

# HUX ELECTRONICS

PO Box 6160, Mitchelton, Qld, 4053

Phone/Fax 07 33557555, Email [admin@hux.com.au](mailto:admin@hux.com.au)

## HDS-455 Hi Fi Speaker Kit : Crossover Modification



The HDS-455 is often sold as a Hi Fi Speaker kit and was designed and developed by Russell Story of Stones Sound Studio for WES Components in Sydney. It can be found un-badged (the WES Components version) and sometimes with an Artisan badge (the house brand of Stones Sound Studio).

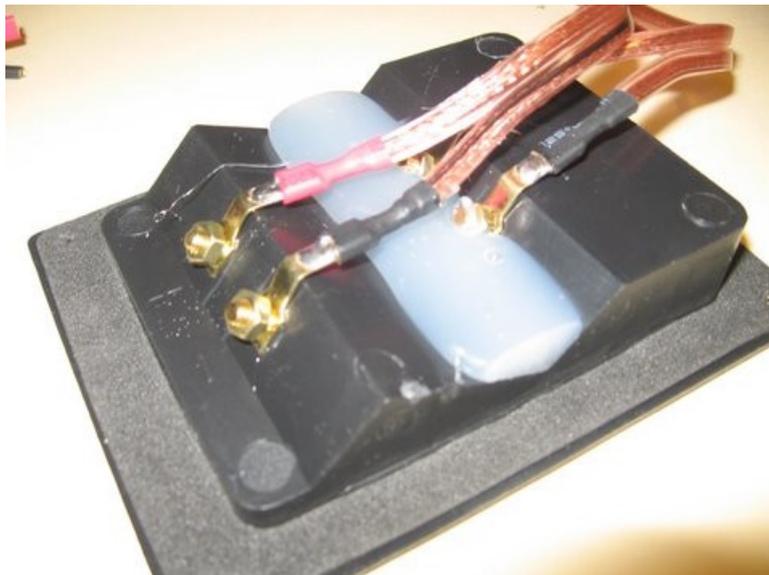
This is an excellent floor standing speaker kit, it uses Peerless LF speaker drivers, a custom made Peerless tweeter and solid cabinet work. The assembled speaker boxes weigh in at 30kg each and 50kg each if filled with the optional 20kg of sand ballast.

The only downside of this kit is that the original crossover allows the response of the mid/bass drivers to extend too far into the tweeters range, this results in a harshness in the 2-3KHz region that can be unpleasant to the sensitive ear. The tweeter output level is also a little high in the original design and this adds to the problem.

The cause of the problem is as follows : The LF crossover is a simple 6dB per octave inductor, this is a good thing as it provides the most phase coherent LF crossover approach, however, as the input frequency rises the impedance of the LF drivers also rise and this in turn defeats some of the roll off of the crossover inductor. The cure for this problem is to add a simple Zobel network across the LF driver side of the crossover. The Zobel network then corrects the impedance of the LF drivers with increasing frequency and this in turn allows the LF crossover inductor to roll off as it was originally intended to. The second part of the fix is to change the value of the resistor feeding the tweeter crossover, this simply pulls the level of the tweeter back a bit and allows the entire speaker box to sound properly integrated.

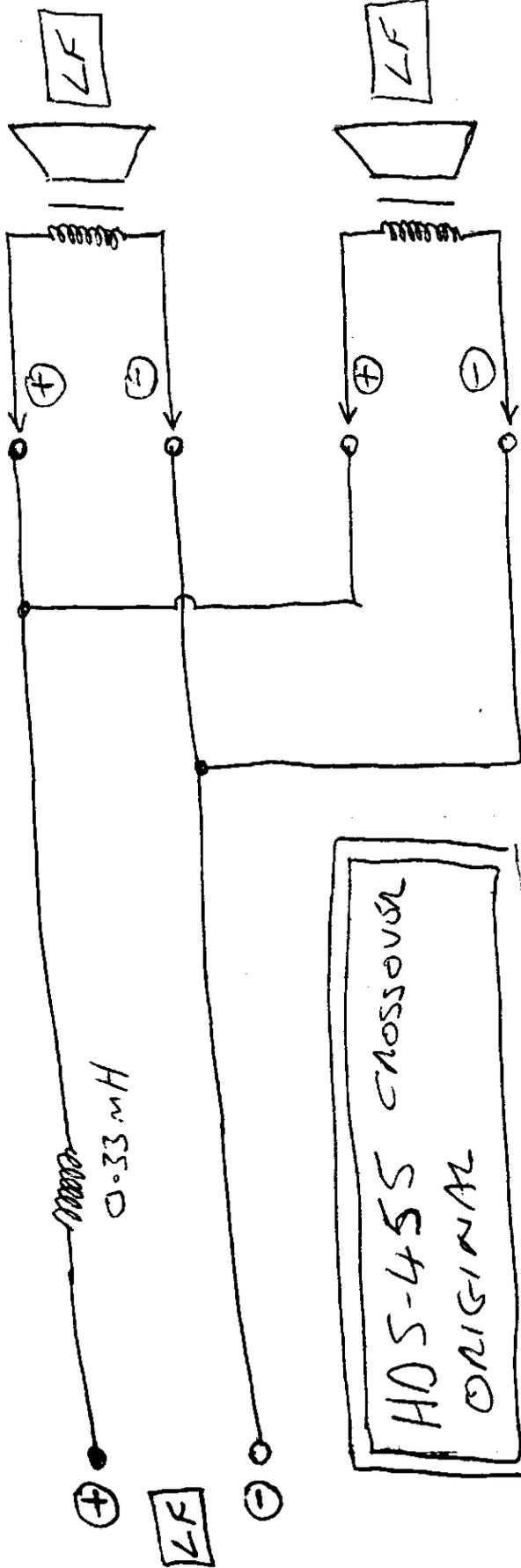
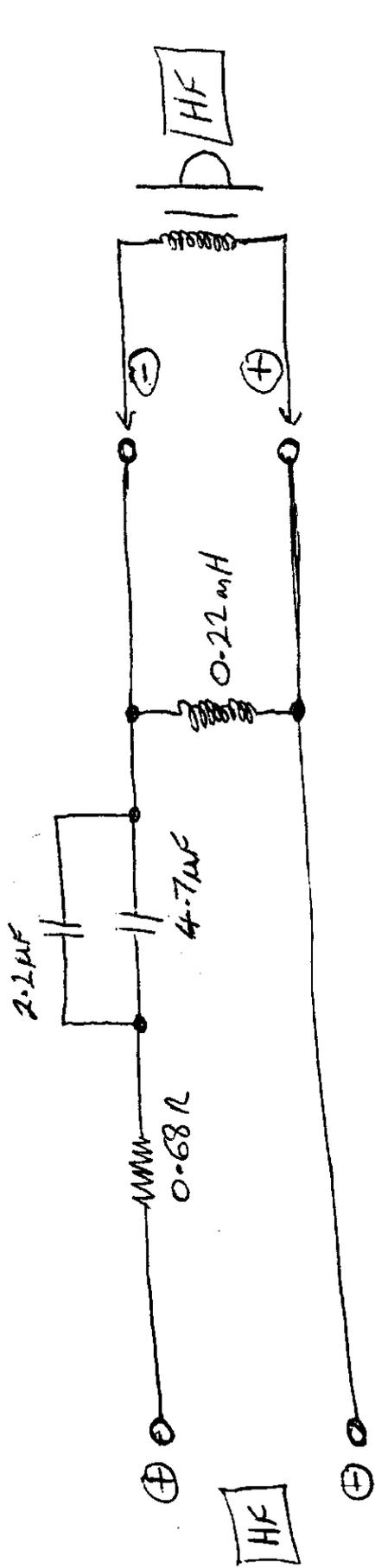


Above shows the modified crossover. The resistor at top left has been changed in value from 0.68 Ohm to 2.2 Ohm. The new Zobel network is made up of the two large capacitors wired in parallel with each other and wired in series with a 4.7 Ohm resistor as shown at bottom left. The Zobel network is simply wired across the LF speaker side of the crossover. All capacitors are Solen brand, all resistors are non inductive wire wound types, these parts are available from WES Components.



Above shows a simple modification to the input terminal block. The cables from the input terminal are soldered to improve contact and reliability. After cooling off the terminal nuts are then tightened. The dip in the back of the terminal block plate is then filled with hot glue to stiffen it and prevent resonance at some frequencies. The push on connectors at the speaker driver end may need a bit of crimping to make them tight, I do not recommend soldering the speaker end as the drivers may need replacement at some stage.

Regards, Warren Huck, 30/03/09

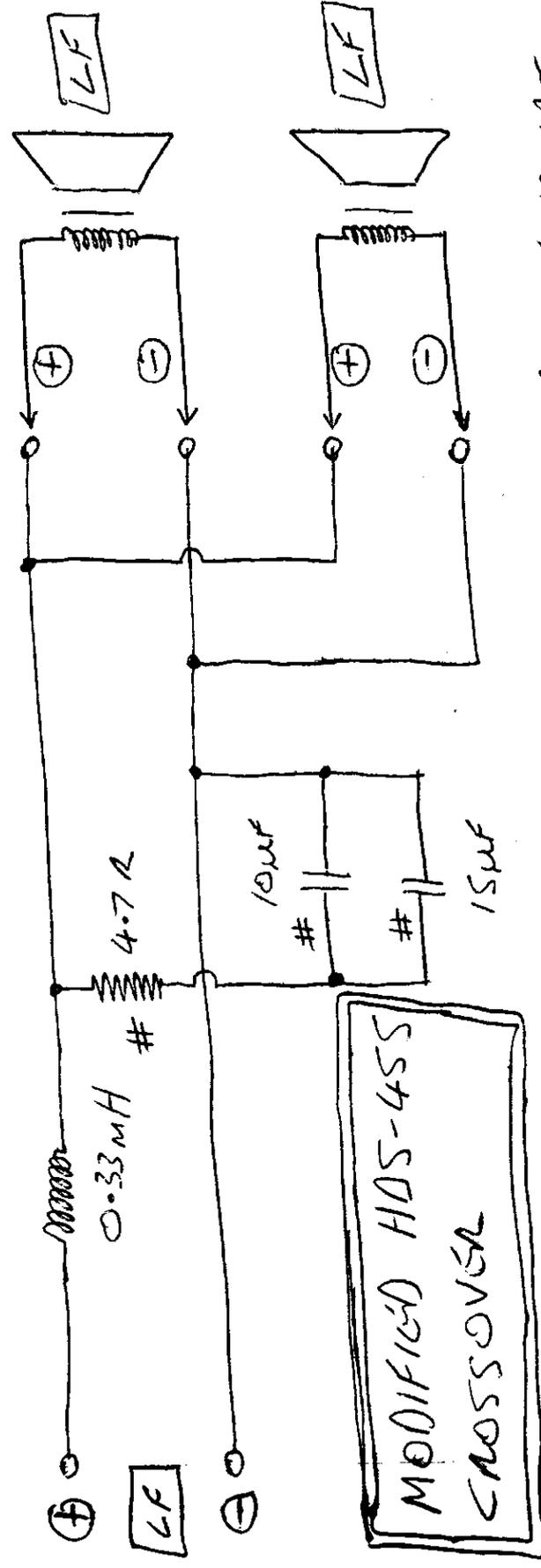
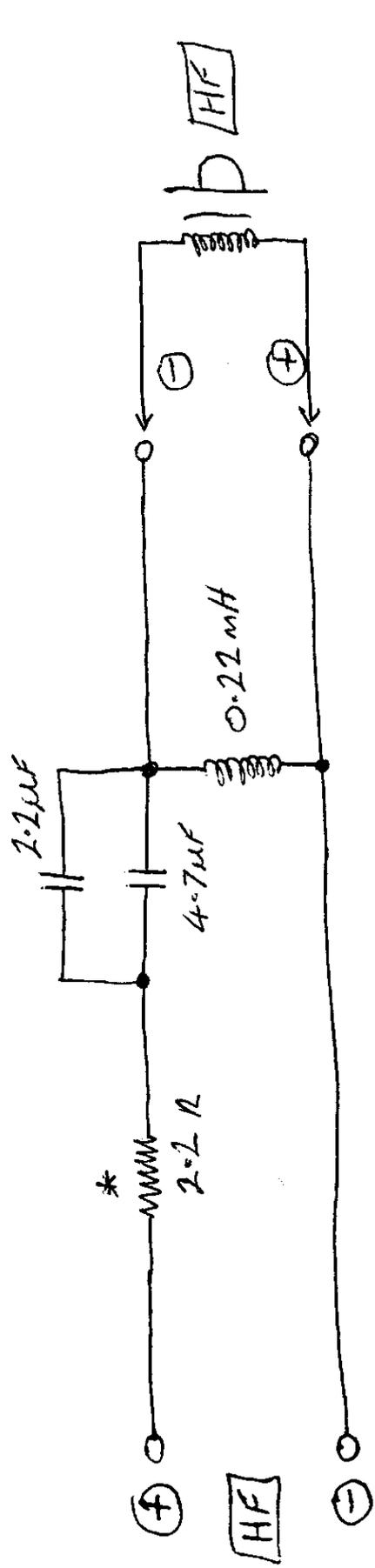


HD 5-455 CROSSOVER  
 ORIGINAL

ALL RESISTORS ARE NOW INDUCTIVE 10WATT  
 ALL CAPACITORS ARE "SOLCON" BRAND

HUX

72-03-09



ALL RESISTORS ARE NON INDUCTIVE 10WATT  
 ALL CAPACITORS ARE SOLCON BRAND  
 \* CHANGE OF ORIGINAL VALUE  
 # ADDITIONAL COMPONENT

HUX  
 22-03-09