Scale Trains Class J N&W 4-8-4 Speaker Installation

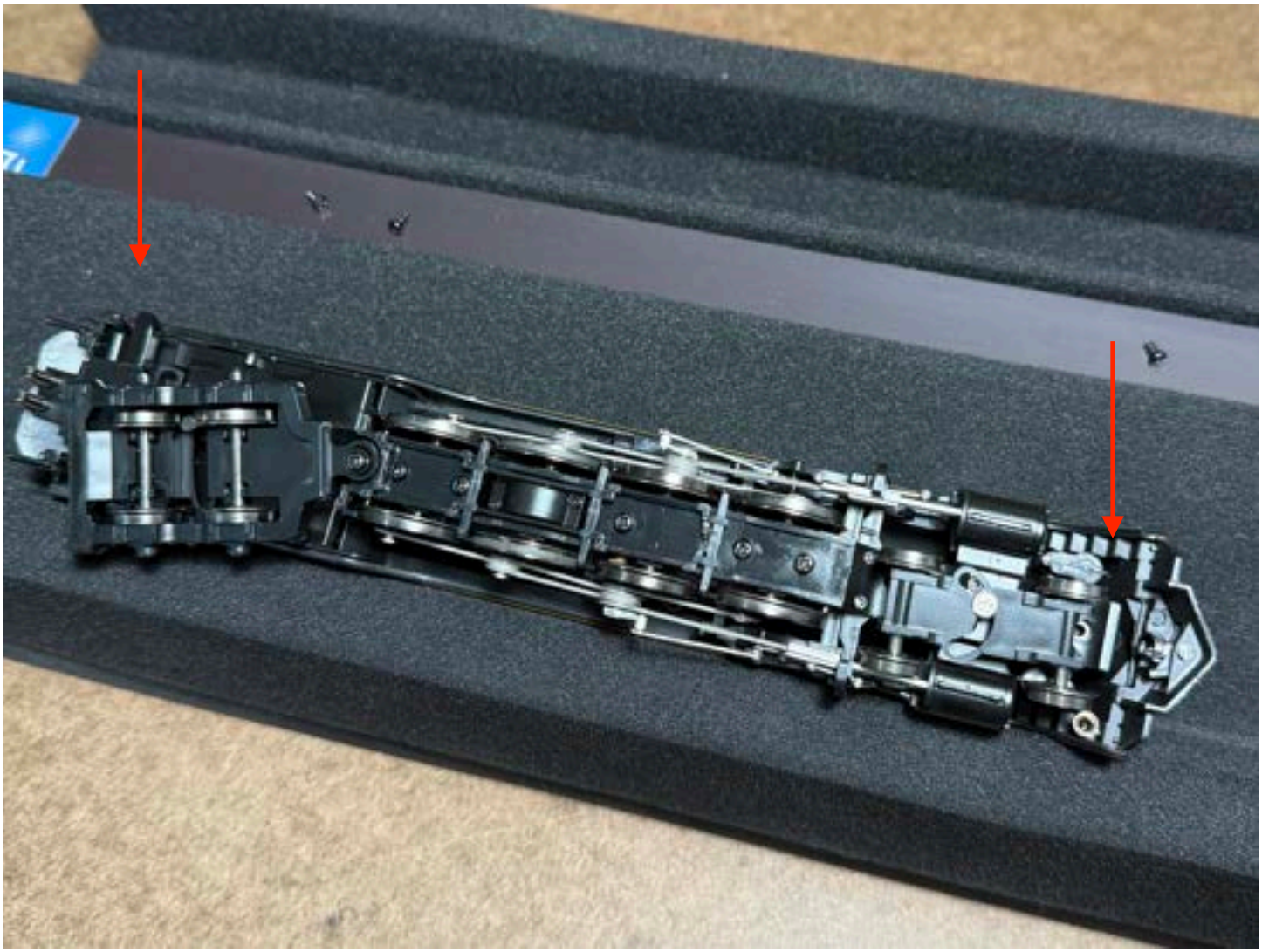
www.ScaleSoundSystems.com

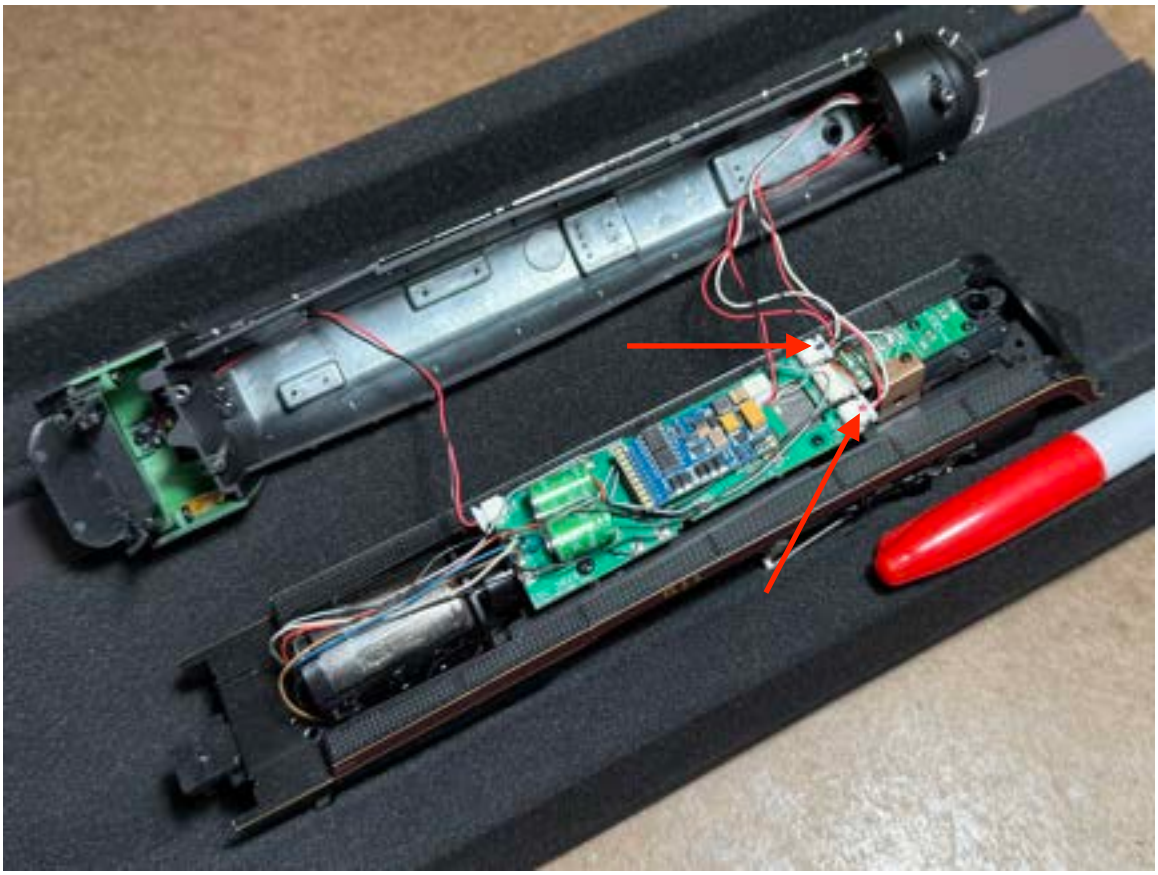
This guide covers the installation of the Scale Sound Systems speaker upgrade for the Scale Trains Class J N&W 4-8-4 steam locomotive.

By default, the stock speakers present a 5.3Ω load to the decoder. This is made up of two 8Ω tender speakers wired in series, creating a 16Ω load, that is then paralleled to one 8Ω boiler speaker, resulting in a 5.3Ω total load. Scale Sound Systems offers both a two-speaker 4Ω systems and a three-speaker 5.3Ω system.

Short of a complete (or near complete) rewire, attaining a higher total impedance load would require using higher impedance speakers. This may only be a concern with Soundtraxx and TCS WOW decoders, which will be safe running at a sub-8Ω impedance provided the volumes are not maxed. While not at all a lovely solution, you may get away with wiring a 1W-8Ω resistor in-series with the boiler speaker for an 8Ω total load across the three speakers. I don't love this "solution" given it's simply wasted heat, but it makes some users more comfortable.

There are three screws that secure the cast boiler to the chassis. One is just in front of the pilot-truck and two are behind the trailing truck. Remove all three screws and set them aside.





The boiler now simply lifts from the chassis. Nice!

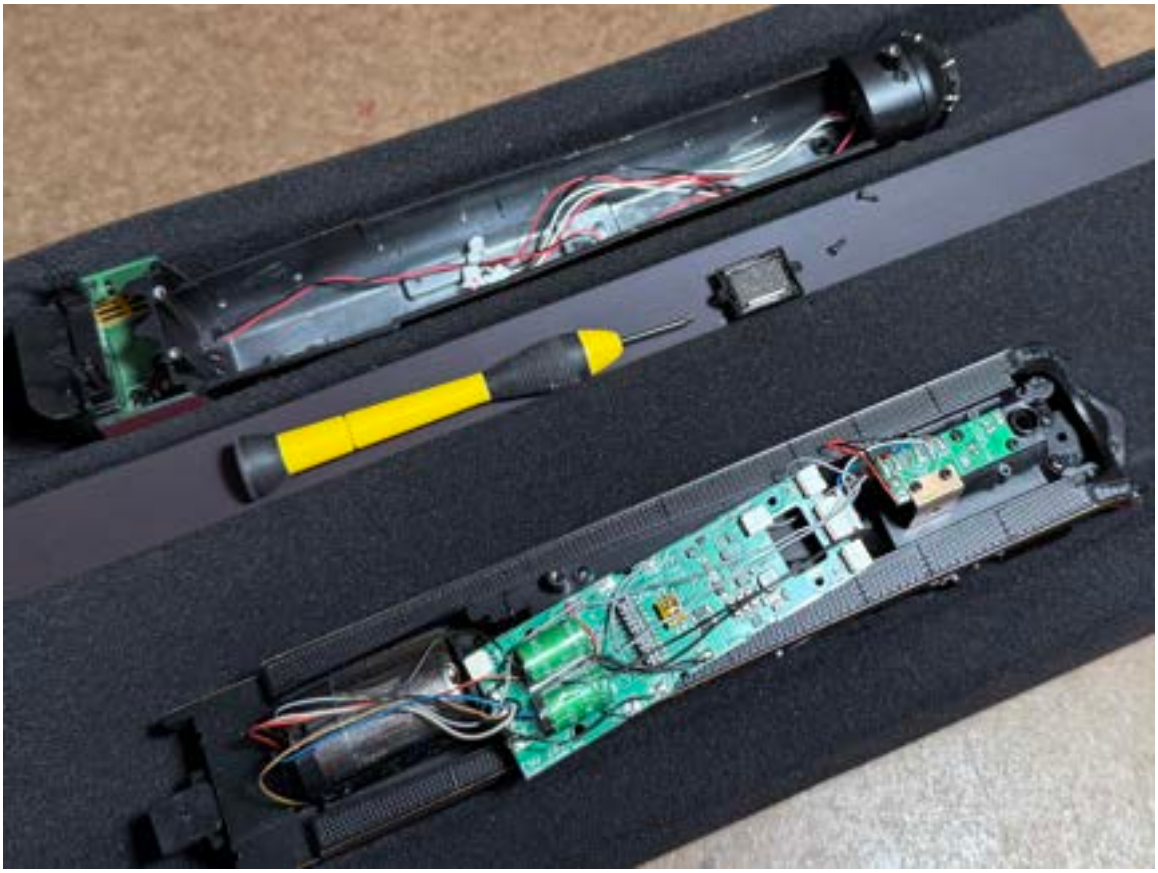
Before disconnecting the harnesses, I used Sharpie markers to mark the left 3pin harness with a black dot and the right 3pin harness with a red dot so that these do not get switched when reconnecting.

The other harnesses do not need marked as they are obvious.

With the boiler free, set it aside.

Remove the 21pin decoder.

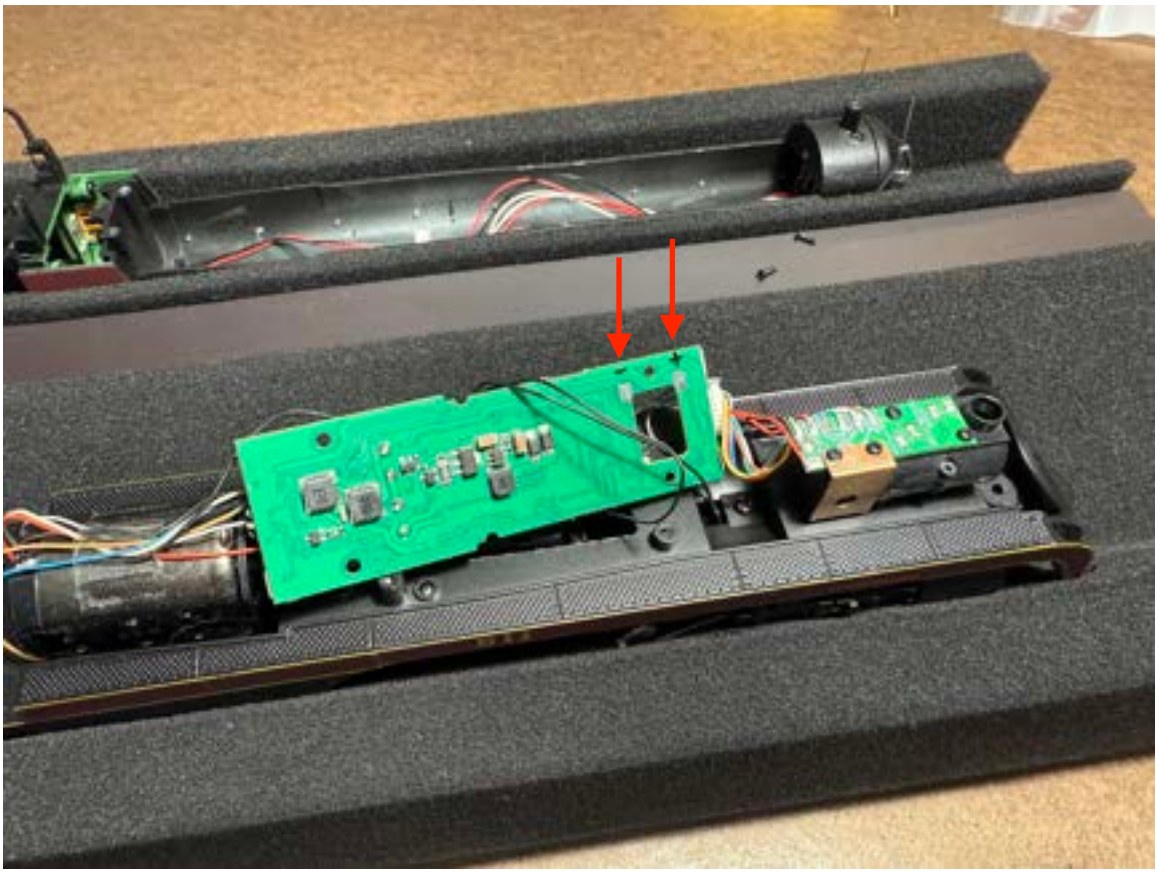
Remove the two screws securing the motherboard to the chassis.

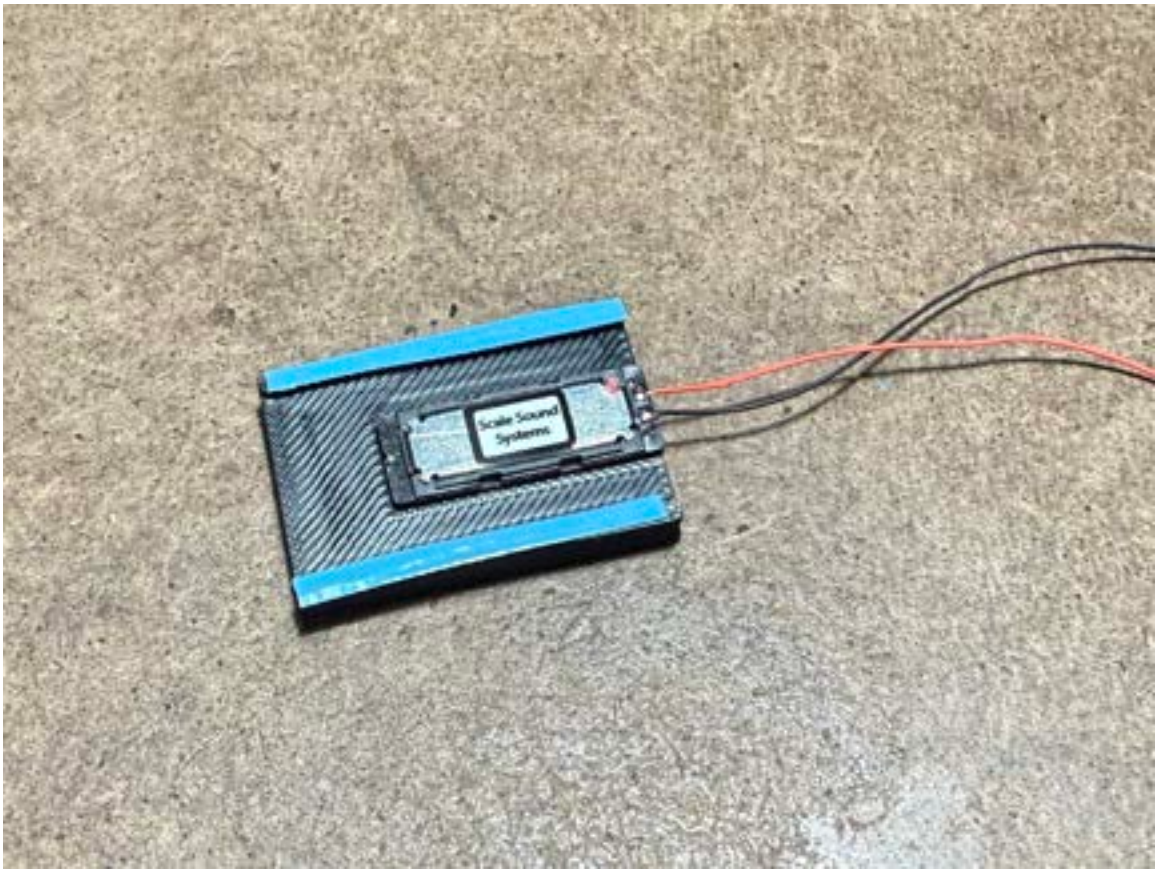


With the motherboard loose, remove the two screws that secure the stock speaker. We will not be reusing the speaker or these screws.

The speaker PCB-pads are not marked but we do need to note their absolute-polarity relative to the absolute-polarity of the tender speakers so that all speakers are in-phase.

With the board oriented as shown, the left pad is negative and the right pad is positive. I marked these with a fine-tip marker.



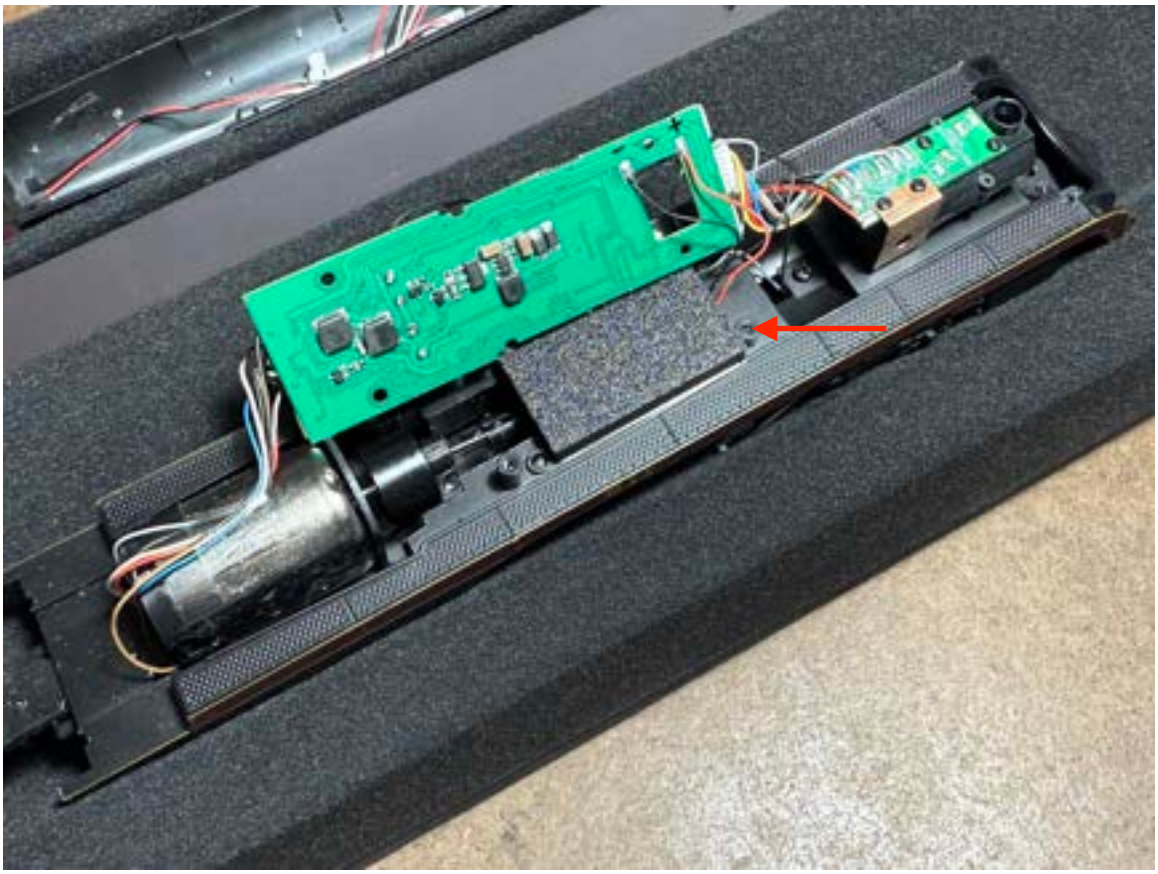


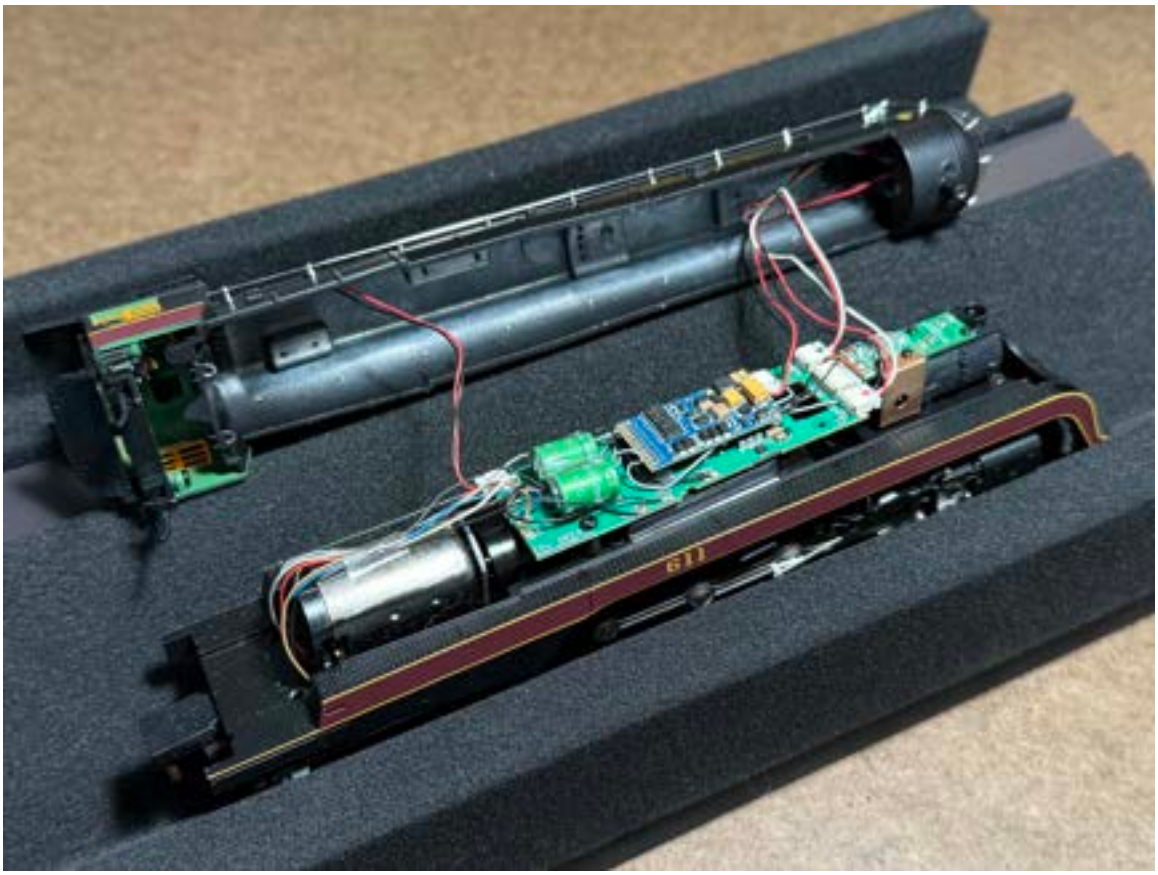
Prepare the SXTH-JBB1 boiler speaker by soldering a couple inches of 36AWG wire to the solder-pads. Note that the red-dot indicates the speaker's absolute-positive pad.

Add two strips of thin mounting-tape to the side "rails" of the enclosure. Thicker mounting-tape will not work.

The SXTH-JBB1 boiler speaker sticks to the chassis tightly behind the cast posts arrowed in the picture.

Trim and excess speaker wire length and solder the speaker's positive wire to the positive-marked solder-pad, then the negative wire to the negative pad.





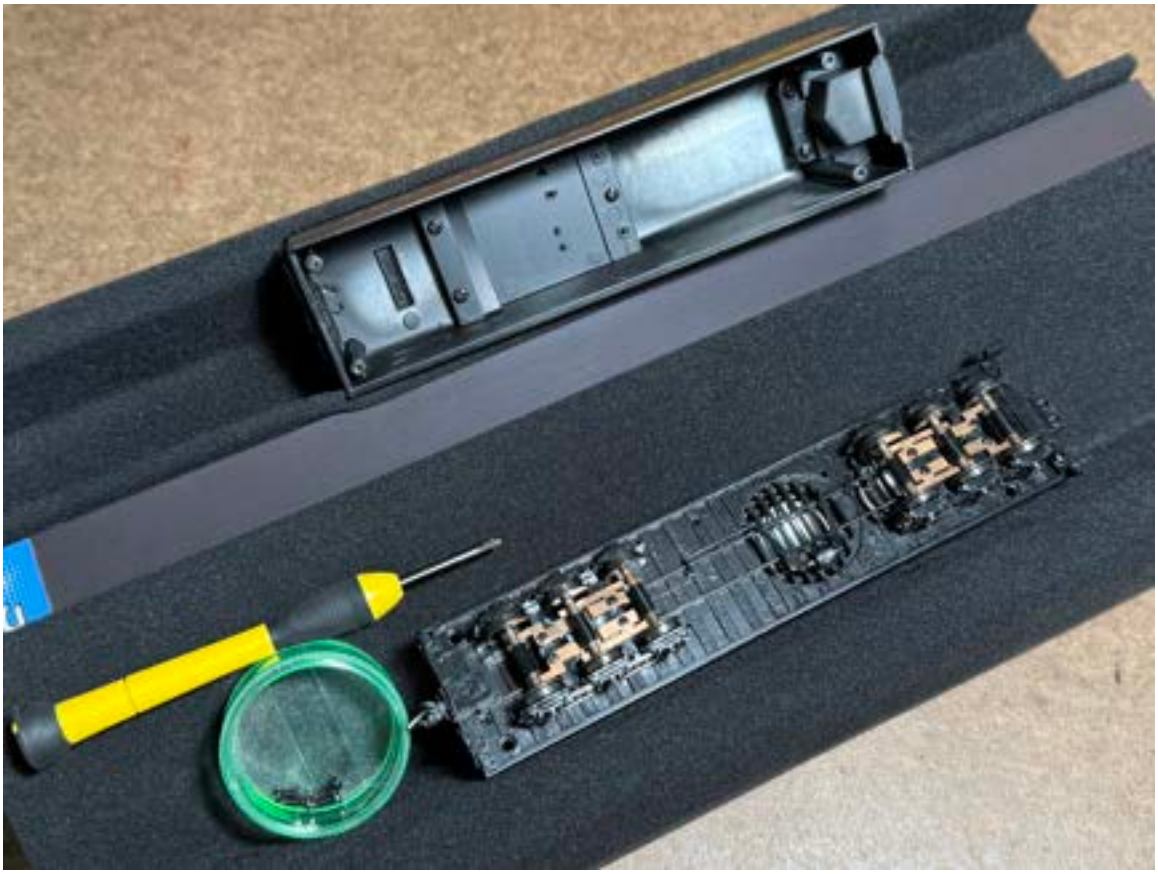
Rest the PCB back into position and install the two screws used to secure it. The SXTH-JBB1 speaker may lift the PCB a little bit but this poses no problem. Plug the decoder back to the board.

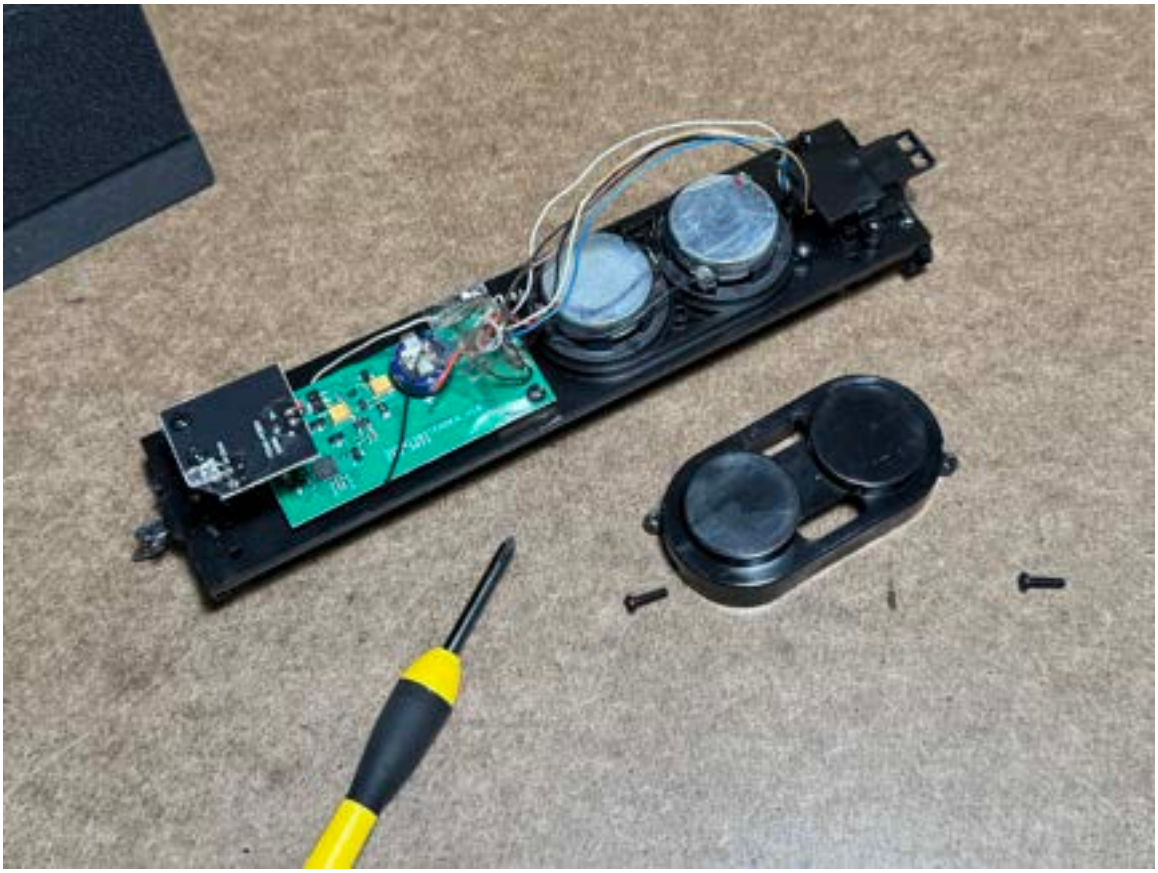
Reattach all of the harnesses. Place the boiler back on the chassis and give it a quick test with your DCC system.

Finally, reinstall the three screws that secure the boiler to the chassis.

Next comes the tender.

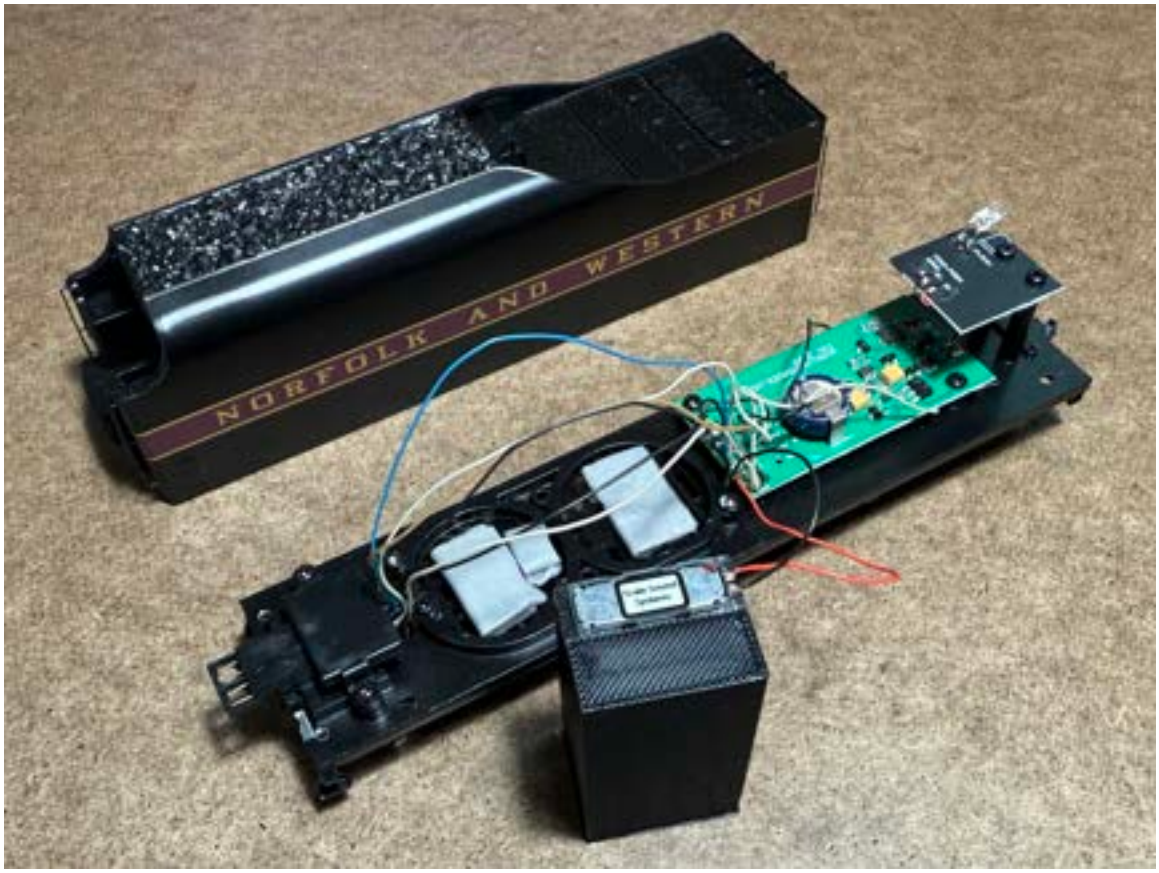
Remove the four screws in the corners and lift the shell from the frame.





Remove the two screws that secure the speaker enclosure.

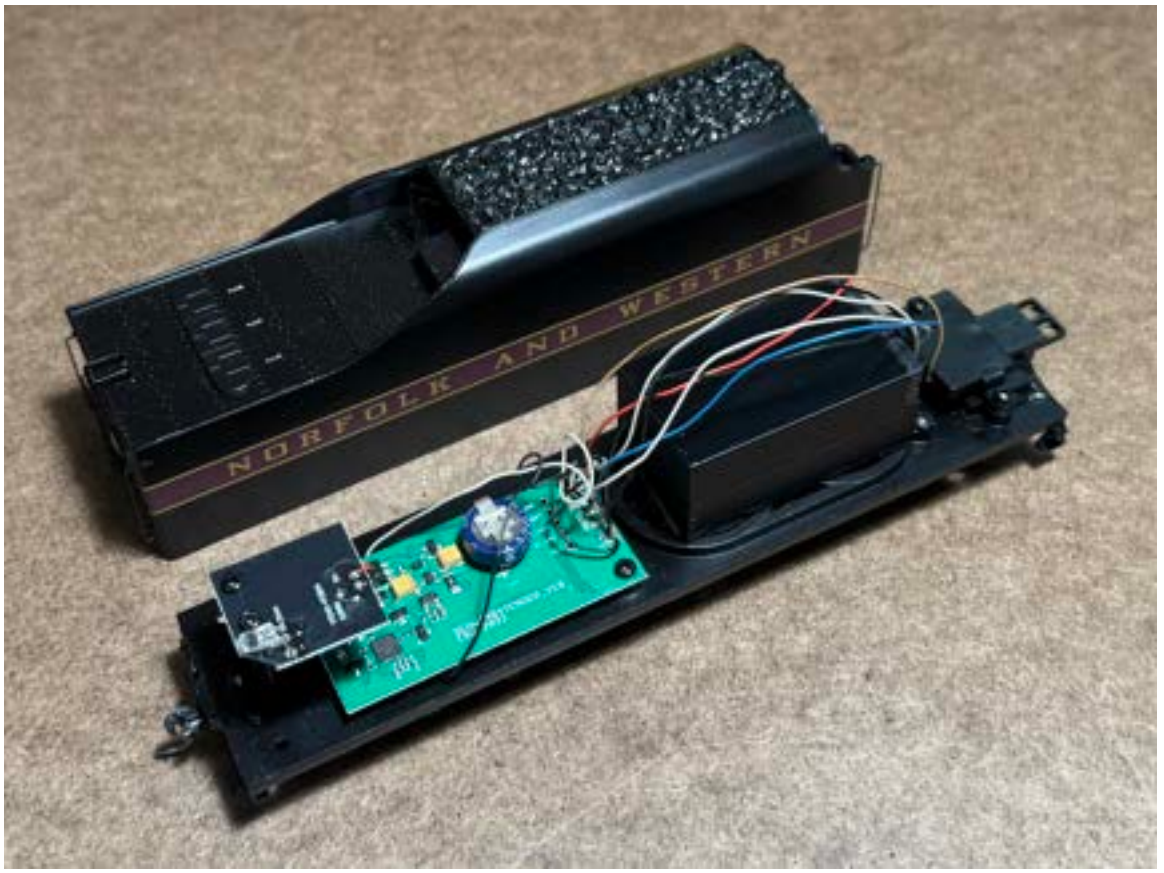
Remove both speakers and unsolder the stock wires from the pair.

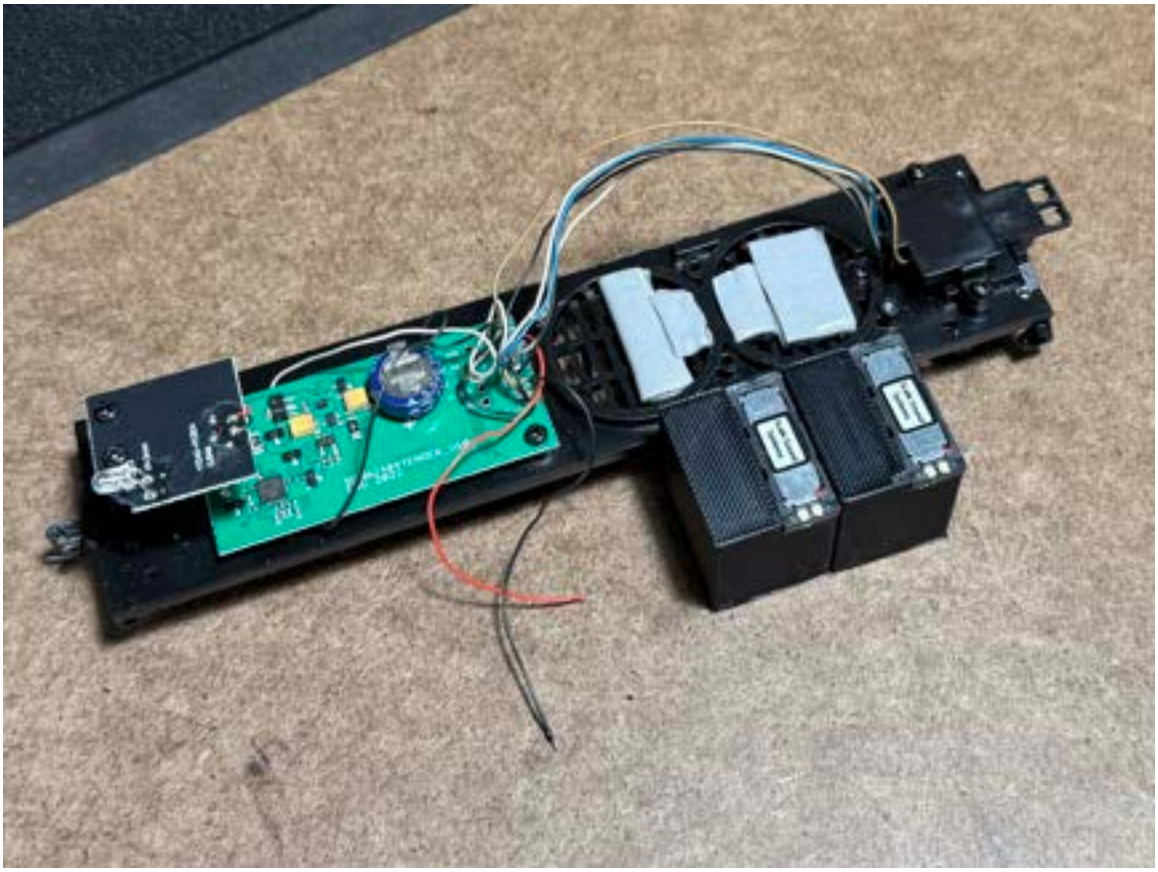


I used thicker, 3M outdoor mounting tape folded and stuck into the frame recesses.

Solder the stock red and black wires to the FFRC-AGBB speaker. NOTE THE POLARITY; red wire to red-dot-marked pad, black wire to unmarked pad.

Slide the FFRN-AGBB speaker under the wires and press to the mounting-tape to secure it.





The process is the same if using the 5.3Ω 3-speaker set with twin-FFRC-2025 speakers. **You will wire these two speakers in series.** **This is critical!** *Wiring them in parallel will result in a 2.6Ω total load when combined with the boiler-speaker. A 2.6Ω load will destroy any brand of DCC decoder!*

This diagram shows the series-wiring of two speakers in the tender. Like the FFRC-2025 speakers, note the red dot indicating the positive solder pad. The stock red wire is soldered to the first speaker's positive pad. A second, user-supplied wire connects the first speaker's negative pad to the second speaker's positive pad. The stock black wire is then soldered to the second speaker's negative pad. This forms a "loop" between the PCB and two speakers.