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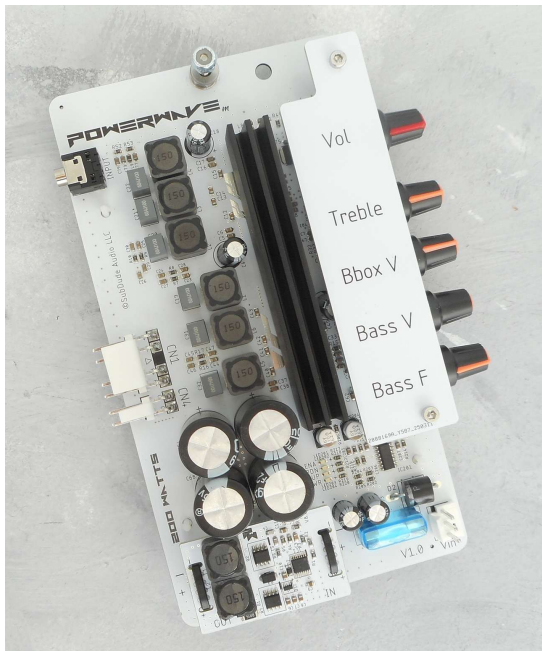
**Take your time, follow the instructions, relax, and enjoy yourself!**

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

# PINWOOFER

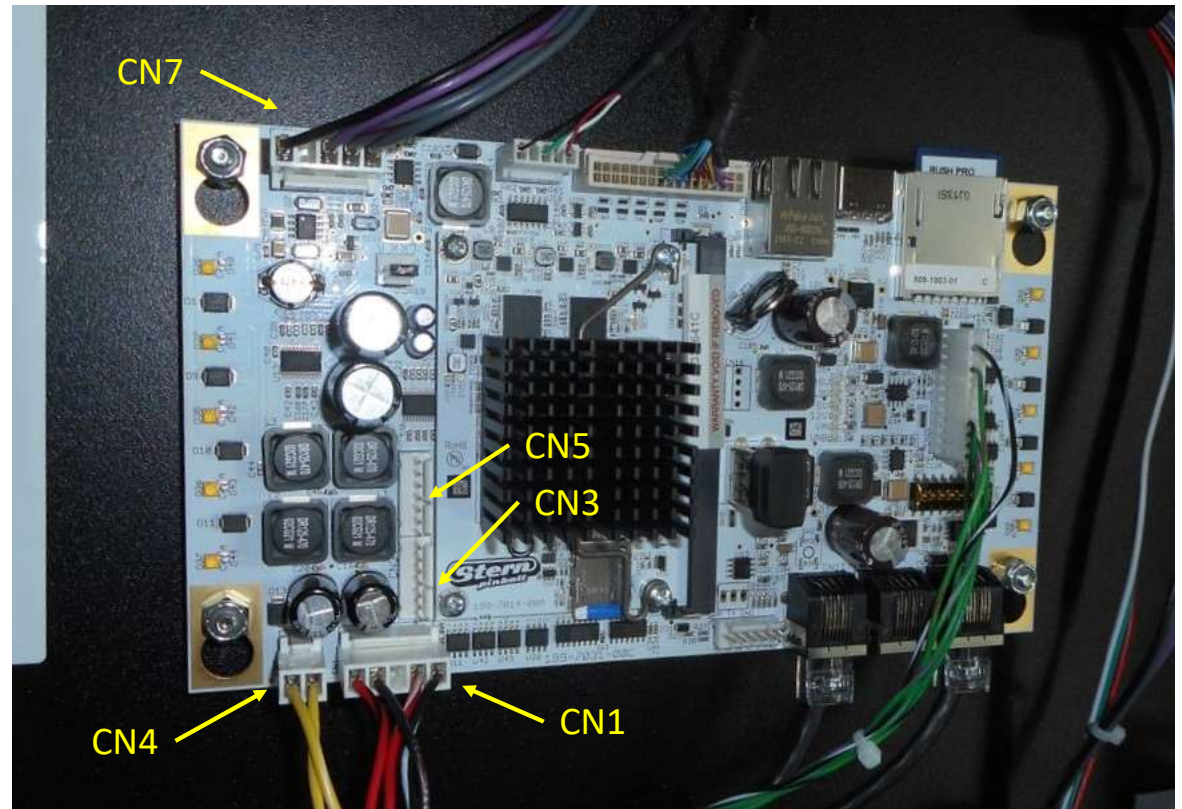
## PinWoofers – PowerWave Mini Amplifier Installation Instructions

**Installation Video:**



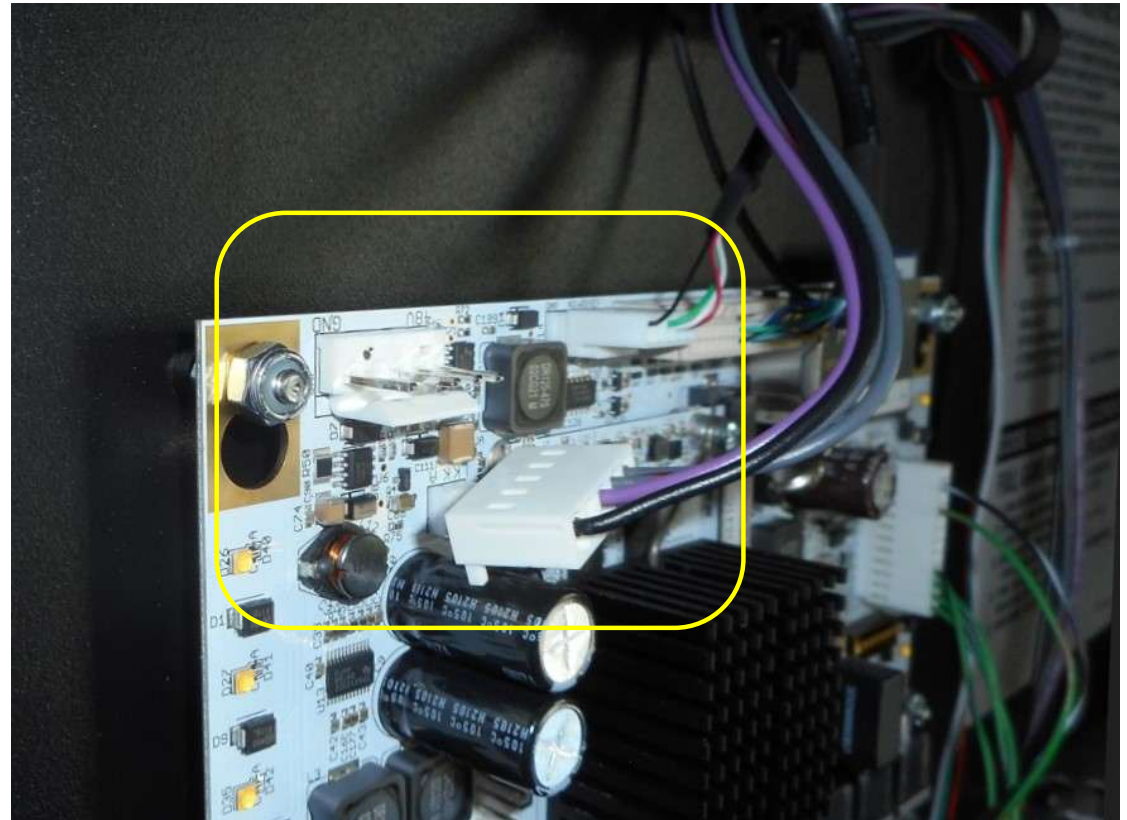
# Locate Factory Connectors

- 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>



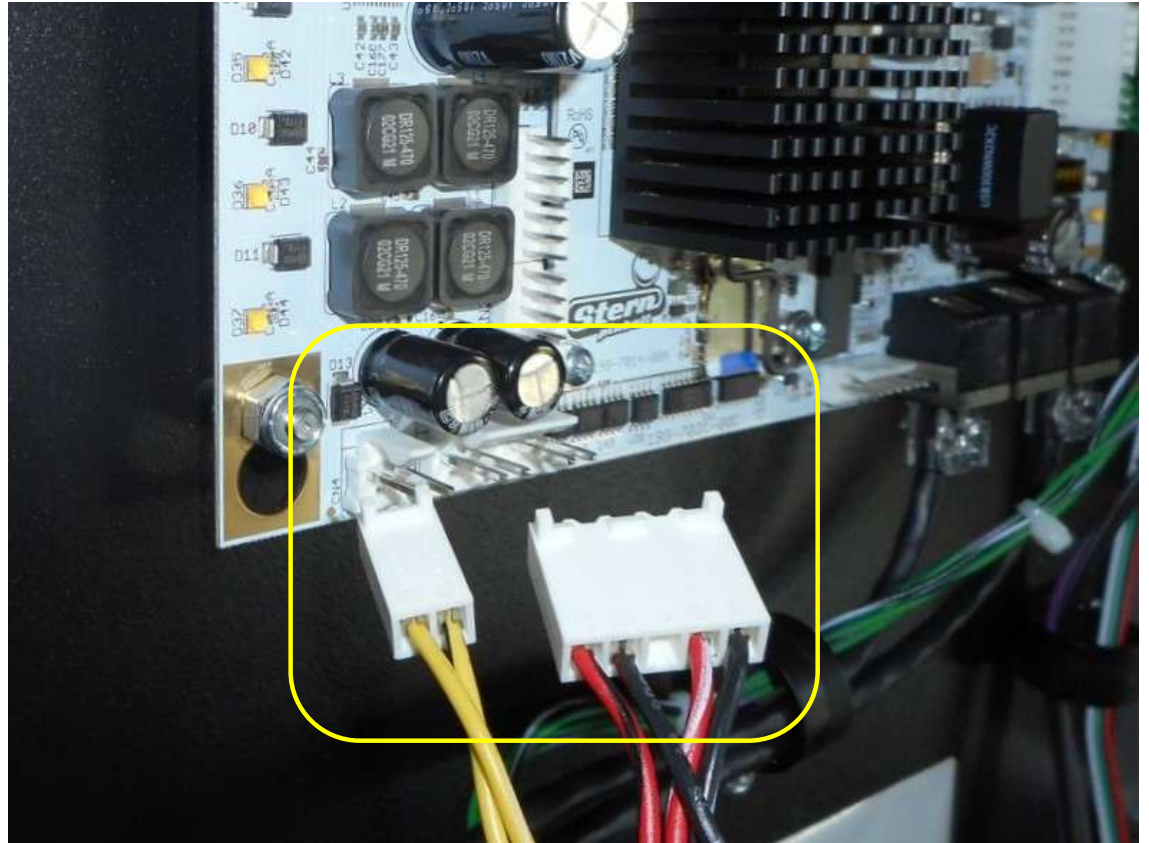
## Disconnect CN7

- As shown in the yellow box.



## Disconnect CN1 and CN4

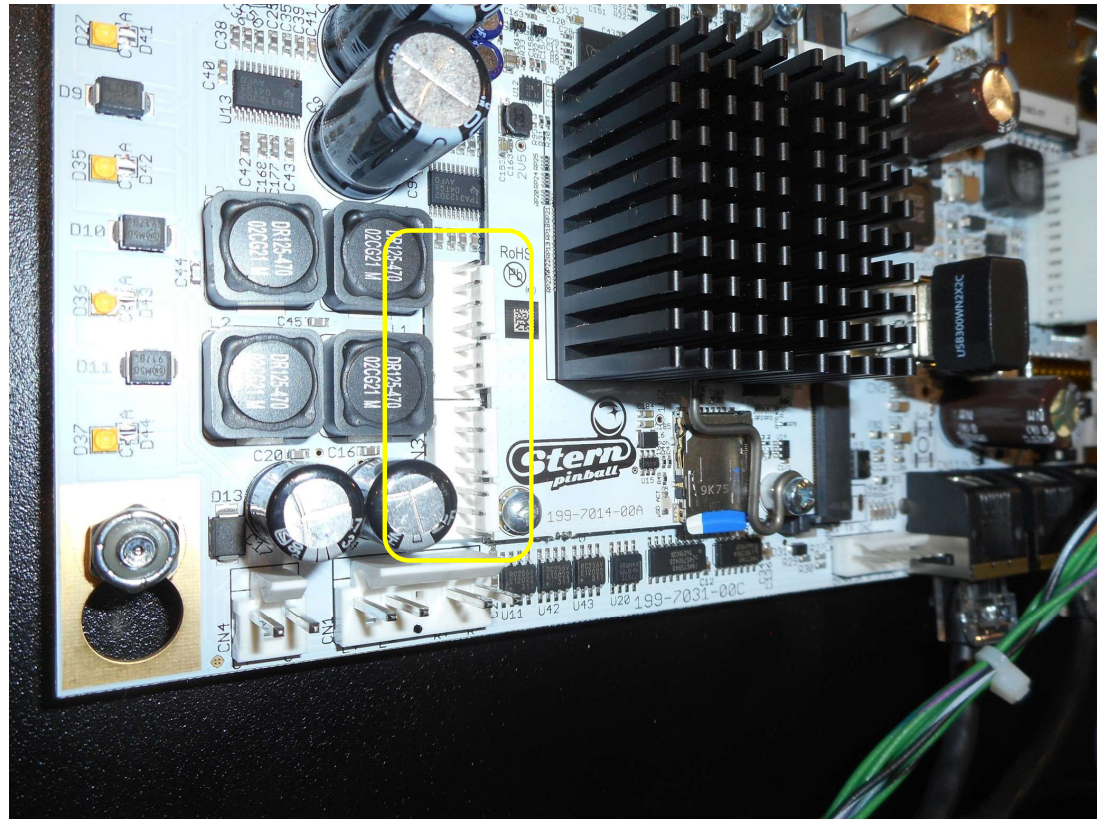
- As shown in the yellow box.





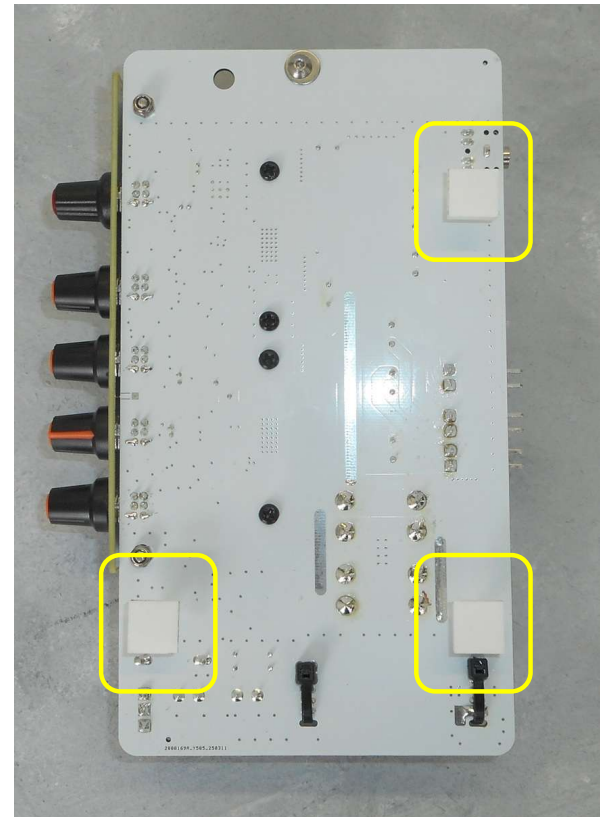
## Disconnect CN3 and CN5

- If you currently have something plugged to CN3 and CN5, disconnect those items now.
- CN3 and CN5 are shown to the right, in the yellow box.
- Those items can be re-connected later.



## Back-Side Amplifier Stand-Offs – 1

- On the back-side of the amplifier, locate the three Stand-Offs.
- Each Stand-Off has an adhesive pad.



## Back-Side Amplifier Stand-Offs – 2

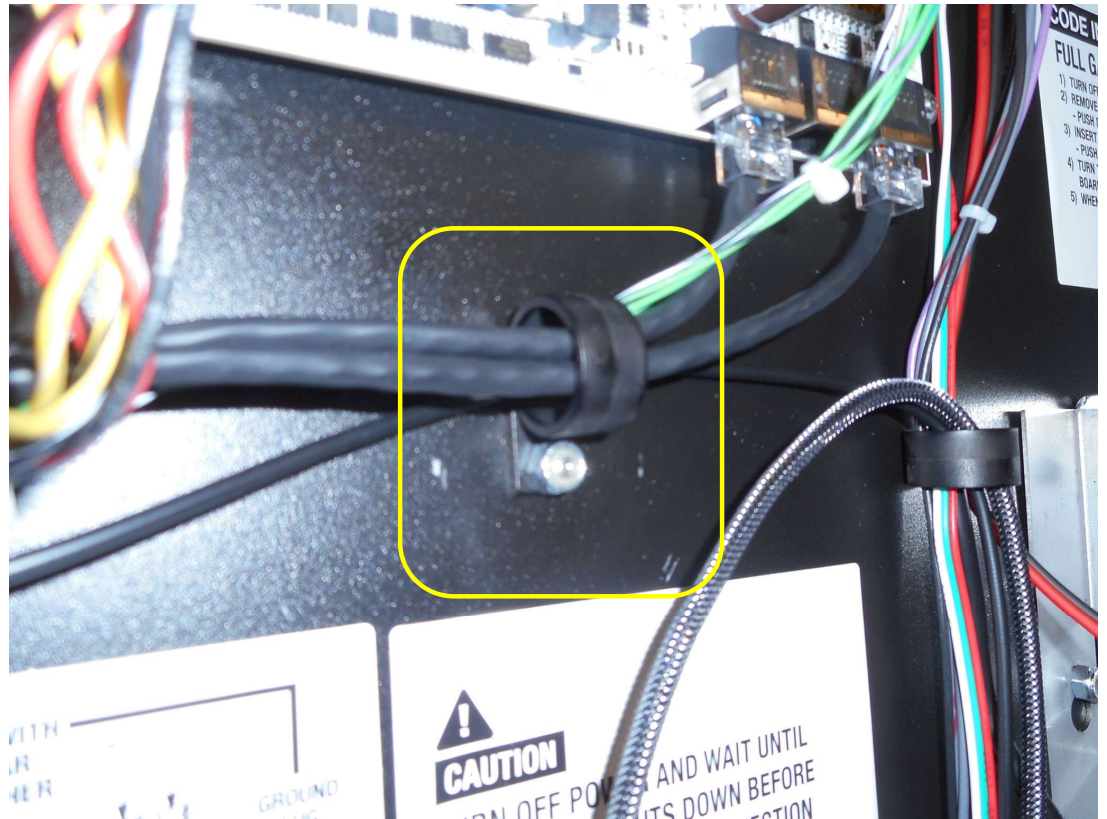
- Peel back half of the adhesive cover on each of the three Stand-Offs.
- Fold the paper back; this will make a later installation step easier.





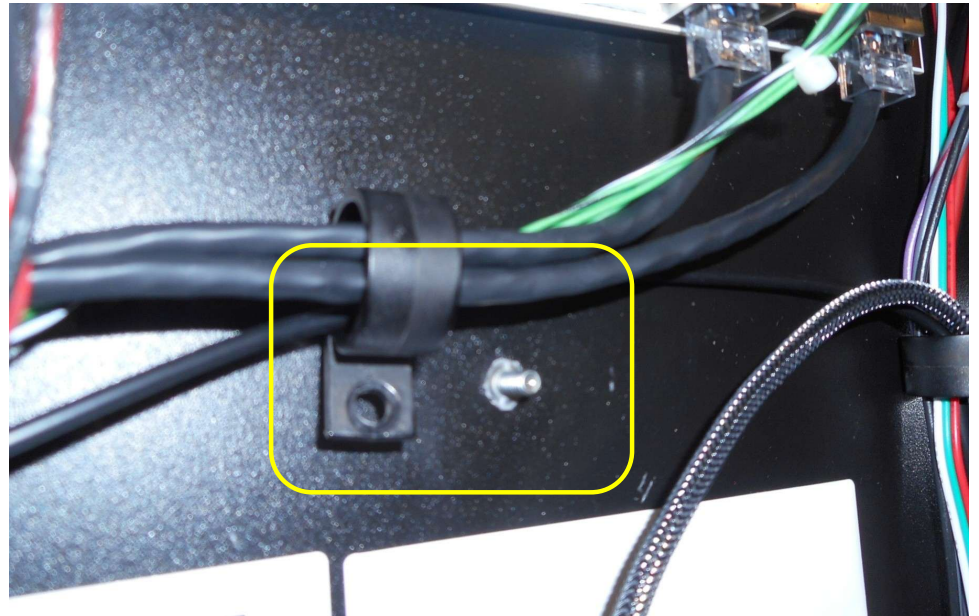
## Amplifier Mounting - 1

- Locate the stud and wire loom located under the CPU Node Board as shown in the image to the right.
- This stud will be utilized to mount your new Amplifier.



## Amplifier Mounting - 2

- Remove the nut and any washers present on the stud and wire loom.
- Set any nuts and washers aside, they will not be needed for the remainder of this installation.



## Amplifier Mounting - 3

- Locate the bag containing the Mounting Fasteners as shown to the right.
- Set these items in a secure place like a tray, etc., but ready for easy retrieval.
- As you work, be mindful of not dropping these pieces since they are not readily replaceable at a local retailer and are vital for your installation.



## Amplifier Mounting - 4

- Stage the binding screw and washer as shown in the red box.
- Keep this convenient for a later step.





## Amplifier Mounting - 5

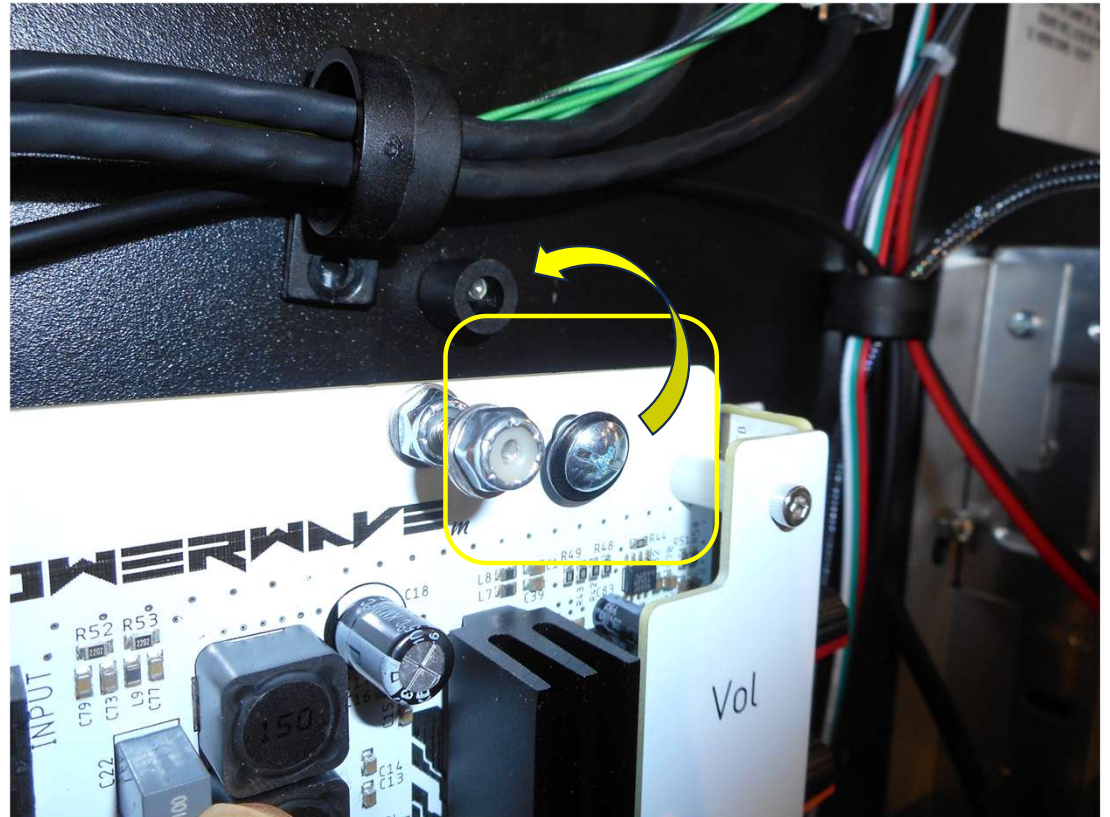
- Carefully place the provided ABS Spacer over the exposed stud as shown.
- As you proceed to the next step be aware that this piece can fall off easily.
- You can use a piece of tape to temporarily hold the spacer in place if desired to avoid dropping it into the machine or elsewhere.





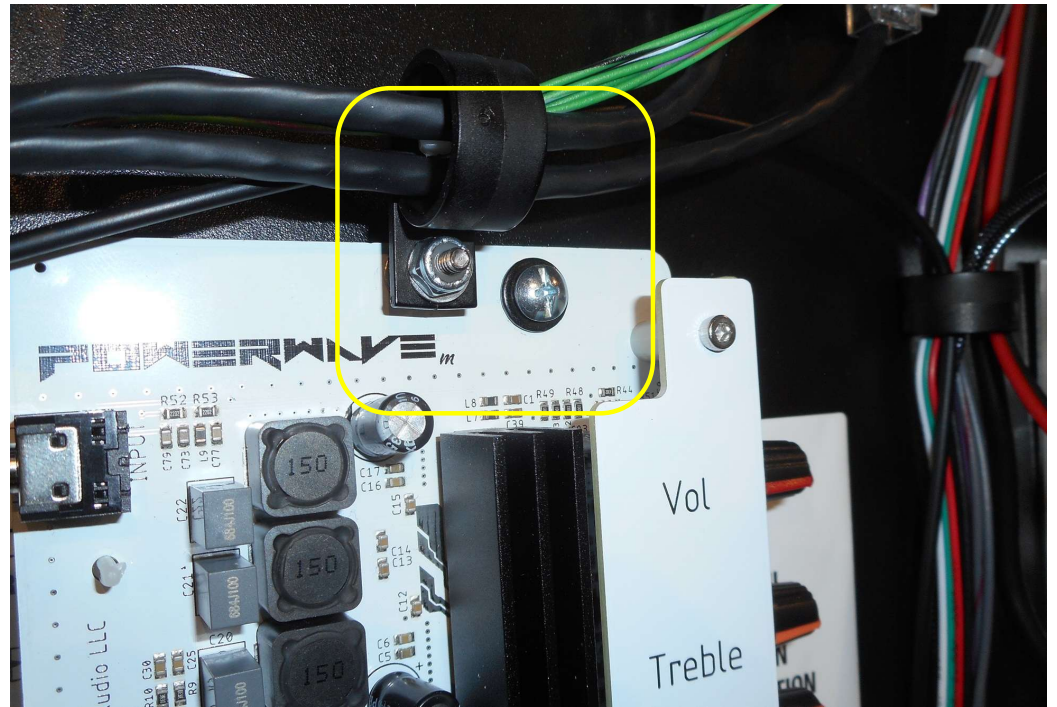
## Amplifier Mounting - 6

- Place the binding screw and washer into the amplifier mounting hole as shown.
- Carefully move the binding screw over and into the ABS Spacer.
- Start the binding screw over the threaded stud, first turning counterclockwise until you hear / feel the threads slip into position.
- Gently turn the binding screw clockwise using your fingertips, threading the screw over the stud to the greatest length possible.
- Turn until finger tight.
- Recall the stand-off tape is partially exposed. After starting the binding screw by hand, level the amplifier with respect to the CPU Node Board and press into place.
- Complete tightening with a screwdriver. Tighten until secure, but do not apply excessive force.



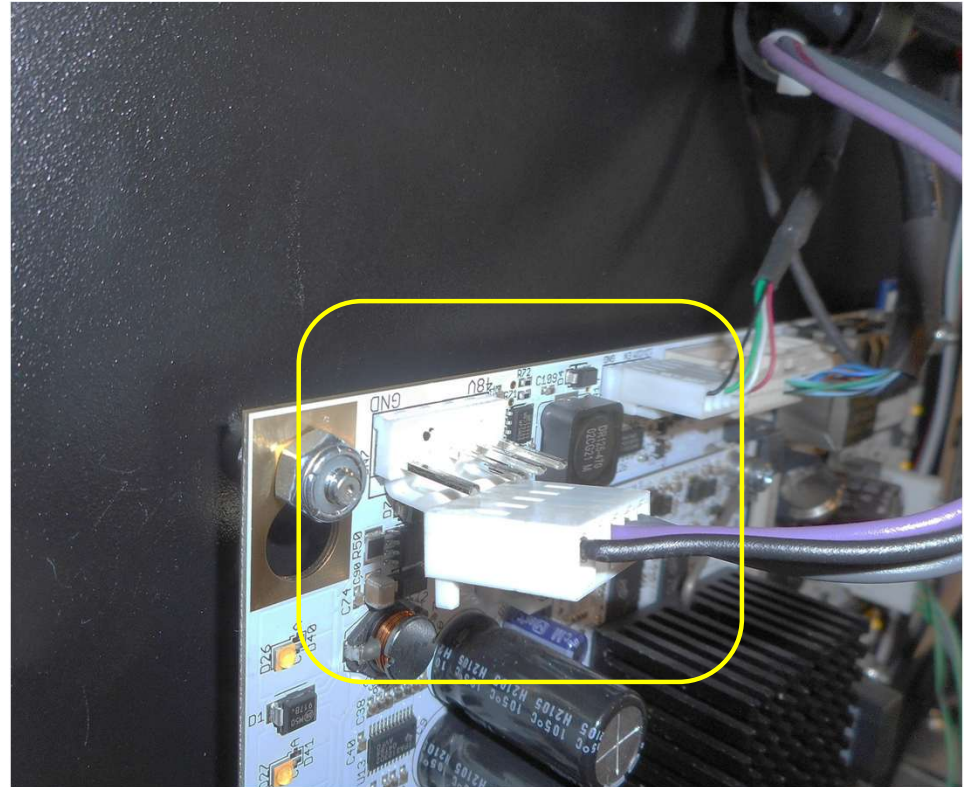
## Amplifier Mounting - 7

- Replace the wire loom over the amplifier stud as shown.
- Hand tightening is all that's required.
- Your completed work should look like the image.



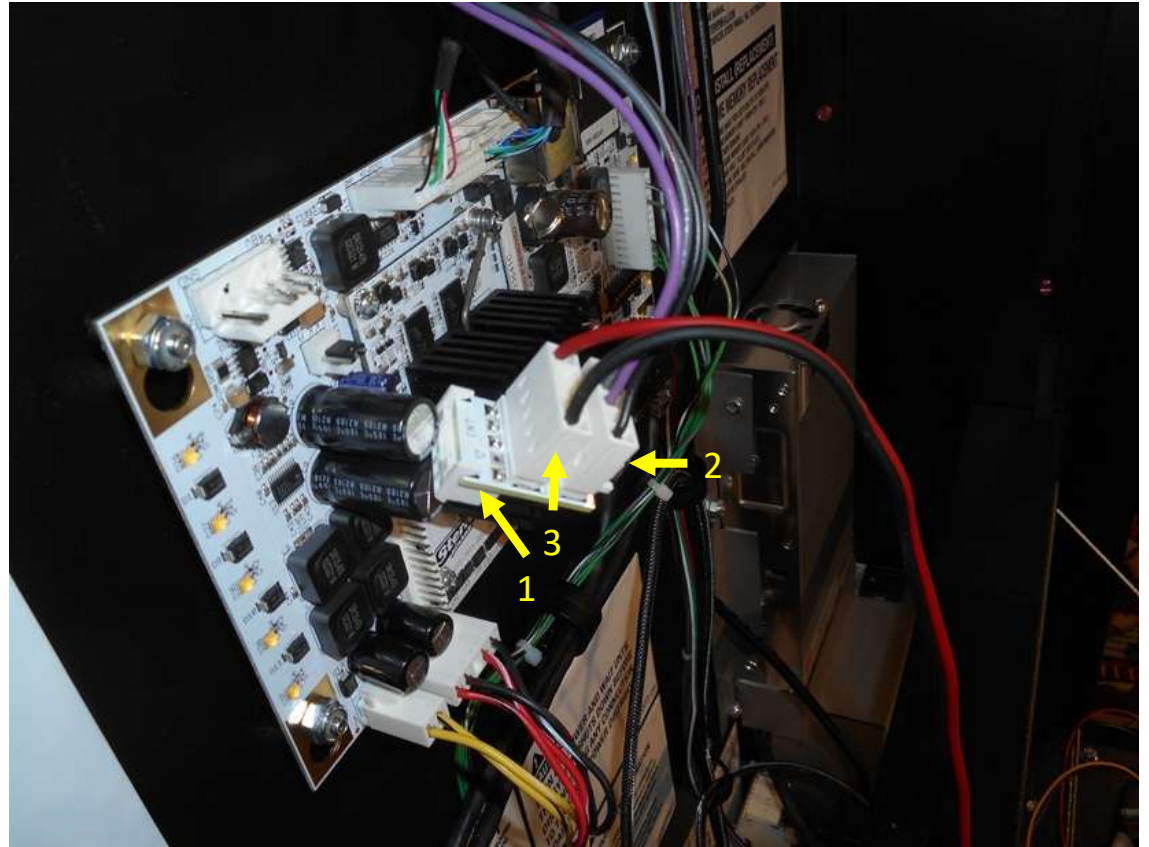
## Power Connection - 1

- Locate CN7 at the upper-left hand side of the CPU Node Board and its associated connector as shown.



## Power Connection - 2

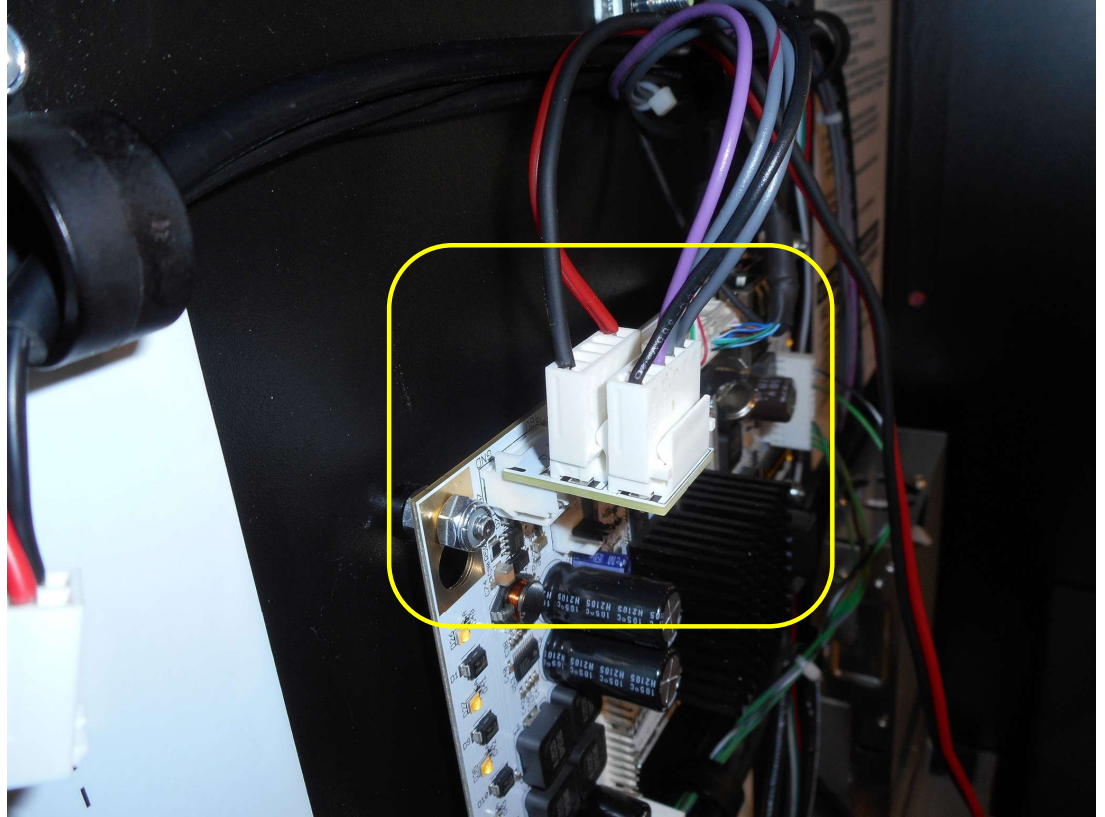
1. Locate the supplied power board.
2. Plug the factory connector into the power board as shown.
3. Plug the supplied RED / BLACK connector into the power board as shown.





## Power Connection - 3

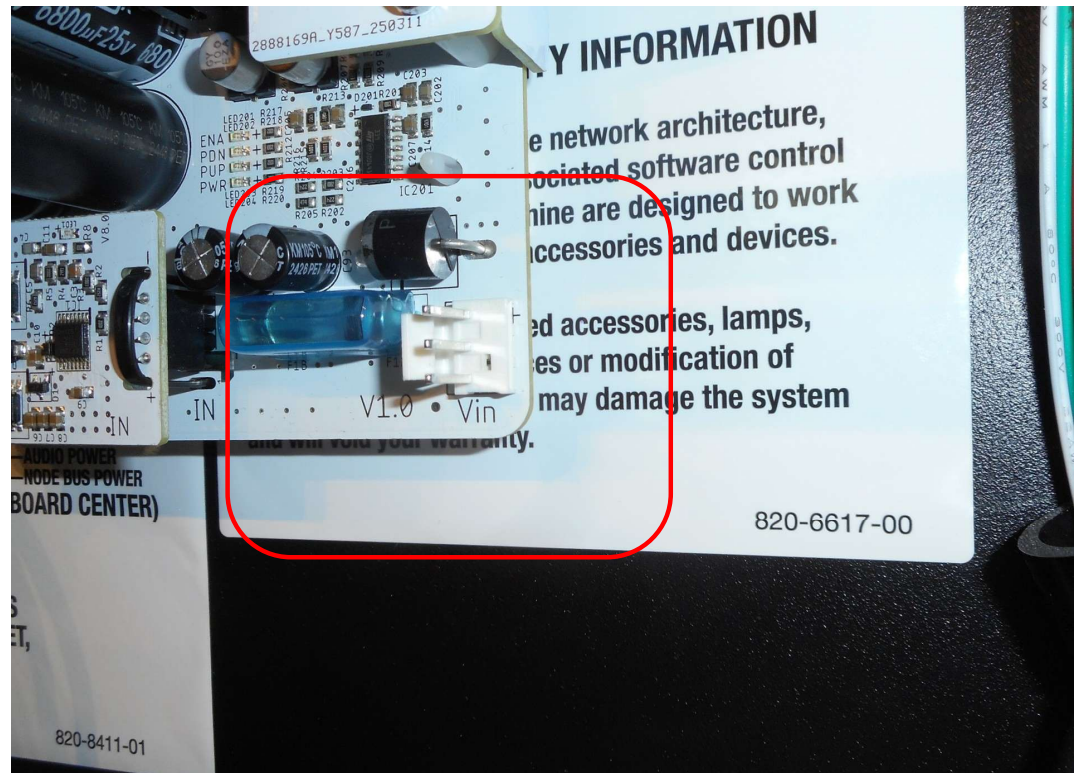
- Plug the power board into CN7 as shown.
- Route the RED BLACK wire into nearby wire loom for neatness.





## Power Connection - 4

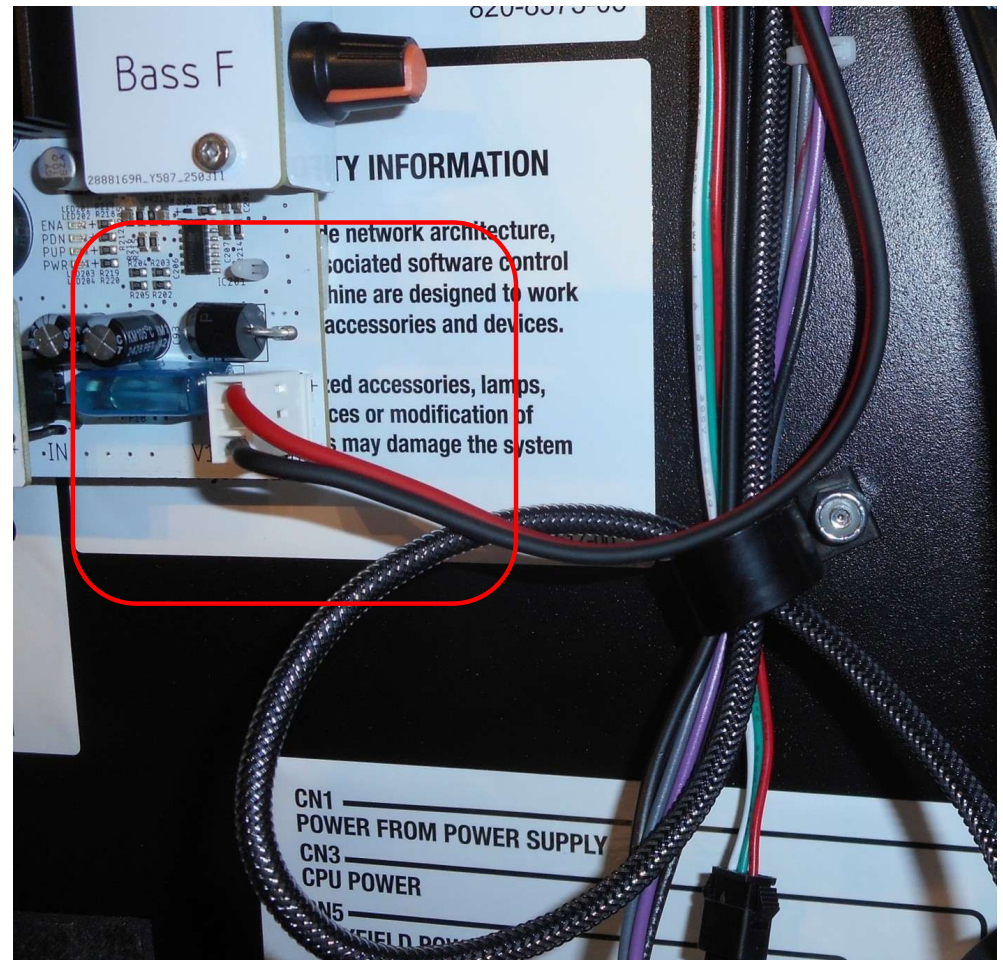
- Locate the 3-pin Vin header on the amplifier as shown.



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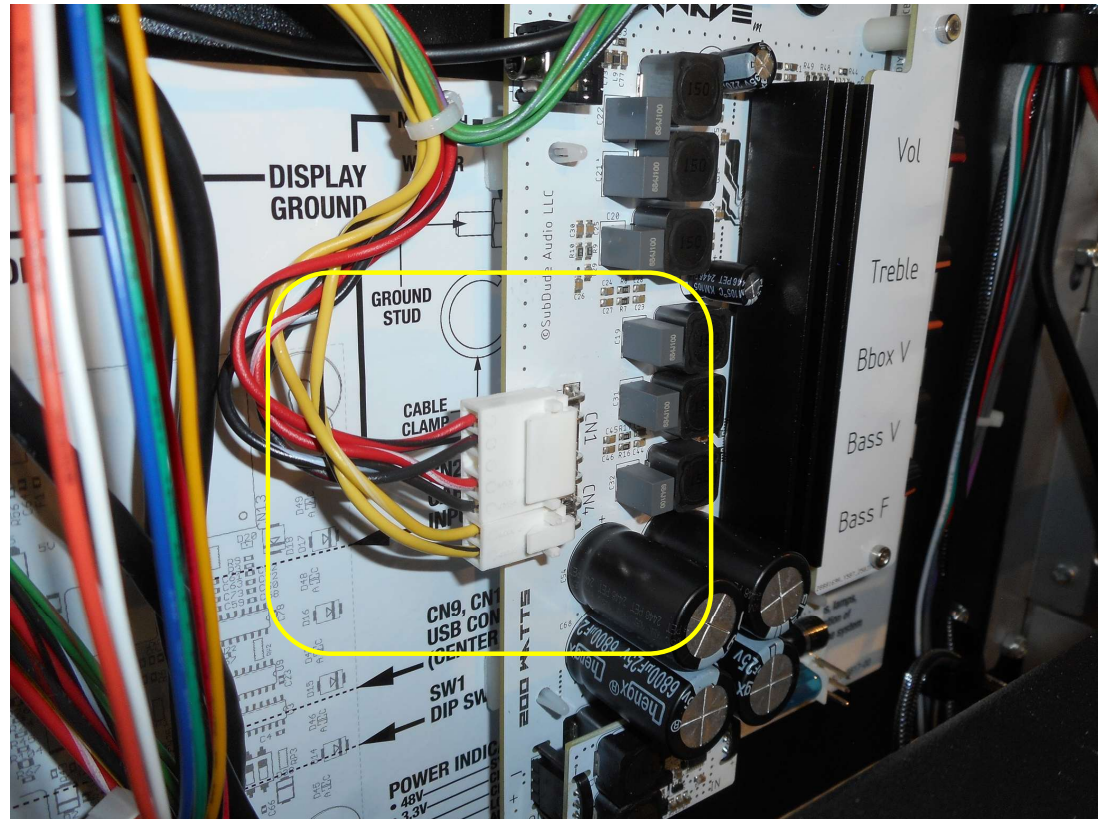
## Power Connection - 5

- Connect the remaining end of the supplied RED BLACK power cable to the Vin header as shown.
- The connection should be a natural fit.
- Utilize nearby wire looms to secure this cable for neatness.



## Speaker Connections

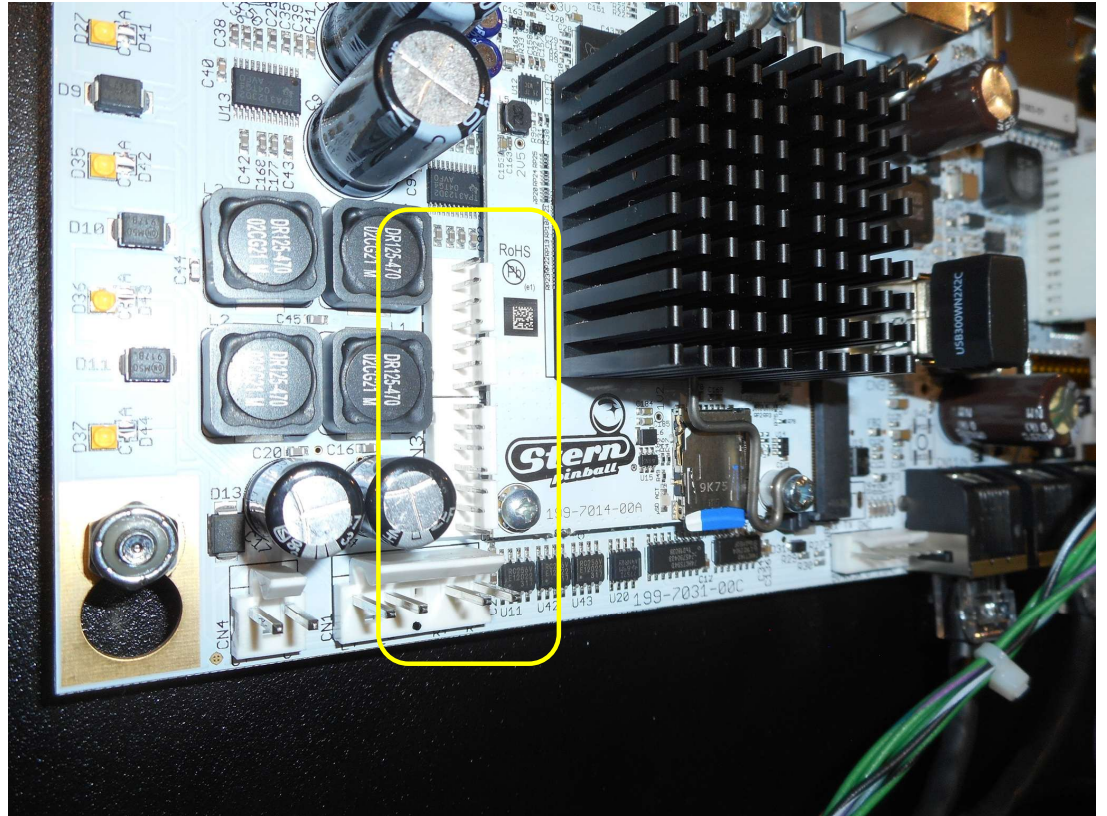
- Plug the two factory connectors, CN1 and CN4, into the CN1 and CN4 Amplifier Headers as shown in the yellow box.





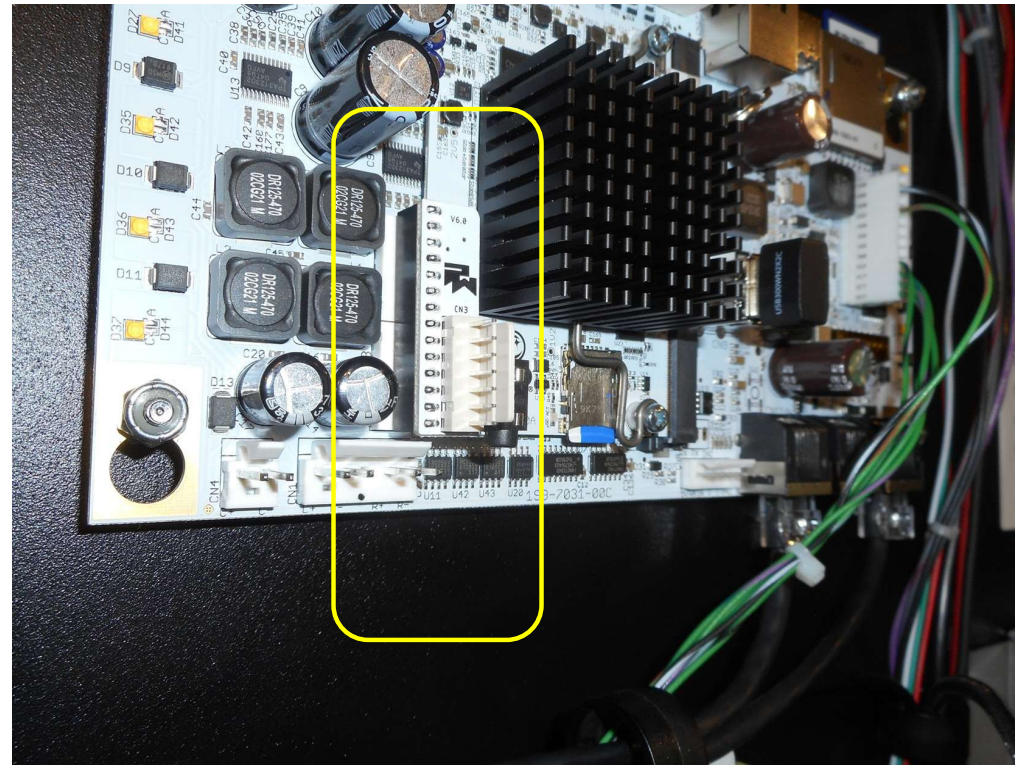
# Audio Connections - 1

- Locate connectors CN3 and CN5 as shown.



## Audio Connections - 2

- Plug the Spike-2 Line Out Board to the CN5 / CN3 header pair as shown.
- “Early” Spike-2 Titles (Iron Maiden and prior) may have a 6-Pin Header at CN5. If applicable, please review the below document for notes on your Line Out Board installation:



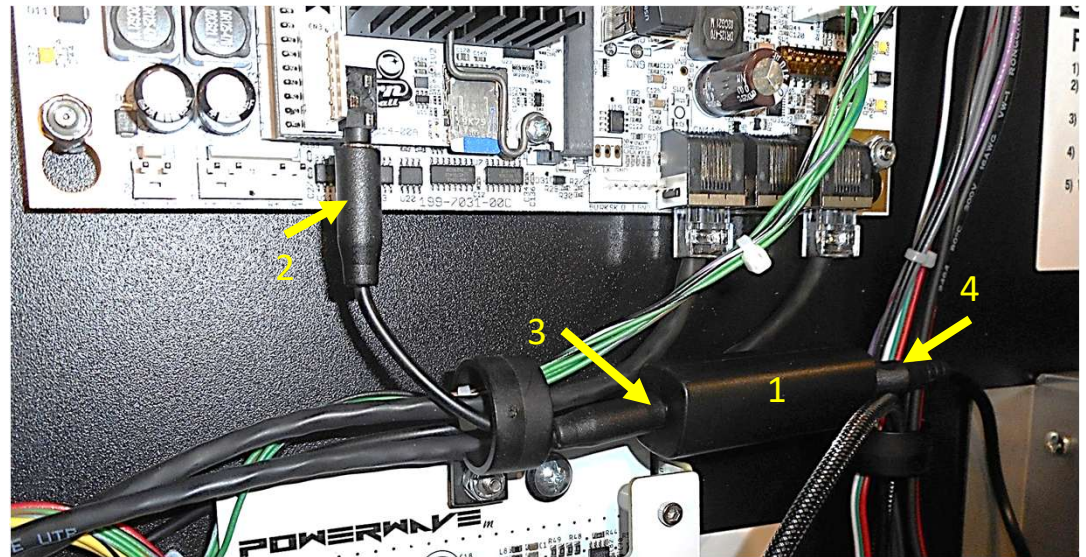
<https://pinwoofer.com/content/PW-PowerWavePlus-Spike-2-6-pin-Versus-7-pin-CN5-Header.pdf>

**PiNWOODFER**



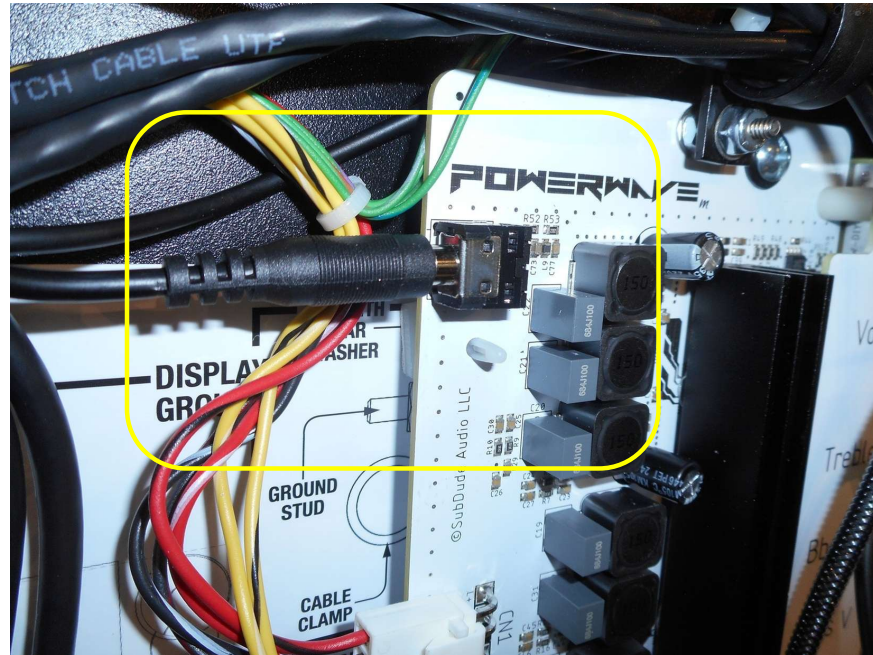
## Audio Connections - 2

1. Ground Loop Isolator.
2. Plug the Short TRS Cable Stub into the Spike-2 Line Out Board.
3. Plug the other end of the Short TRS Cable Stub into the Ground Loop Isolator.
4. Plug the Long TRS Cable into the Ground Loop Isolator.
5. Secure Audio Cable Wiring to nearby Wire Looms in a way that does not create tension on any connections.



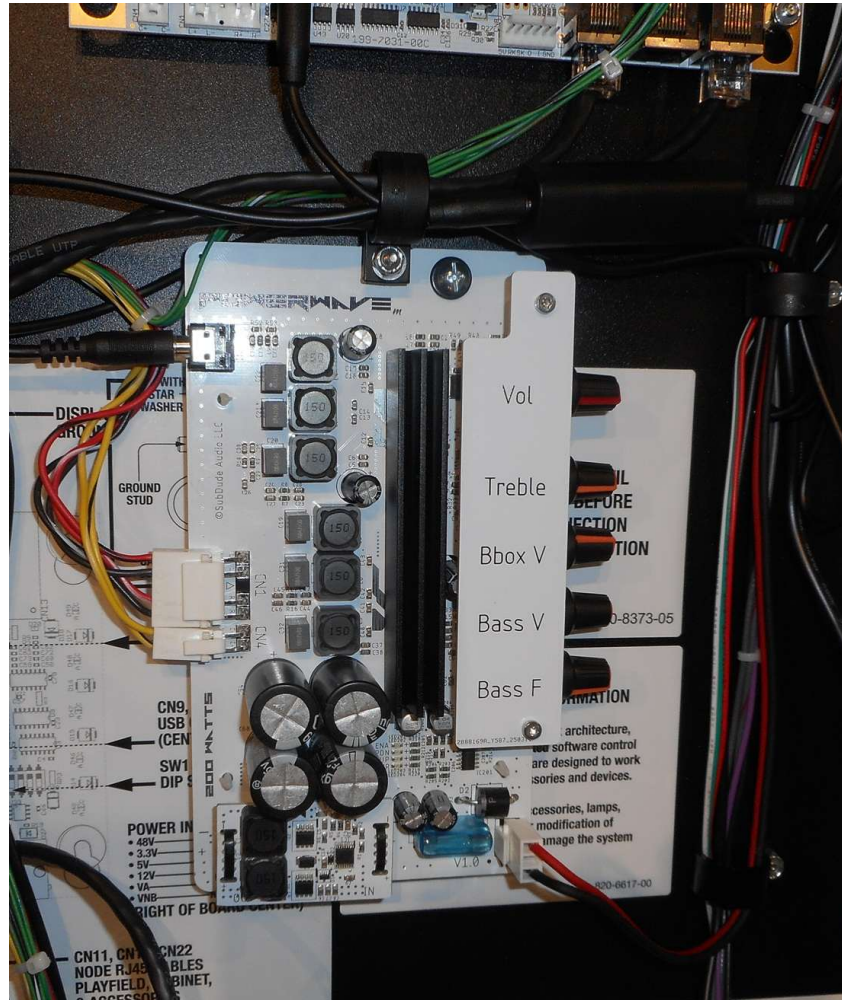
## Audio Connections - 3

- Plug the other end of the long TRS Cable into the Amplifier Input Jack.



## Completed Work

- Your installation should look like the image.

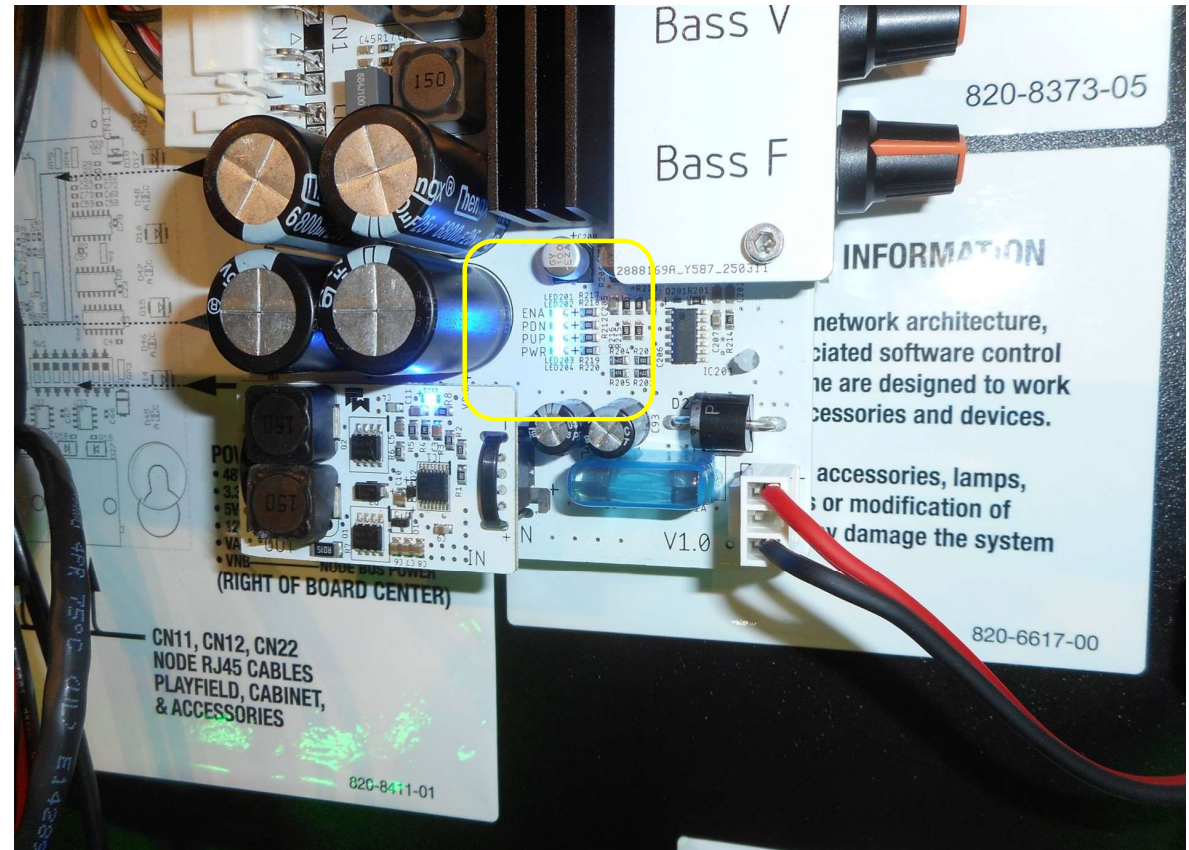


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## Power-Up

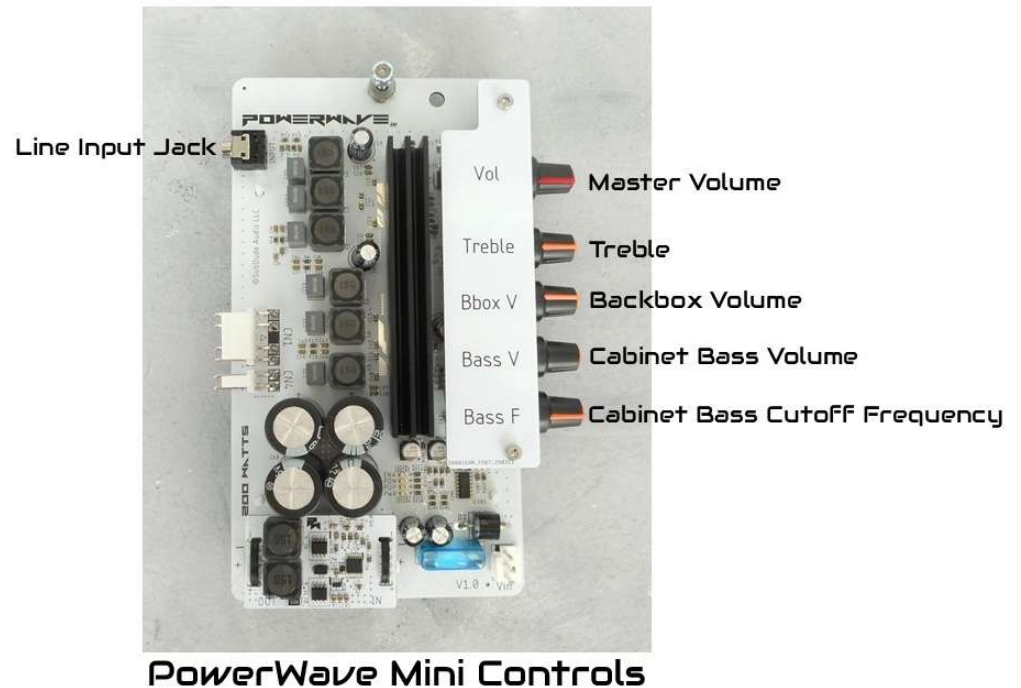
- When audio is enabled (after about 30 seconds), you'll see a set of blue LEDs glowing that indicates power-up is complete as shown.



PINWOOFER

# Amplifier Controls

- Controls:
  - Bass F = Cabinet Woofer Bass Cutoff Frequency
  - Bass V = Cabinet Woofer Volume
  - Bbox V = Backbox Volume
  - Treble = Backbox Treble Level
  - Vol = Combined Amplifier Volume
- Audio Adjustment:
  1. Place your controls in the recommended “starting” positions as shown. (Bass V should be fully rotated clockwise / maximum, as viewed looking “into” the knob.)
  2. Set these control positions before you begin to fine-tune your audio.
  3. Select a service menu volume of 15-25, 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.





**FINWOOFER**

**End of Document**