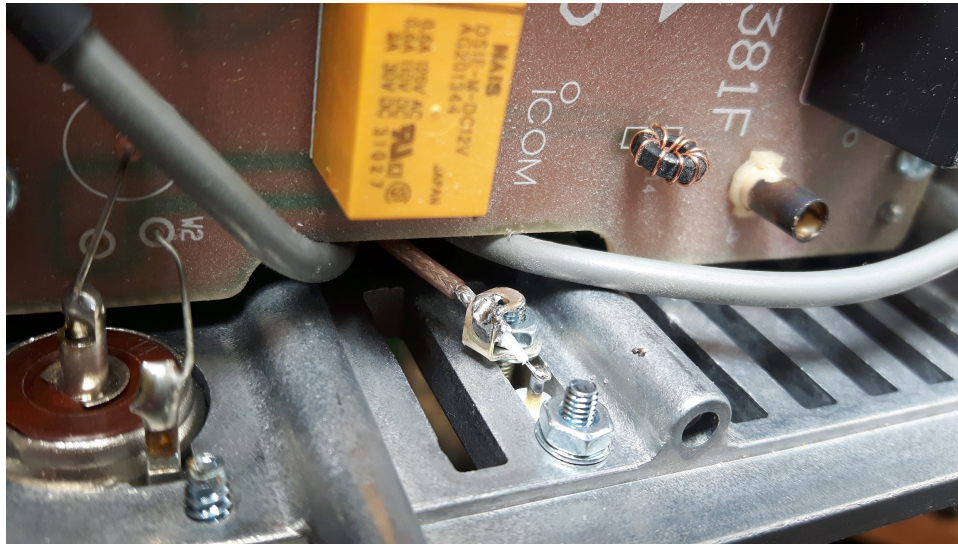


Fig 6 – RG178 output lead terminated on the SMA socket

- 10 Replace the covers, and test with your SDR

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 7 shows a prepared end of the RG178 cable ready for installing in the IC718; other examples may be seen in the other instruction sheets posted.



Fig 7 –RG178 cable prepared for terminating

Table 1 below shows the measurements recommended for the cable end preparation for the IC756 installation and Fig 7 below gives further clarification.

Cable	IC718Connection	Sheath	Braid	Dielectric	Inner
Output	PAT	9mm	3.5mm	2mm	3.5mm
Output	SMA	9mm	3.5mm	2mm	3.5mm

Table 1 – Cable stripping details for IC718 installation

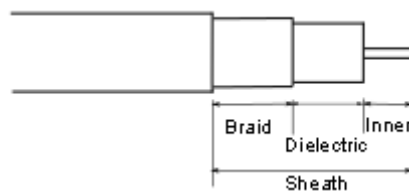


Fig 7 – Cable termination preparation details

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