

HATT MK3 X-Over Solderless (Tony Gee Design)

(NOTE: Because of the size of the parts selected it only allowed for an external X-Over housing and will not fit into the speaker box originally designed for this X-Over.)

COMPONENTS REQUIRED

The listed components are products that we used to build this high-end cross-over.

PRODUCT DESCRIPTION	QUANTITY
• Mundorf Capacitor Supreme Silver/Oil 10.0uF	2
• Mundorf Capacitor Supreme MKP 1.0uF	2
• Mundorf Capacitor MKP 4.7uF	4
• Mundorf Inductor Air Cored L140/0.82mH	2
• Mundorf Inductor Air Cored L140/0.56mH	2
• Mundorf Cement Resistor 11W/ 5.6ohm	2
• Mundorf Cement Resistor 11W/ 6.8ohm	2
• Mundorf Cement Resistor 11W/ 22.0ohm	2
• Mundorf Metal Oxide Resistor 4W/ 6.8ohm	2
• Furutech FS-303 Speaker Wire	6 Pairs (Based on individual design. Min 2ft each)
• Cross Over Board 6" x 9"	2
• Terminal Blocks 4 x 4 section	12



Mundorf Caps



Mundorf Resistors



Mundorf Inductors



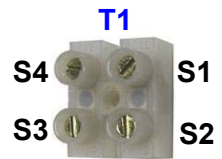
Furutech FS-303



6" x 9" Board



#8-3/4" Screws



Terminal Blocks

TOOLS REQUIRED

The below list are suggested tools that can be used to build this X-Over.



Needle Nose



Stripper/ Cutter



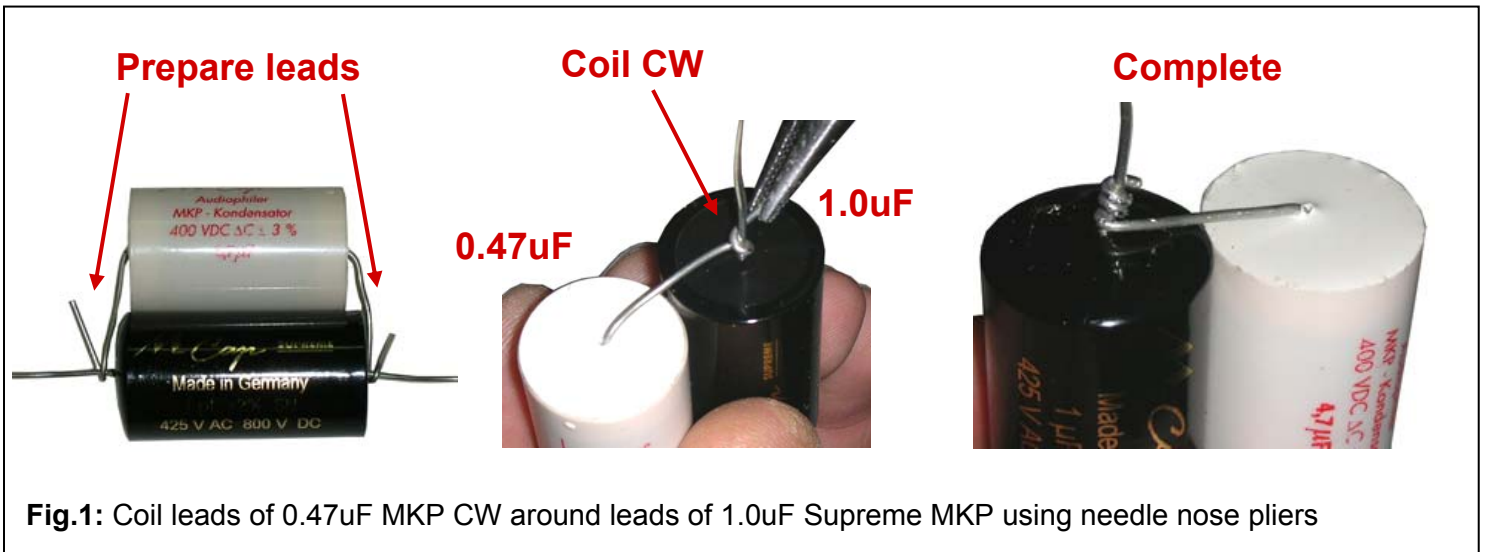
X-Acto Knife

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PREPARING CAPACITOR IN SERIES



1. Take one 0.47uF MKP and coil leads around leads of 1.0uF Supreme MKP with needle nose pliers (**Fig.1**)
 2. Take the above combination and now coil the 1.0uF Supreme MKP leads to the other 0.47uF cap (**Fig.2**)
- NOTE:** Coil leads in a Clockwise Direction (CW)

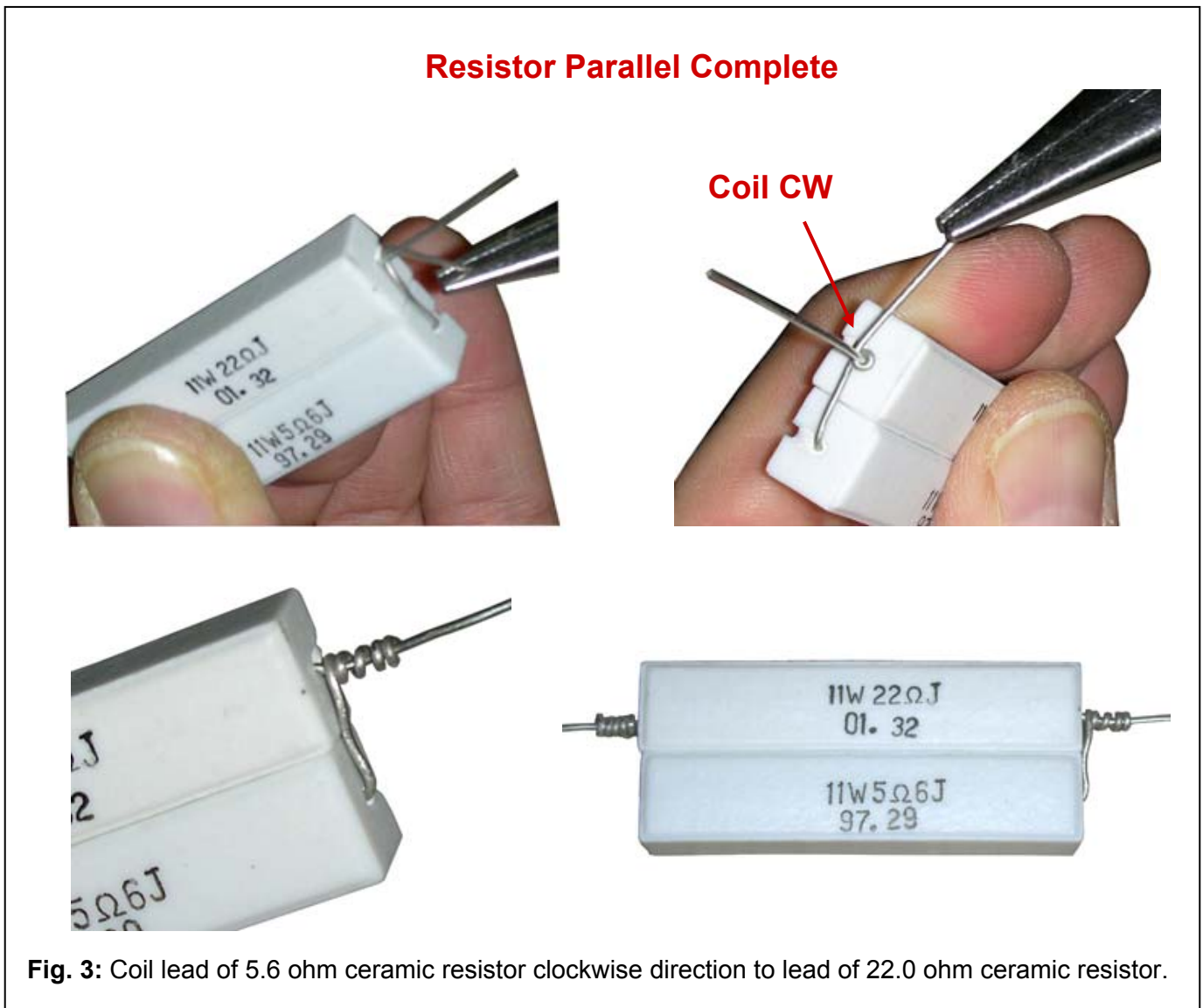


PREPARING RESISTORS IN PARALLEL



3. Coil leads of ceramic resistors 5.6 ohm to ceramic resistor 22.0 ohm as shown (Fig. 3)

NOTE: Coiling leads of 22.0 ohm to the 5.6 ohm will also work.



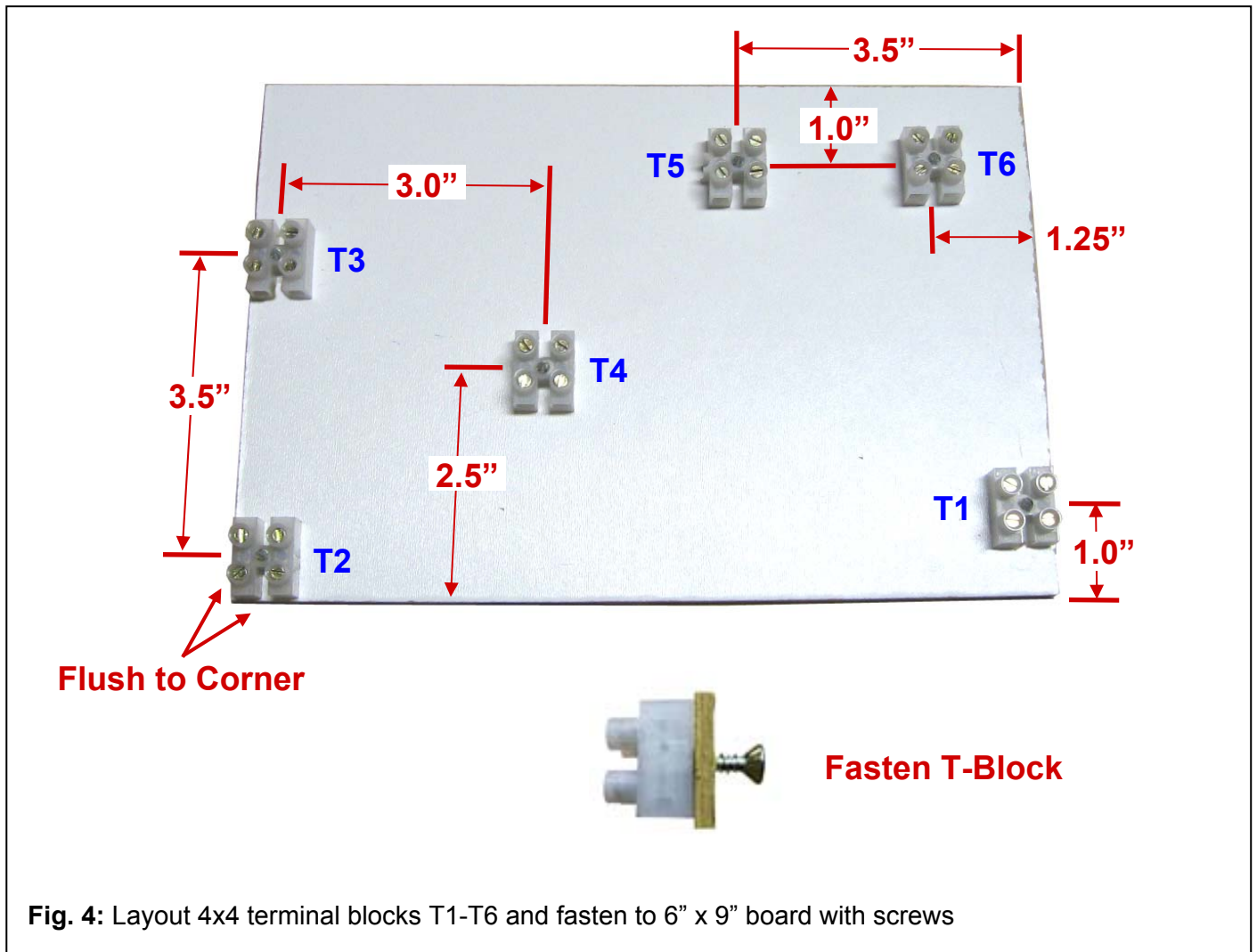
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PREPARE 6" X 9" BOARD WITH TERMINAL BLOCK



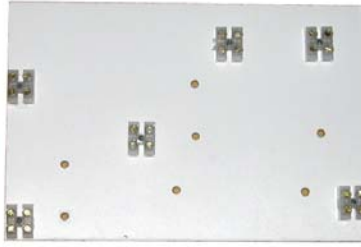
4. Cut terminal strip into blocks of 4 x 4 and cut a board 6" x 9" as shown (**Fig. 4**)
5. Layout the 4 x 4 terminal blocks onto the board as shown and then fasten each terminal blocks to the board with #8-3/4" long screws (**Fig. 4**)

NOTE: Any type of board can be used.

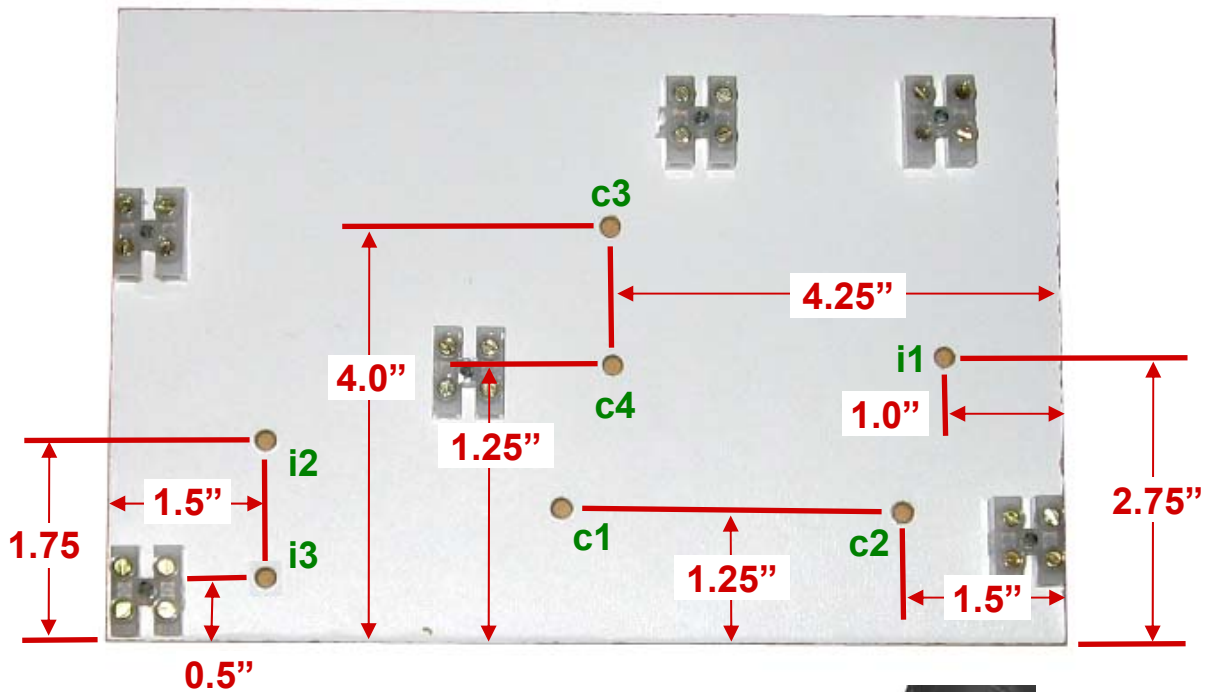


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PREPARE 6" X 9" BOARD FOR COMPONENTS



6. Drill 3/16" holes at the location **i1** for **0.8mH inductor** and **i2** and **i3** for **0.56mH inductors** (Fig. 5)
7. Drill 3/16" holes at the location **c1**, and **c2** for **10uF Silver & Oil capacitor** and **c3** and **c4** for **Capacitor Series** (Fig. 5)



Drilling 3/16" Holes



Fig. 5: Drill 3/16" holes for Inductors and Capacitors assembly.

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ASSEMBLE COMPONENTS TO 6" X 9" BOARD



8. Using (0.142" W x 8" L) Tie Wraps strap 10uF Silver/Oil capacitor to board at locations **c1** and **c2** (Fig. 6)
9. Insert wires to their respective T-Blocks **T1S1** and **T4S2** (Fig. 6)
10. Now assemble 0.82mH Inductor to board at location **i1** (Fig. 7)
11. Insert one inductor wire into location **T6S1** and the other to **T1S1**. Screw down wires at **T1S1** (Fig. 7)

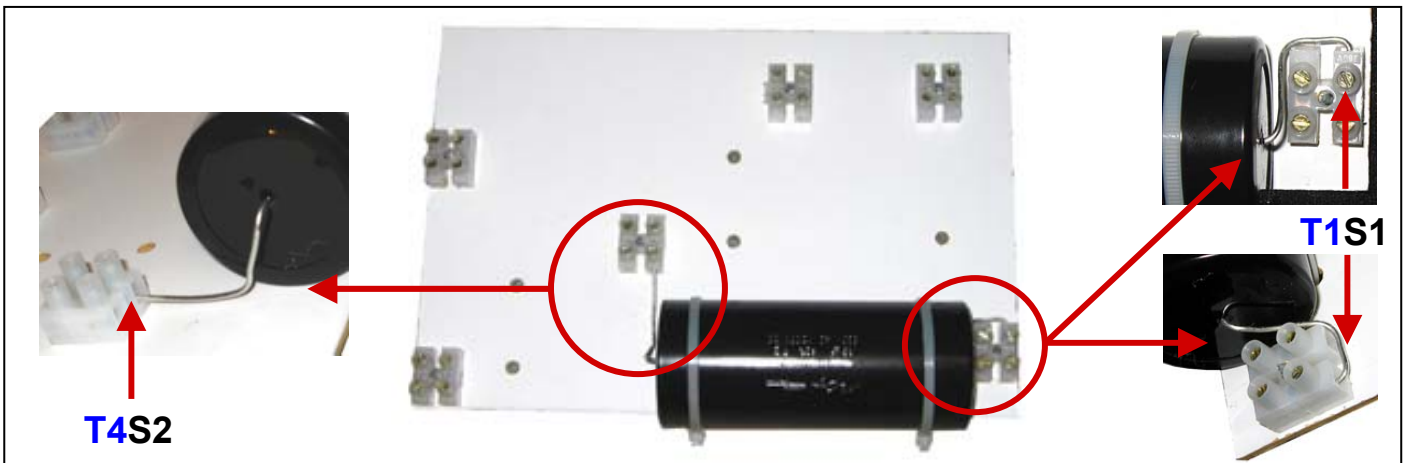


Fig. 6: Fasten 10uF Silver/Oil capacitor to board at **c1** and **c2** with Tie Wraps and insert wires to T-Blocks

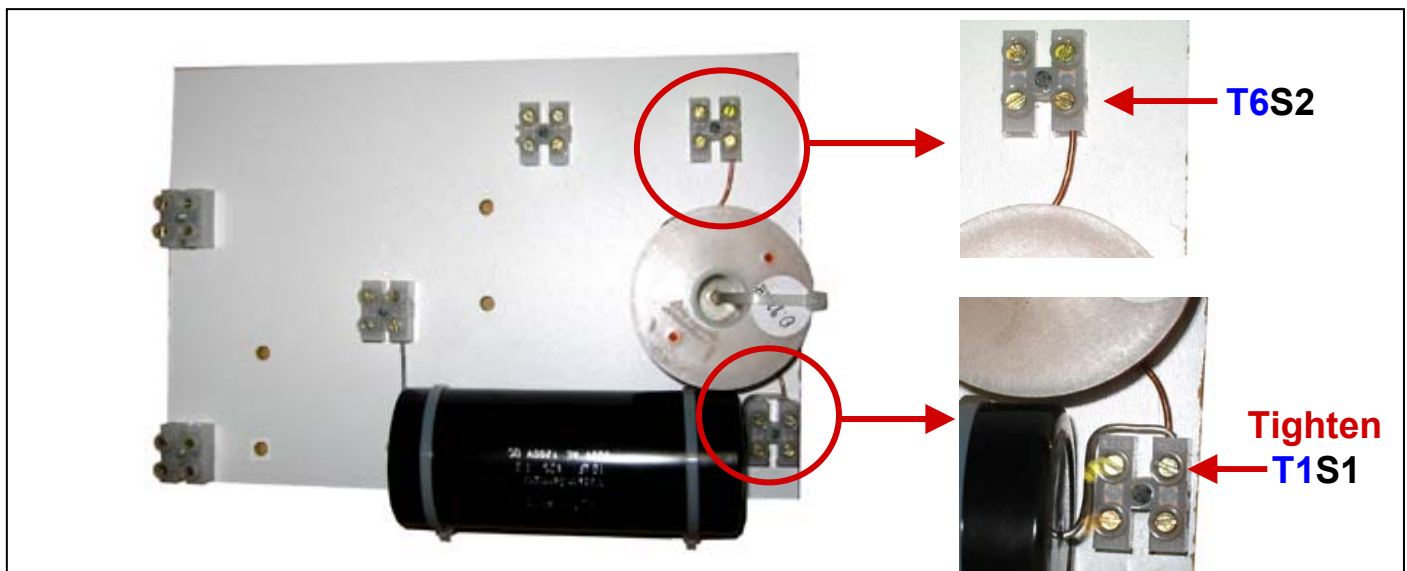


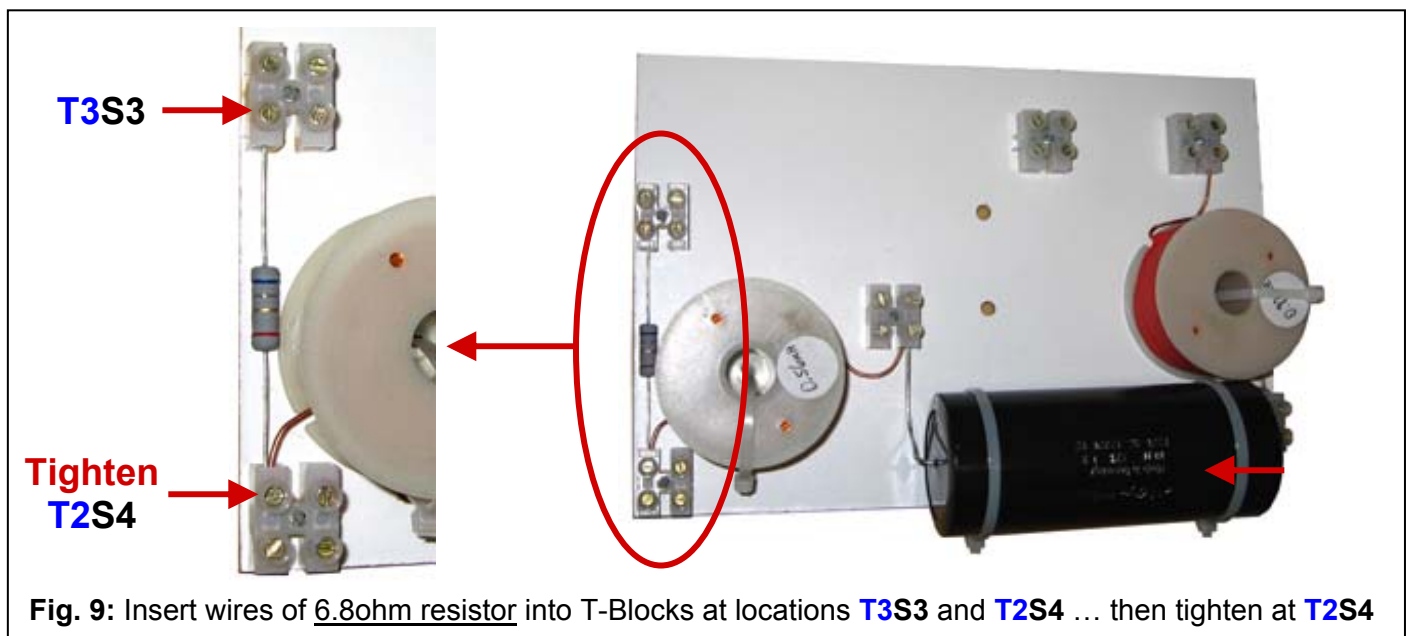
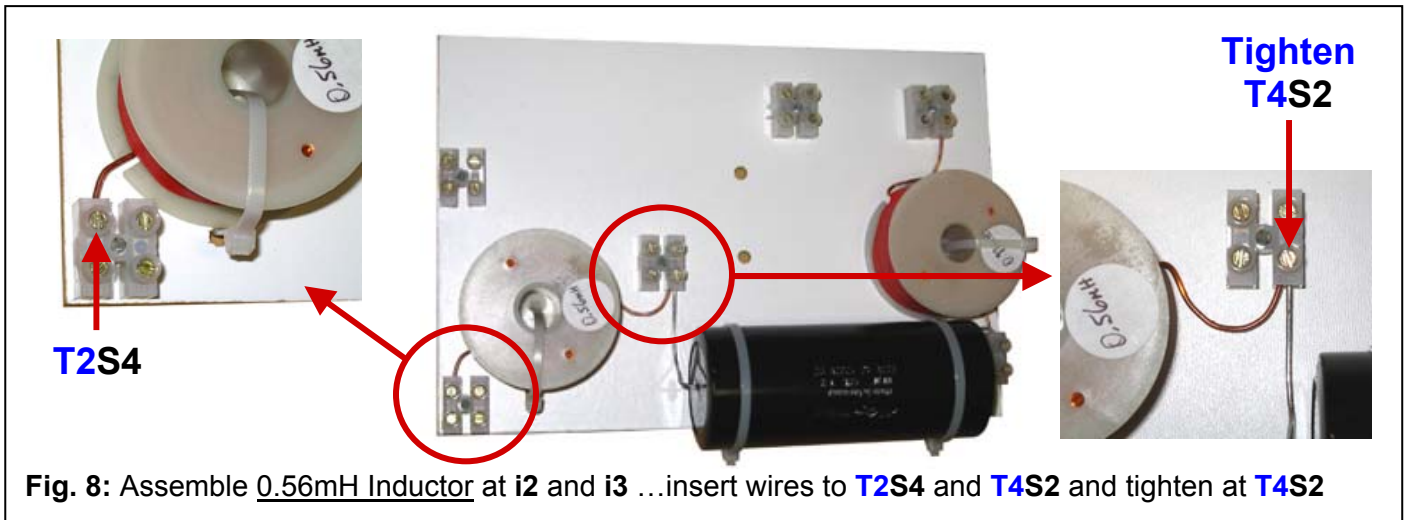
Fig. 7: Fasten 0.82mH inductor to board at **i1** then insert wires to T-Block and screw down wires at **T1S1**

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ASSEMBLE COMPONENTS TO 6" X 9" BOARD



12. Using (0.142" W x 8" L) Tie Wraps strap down 0.56mH Inductor to board at locations **i2** and **i3** (Fig. 8)
13. Insert wires to their respective T-Blocks **T2S4** and **T4S2**. Screw down wires at **T4S2** (Fig. 8)
14. Now assemble Metal Oxide 6.8ohm Resistor to board with wires inserted into **T2S4** and **T3S3**. Screw down wires at **T2S4** (Fig. 9)

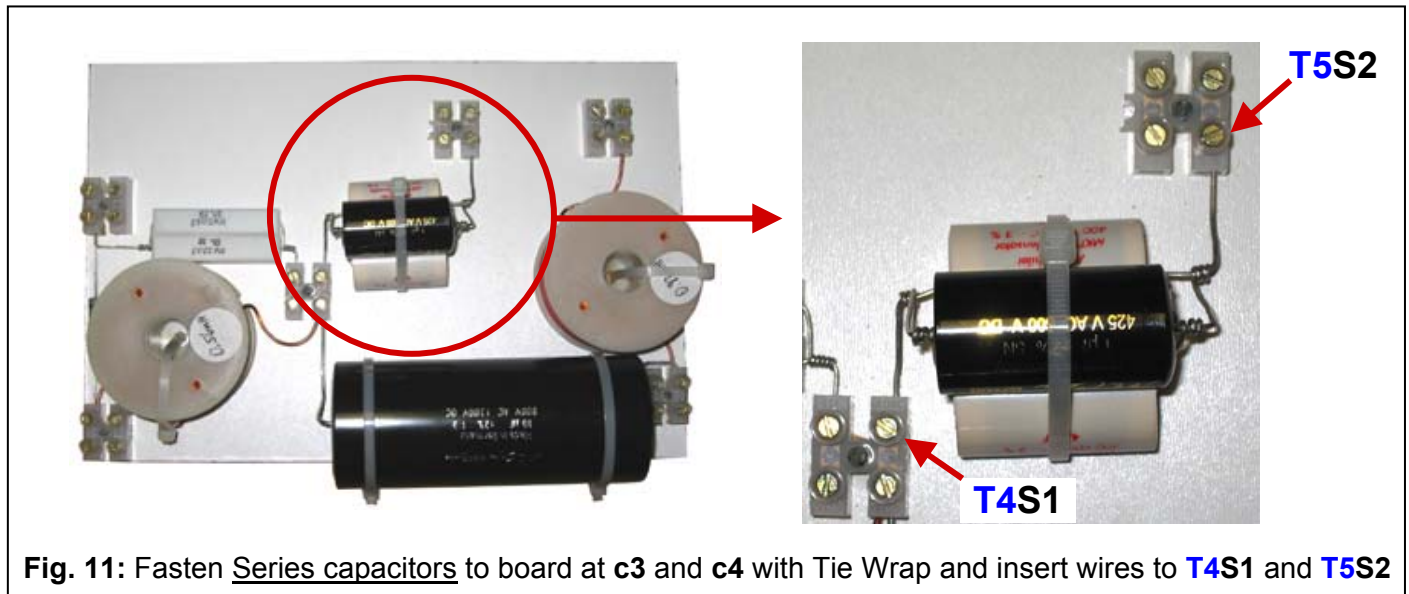
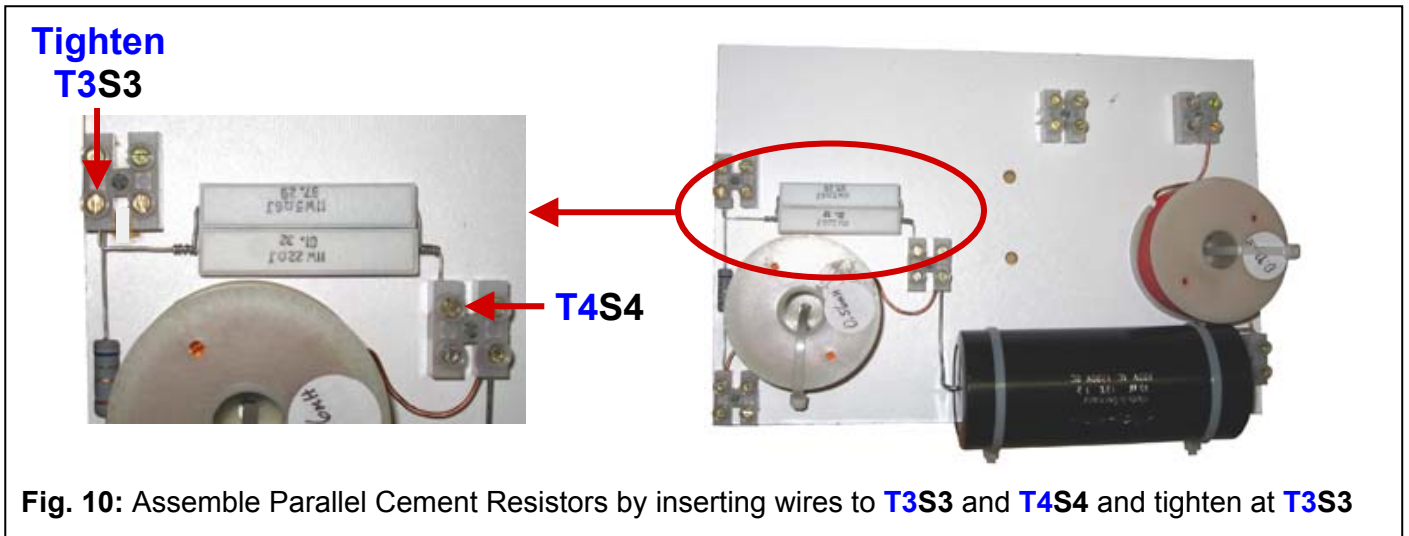


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ASSEMBLE COMPONENTS TO 6" X 9" BOARD



15. Assemble parallel cement 22.0ohm & 5.60ohm resistors to board by inserting wires to T-Blocks **T3S3** and **T4S4** respectively. Screw down wires at **T3S3** (Fig. 10)
16. Assemble Series Capacitors to board at **c3** and **c4** with tie wraps and then insert wires to **T4S1** and **T5S2** (Fig. 11)



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ASSEMBLE COMPONENTS TO 6" X 9" BOARD



17. Assemble cement **6.80ohm resistor** to board by inserting wires into **T5S2** and **T6S2** ... then screw down wires at **T5S2** and **T6S2** (Fig. 12)
18. Take a 1" long jumper wire and insert the wire into **T4S1** and **T4S4** ... then tighten screws at both locations (Fig. 13)

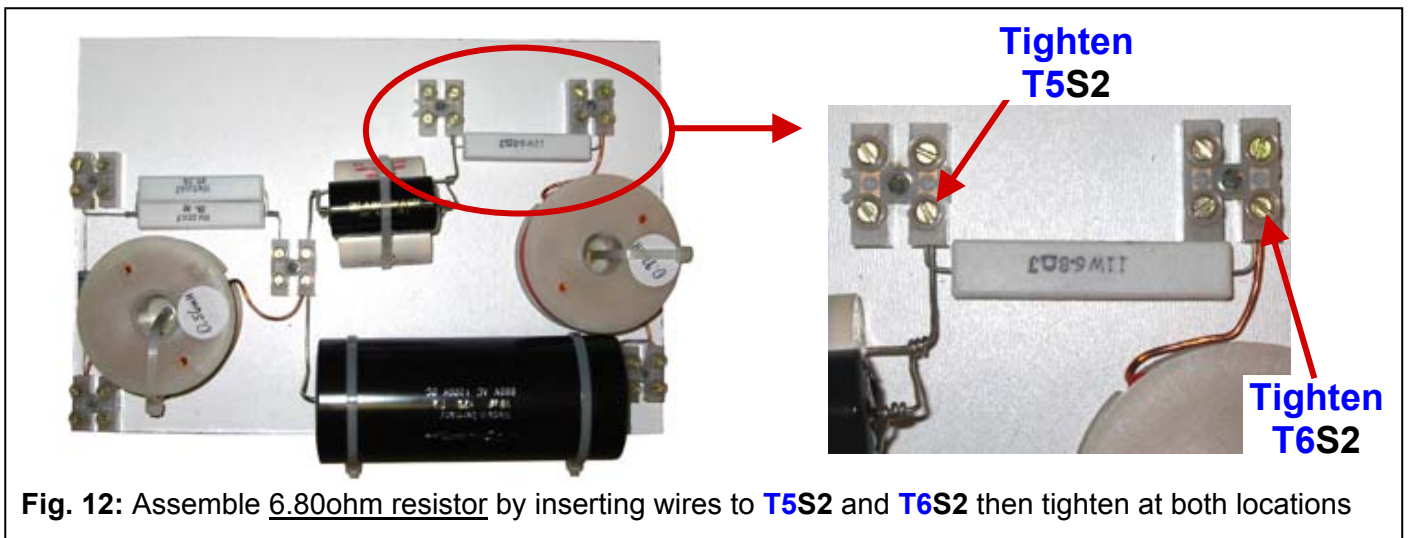


Fig. 12: Assemble 6.80ohm resistor by inserting wires to **T5S2** and **T6S2** then tighten at both locations

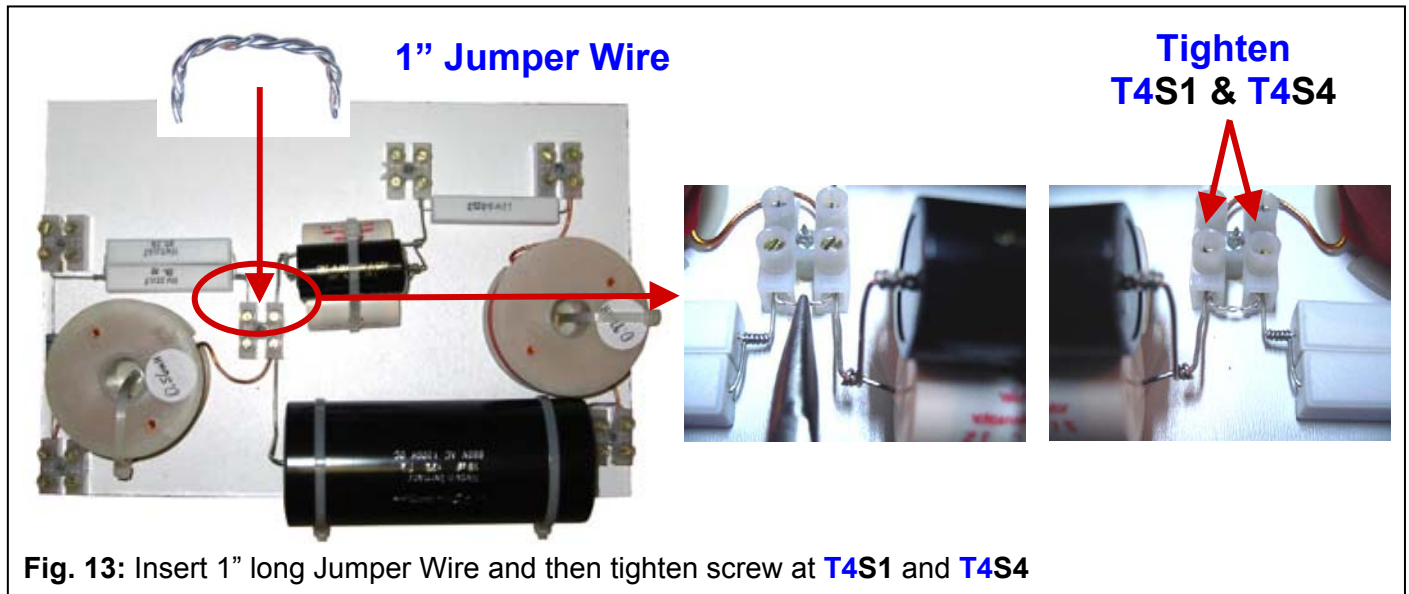


Fig. 13: Insert 1" long Jumper Wire and then tighten screw at **T4S1** and **T4S4**

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ASSEMBLE CABLES FOR DRIVERS

19. Use three 2-ft pair of the Furutech speaker cable FS-303 and separate each pair to get 6 single wires ...then strip 1/2" of the insulator off each end (Fig. 14)
20. Insert cables into the following locations, **T1S2 (-)Binding Post**, **T2S3 (+)Binding Post**, **T3S4 (+)Woofer**, **T4S3 (-)Woofer/Tweeter**, and **T6S1 (+)Tweeter** (Fig. 15)

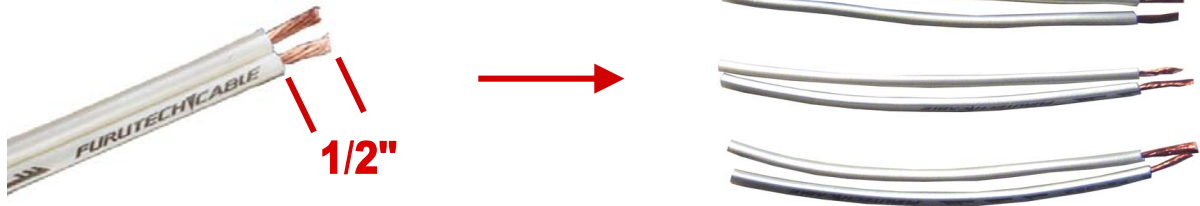


Fig. 14: 3 Pairs of Furutech FS-303 Speaker Cables 2 ft long separated into 6 wires.

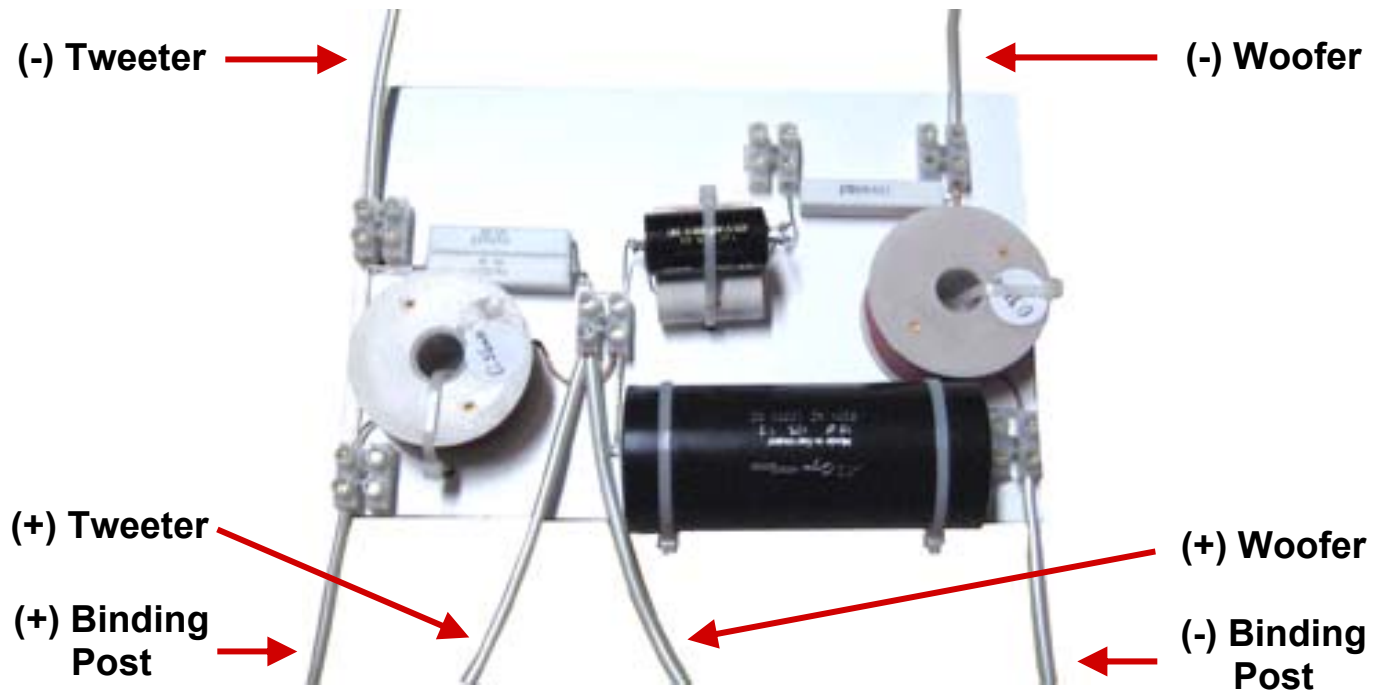


Fig. 15: Insert the 2ft speaker wires as shown and then tighten screw at **T1S2**, **T2S3**, **T3S4**, **T4S3**, **T6S1**