2TD-X Tower Assembly Instructions (Superior Crossover)

What You'll Need

At a minimum:

1. Screw Driver
2. Soldering Iron
3. Wire Cutters/Strippers
4. Wood Glue
5. Tape or Glue for the Port

You might also find it beneficial:

1. Clamps
2. Electric Drill

Flat Pack Enclosure Assembly

1. Verify all cabinet parts were received. (*See figure 1*)

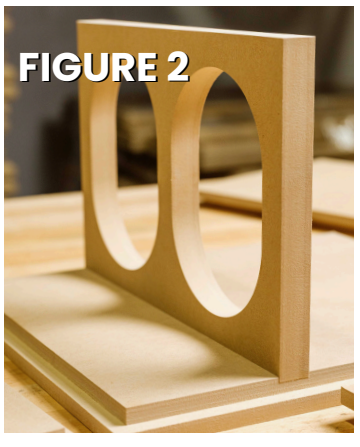
2. Clear dust from the corners of all panels. Any debris in the joints will prevent a tight, flush surface when gluing up the cabinet.

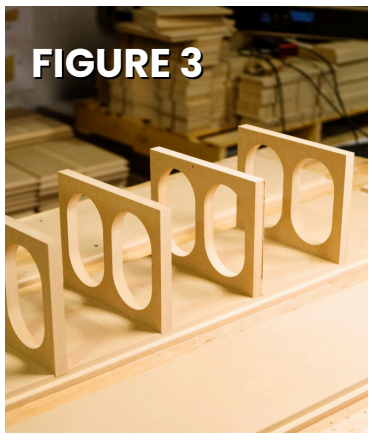
3. Assemble the cabinet **WITHOUT** glue to ensure all panels fit together.

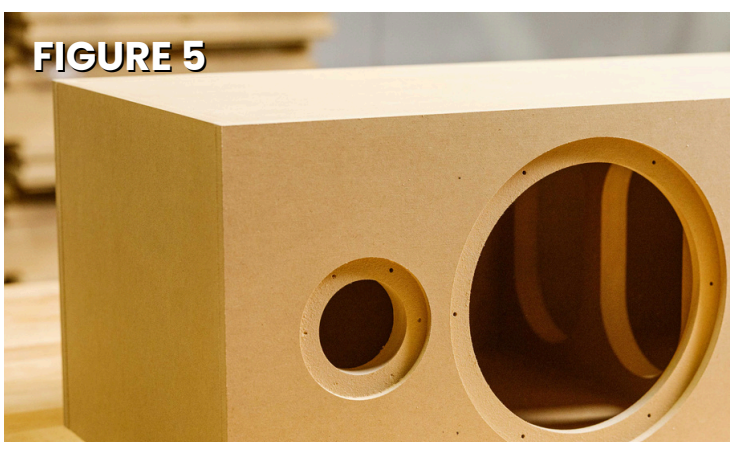
We recommend placing the larger side panel on the work surface, then the center braces (*figures 2 & 3*), front and rear panels, top and bottom panels, and finally the opposing side panel (*figure 4*). No large gaps should be visible, and joints should be square (*figure 5*). If gaps are visible, ensure panels are in the correct position and joints are tight, even without glue.

NOTE: Due to regional and seasonal humidity differences, some sanding of the joint surfaces may be required to insert braces into appropriate slots. Remember to clean any sanding debris after confirming that the adjustments are sufficient.

4. Disassemble the cabinet and place the panels on a clean surface, arranged for easy assembly.







5. (OPTIONAL) Before assembly, drill pilot holes for mounting the crossover board using the board as a template. (*figure 6*)

Use caution to avoid drilling through the panel. The board should be mounted on the bottom panel and pushed as far back as possible. This will make installation of the board easier once your cabinet is fully assembled. Screws can be secured into the MDF cabinets without drilling if desired. Now is the best time to install magnets into the baffle if using the grill kit. This YouTube video can be used as a guide: https://youtu.be/QD4HvV4hPFM

6. Apply wood glue to mating seams one at a time and assemble using the steps above as a guide (*figure 7*).

7. After the cabinet is assembled and the glue fully cured, fill any gaps with wood filler or Bondo and sand all surfaces flat.

8. Finish as desired using veneer, vinyl, paint, etc. (see CSS blog post for ideas). (*figure 8*)

FIGURE 6

FIGURE 7

FIGURE 8

Crossover Assembly

1. Verify all crossover parts were received.

Tweeter: (*figure 9*)
- 0.3mH Inductor (*x2*)
- 12µF Capacitor (*x4*)
- 1Ω Resistor (*x2*)
- 3Ω Resistor (*x2*)
- 8Ω Resistor (*x2*)

Woofer: (*figure 10*)
- 1.5mH Inductor (*x2*)
- 12µF Capacitor (*x2*)
- 2Ω Resistor (*x2*)

2. Place each component in its labeled location on the SmartNode board by putting the lead wires through the holes for the associated board location (*figures 9 & 10*).

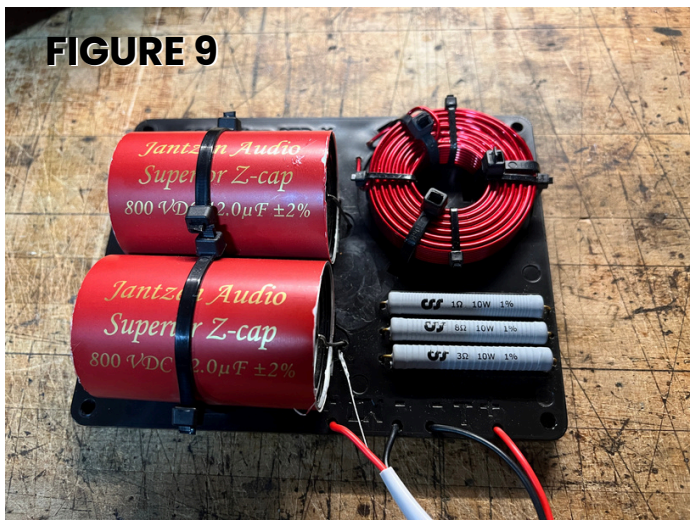
Orientation does not matter as long as leads can reach the through-holes.

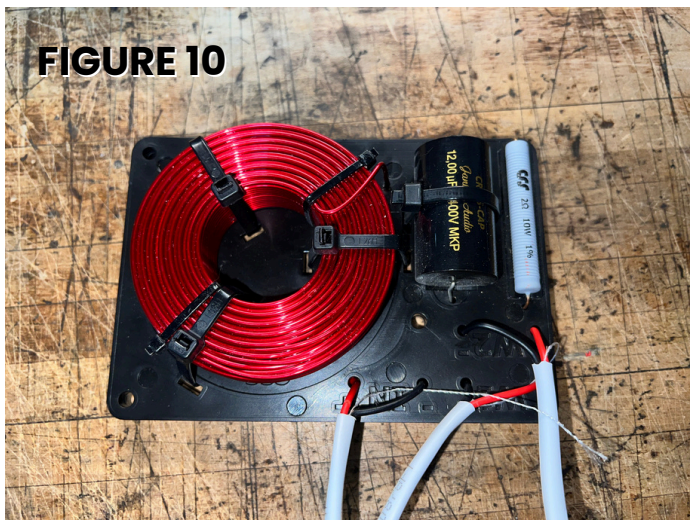
3. Secure the components to the board with the supplied zip ties.

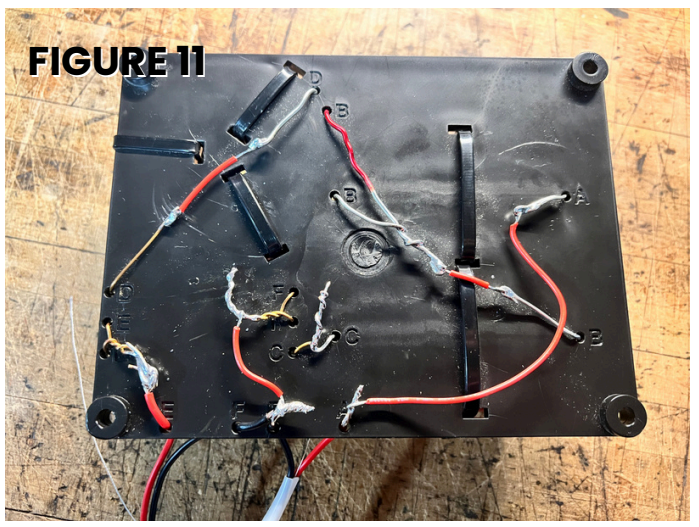
4. On the backside of the board, solder the leads together that share common letters (e.g., A to A, or B to B to B, etc.) using the supplied red hookup wire as necessary. Ensure that no bare wires are touching unintentionally (*figure 11 & 12*).

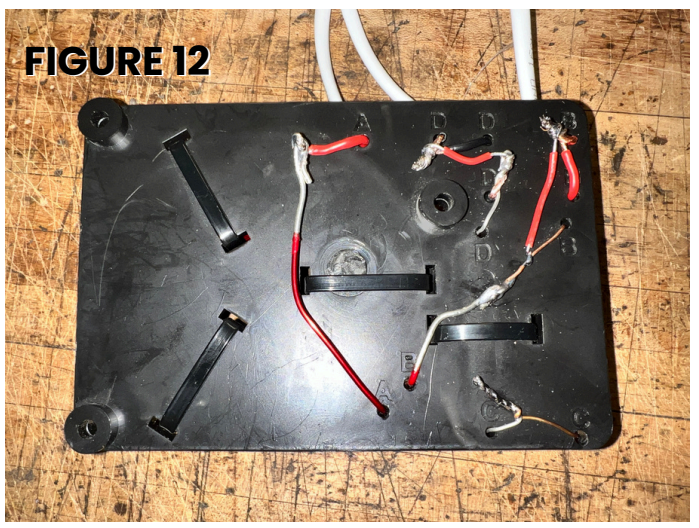
NOTE: Crossing bare wires from non-matching letters can degrade sound quality and damage the drivers or amplifier. To make a connection across another wire, prevent issues, and ensure you use the red insulated hookup wire supplied in your kit.

NOTE: Inductors have an insulating coating. You cannot solder directly to the red or orange colored portions of the inductor wire, or you will cause an open circuit. Solder to the pre-tinned leads (silver portion) to ensure proper connection.









5. Cut the following lengths of white wire for the pair of speakers:
- Qty. 2 – 33" lengths from the tweeter crossover to the binding posts on the rear panel.
- Qty. 2 – 26" lengths from the woofer crossover to the binding posts on the rear panel.
- Qty. 2 – 15" lengths from the tweeter crossover to the tweeter
- Qty. 2 – 12" lengths from the woofer crossover to woofer 1
- Qty. 2 – 18" lengths from the woofer crossover to woofer 2

Remove 4" of the outer white insulation from each end of each wire.

6. Insert the red wire through the T+ hole on the front of the SmartNode board and solder to the appropriate letter on the rear (*figure 12*).

Insert the black wire through the T– hole on the front of the SmartNode board, then solder it to the appropriate letter on the rear.

7. Insert the shorter 12" woofer wire through the +W1– holes on the front of the SmartNode board and solder it to the appropriate letters on the rear. Insert the longer 18" woofer wire through the +W2– holes on the front of the SmartNode board and solder it to the appropriate letters on the rear (*figure 13*).

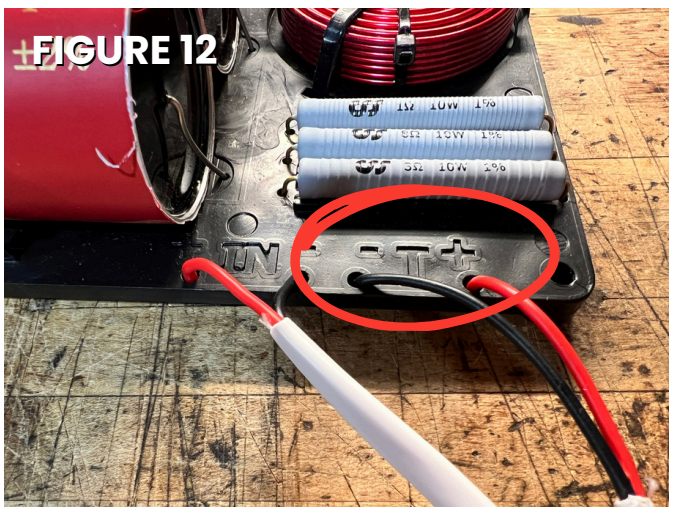
8. Insert the red wire through the IN+ hole on the front of the Smart Node board and solder to the appropriate letter on the rear. Insert the black wire through the IN– hole on the front of the Smart Node board, then solder it to the appropriate letter on the rear (*figure 14*).

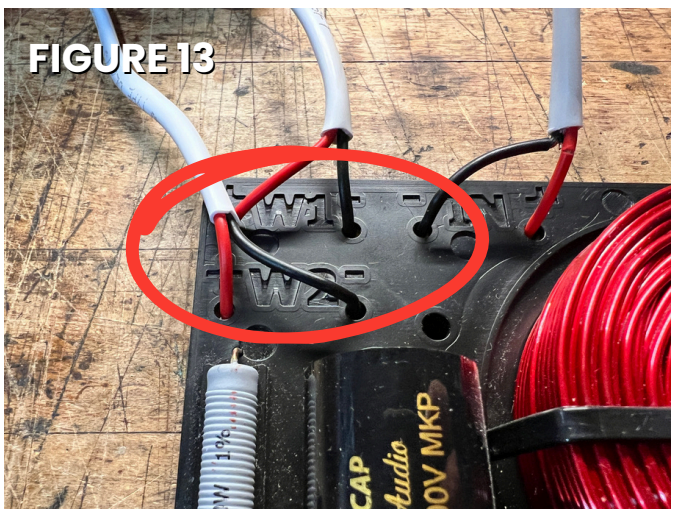
9. Identify the red quick-disconnect and black quick-disconnect that match the designated wires. Each will receive a quick connect. Strip small amounts of insulation from the matching colored wire (*figure 15*). Insert the insulated connection cover. Trim exposed copper wire as needed. Crimp the connector to the exposed portion of the wire. Solder can be used on the crimped portion of the wire to provide a more secure connection.

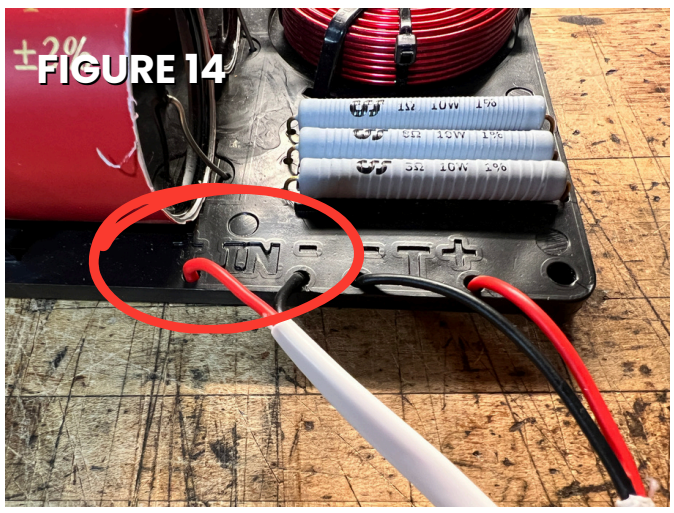
NOTE: Your kit includes multiple sizes of quick-connect female terminals for driver and binding post connections. The black connections are for the negative terminals, and the red connections are for the positive terminals. Check all quick connects and match them to their appropriate locations before crimping to any wires. The larger terminal on the driver is positive.

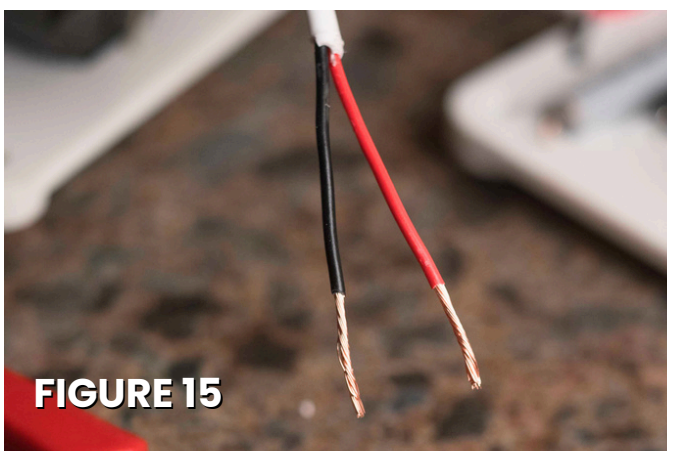
1. Red Medium - Positive Woofer
2. Red Large - Positive Binding Post and Positive Tweeter
3. Black Small - Woofer Negative
4. Black Medium - Tweeter Negative
5. Black Large - Negative Binding Post

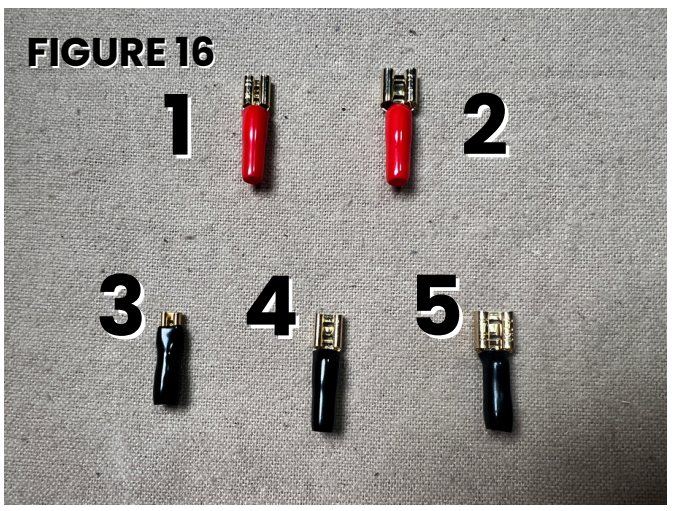
NOTE: If quick-connects do not fit snugly on a terminal, use pliers to squeeze a little at a time until the fit is tight.











10. Pull the tweeter wire (marked "T" in step 3) through the tweeter hole and slide the quick connects onto the tweeter terminals – large to large and small to small (*figure 17*). Give the wires a light tug to check the grip. If they slide off easily, close the opening a little on the quick connects with a pair of pliers and repeat until a snug fit is achieved. Then install the tweeter in the proper place using the included screws.


FIGURE 17

11. Repeat step 10 for the woofers (*figure 18*).


FIGURE 18

Final Assembly

CAUTION: It is recommended to test your speaker after final assembly by starting at a very low volume and listening to each driver by placing your ear close to it. You should hear highs coming from the tweeter and lows from the woofer. You should hear no crackling or static. If everything sounds normal, proceed to turn up the volume and enjoy.


FIGURE 19

1. Binding Posts

Insert the terminal cup into the rear panel opening and ensure it sits flush against the cabinet. Secure the terminal cup using the supplied screws. Drilling pilot holes is recommended, but not required. (*figure 19*).


FIGURE 20

2. Port(s)
    a. Adjust the port for an overall length of 7.5 inches.
    b. Glue or tape the extension in place (*figure 20*). If using tape, use a single wrap of thin tape so it doesn't snag during insertion in the precut hole. Insert the port into the opening and screw it into place. Drilling pilot holes is recommended, but not necessary.

3. Crossover Boards
    a. Mount the Superior Tweeter Board on the side panel behind the top woofer. Mount the Superior Woofer Board on the side panel behind the bottom woofer (*figure 21*).

Attach the red input wire to the positive binding post terminal and the black input wire to the negative binding post terminal. Ensure all connections are secure before proceeding (*figure 22*).

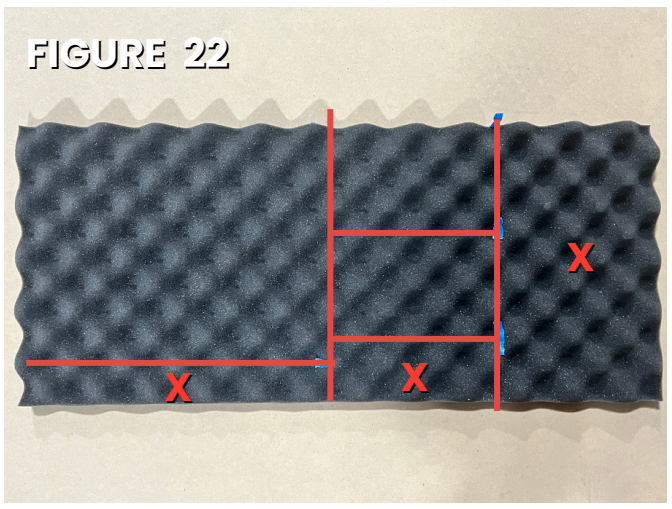
4. Foam
    a. Cut the foam panels to the following sizes for each cabinet (*figures 22 & 23*):
    b. Qty. 1 – 9" × 11" (rear panel)
    c. Qty. 2 – 7" × 9" (side panels)
    d. Qty. 1 – 4" × 7" (bottom panel / over crossover)

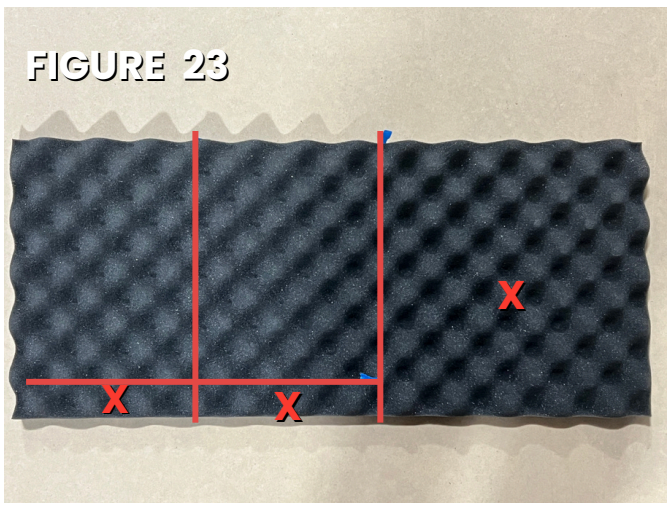
Install the foam with the textured surface facing inward. Place the 9" × 11" panel against the rear panel, the two 7" × 9" panels on the cabinet sides, and the 4" × 7" panel over the crossover board. Ensure the foam does not obstruct the port opening or interfere with wiring.

Two pieces of 1/2" × 9" × 7" denim are included for each cabinet. Position the denim on the brace under the second woofer chamber (*figure 22*).

5. Drivers
    a. Pull the tweeter and woofer wires from the crossover board through the appropriate driver holes in the front of the cabinet. Connect the wires to the appropriate driver and install the drivers in the cabinet with the provided screws (*figure 25*).

CAUTION: It is recommended to test your speaker after final assembly by starting at a very low volume and listening to each driver by placing your ear close to it. You should hear highs coming from the tweeter and lows from the woofer. You should hear no crackling or static. If everything sounds normal, proceed to turn up the volume and enjoy.





Troubleshooting

1. **No Sound From the Whole Speaker** - No sound from one or both speakers typically means you have a problem on the amp input side of the crossover. Check your input wires are properly connected to the crossover (including ground wires coming back to the negative connection) as well as the binding post side. Ensure the input wires and binding posts are not shorted by stray wires or other metal, creating a conductive path between the negative and positive.

2. **No Sound From One Driver** - No sound from a single driver most typically results from a bad connection in the crossover. Review all connections to make sure only similar letters are on the same connection points. Ensure inductors are properly connected on tinned/bare wire and not over the insulation. Ensure there are no loose connections anywhere.

3. **Crackling Sound** – Crackling sounds are usually the result of a loose connection. Check to make sure you have secure connections on all driver and binding post wiring. Ensure crossover wiring has a solid connection, and solder welds are tight. You should see no movement in the joint itself. Check crossover wiring for any bare wiring that is inadvertently touching where it shouldn't. If the source cannot be identified, contact us.

4. **Amp Shuts Down** – An amp shutting down is likely caused by a straight short to ground, meaning your amp is seeing minimal or no resistive load. The most likely cause is wiring touching where it shouldn't be. Check crossover wiring for any bare wiring that is inadvertently touching where it shouldn't. Ensure that binding post terminals are not inadvertently touching. An amp shutting down is likely a straight short to ground, meaning your amp is seeing no resistive load. If the source cannot be identified, contact us.

5. **Lack of Bass** – There are a few things that can cause a lack of bass. Check to make sure your connections all have the same polarity on both the inside and outside of the binding post. Inverting the polarity of one speaker will lead to bass cancellations. Ensure there is free airflow around the port openings, and it is not being blocked by stuffing material. Ensure the woofer is connected to the woofer W +/- section of the SmartNode board and not the tweeter T +/- section. Ensure the port is adjusted to the correct length. If the source cannot be identified, contact us.