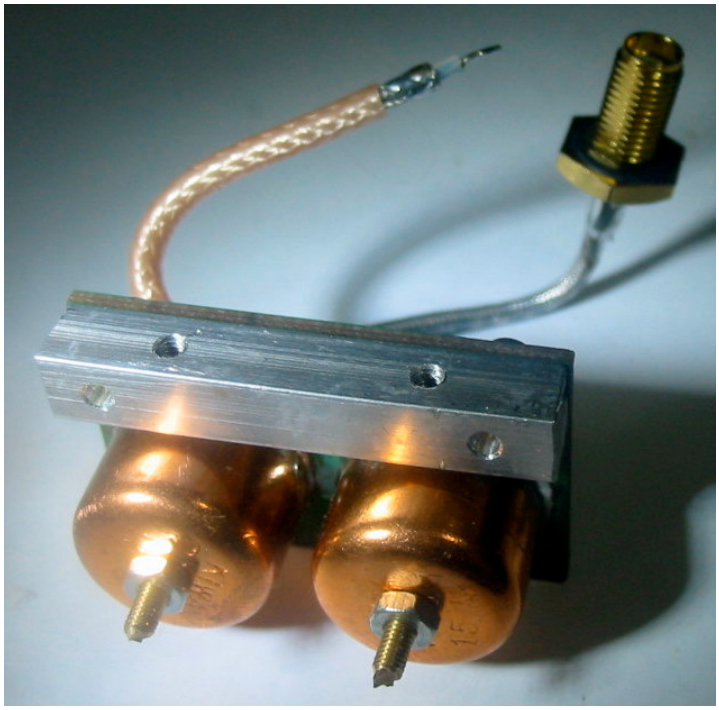
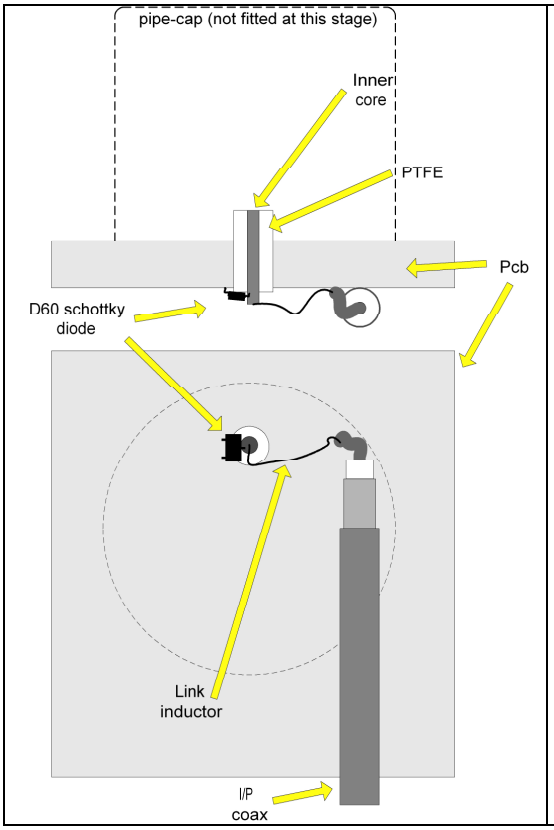
x23 multiplier pcb assembly



HSMS-8202	**D60**
Inductor link	**L60**
Mounting bar	
Pan pozi M2.5 x 6 (2 off)	Mounting bar to pcb
Link coax	
Input coax lead	
Input probe wire	
Output coax lead	
Pipecap (2 off)	
Pan slot brass M2.5 x 12 (2off)	Pipecap tuning screw
M2.5 brass nut (2 off)	Tuning screw lock nut

Assembly of this pcb is a little agricultural, nontheless it is very important to maintain the dimensions detailed below. Also, it is advisable to follow the build order below – if you must 'do it your own way', at least leave the cavity soldering until all the probes have been fitted (so that you check/readjust the probe heights).

Start by fitting the input probe. This is a short length of semi-rigid coax inner, and is supplied cut to length. It fits through a plated-through hole (the plating-through providing the outer conductor as it passes through the board). You should find it is already fitted as part of the kit. The ptfe sleeve is an interference fit, but if for some reason it has been pushed out of the hole, beware that it is far harder to fit with the inner probe wire fitted (in fact, it's b****y impossible...) so remove this and insert the ptfe first – then push the probe wire back through the sleeve.



You should find that the probe is already fitted to the board.

The ptfe sleeve is an interference fit. If it has for some reason it has been bushed out of the hole, beware that it is far harder to fit with the inner probe wire in place (in fact, it's b****y impossible...), so remove this and insert the ptfe sleeve first – then push the probe wire back through the sleeve.

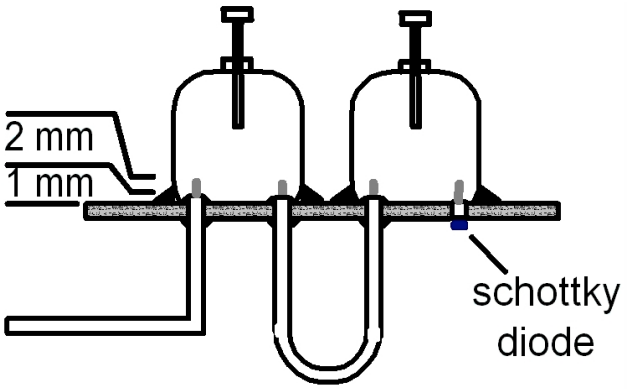
Even with the inner wire removed, getting such a short length of ptfe into the hole is quick tricky. In the event of the ptfe becoming too distorted to fit, have a go with some fresh ptfe taken from some RG405 semi-rigid cable.

Once the probe is fitted, ensure that the ptfe is flush with the bottom of the board and then solder the shotkky diode (D60) into place. This is shown opposite.

At this point, do not fit the link inductor or the I/P coax.

Fitting the link and output coax leads

Both the U shaped coupling link and the O/P coax lead have their probe ends already cut to length, so it is just a case of pushing the cable through the hole, checking that the outer extends 1mm through the other side, and soldering the cable outer to the pcb. Do this on the non-cavity side only, but get a good fillet around the entire circumference, and keep the heat on long enough for the solder to run all the way through the hole.



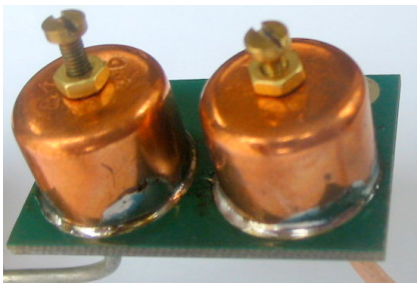
When fitting the U shape link, make sure both ends enter their respective board holes Perpendicular – the coax is slightly springy, and may have lost some of its shape.

Soldering the cavities onto the top side of the board

The two cavities have been pre-tinned on their bottom face, and the pcb solder resist pattern provides a good guidance for their accurate placement.

A good hefty and hot bit is required to solder each cavity. For those using a Weller soldering station, the PT-E9 tip is ideal.

If the same bit was used to solder in the coax leads, it should have done that with ease, if it is to stand any chance of successfully soldering in the cavities.



If in doubt, leave the cavity soldering until the build day at Anglesey Abbey.

Fitting the input coax and inductor

Both ends of the (RG316) coax lead have prepared ready for use. One end is cut back shorter than the other, and it is this end that should be soldered to the x23 multiplier board, as above. The inner is soldered to the junction of the C60/C61 pads (no capacitors are fitted).

The link inductor L60 is then sodered between the probe/D60 junction and the input coax inner.

Mounting bar

This is fitted to the non-text side of the board, as shown opposite. The two pan-pozi head screws will self tap themselves into the aluminium bar.