

# PINWOODFER

**Copyright © SubDude Audio LLC, Idaho, USA. All Rights Reserved. Reproduction, transmission or redistribution of this document or its contents without written permission is prohibited.**

**Take your time, follow the instructions, relax, and enjoy yourself!**

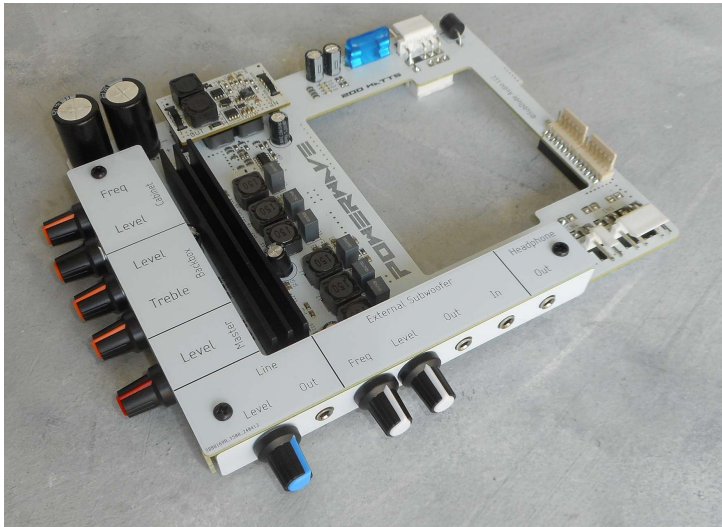
**WARNINGS: Perform installation with your pinball machine turned off and unplugged from AC power.**

# PINWOOFER

## PinWoofers – PowerWave Amplifier Installation Instructions

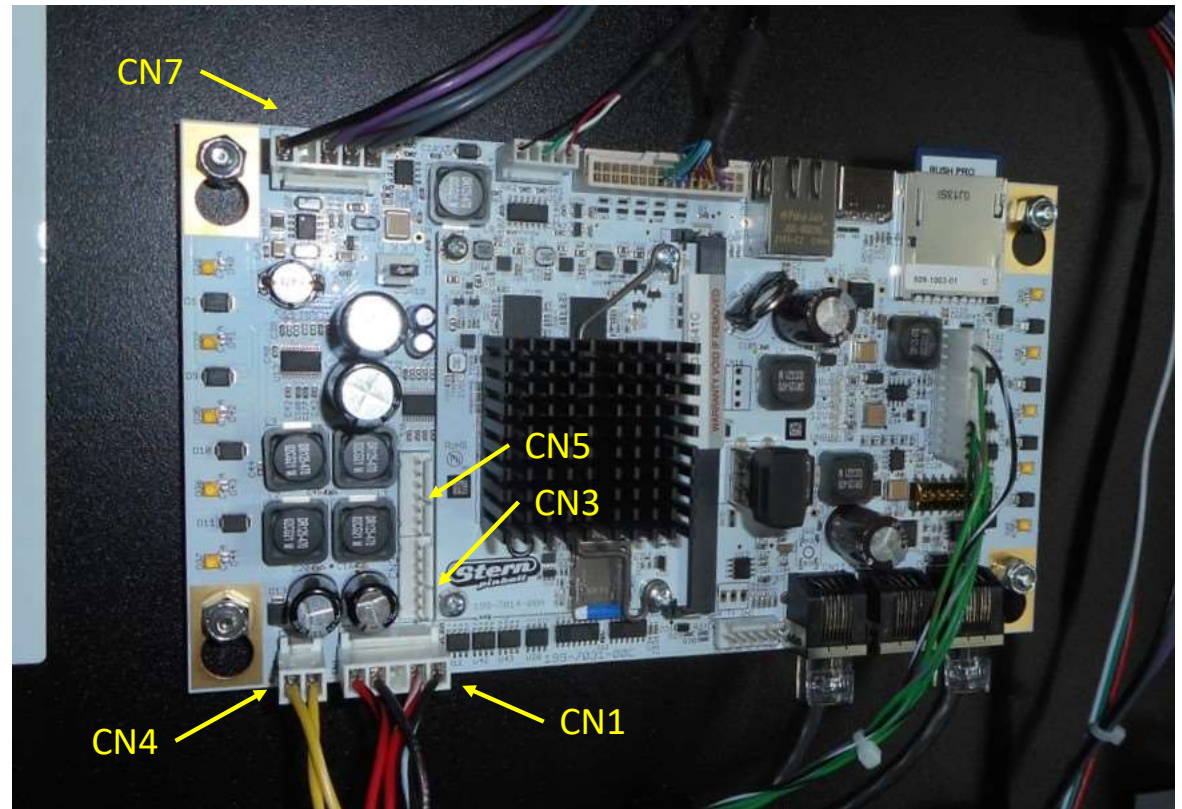
### Installation Video:

<https://youtu.be/ZL3i6v1wW0E>



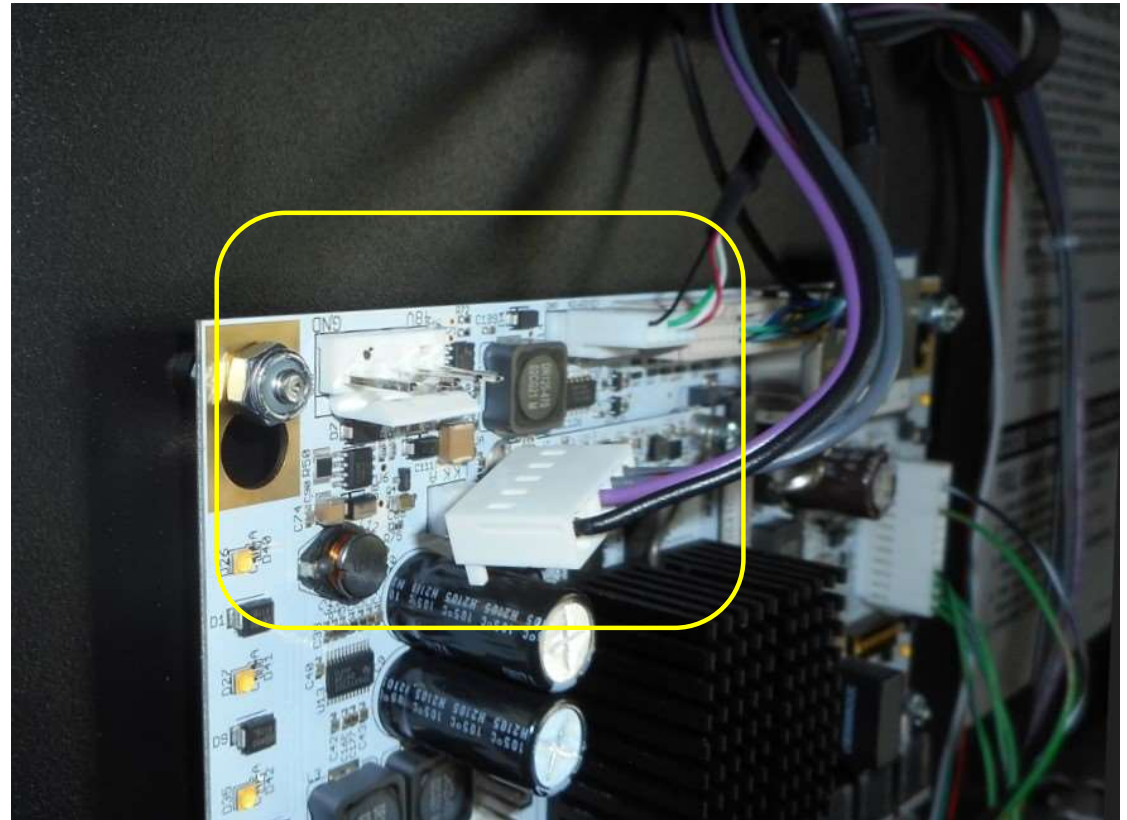
# Locate Factory Connectors

- Shown to the right are connectors:
  - CN7 - Power
  - CN1 and CN4 - Speakers
  - CN3 and CN5 – Audio IO
- Titles up to and including Iron Maiden Limited Edition have a 6-pin CN5 header.
- Iron Maiden Pro/Premium and later have a 7-pin CN5 header.
- Please take note of this since the CN3\_CN5 back side header may or may cover a top “7<sup>th</sup>” pin on the CN5 header.
- If you have a 6-pin header, simply let CN3\_CN5 backside header, top-most location, hover over the space that would otherwise have a 7<sup>th</sup> pin.
- More information at the below link:  
<https://pinwoofer.com/content/PW-Spike-2-6-pin-Versus-7-pin-CN5-Header.pdf>



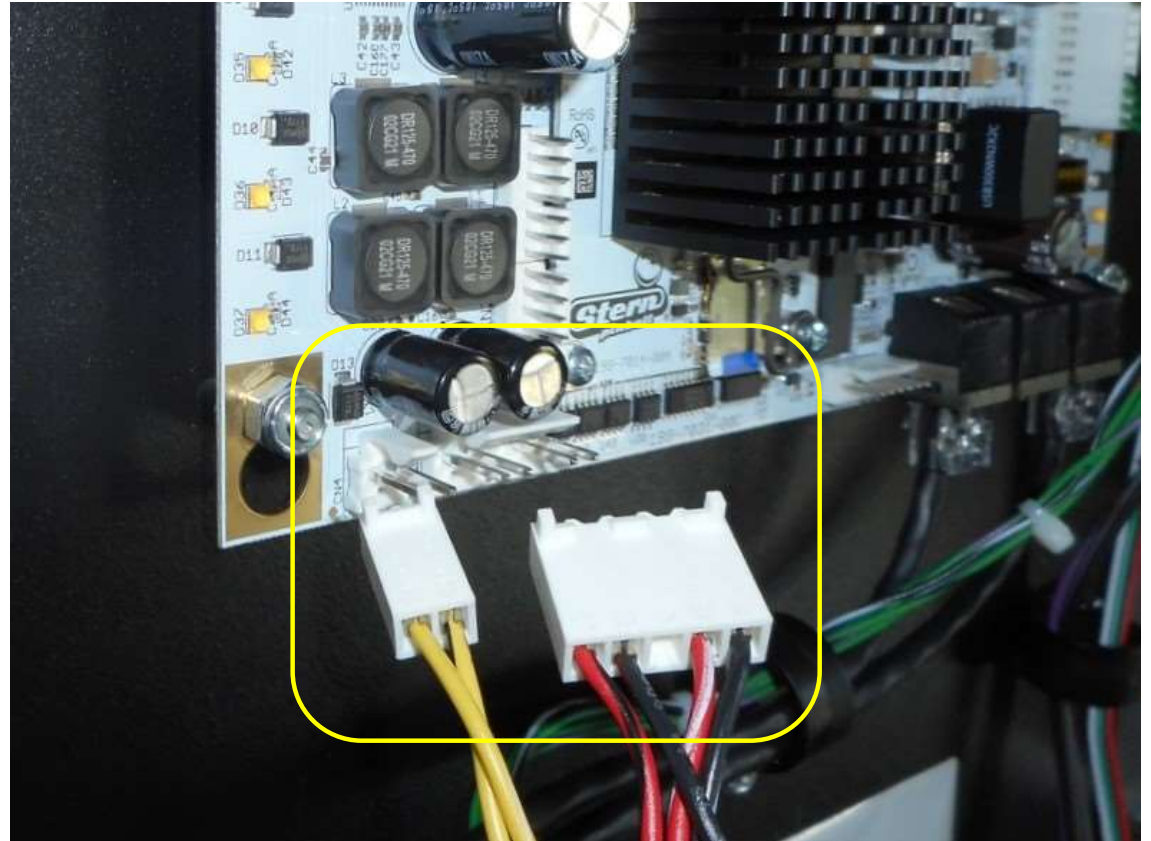
## Disconnect CN7

- As shown in the yellow box.



## Disconnect CN1 and CN4

- As shown in the yellow box.



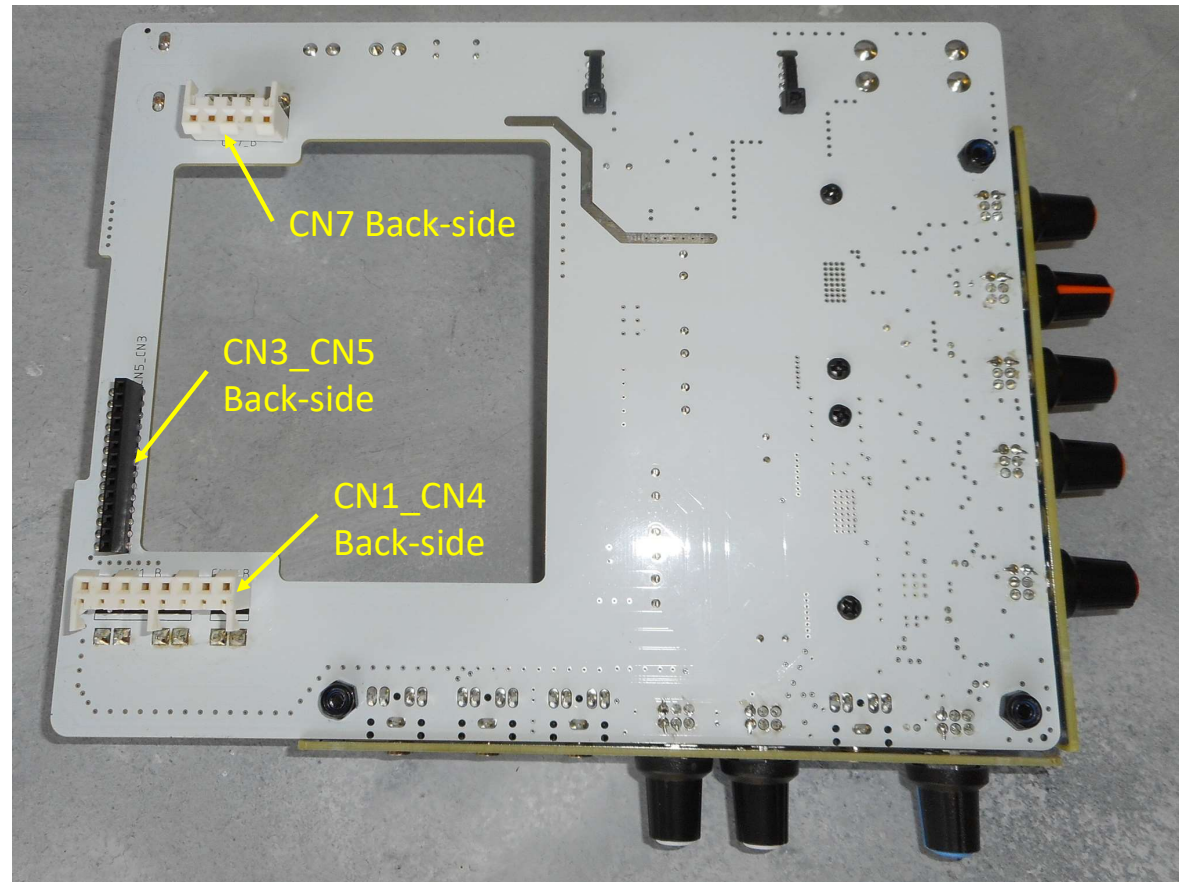
## Disconnect CN3 and CN5

- If you currently have something plugged to CN3 and CN5, disconnect those items now.

**PiNWOODFER**

## Back-Side Amplifier Connections

- CN7 back-side is a single female header as shown.
- CN3 and CN5 back-side are combined into a single female header, CN3\_CN5.
- CN1 and CN4 back-side are combined into a single female header, CN1\_CN4.



## Amplifier Support - 1

- Locate the kit item shown to the right.

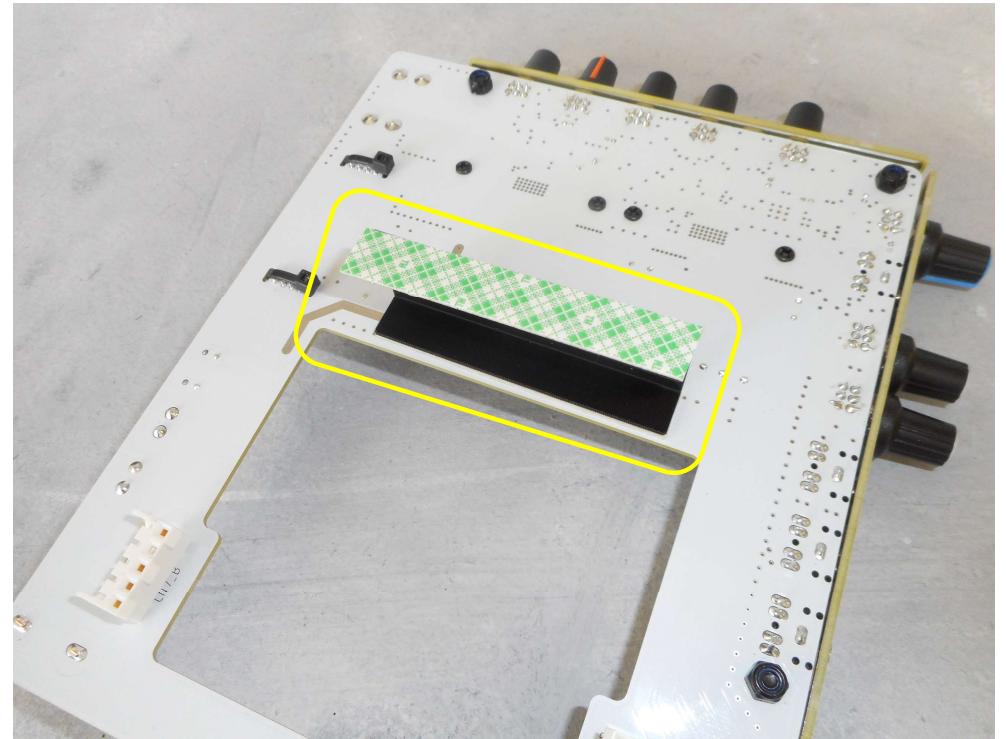


**PiNWOODFER**



## Amplifier Support - 2

- Tape one side of the support to the amplifier as shown in the yellow box.
- Do not remove the other tape cover (shown as green hatch), this will be done after the amplifier is docked.



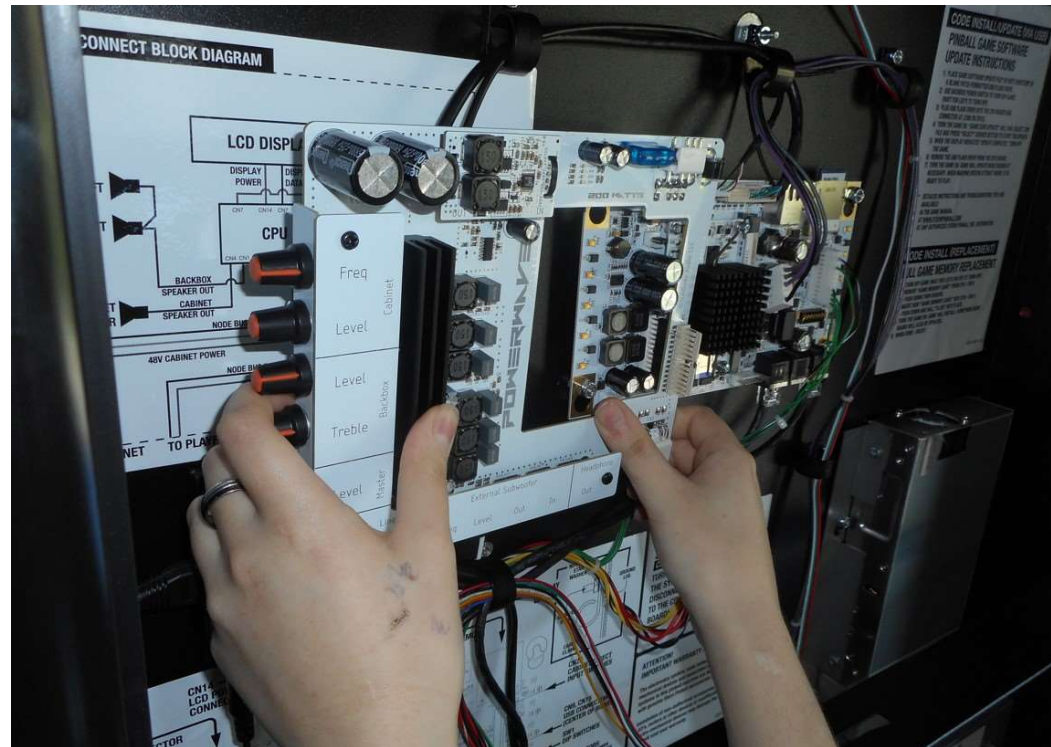
# Amplifier Docking

- Carefully read the subsequent seven slides (“Amplifier Docking 1 through 7”) before proceeding with the physical docking of the amplifier.

**PiNWOODFER**

## Amplifier Docking - 1

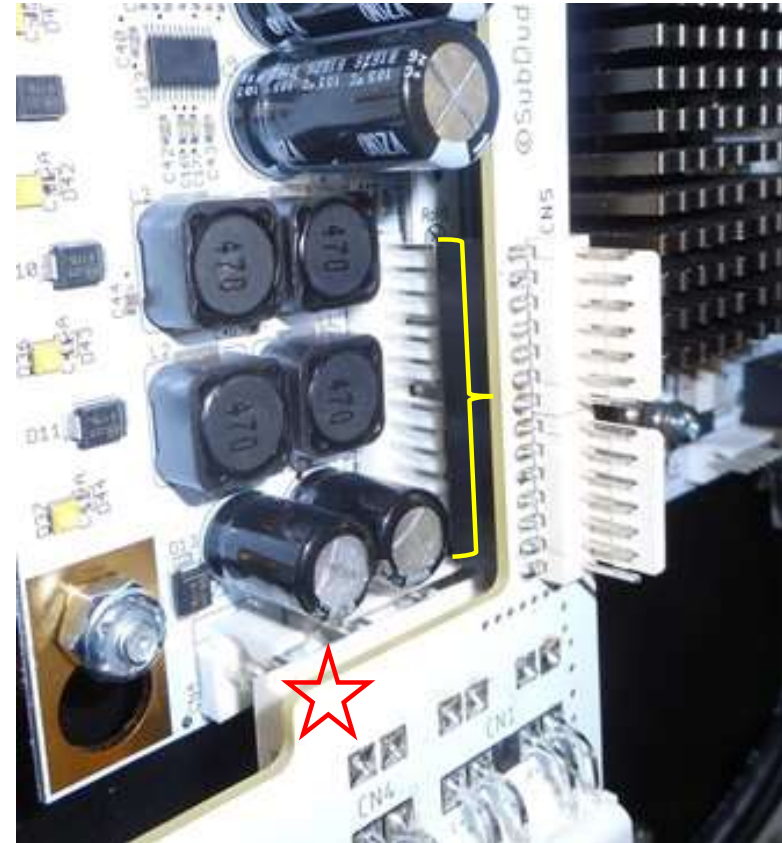
- Stage the amplifier by holding it up as shown and prepare for docking in subsequent steps.



**PINWOOFER**

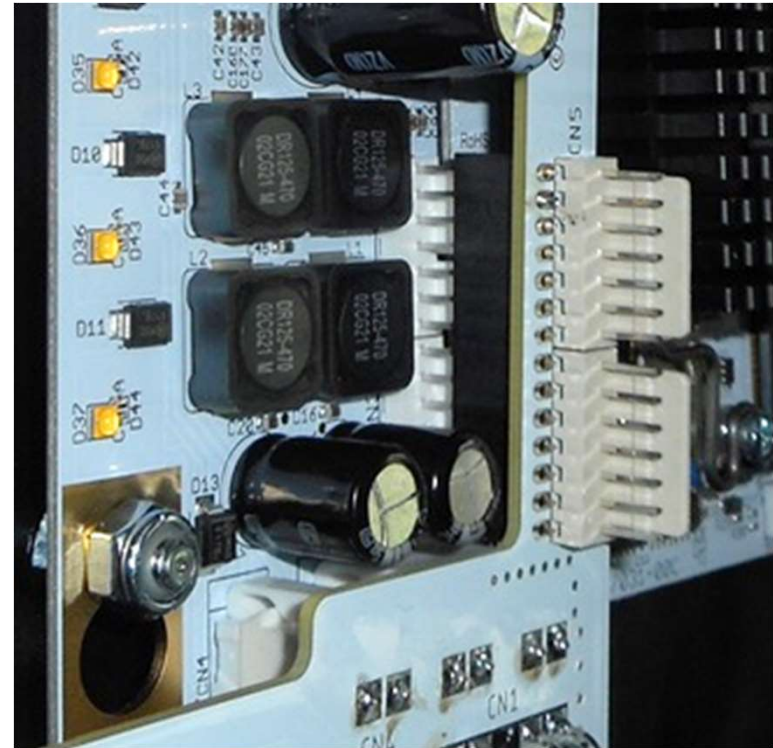
## Amplifier Docking - 2

- Do not yet dock the amplifier, but rather, carefully prepare for docking by inspecting the pin to header alignments as described next:
  1. Carefully inspect the CN3\_CN5 back-side female header and ensure that the female header holes are aligned, as indicated by the yellow brace.
  2. Pre-align the header to connector docking point at the CN1\_CN4 back-side header at the location indicated by the red star.
- It is helpful to press / stage the header pins slightly into the female header socket holes.



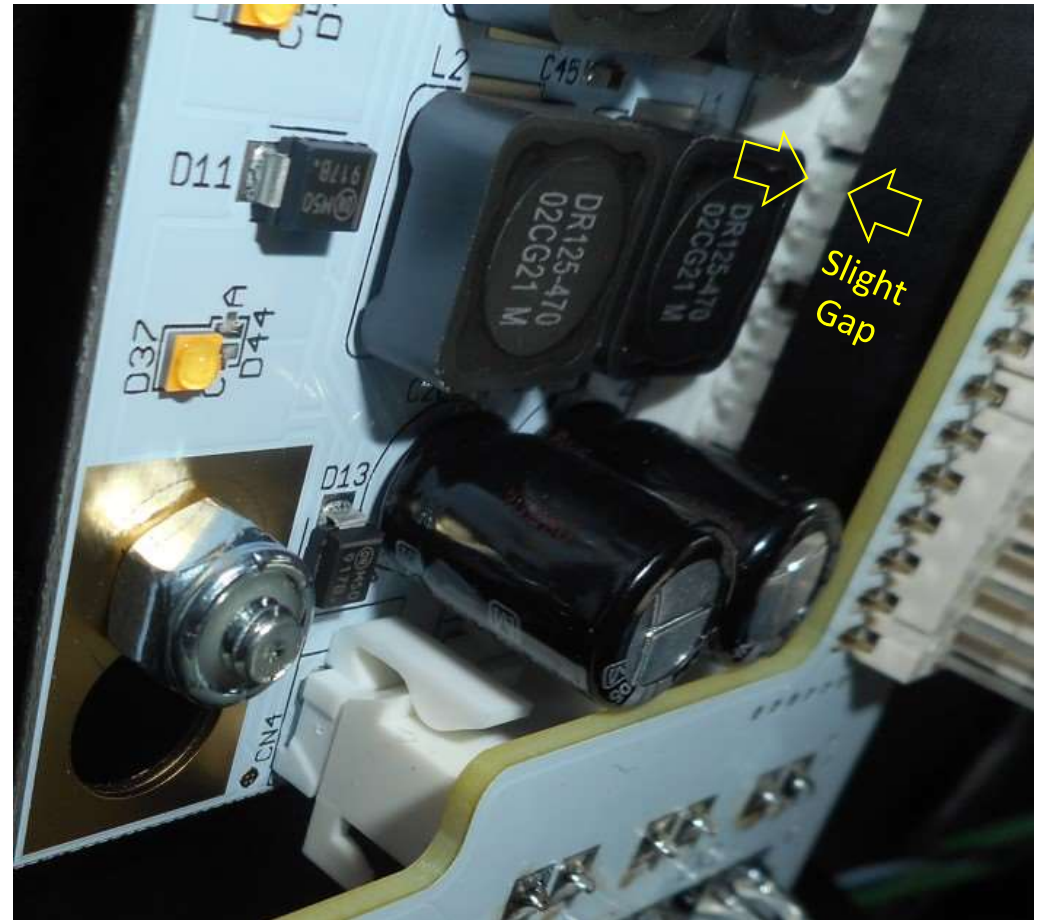
## Amplifier Docking - 3

- The below sequence is overly described, so don't over-think this process if you are confident in what you are doing.
- Begin to press the CN1\_CN4 female header into the CN1 and CN4 pins.
- As you do this, expect the CN3\_CN5 backside header to naturally engage their associated pins because of the close proximity to CN1\_CN4.
- As you press CN1\_CN4 into place, it is advisable to apply some pressure to the CN3\_CN5 header also, so that it starts to dock.
- Let the docking process "happen" as you apply pressure.
- Continue until the CN1\_CN4 female header is fully inserted.
- The CN3\_CN5 header connection may not yet be fully docked as shown to the right: it may "sit" at an angle.
- Proceed to the next step.



## Amplifier Docking - 4

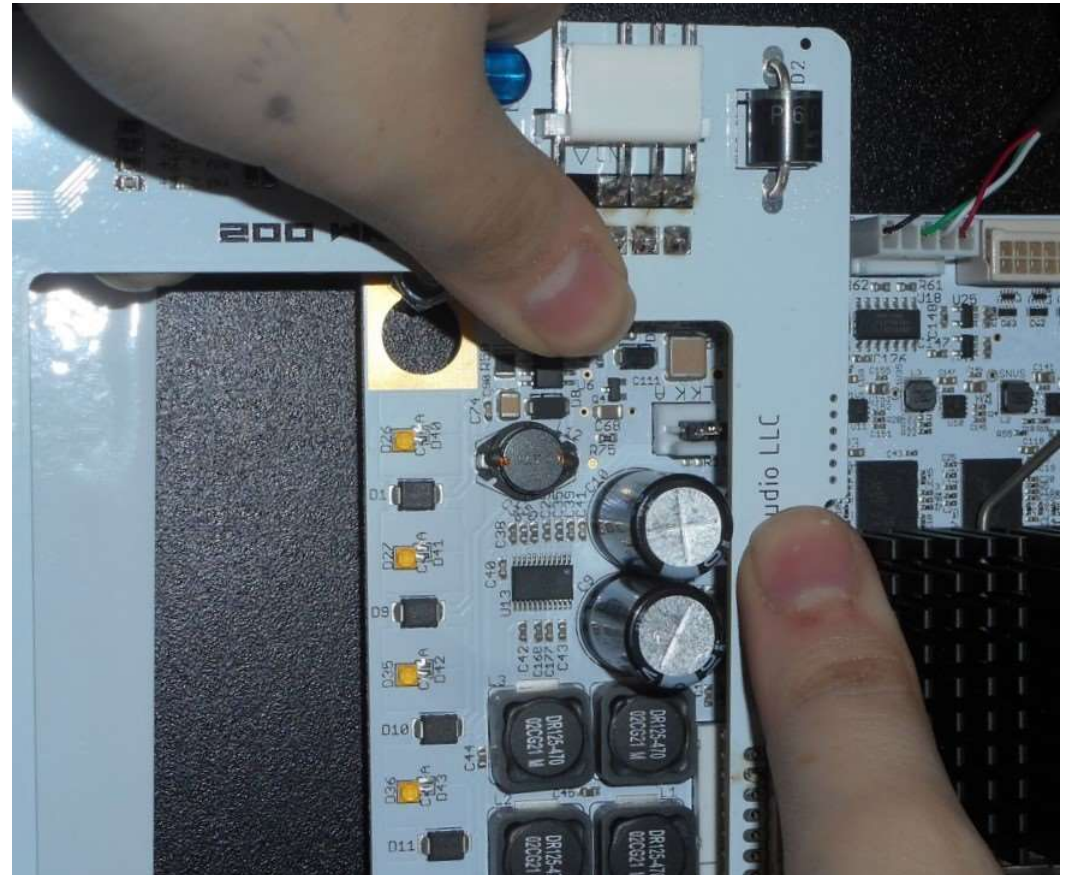
- Press the amplifier PCB into the remaining travel of the CN3\_CN5 backside dock.
- When complete, there will be a slight gap and exposed header pins as shown. This is normal.





## Amplifier Docking - 6

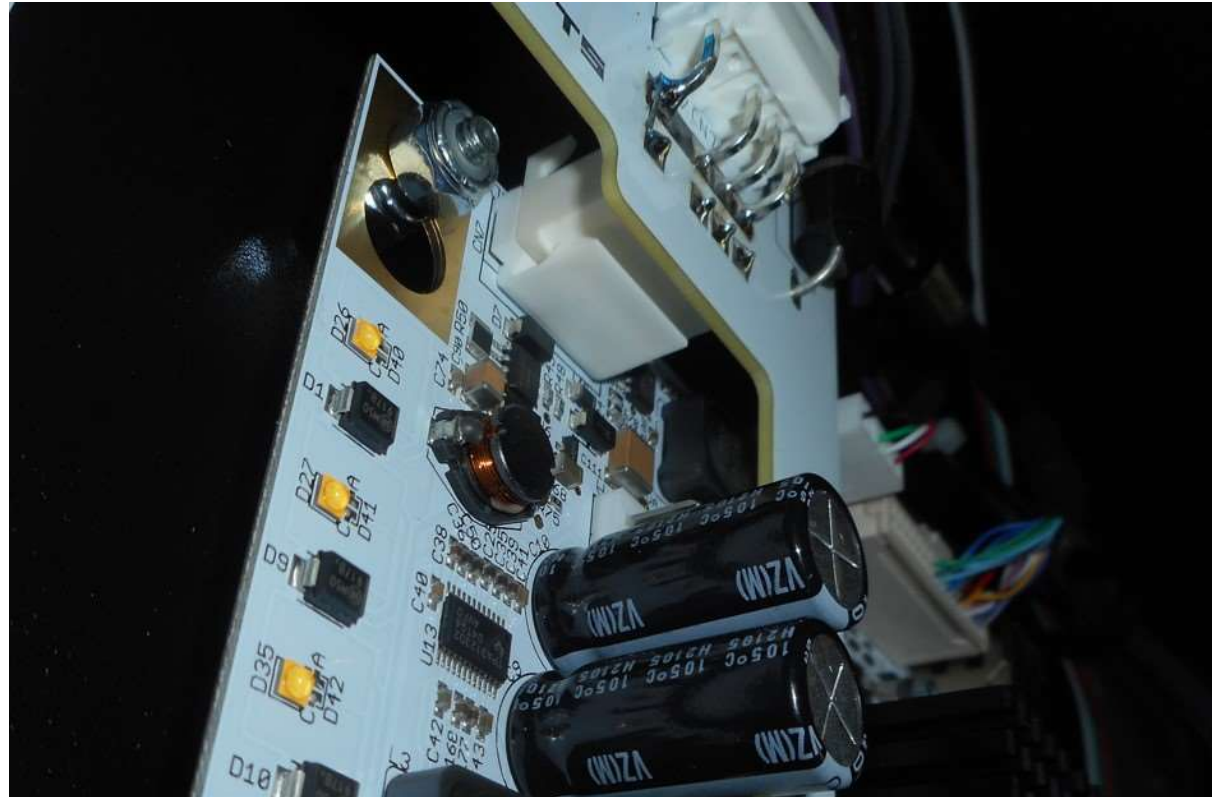
- Finalize the CN7 connection as shown, by pressing the headers together.





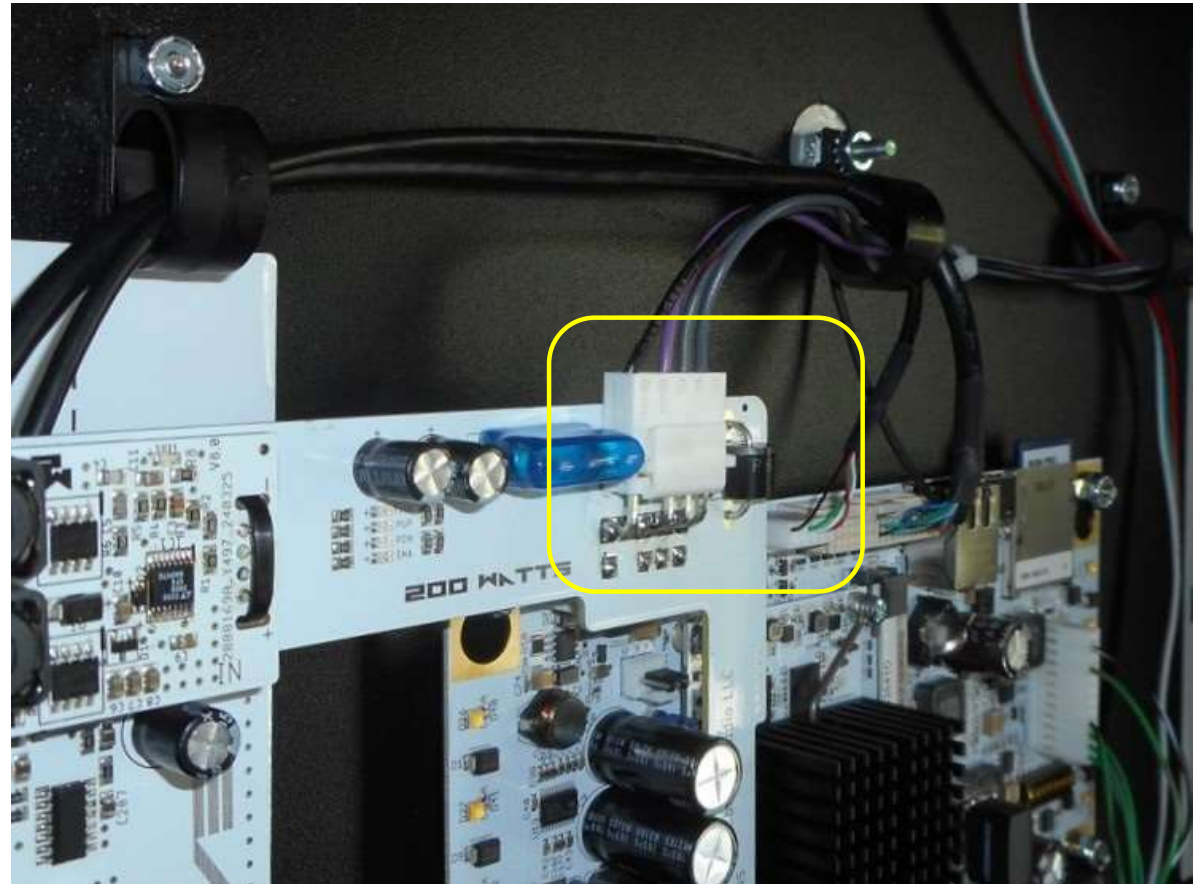
## Amplifier Docking - 7

- Completed CN7 dock shown to the right.



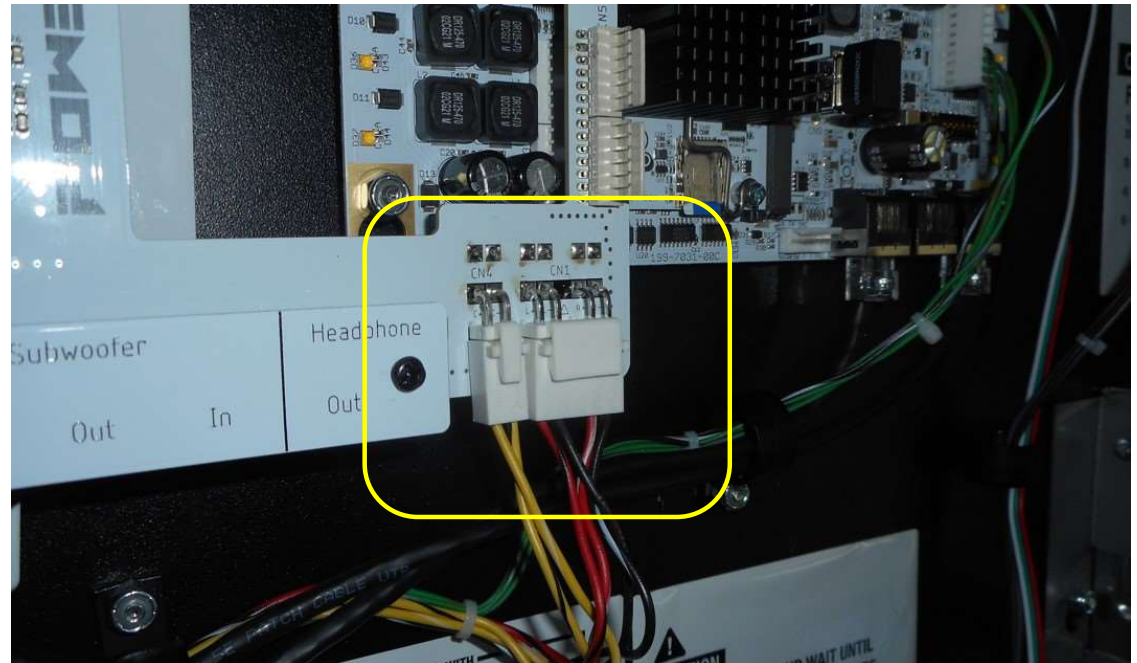
## Plug CN7

- Plug the factory CN7 connector into the CN7 Amplifier Header as shown in the yellow box.



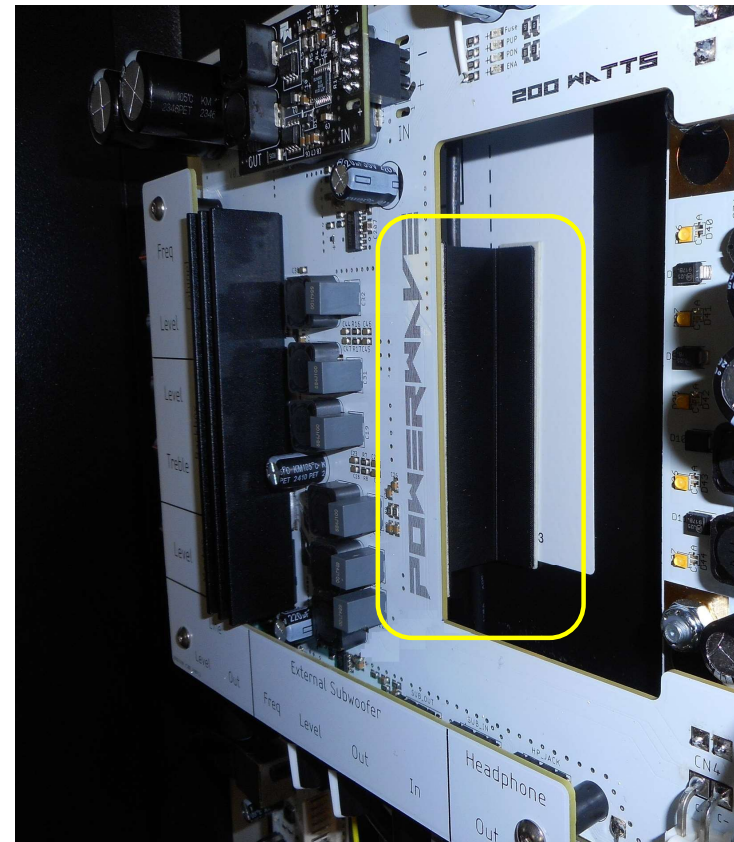
## Plug CN1 and CN4

- Plug the factory CN1 and CN4 connectors into the CN1 and CN4 Amplifier Headers as shown in the yellow box.



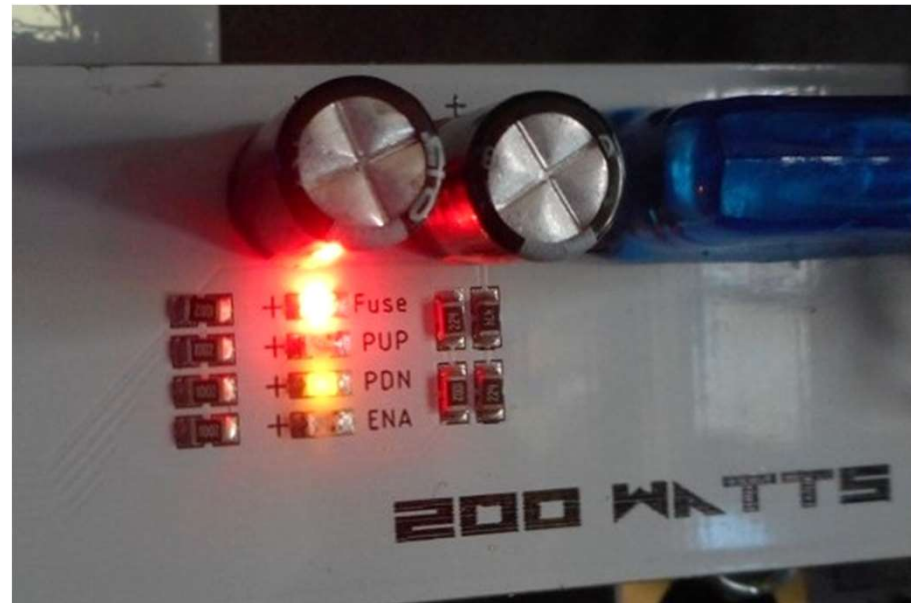
## Secure the Amplifier

- Tape the amplifier support as shown in the yellow box.
- Apply a slight pressure to the support to set the tape adhesive.



## Power-Up - 1

- Power up the machine.
- You'll see a red LED glowing that indicates the fuse is good (labeled "Fuse").
- You'll see a yellow LED glowing that indicates that the amplifier power-down circuit is armed (labeled "PDN").
- Allow 30-40 seconds to elapse before audio is enabled.
  - This is a standby period during which, the amplifier is muted for soft power-up.
  - A typical Spike-2 title takes between 20 and 30 seconds to boot. (This time can vary if the coin door is open.)



**PINWOOPER**

## Power-Up - 2

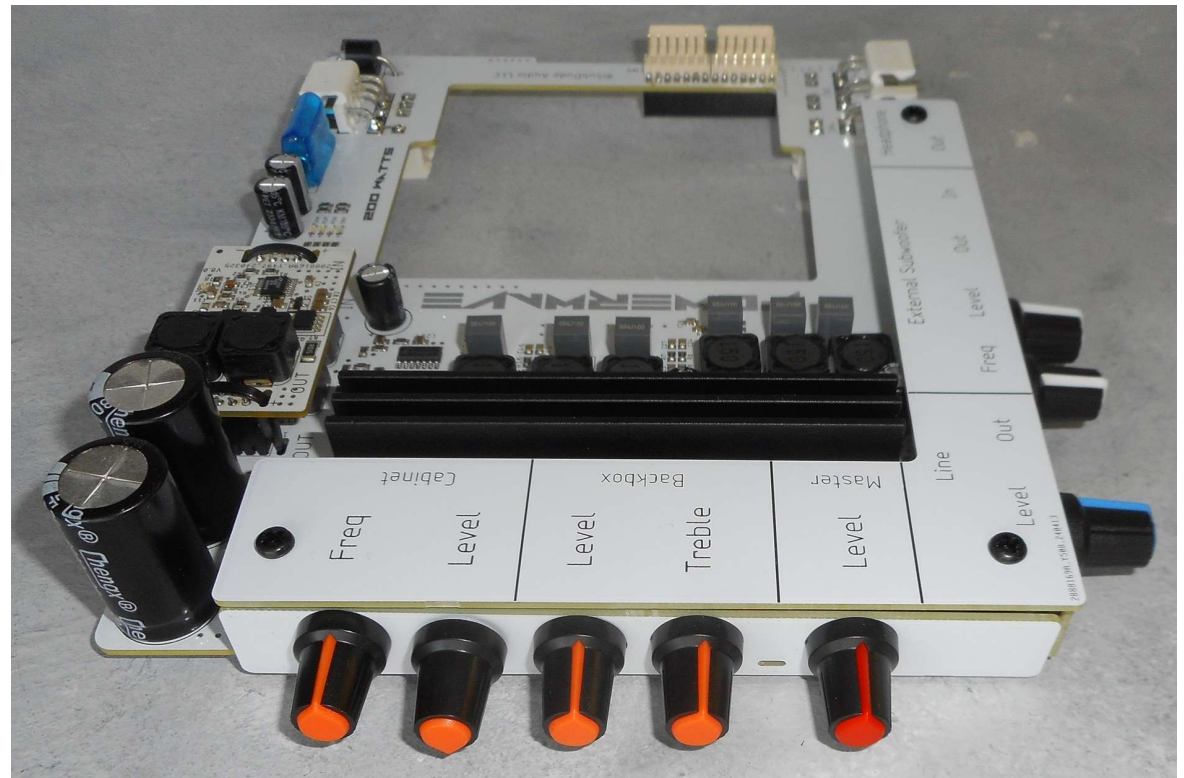
- When audio is enabled, you'll see a blue LED glowing that indicates power-up is complete (labeled "PUP").
- You'll see a green LED glowing that indicates that the amplifier audio is enabled (labeled "ENA").



**PINWOOFER**

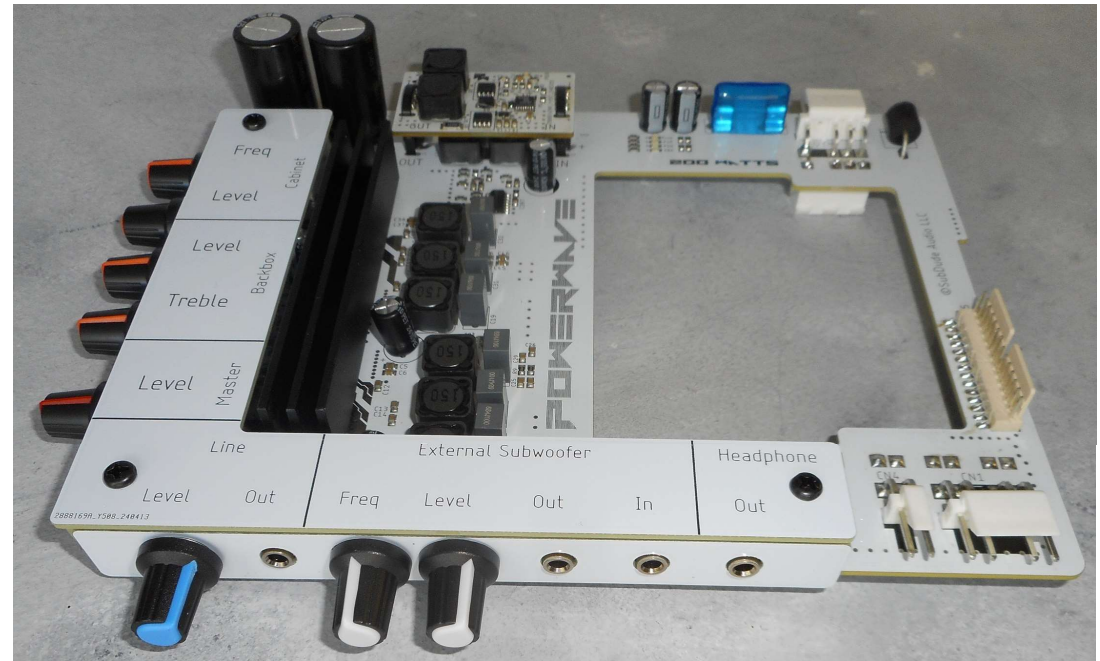
# Amplifier Controls - 1

- Cabinet Section:
  - Freq = Cabinet Woofer Bass Cutoff Frequency
  - Level = Cabinet Woofer Volume
- Backbox Section:
  - Level = Backbox Volume
  - Treble = Backbox Treble Level
- Master Section:
  - Level = Combined Amplifier Volume
- Audio Adjustment:
  1. Place your controls in the recommended "starting" positions as shown.
  2. Set these control positions before you begin to fine-tune your audio.
  3. Select a service menu volume of 35, and make sure that your backbox speaker impedance is set to 8 Ohms.
  4. It is strongly recommended that you make fine adjustments to only the Backbox Section, and Master Volume, first. This will allow you to attain a good amplitude balance between the cabinet woofer and backbox.
  5. Get your machine sounding good before attempting to add an external subwoofer.



# Amplifier Controls - 2

- Line Section:
  - Level = Line Output Volume:
    - This is a “pro” or “studio” output level
    - For streaming or other external use on consumer audio equipment and for best results, run this control at the position shown as a maximum, or lower / more counterclockwise.
    - Failing to observe the above recommendation can run a “hot” signal to your external device.
  - Out = TRS 3.5mm Stereo Output Jack
- External Subwoofer Section:
  - Freq = External Subwoofer Bass Cutoff Frequency
  - Level = External Subwoofer Volume
    - This is a “pro” or “studio” output level so use the same general guidance provided in the “Line Section” above.
  - Out = External Subwoofer Output Signal
  - In = External Subwoofer Input Signal (used for External Subwoofer sharing).
- Headphone Section:
  - Out = TRS 3.5mm Stereo Output Jack
    - TRS R/L/G only
    - Not CTIA or OMTP compatible (CTIA or OMTP compatibility is typically implemented on an outside of coin door headphone station).



**PINWOOFER**



**FINWOODSER**

**End of Document**