



Torii Bookshelf Assembly Instructions

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. (*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. (*figures 2-5*)

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.



FIGURE 1

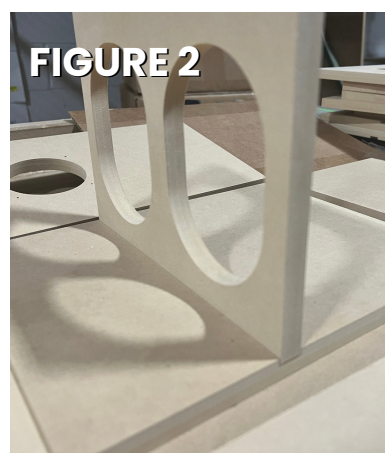


FIGURE 2



FIGURE 3

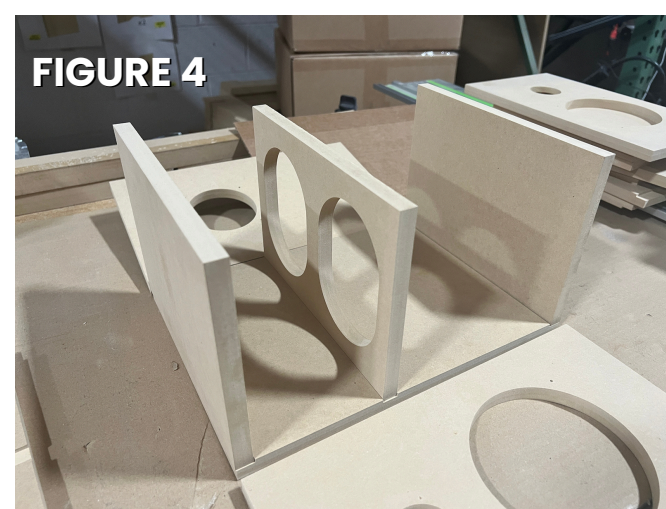


FIGURE 4

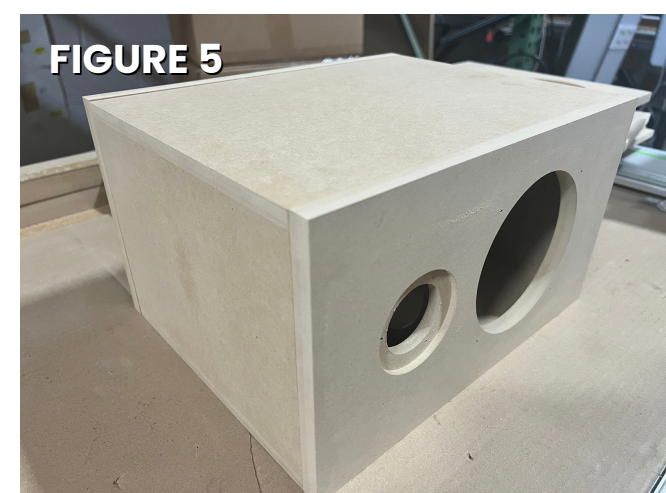


FIGURE 5

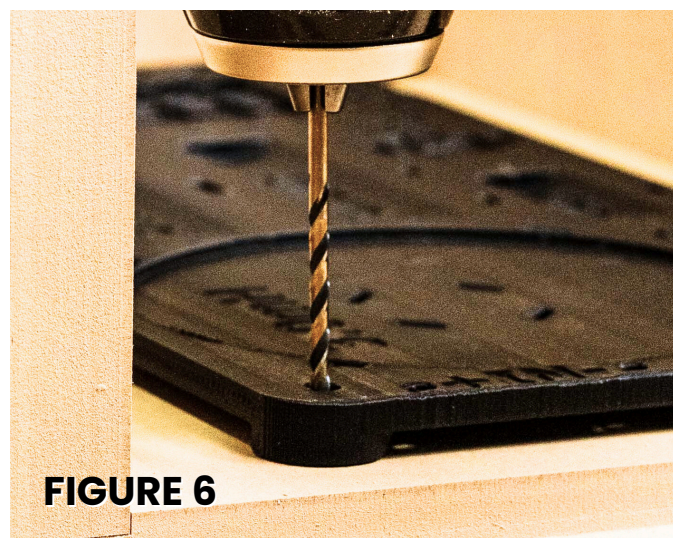
5. (OPTIONAL) Before assembly, drill pilot holes for mounting the crossover board using the board as a template. (figure 6)

Use caution not to drill 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.

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)



Crossover Assembly

1. Verify all crossover components are present (*figure 9*).

- 0.25mH Inductor (x2)
- 2.5mH Inductor (x2)
- 1Ω Resistor (x4)
- 3Ω Resistor (x2)
- 6.2μF Capacitor (x2)
- 8.2μF Capacitor (x4)

2. Place each component in its designated location on the crossover boards using the provided wiring diagram and board layout as a guide.

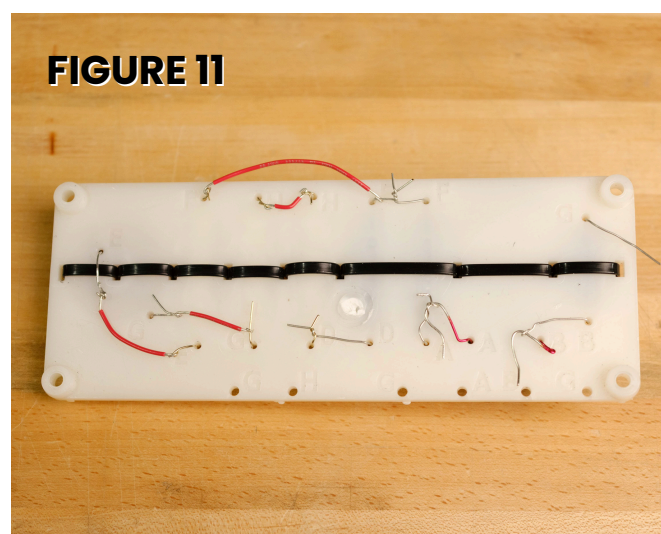
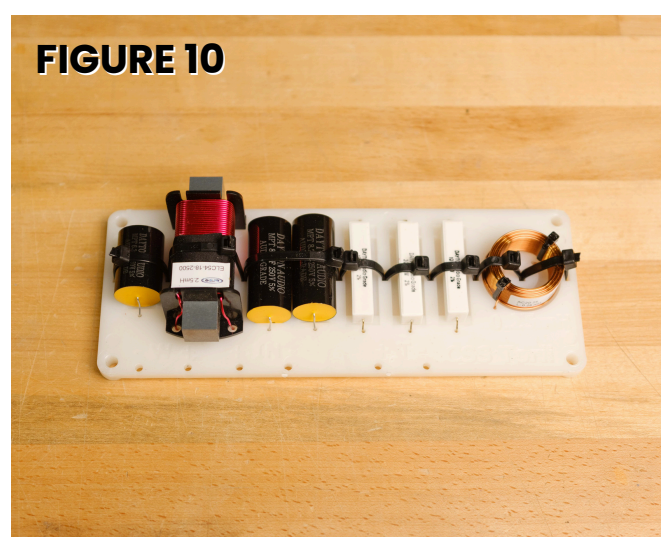
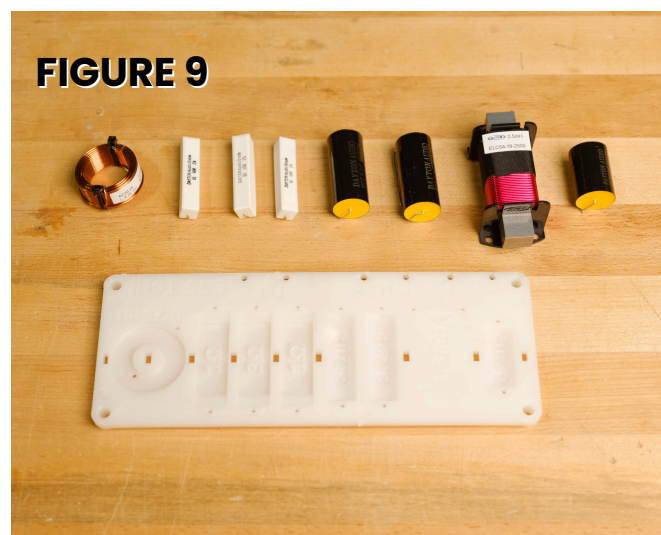
Orientation does not matter as long as component leads can reach their designated through-holes.

3. Insert all component leads through the board and secure components in place with the supplied zip ties before soldering. (*figure 10*)

4. Cut 3 lengths of the white wire, long enough to reach from:

1. The binding posts on the rear panel of the crossover board (13")
2. The woofer terminals to the crossover board (15")
3. The tweeter terminals to the crossover board (19")
4. Remove 4" of the outer white insulation from each end of each wire.

5. 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 accidentally touching (*figures 11 & 13*).



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. Do **NOT** 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.

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

Insert the black wire through the W- hole on the Smart Node board and solder to the appropriate letter.

8. Insert the red wire through the IN+ hole on the front of the Smart Node boards and solder to the appropriate letter on the rear. Insert the black wire through the IN- hole on the front of the Smart Node boards, then solder it to the appropriate letter on the rear (*figure 13*).

9. Identify the appropriate quick-disconnect terminals for each wire connection. Strip a small amount of insulation from the wire ends and insert the insulated connection cover. Trim exposed copper as needed.

NOTE: Your kit includes two sizes of blue female quick-connect terminals for driver and binding post connections. The smaller terminals are used for negative driver connections, while the larger terminals are used for positive driver connections. Verify terminal fitment before crimping. The larger terminal on each driver is positive (*figure 14*).

- Blue Small - Negative Woofer & Tweeter
- Blue Large - Positive Woofer & Tweeter, Positive & Negative Binding Posts

NOTE: Quick-connect terminals may require slight adjustment to achieve a snug fit. If necessary, use pliers to carefully open or close the connector before installation (*figure 15*).

FIGURE 12

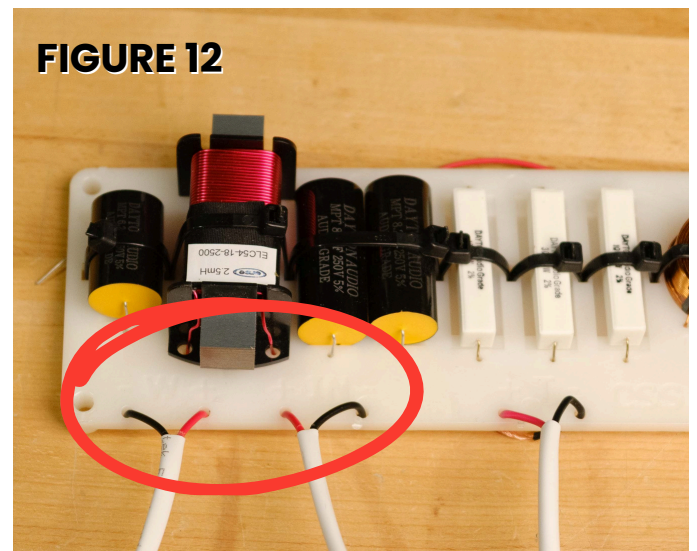


FIGURE 13

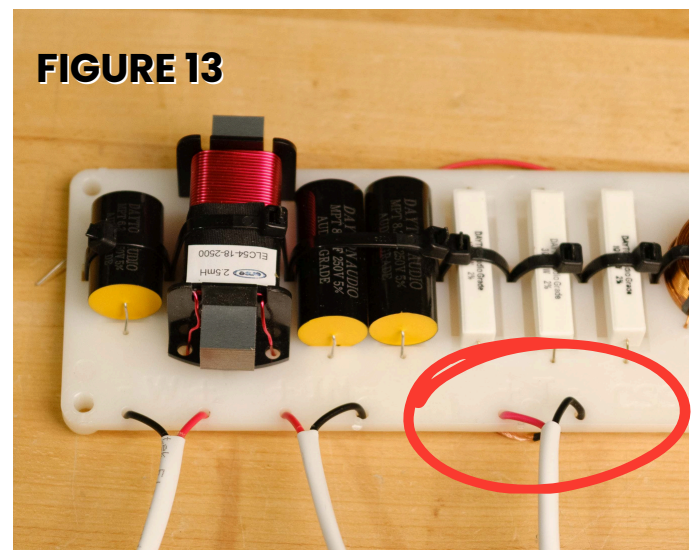


FIGURE 14

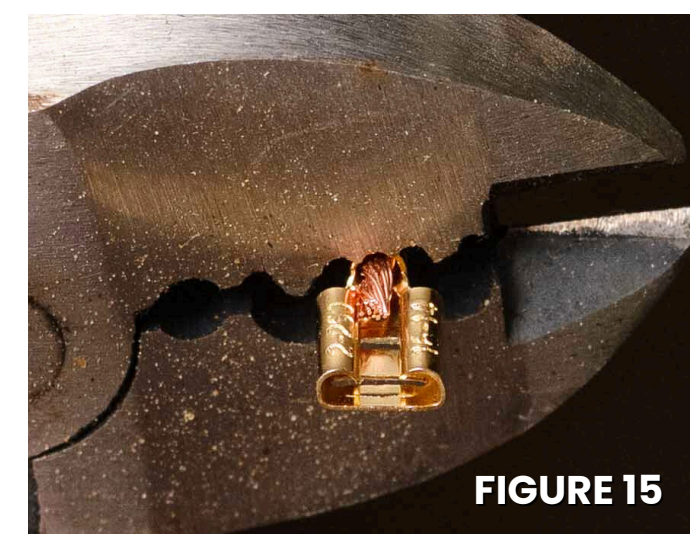
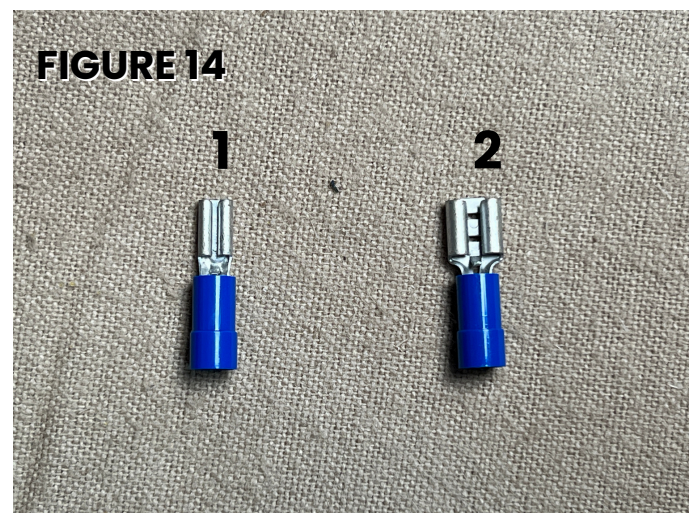


FIGURE 15

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. 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.

11. Repeat step 10 for the woofer.

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.

1. Binding Posts

Route the input wires through the terminal plate opening and connect them to the corresponding binding post terminals. (*figure 16*)

Insert the terminal plate into the rear panel opening and secure using the supplied screws (*figure 17*).

2. Port(s)

- Adjust the port for an overall length of 9.75 inches.
- Glue or tape the extension in place (*figure 18*). 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.

FIGURE 16



FIGURE 17



FIGURE 18



FIGURE 19



3. Crossover Boards

- a. Mount SmartNode crossover boards inside the cabinet, against the bottom panel, pushed as far back as possible.
- b. Attach the red input wire to the left-side binding post terminal. Attach the black input wire to the right-side binding post terminal. (*figure 20*).

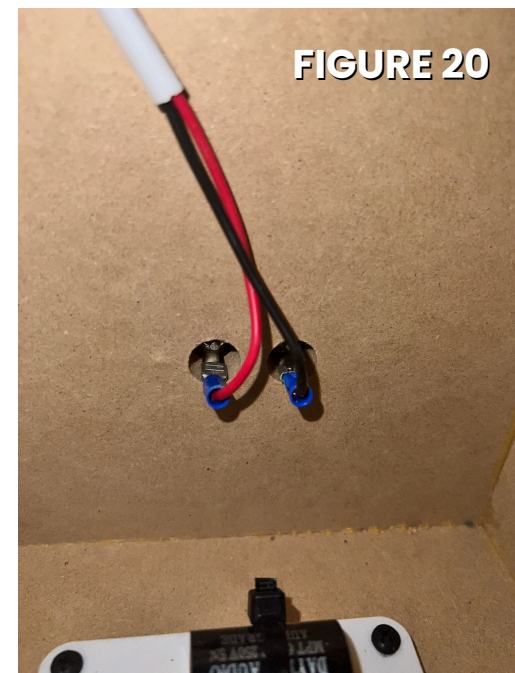


FIGURE 20

4. Foam

- a. For each cabinet, cut one 24" x 10.5" foam sheet 10.5" x 4.25".
- b. Cut a 5.25" x 4.5" section for the back panel
- c. Cut two 10.5" x 6.5" sections for the sides (*figure 21*)

1. Install foam with the ridges facing inward:

- a. Place two 10.5" x 6.5" pieces on the cabinet sides
- b. Place the 5.25" x 4.5" piece against the rear panel
- c. Place the remaining 10.5" x 4.25" piece over the crossover board (*figure 22*)

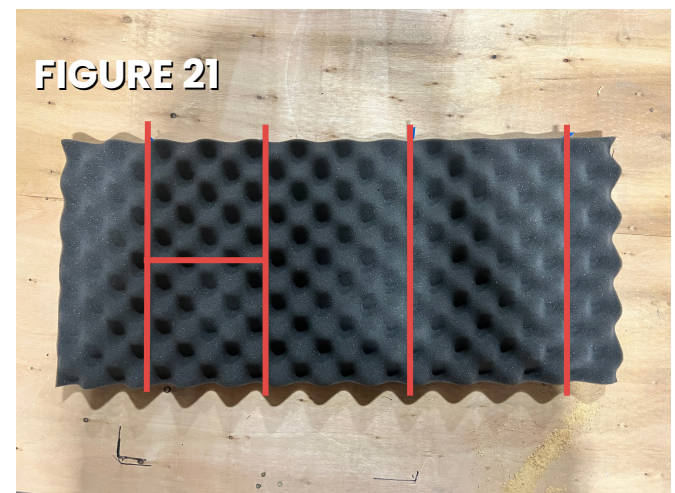


FIGURE 21

NOTE: Extra foam is included in case trimming adjustments are required. Ensure foam does not obstruct airflow through the port.

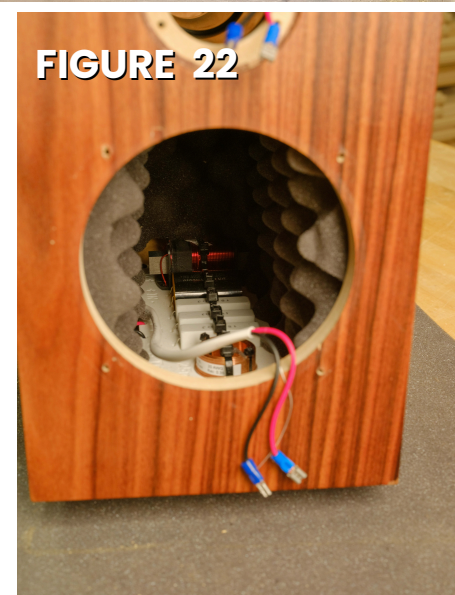


FIGURE 22

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, then install the drivers in the cabinet using the provided screws (*figures 23 & 24*).

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 23



FIGURE 24

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 that your input wires are properly connected to the crossover (including the ground wires returning to the negative connection) and to the binding post side. Ensure the input wires and binding posts are not shorted by stray wires or other metal, which could create 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 to tinned/bare wire, 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 wires that are inadvertently touching where they 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 wires that are inadvertently touching where they shouldn't. Ensure that binding post terminals are not inadvertently touching. An amp shutting down is likely a straight short to ground, meaning it's 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 that all your connections have the same polarity on both the inside and the outside of the binding post. Inverting the polarity of one speaker will cause bass cancellation. Ensure there is free airflow around the port openings and that they are not 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.