

# Overnight Sensations Speaker Kit

Thank you for purchasing the Overnight Sensation cabinet kit. This speaker kit was precision cut using CNC machinery for the best possible fit and finish. With a little time and patience, your finished product will provide years of enjoyment. Please follow these instructions for the best possible results.

## Suggested tools and consumables:

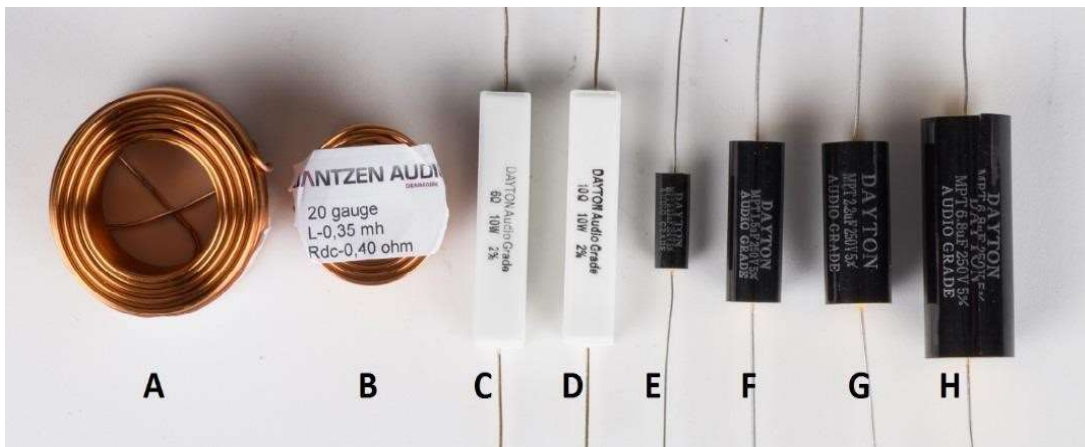
Drill	Rag or paper towels
5/64" drill bit	Solder
Wood clamps (you can never have too many of these)	Soldering iron
Sanding block and/or electric finishing sander	Rubber mallet
Wood glue	Binding post/terminal cup
0.11" female disconnect terminal	Hot glue gun

## Package contents:

First, empty the contents of the package and review parts to ensure everything has been included and is in good condition. If any parts are missing or damaged please contact our customer service department at 1-800-338-0531.

Note: Crossover components may be substituted with parts of equal or higher quality depending on stock.

## Components:



- A) 2 x 1.1 mH air core inductor
- B) 2 x 0.35 mH air core inductor
- C) 2 x 6 ohm resistor
- D) 2 x 10 ohm resistor
- E) 2 x 0.22 uF capacitor
- F) 2 x 1.5 uF capacitor
- G) 2 x 2.2 uF capacitor
- H) 2 x 6.8 uF capacitor

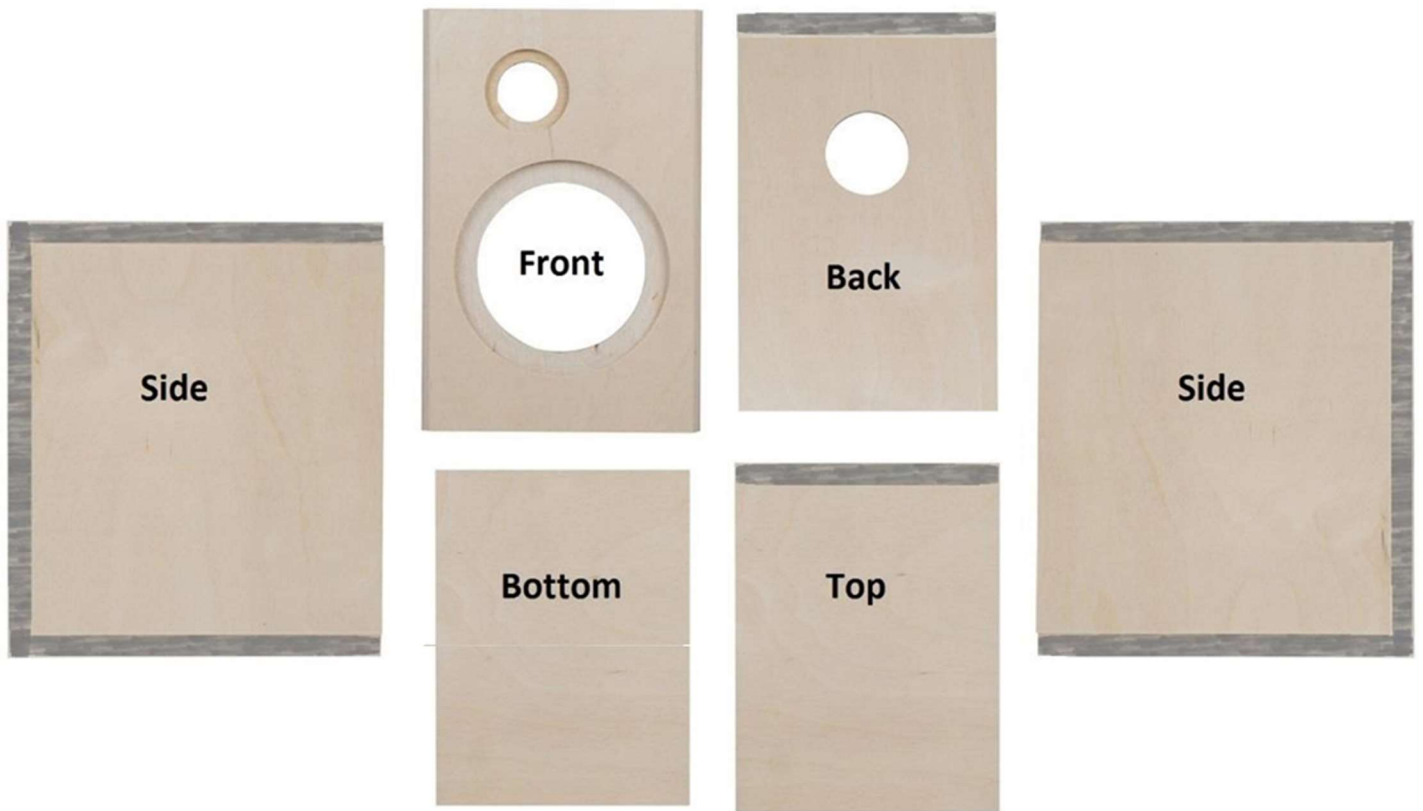


- I)** 2 x HiVi B4N 4" aluminum midbass
- J)** 2 x Dayton Audio ND20FA-6 3/4" neodymium dome tweeter
- K)** 2 x 1-3/8" ID adjustable port tube



- L)** 6 feet 16 AWG 2-conductor Power Speaker Wire 1 ft. (Red/Black)
- M)** 25 x #6 x 3/4" Pan Head Deep Thread Black Screws
- N)** 2 x Binding Post Pair (actual binding posts may vary depending on stock)
- O)** 2 x Overnight Sensations Crossover Printed Circuit Board

### Enclosure:



- P) 2 x Front
- Q) 2 x Back
- R) 2 x Top
- S) 2 x Bottom
- T) 4 x Sides

### Enclosure Assembly:

- 1) First, take the back panel and drill holes required for the **Binding Post Pair (N)** that is included in your package.
- 2) Next, set the enclosure parts out on a flat level surface and ensure that all pieces are free of dust and debris.
- 3) Apply a thin layer of wood glue to all shaded areas in the enclosure parts diagram above.

- 4) With the back panel lying flat, place the top, sides and bottom in place and apply clamps so that even pressure is applied to all glued surfaces. Using a damp rag or paper towel wipe away any glue squeeze-out on the outside of the enclosure (excess glue on the inside is fine). Allow to dry according to the glue manufacturer's recommendations.

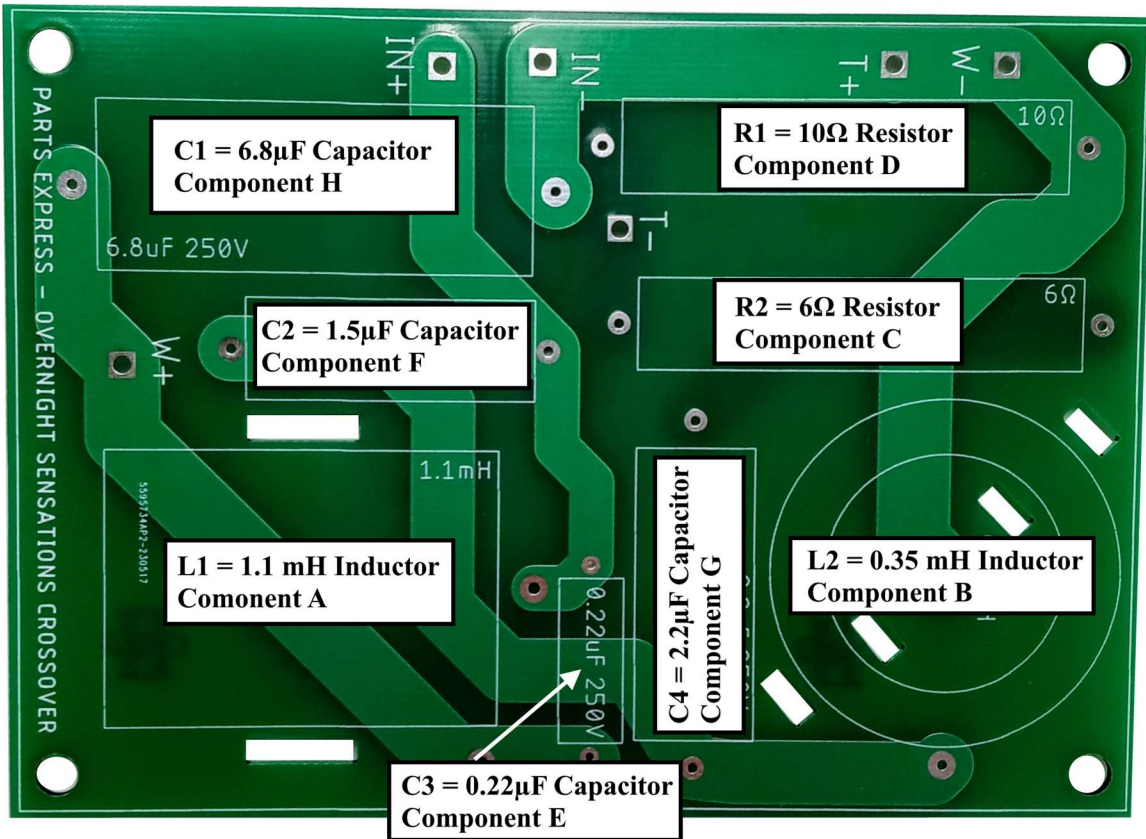


- 5) Once the glue is dry, remove the clamps. Now apply a thin layer of glue to the front edge of the enclosure. Set the front baffle in place on the glued edge. While ensuring all edges are even and square, space clamps to apply even pressure to all glued surfaces. Wipe away any glue squeeze-out on the outside of the enclosure. At this time double check that all edges are even and square (this cannot be adjusted once the glue is dry). Allow to dry according to the glue manufacturer's recommendations.



- 6) Sand and finish enclosure to your liking. See our web page for examples.

## Crossover assembly:



- 7) Begin by preparing the input, woofer, and tweeter wires. Cut one 8" piece of **16 AWG 2-conductor Wire Red/Black (L)** and label this wire "input". Then cut two more 12" pieces of **16 AWG 2-conductor Wire Red/Black (L)** and label these "woofer" and "tweeter".
- 8) Strip approximately 1/2" of insulation from only one end of each of the wires you cut in **step #12** and make sure the strands are tightly twisted together. Using a soldering iron apply heat to the stripped ends and use solder to tin the bare copper as shown below.

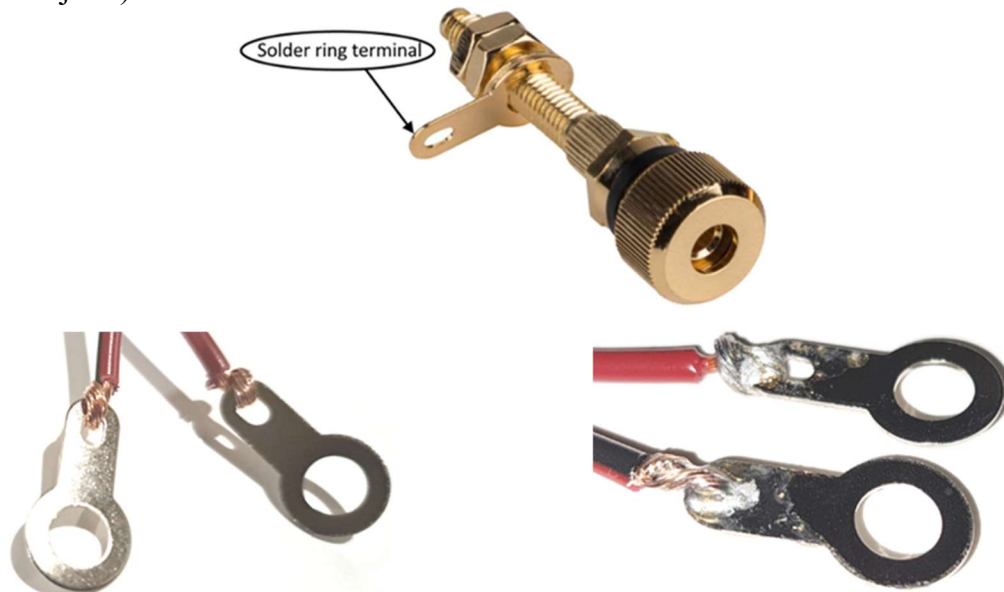
**Note:** When tinning the ends only apply gentle pressure to the wire to prevent flattening the twisted strands. You want the twisted strands to remain round. Also, use just enough solder to flow into the strands holding them together, try to avoid big "blobs" of solder.





- 9) Remove the solder ring terminals from each of the **Binding Posts (N)**. Strip approximately 3/4" of insulation from the other end of the 8" "input" wire and make sure the strands are tightly twisted together. Insert the stripped ends through the small hole in two of the solder ring terminals and fold the wire tightly to secure it to the terminal. Using a soldering iron, apply heat to the terminals and solder the wire and terminal together. See images below.

**Note:** Make sure the solder flows onto both the wire and the terminal to avoid forming a "blob" on the surface (cold joint).



Wire wrapped through terminals.

Wire soldered to terminals.

- 10) Prepare the crossover components as follows for easy installation onto the Overnight Sensations Crossover Printed Circuit Board:

**Capacitors:** Straighten out the leads and then bend at a 90° angle about 1/8" from the capacitor.

**Inductors:** Straighten the leads and be sure that all enamel/insulation is removed where the leads penetrate the crossover board. Enamel can be removed by scraping with a razor or fine grit sandpaper.

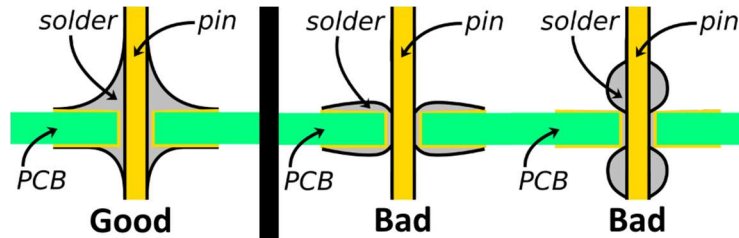
**Resistors:** Straighten leads and then bend at a 90° angle about 1/8" from the resistor.

- 11) The **Overnight Sensations Crossover Printed Circuit Board (O)** is labeled to make it easy to locate and install the corresponding components and cables. Working from one side of the board to the other, insert the leads (or wires) through the corresponding holes in the crossover board and solder into place.

- Tips:**
- 1) Elevate the board a couple inches so you will not have to deal with trimming the leads until the crossover is complete.
  - 2) Apply a bed of glue (hot glue recommended) beneath each component before placing them on the board to eliminate the possibility of rattles or buzzing from the crossover.
  - 3) Notches are cut beside each inductor so you can zip tie them into place to help support their weight and secure them to the crossover board.
  - 4) Tin the tip of your soldering iron with a bit of solder before each connection to prep the joint and optimize heat transfer.
  - 5) When soldering components to the board, use the side of the soldering iron tip to apply heat to both the solder pad and lead/wire at the same time. This will help ensure that the solder adheres properly.

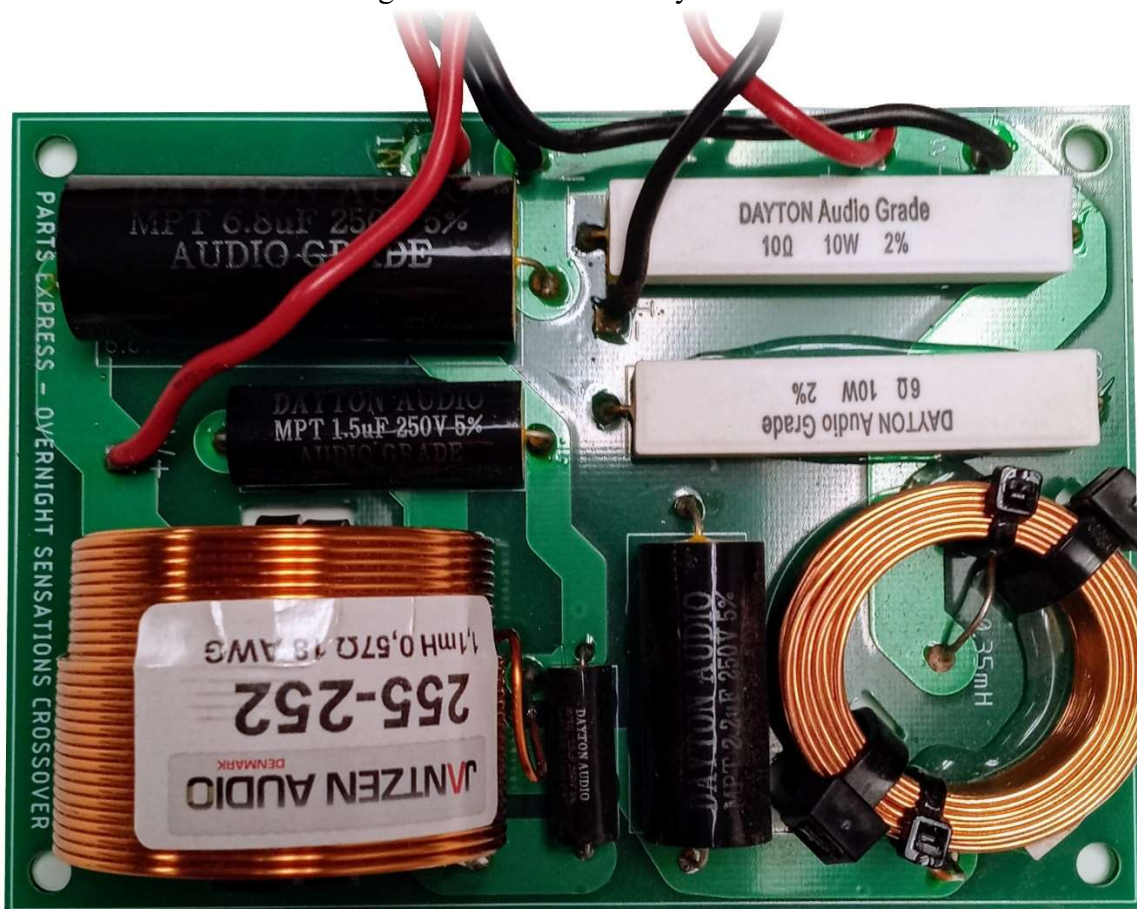
- 6) If you have difficulty inserting the tinned speaker wires into their corresponding holes, apply heat to the wire with the soldering iron while inserting it into the board.
- 7) Clean the tip of your soldering iron often with a wet sponge or brass sponge to remove oxidation. A clean and shiny tip ensures optimal heat transfer for easy soldering.

- 12) Carefully inspect each solder point to ensure that the solder has flowed onto the lead/wires and the solder pads. Each solder pad is plated through-hole (PTH) type, so make sure that you inspect the front and back sides of the board. Each connection on the front and back of the board should have solder covering each pad and flowing up the lead/wire. Reheat and correct any bad solder joints.



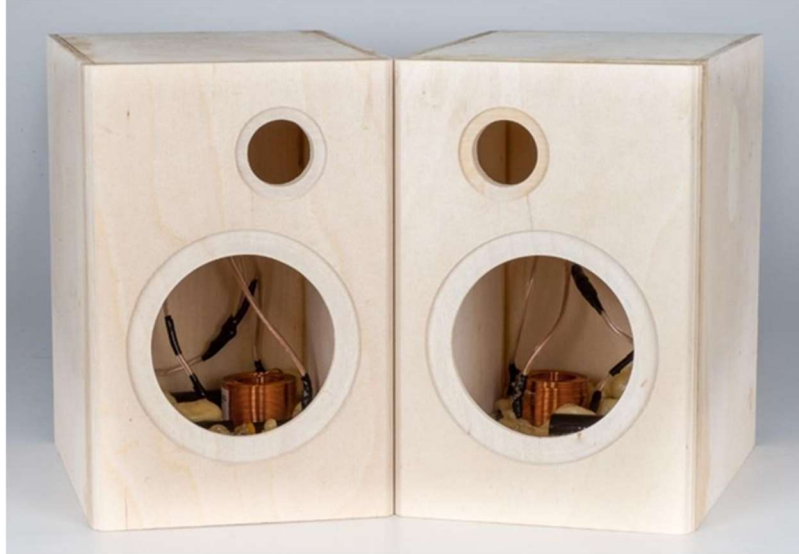
Trim all excess leads and wire from the back side of the crossover board using flush cutters (preferred) or wire cutters.

- 13) Secure the inductors in place by looping the included black 11" cable ties through the holes provided near each inductor. Tighten cable ties securely and trim off excess

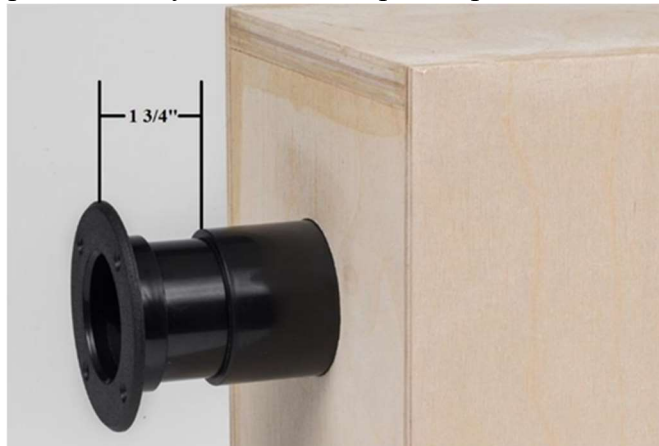


## Final Assembly:

- 14) Insert the assembled crossovers through woofer hole and glue crossover to the bottom of the enclosure (polyurethane glue, hot glue gun, or epoxy is recommended). Ensure all crossover components are securely held in place to prevent rattles.



- 15) Port installation is a little tricky as the adjustable end of the port does not completely fit through the hole. Begin by separating the **1-3/8" ID Adjustable Port Tube (K)** into two pieces. From inside the enclosure, slide the adjustable end through the port hole (only one side will fit as it has a slight taper). Next slide the flanged end of the port into the adjustable end and glue in place so that the flange is 1-3/4" from the adjustable tube for an overall length of 6". Now insert the port assembly and screw the port in place.



- 16) Install the **Binding Posts (N)**, and connect the input wires from the crossover while observing polarity (positive = red, negative = black)
- 17) Connect woofer wires to the **HiVi B4N 4" Aluminum Midbass (I)** terminals while observing polarity and set woofer in place. Using a screwdriver, secure woofer with screws just until tight being careful not to strip out the holes (a power drill is not recommended).



- 18) Connect tweeter wires to the **Dayton Audio ND20FA-6 3/4" Neodymium Dome Tweeter (J)** terminals while observing polarity and set tweeter in place. Press tweeter into opening until flange sits flush with the front baffle. If tweeter will not easily sit flush, set a wooden block on the tweeter flange and gently tap into place with a rubber mallet.
- 19) You are now ready to enjoy your Overnight Sensations.



**Overnight Sensations Crossover Schematic**

