

# PINWOOD FERR

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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 4in Spacer Instructions**

## Spacers and Hardware

- Shown to the right are the two spacers and hardware included:
  - Quantity 8 #6-32x5/8in Binding Screws for Metal Speaker Panels
  - Quantity 8 #6-16x1in Hex Head Sheet Metal Screws for Wood Speaker Panels.
    - A 1in screw is extremely conservative so if you feel you need to supply your own longer screws, please use extreme caution so that you do not puncture the front of your speaker panel.



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## The “Snip Trick”

- Most OEM pinball speaker panels place the mounting studs / holes in a larger (wider) diameter pattern compared to industry standard 4in speaker sizes.
- This can lead to a tight fit when using aftermarket speakers with a standard diameter hole / slot pattern.
- It is not likely you will need to employ this trick. However, if you find yourself struggling to get all four (or even three of four) screws to align to the factory studs / holes, there is a remedy:
  - Using some sharp wire cutters or tin snips, cut open the speaker frame mounting slot(s) as shown on the right.
  - **USE Caution: Always use Safety Glasses**
- Enlarging one or more tab slot(s) will allow for a wider diameter pattern that will now fit the provided spacer and speaker.
- Never force new screws into position; it is better to open-up one or more of the tab slots to promote an easy fit of the screws.



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**There are 2 Sections:**

**Section 1: Metal Speaker Panel**

**Section 2: Wood Speaker Panel**



## **Section 1: Metal Speaker Panel**

## Factory Metal Speaker Panel

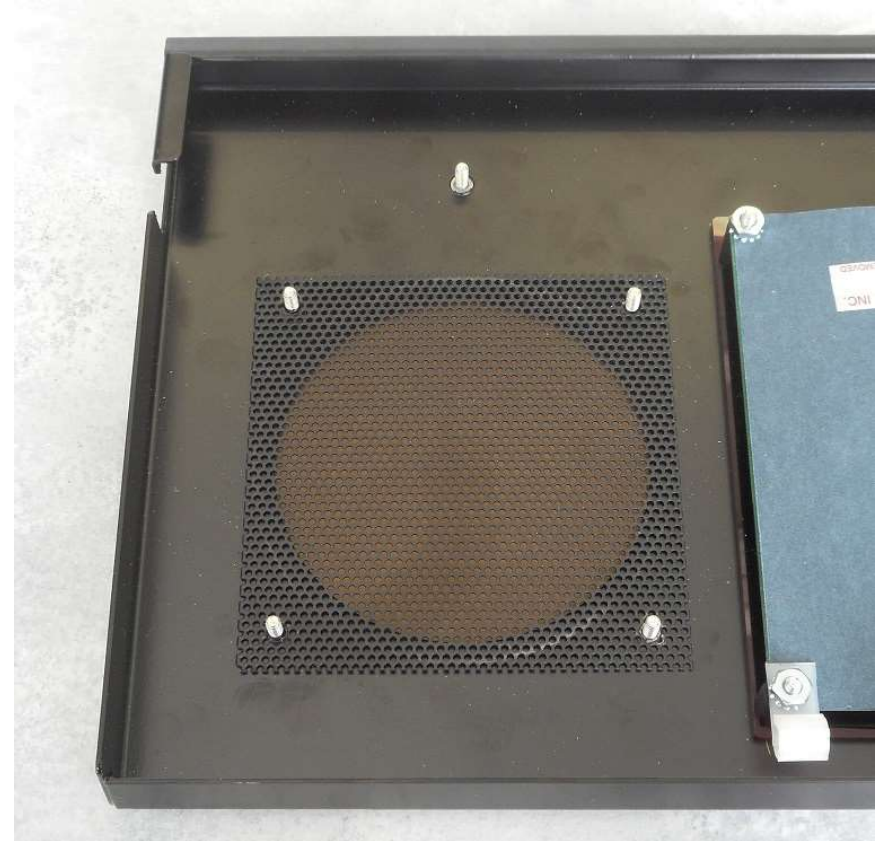
- It is often easier to remove the speaker panel from the machine; place on a convenient workspace and put something underneath the panel so it does not get scratched. A cloth or towel works best.
- Shown is the right-hand factory speaker, mounted.



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## Remove Speaker

- Remove the factory speaker to expose the mounting studs.



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## Place the Spacer on the Studs

- Place the spacer on the speaker panel studs as shown.



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## Place Speaker on Spacer

- Place the speaker on the spacer.
- Plan the speaker / tweeter orientation as it will appear from the front of the panel before starting any screws. (Two pages down shows a view of how the speakers should be oriented when replacing the panel.)



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# Mount the Speaker

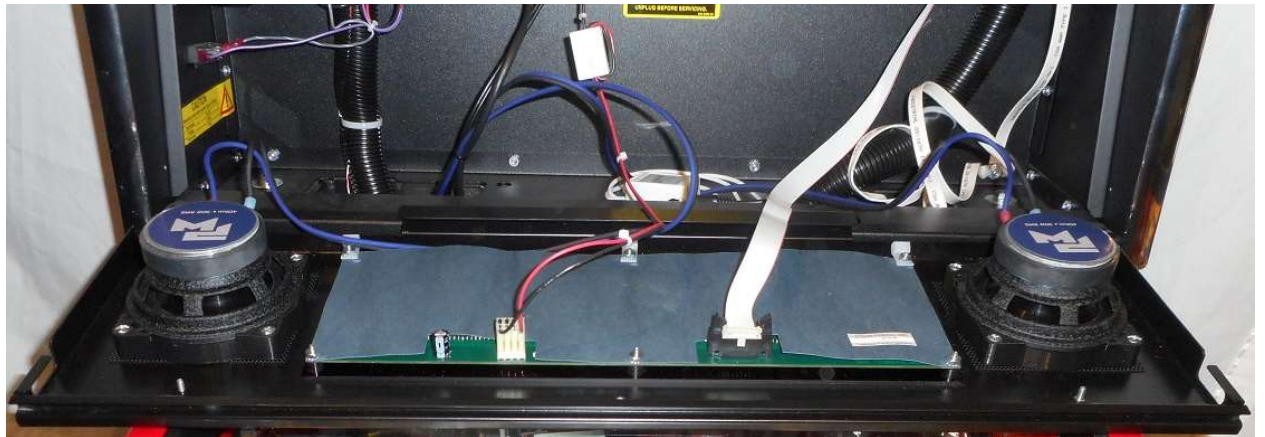
- Place a #6-32x5/8in Binding Screw into each slot on the spacer.
- Individually start each Binding Screw onto its corresponding stud, but do not yet tighten. Start each screw making about 1-2 full turns, enough to confirm that each screw has a “bite” into the stud threads.
  - NOTE: Most OEM speaker panels place the mounting studs in a larger (wider) diameter pattern compared to industry standard 4in speaker sizes. Therefore, the Binding Screws will occupy the outer end of the slots on the speaker frame, making things “tight”. So, this process can be a bit challenging, and you may need to start over with a different first screw as a second attempt. Be patient, you will get it. Consider using the “Snip Trick” shown at the start of this document.
- After each Binding Screws is started, begin the tightening process in a circle, continuing each screw another couple of turns as you progress around and around the speaker until each screws nears its tightening depth.
- Do a final hand tightening of each Binding Screw; tighten securely, but do not over-tighten. Too much torque can result in a broken stud.



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## Completed Mounting

- Mount the other speaker in the same way as before.
- The image to below shows the correct speaker orientation.



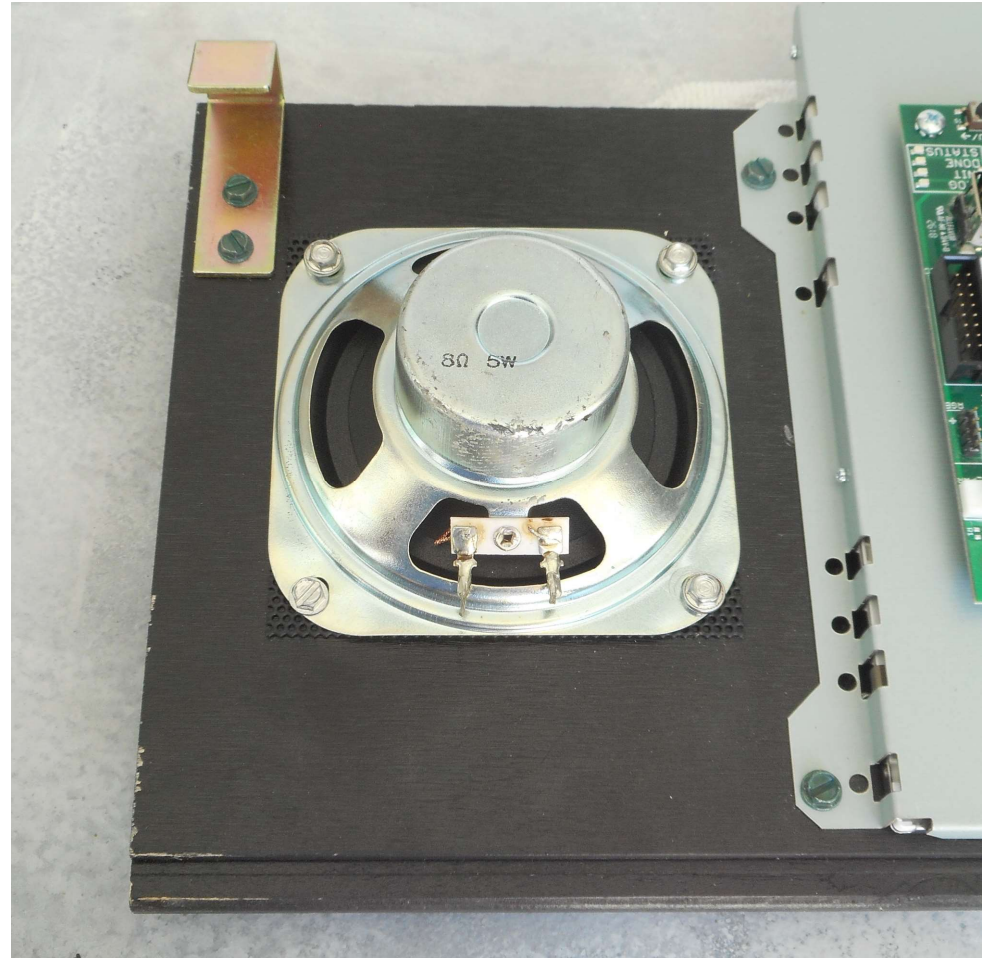
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## **Section 2: Wood Speaker Panel**

## Factory Wood Speaker Panel

- It is often easier to remove the speaker panel from the machine; place on a convenient workspace and put something underneath the panel so it does not get scratched. A cloth or towel works best.
- Shown is the right-hand factory speaker, mounted.

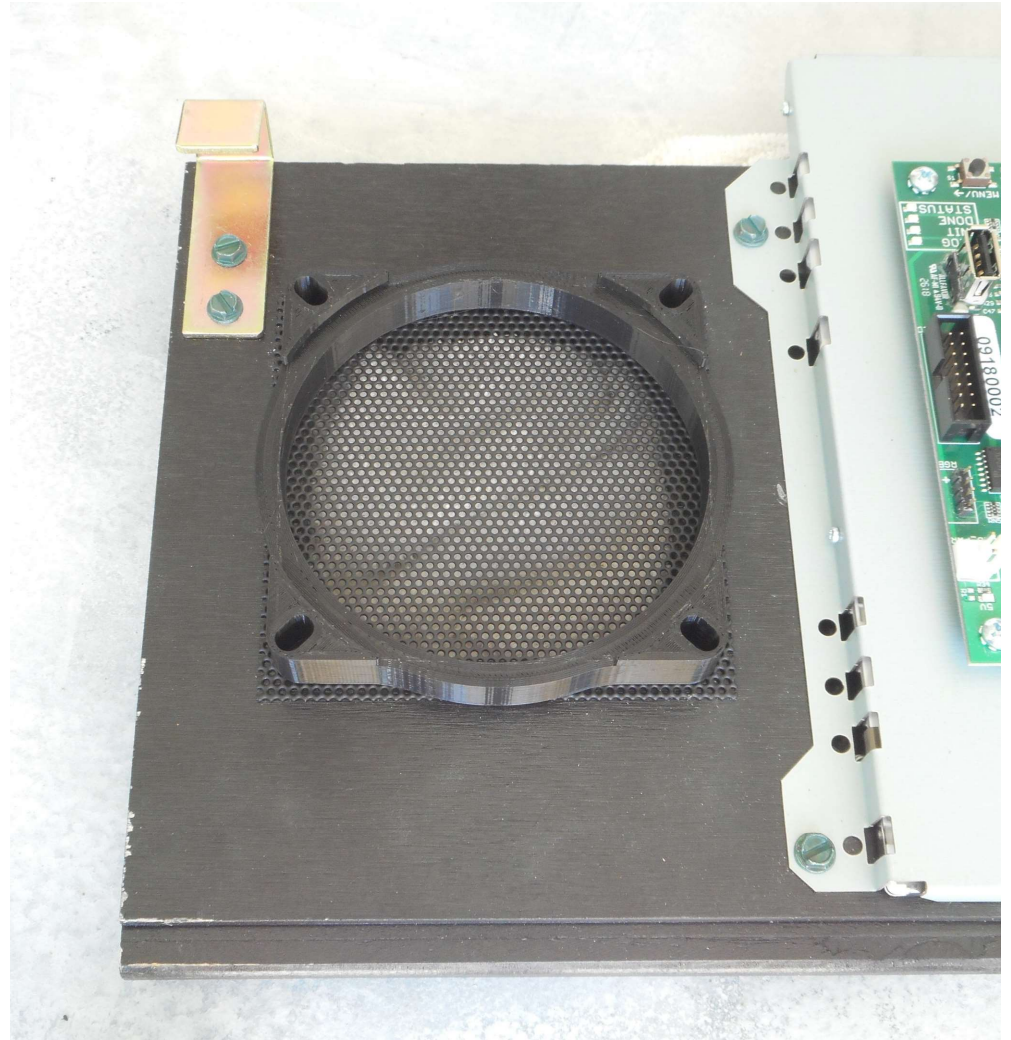


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## Place the Spacer on the Studs

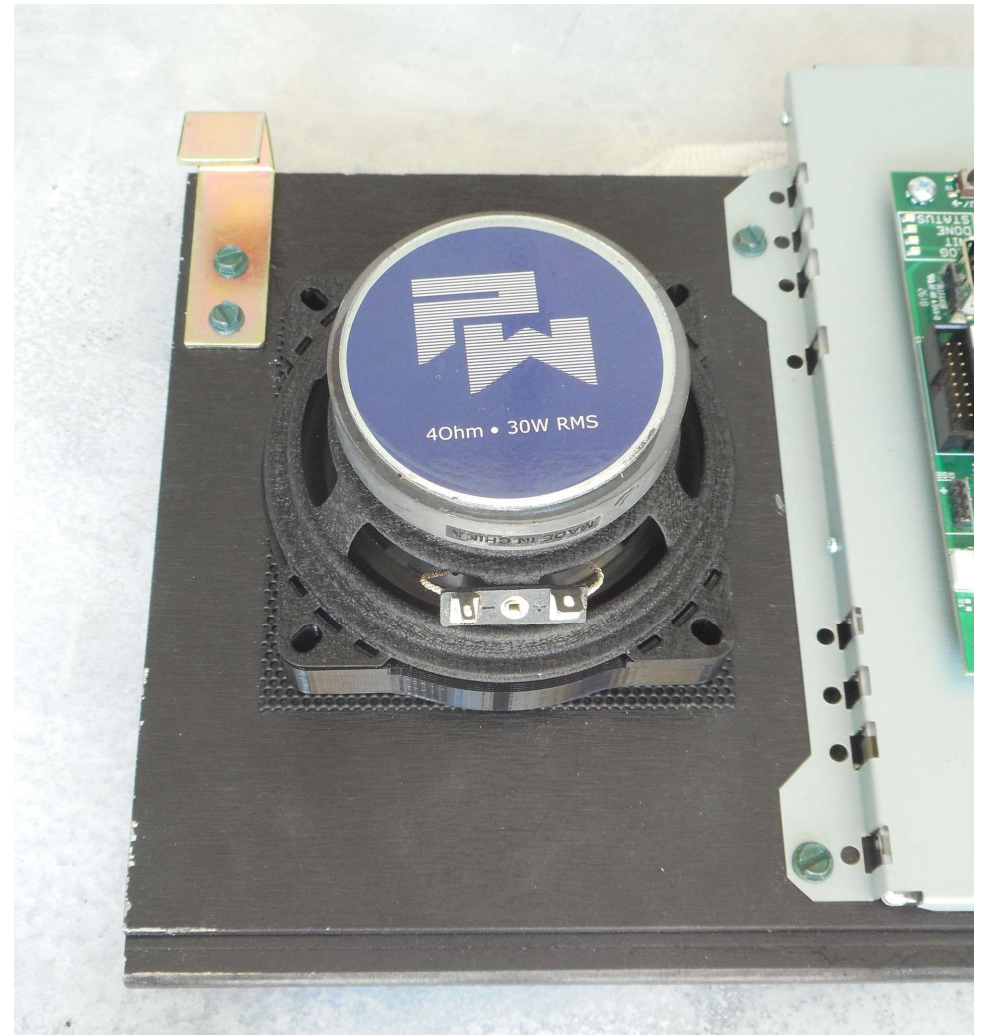
- Place the spacer on the speaker panel grilles as shown.



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## Place Speaker on Spacer

- Place the speaker on the spacer.
- Plan the speaker / tweeter orientation as it will appear from the front of the panel before starting any screws. (I.e., mount the speaker as shown.)

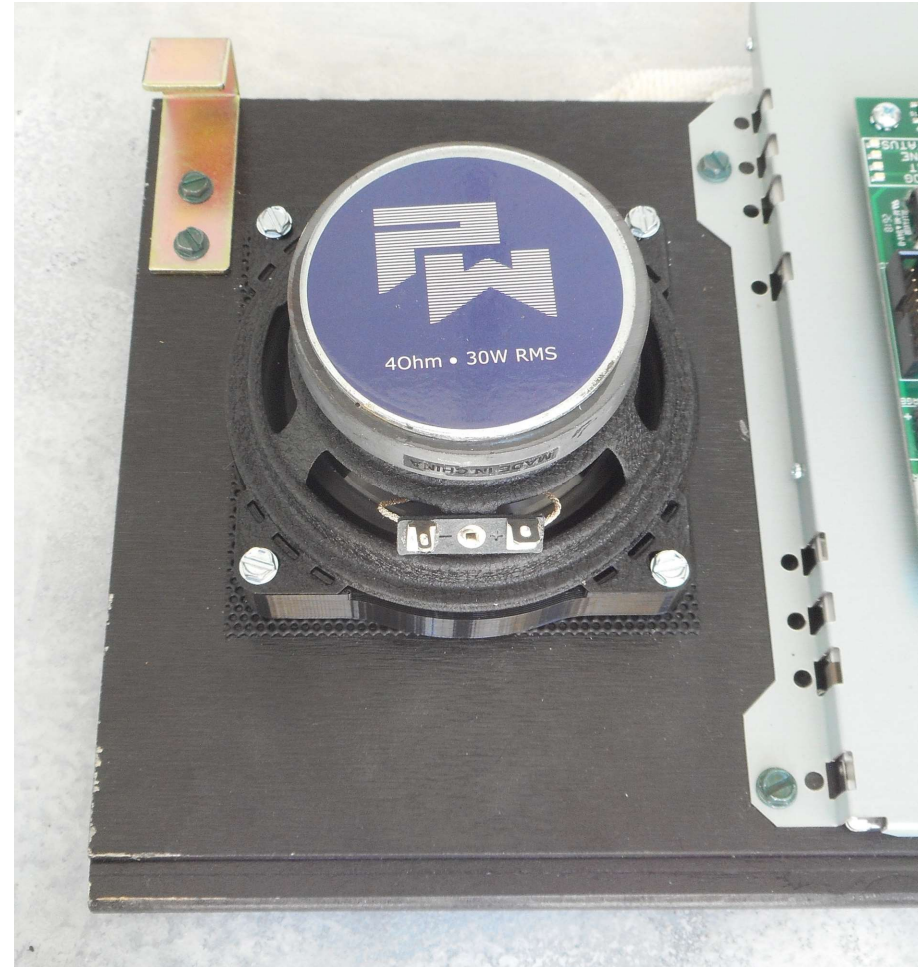


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## Mount the Speaker

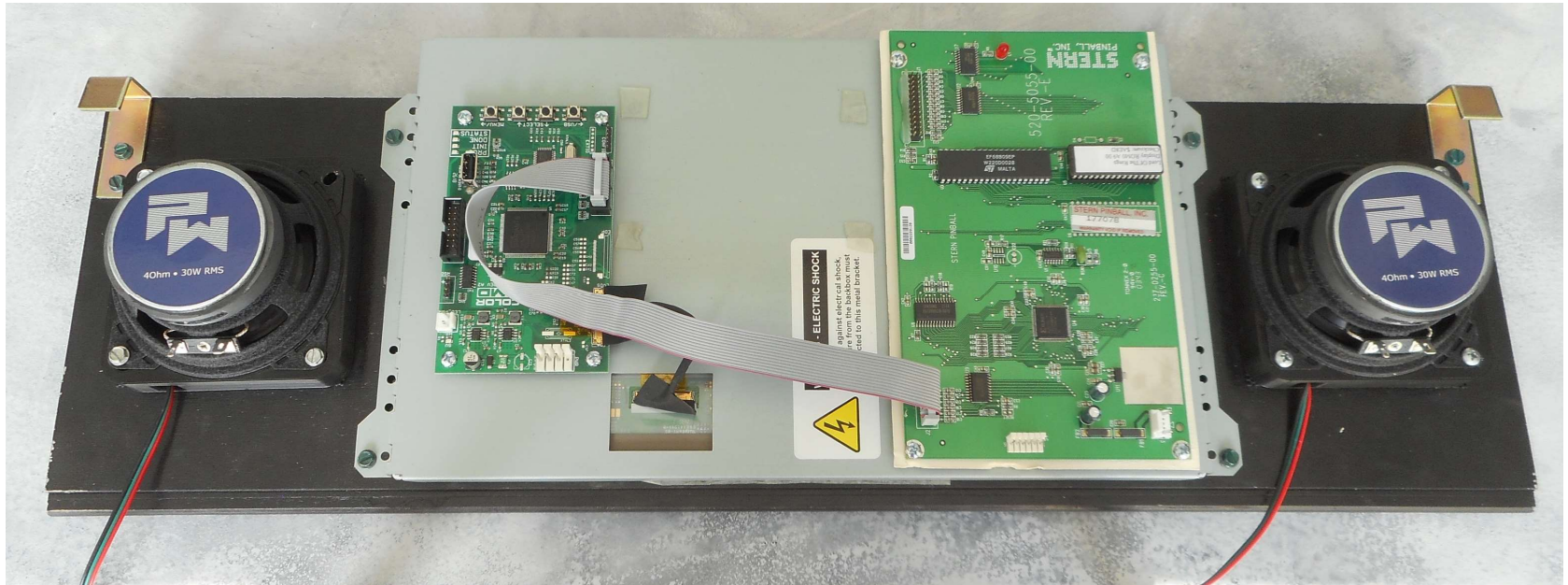
- Place a #6-16 x 1in Hex Head Sheet Metal Screw into each slot on the speaker and spacer.
- As needed, look carefully, lifting the ring, to ensure that the tip of the screw is aligned to the original screw hole.
- Individually start each screw onto its corresponding hole, but do not yet tighten. Start each screw making about 1-2 full turns, enough to confirm that each screw has a “bite” into the wood threads.
- After each screws is started, begin the tightening process in a circle, continuing each screw another couple of turns as you progress around and around the speaker until each screws nears its tightening depth.
- **Do a final hand tightening of each screw; tighten securely, but do not over-tighten. Too much torque can result in a stripped hole in the wood speaker panel.**
  - If you happen to strip a screw hole there is a remedy; push a typical toothpick into the hole to a depth of about 1/4” to 3/8” (or more if possible) and then break it off.
  - The broken off tip will now serve as new material (wood), and you can likely secure a screw into the newly “rejuvenated” hole.
  - Adding some wood glue to the hole may help to give the new hole greater longevity.



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# Completed Mounting

- Mount the other speaker in the same way as before.
- The image below shows the correct speaker orientation.



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**Your backbox speakers are now installed!**