

Mk V X-Over - The final version.

The Component layout and values are the same as for the Mk IV except for the following:

The Shunt resistor (50 Ohm in Tannoy circuit).

I adjusted from 26 to 25 Ohm on the basis of availability and also because a fellow enthusiast calculated this was mathematically the correct value when working on the flat un-lifted input voltage.

(same voltage value as the Green, electrically flat Autoformer tap)

The change made no discernible difference in listening tests.

The small coil in the HF Notch Filter.

I replaced the original Tannoy coil with a Jantzen air coil. This coil has the same inductance but measures one Ohm less than the original Tannoy part.

The 10 Ohm resistor in the HF Notch Filter.

This was raised to 11 Ohm to compensate for the lower coil resistance and keep the summed total resistance for the filter as the original Tannoy total value.

The 15uF cap in the LF stage

Replaced with a pair of 6.8uF in parallel to better match original values, plus two small caps work better than one large.

These are small changes that don't effect the sound in any way that I can hear. What did effect sound quality was experimenting with different makes of capacitor. Values remained the same but the difference between makes was quite startling.

The Achilles Heel of the Tannoy DC range is the peak at around 3KHz (lower treble) Which when encouraged leads to the infamous Tannoy Honk. The Sonicaps, although possessing great detail and transparency at the top end tended to do just that and this came across as a distortion, voices in particular. After experimenting with various caps including Mundorf Supremes, Jantzen Superior Z-Cap, ClarityCap ESA, and some Russian PETP's, the ClarityCaps came out the clear winner and best suited the treble response of this HF driver.

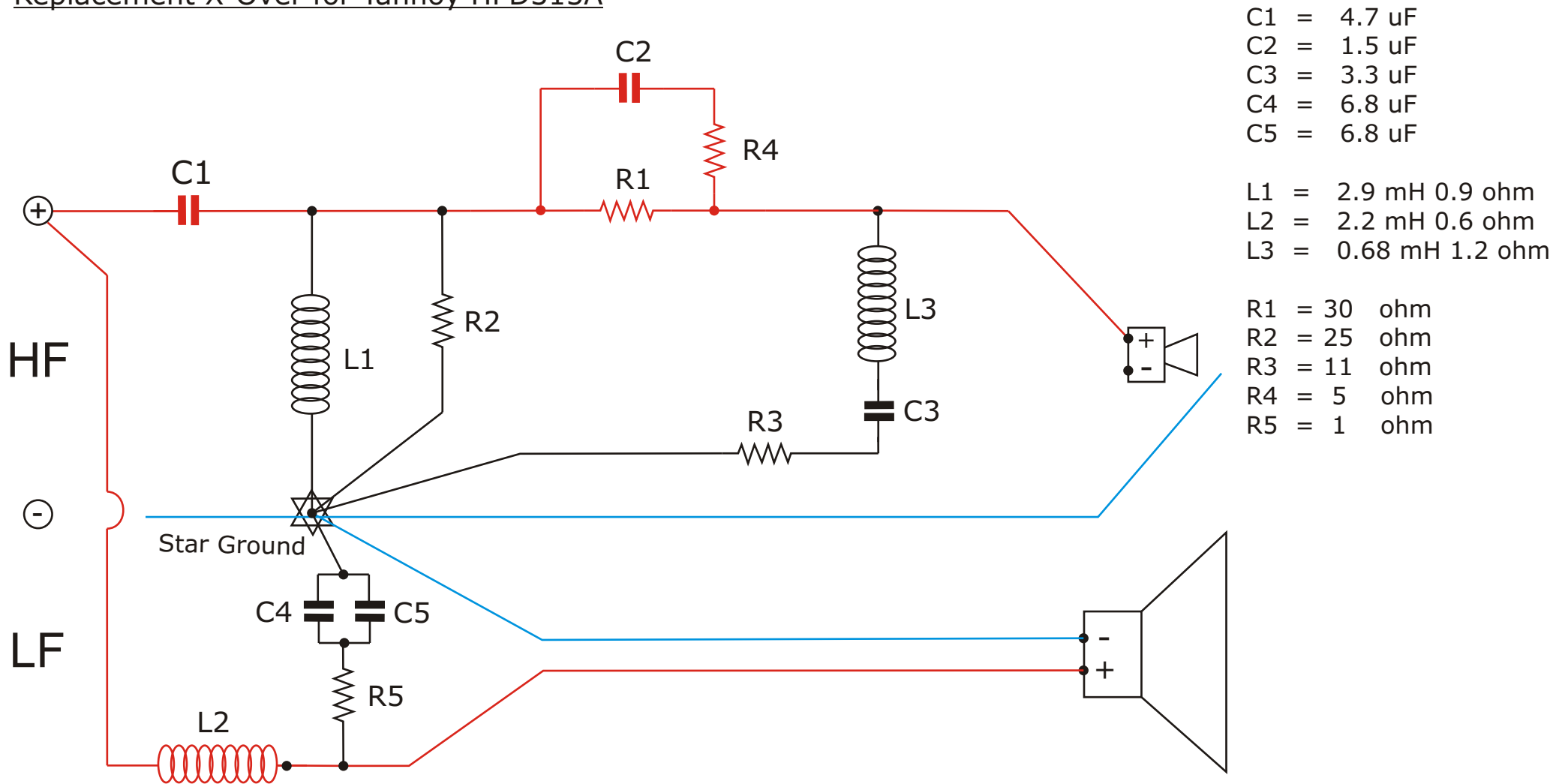
The caps were all changed to ClarityCap ESA's though it's the 4.7uF main HF series cap that is most important.

The exception was the 3.3uF in the HF Notch Filter - this turns out to be fairly important as well and contributes significantly to the overall sound. After a recommendation from a fellow Tannoy fan I substituted a Mundorf EVO Oil for the ESA. This proved to be excellent and an improvement over anything else I had tried in this position.

Well that's it, I'm done with tweaking the X-Overs and the speakers are sounding superb.

The following diagrams and parts list have been adjusted to reflect the changes.

Replacement X-Over for Tannoy HPD315A



Tweeter Role-off value:

Values match the Min.(level) setting.

Tweeter Energy Setting:

The fixed value inductor is set at a figure to match the electrically flat Green Tap of the Autoformer and the associated Shunt resistor value set at 25 Ohms.

After much listening, this is the Final scheme. It's a huge improvement over the stock x-over. It's really just the Tannoy circuit but using fixed Treble values and no autoformer, plus better quality parts throughout.

X-Over Components Used

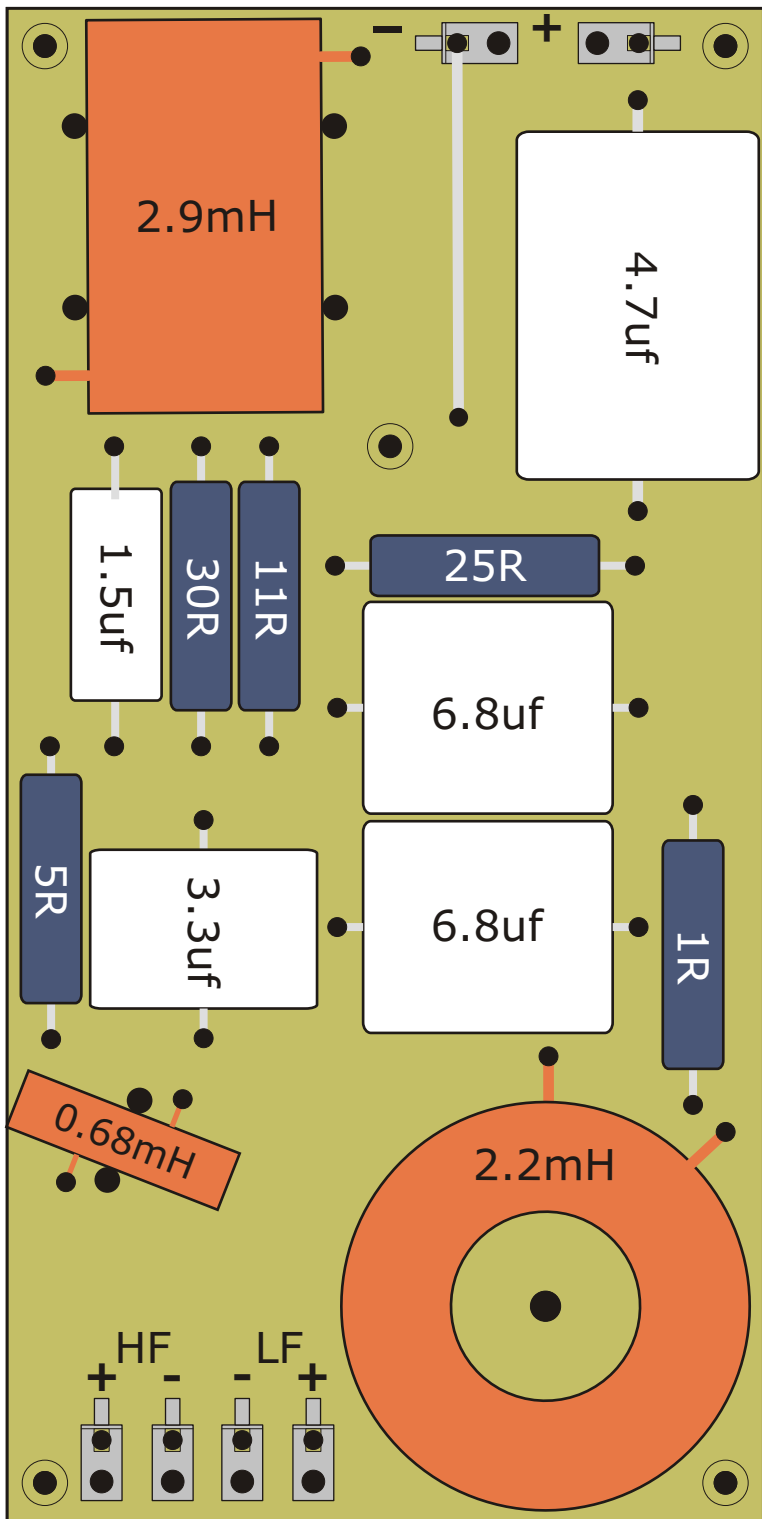
C1 =	4.7 uF	ClarityCap ESA 630v	Dia32x46
C2 =	1.5 uF	ClarityCap ESA 250v	Dia12x28
C3 =	3.3 uF	Mundorf EVO Oil	Dia30x21
C4 =	6.8 uF	ClarityCap ESA 250v	Dia28x33
C5 =	6.8 uF	ClarityCap ESA 250v	Dia28x33

L1 =	3.0 mH	Jantzen-1068 Air Coil 1mm (0.99 ohm)	Dia 51x30
L2 =	2.4 mH	Jantzen-1473 Air Coil 1.2mm (0.66 ohm)	Dia 56x30
L3 =	0.7 mH	Jantzen-1046 Air Coil 0.5mm (1.2 ohm)	Dia 30x8

R1 =	30 ohm	Mills MRA12	10w 1%	Dia8x30
R2 =	25 ohm	Ditto	Ditto	Ditto
R3 =	11 ohm	Ditto	Ditto	Ditto
R4 =	5 ohm	Ditto	Ditto	Ditto
R5 =	1 ohm	Ditto	Ditto	Ditto

Note: The Jantzen coil values are larger than required and needed a few turns removing to reach the correct values, as per the Drg.

For the 4.7uF Cap use the larger 630v version as this part is probably the most critical in the whole of the circuit.



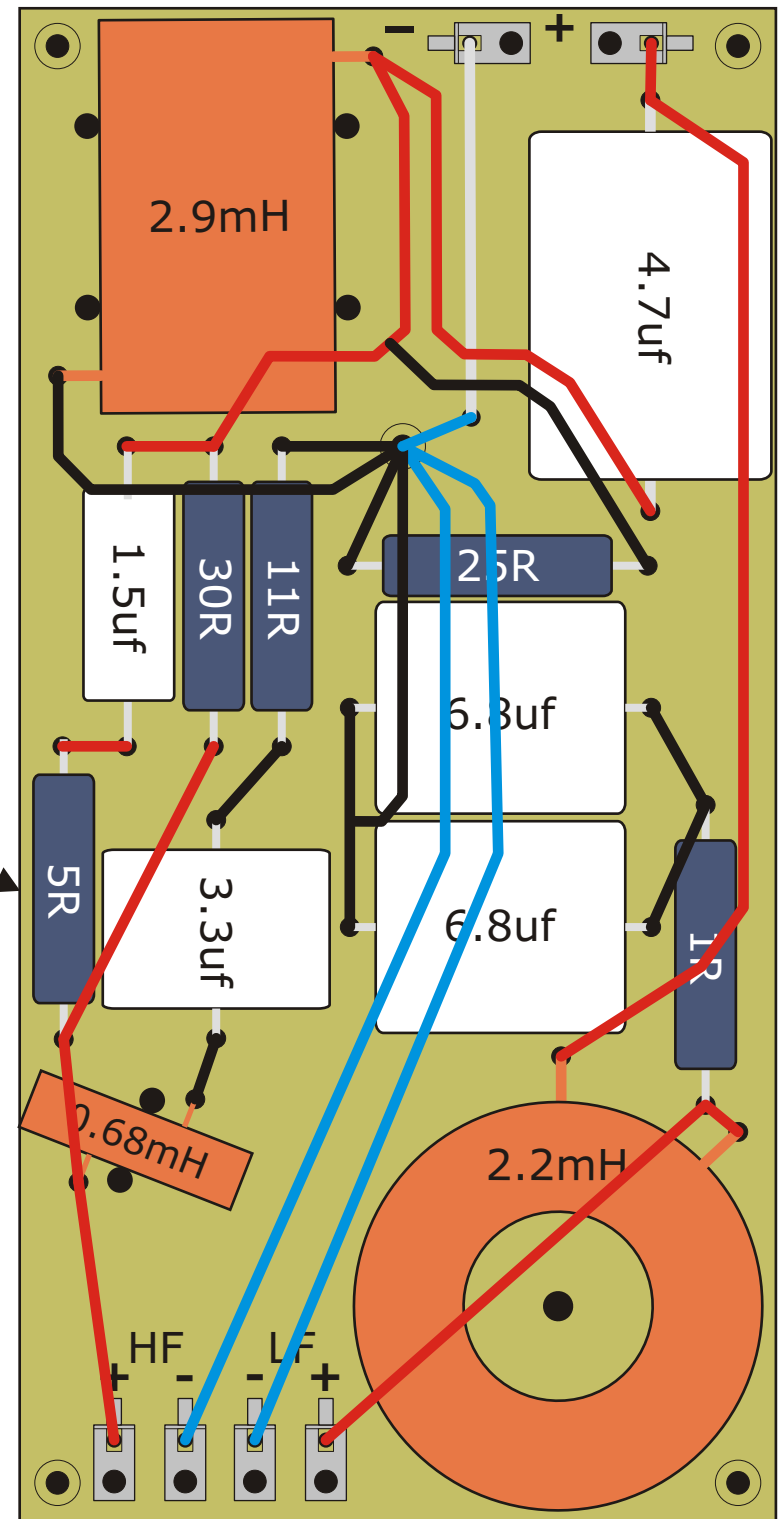
Component Layout

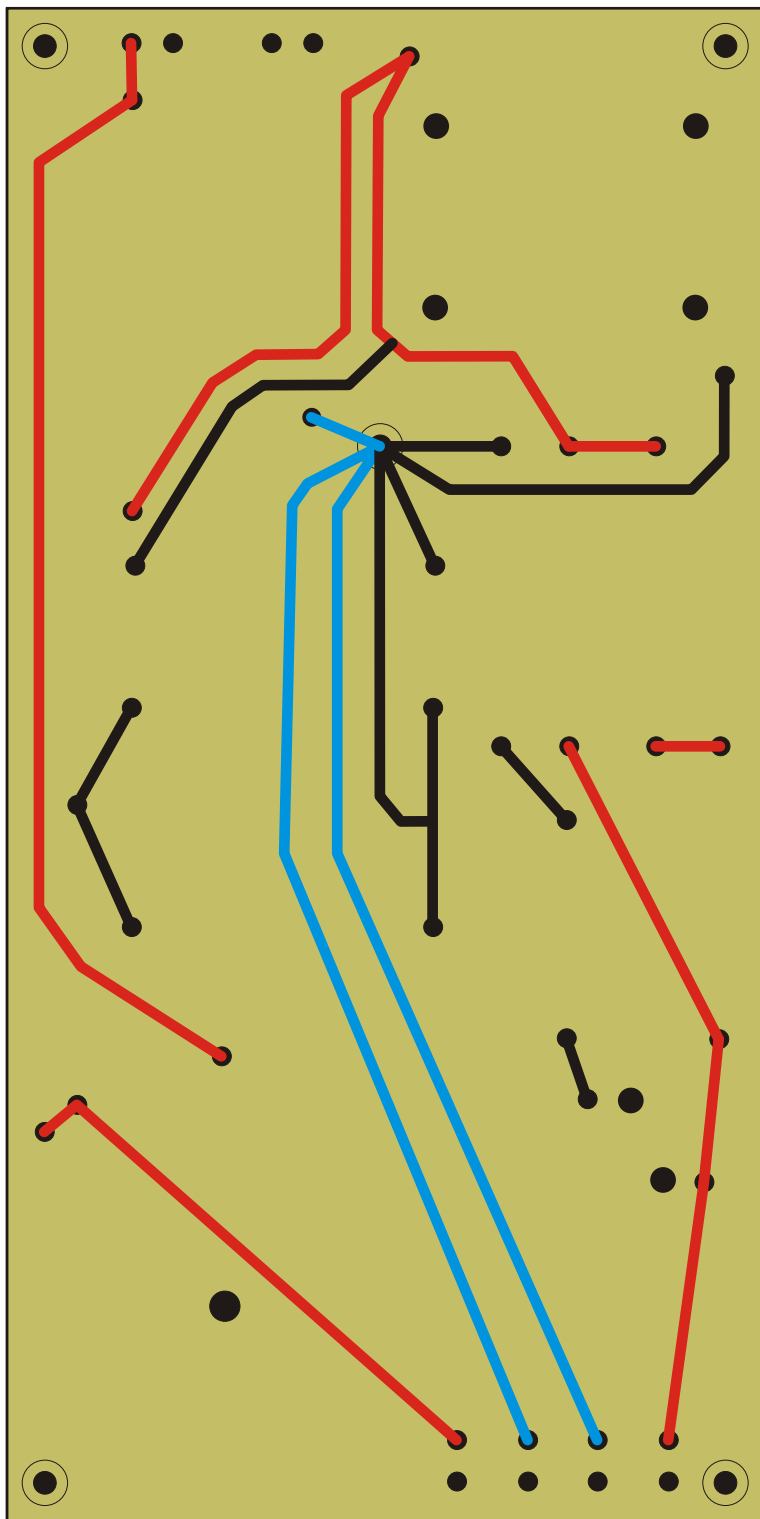
Drawn at full size.
 The board measures 100 x 200mm.
 Board is 5mm Tufnol with brass eyelets inserted as solder fixing points for part legs.
 The parts (As described in component list), are drawn to size. If you use alternatives, make sure you have room for them.

Connecting wires overlaid to help understand the hook up.

Notice the wire jump link between the 4.7 cap and 2.9 coil on the top surface.

Layout Optimised for Mk V components: 22/11/2013



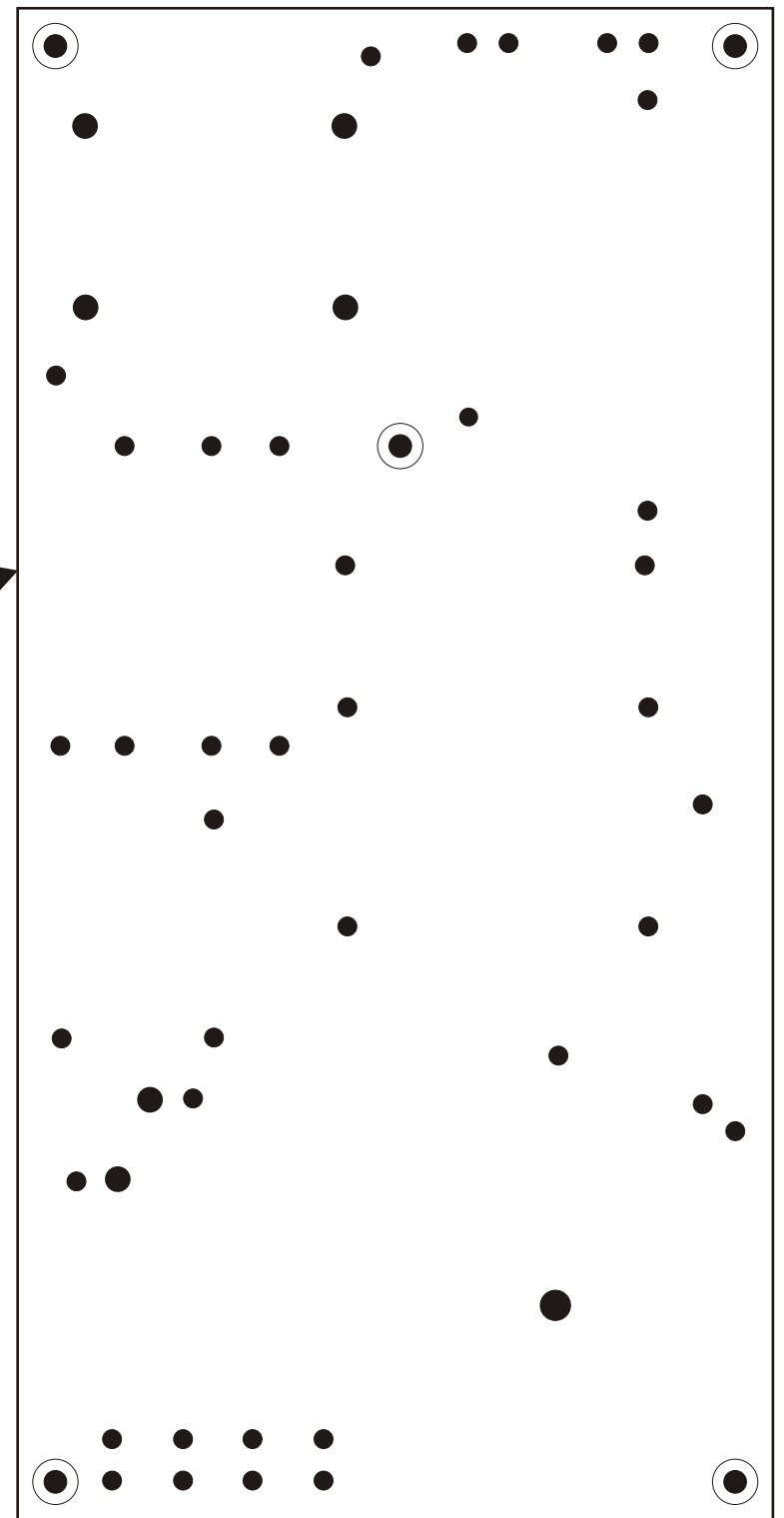


True view of rear showing point to point wiring.

Drilling Template

(Top Face)

When Printing, check it prints 100 x 200mm. Stick the template to board with spray glue. Run a 1.7mm size drill, required to take the brass eyelets, through all the centres. Enlarge holes as required to take other parts and fixing screws, then remove template with white spirt.



Completed MkV X-Overs



For more pictures see www.jkwynn.co.uk