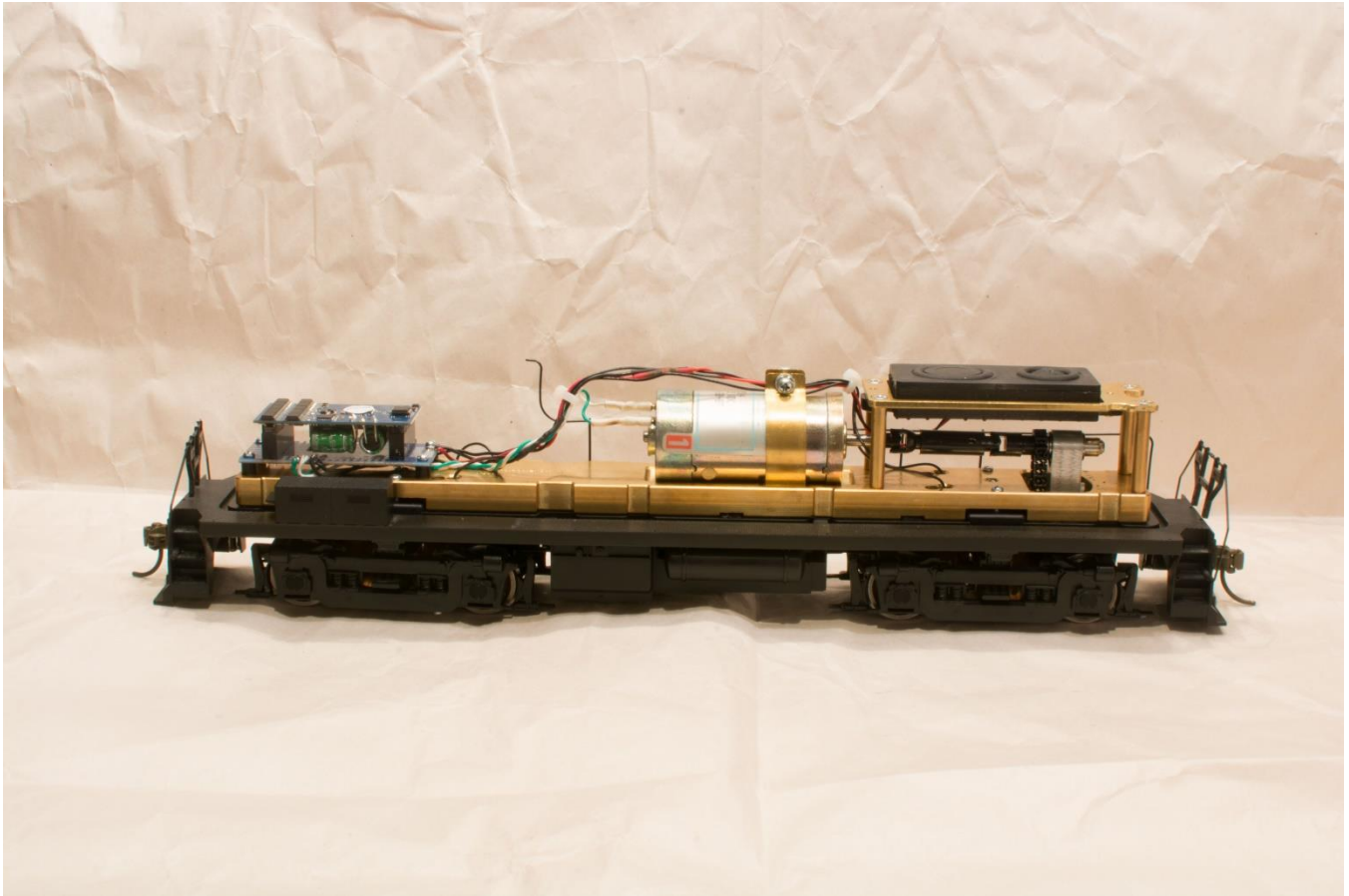


Weaver RS3 Frame Support Installation Instructions

Thank you for purchasing the O Scale Weaver RS3 CNC machined full-length brass frame support.



This brass frame support provides a number of features:

- Addresses cracked plastic frames
 - Cracked plastic frame can now just be simply glued together for esthetic appearance but the plastic frame is no longer needed for structural integrity.
- All drive components now connect rigidly to the new brass frame support using existing and additional (supplied) machine screws to eliminate all drive-related forces on the stock plastic frame.
- New rigid motor mount (using custom formed brass strap clamps)
 - Original plastic motor mounts are no longer needed and must be removed to make space for the frame support to lay flat on stock plastic chassis.
- New brass frame support adds 5 oz. weight vs. stock cast weight slugs to increase the tractive effort (pull longer trains) and improves electrical pickup.
- Reuse of existing drive train components.
- Pre-drilled and tapped 2-56 mounting holes for easy installation of the ESU Loksound V4 or V5 Size L (large scale) DCC sound decoder interface board. Decoder mounting screws and standoffs included).

Weaver RS3 Frame Support Installation Instructions

- Pre-drilled and tapped 4-40 holes for mounting [optional] Tang Band 1925S speaker mezzanine plate.
- Pre-drilled and tapped 2-56 holes for attaching OEM weight slugs at nose end.
- Brass frame support takes approximately 1 1/2 -hours to install (not including electrical work).
Modifications required to existing model include:
 - Four (4) new holes need to be drilled in the stock plastic frame to re-route the electric power pickup wires from the trucks.
 - Two optional holes can be drilled in the center of the chassis to add additional attachment point of the frame to the chassis.
 - Removal of the stock plastic motor mount risers.
- Cost reflects the need to anneal (normalize) brass bar prior to machining to relieve internal stresses imposed during the bar extrusion manufacturing process. Note: The formation of these internal stresses is common with all metal extrusion processes. In this application, without annealing, the frame support becomes distorted once the motor cavity is machined out as internal stresses on the opposite side of the brass bar overcome the missing stock of the motor cavity and causes the frame to bow and not lay flat. To overcome this, the brass bar stock must be annealed in a heat treat oven at high temperature to normalize the bar stock before machining, so it lays flat after all the features are machined. CNC Machined Solid Brass Frame (8) additional brass frame mounting screws of various sizes to replace existing screws where needed
- Optional CNC brass Tang Band 1925S speaker riser mounting plate is also available.

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Weaver RS3 Frame Support Installation Instructions

Installing the Brass Frame Support

Note: Before starting the frame support frame installation, it is **HIGHLY ADVISABLE** that you remove the handrails if at all possible. The brass frame support is quite heavy and if you accidentally tilt the model while the frame is not fastened down, then it may slide and damage the handrails.

Step 1 Remove Brass Frame support from shipping board

The brass frame support will be attached to a small board to protect the frame from shipping damage. Remove the two small sheet metal screws that attach the frame to the wooden board. The protective shipping board and the two small sheet metal mounting screws can be disposed of as they are no longer needed.

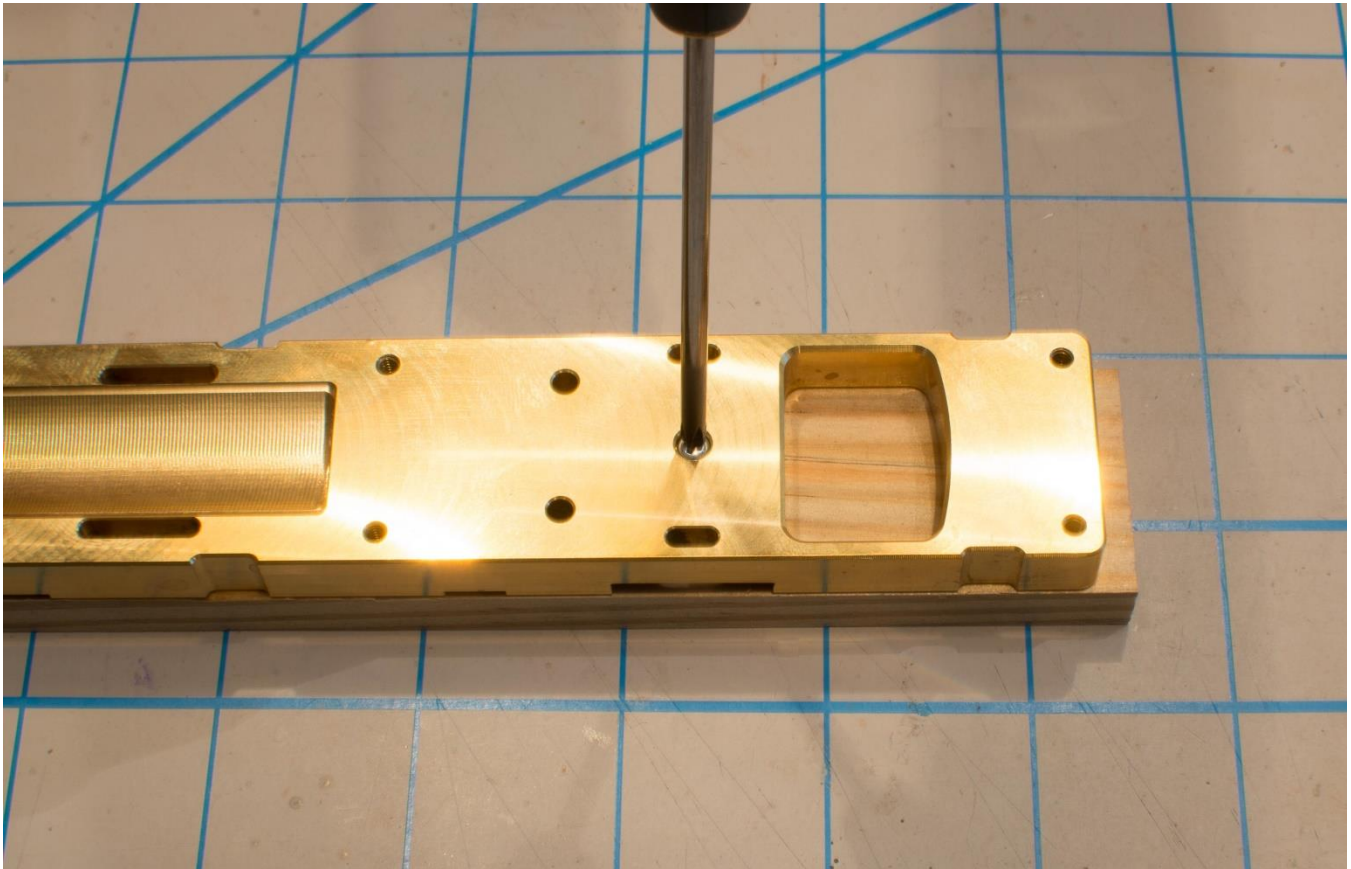


Figure 1.1. Shell and fuel tank removed to expose stock drive train and weights

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Step 2 Remove Shell from Chassis

Remove the shell from the chassis. Removing the locomotive shell is accomplished by removing the shell attachment screws from the underside of the chassis. Access to several screws is blocked by the fuel tank assembly. Therefore, you will need to remove the fuel tank assembly from the underside of the frame to reveal the remaining shell attachment screws. Once all the shell attachment screws have been removed and the shell is free from the chassis, then gently lift the shell only a short distance to expose any electrical connections that might prohibit the shell from being completely removed. Also take note of the handrails that might still be attached to the shell. Since the model will need to be rewired once the new frame support installation is complete, cut any electrical connections, such as lighting circuits, as close as possible to the motor to leave the leads long for when rewiring takes place.

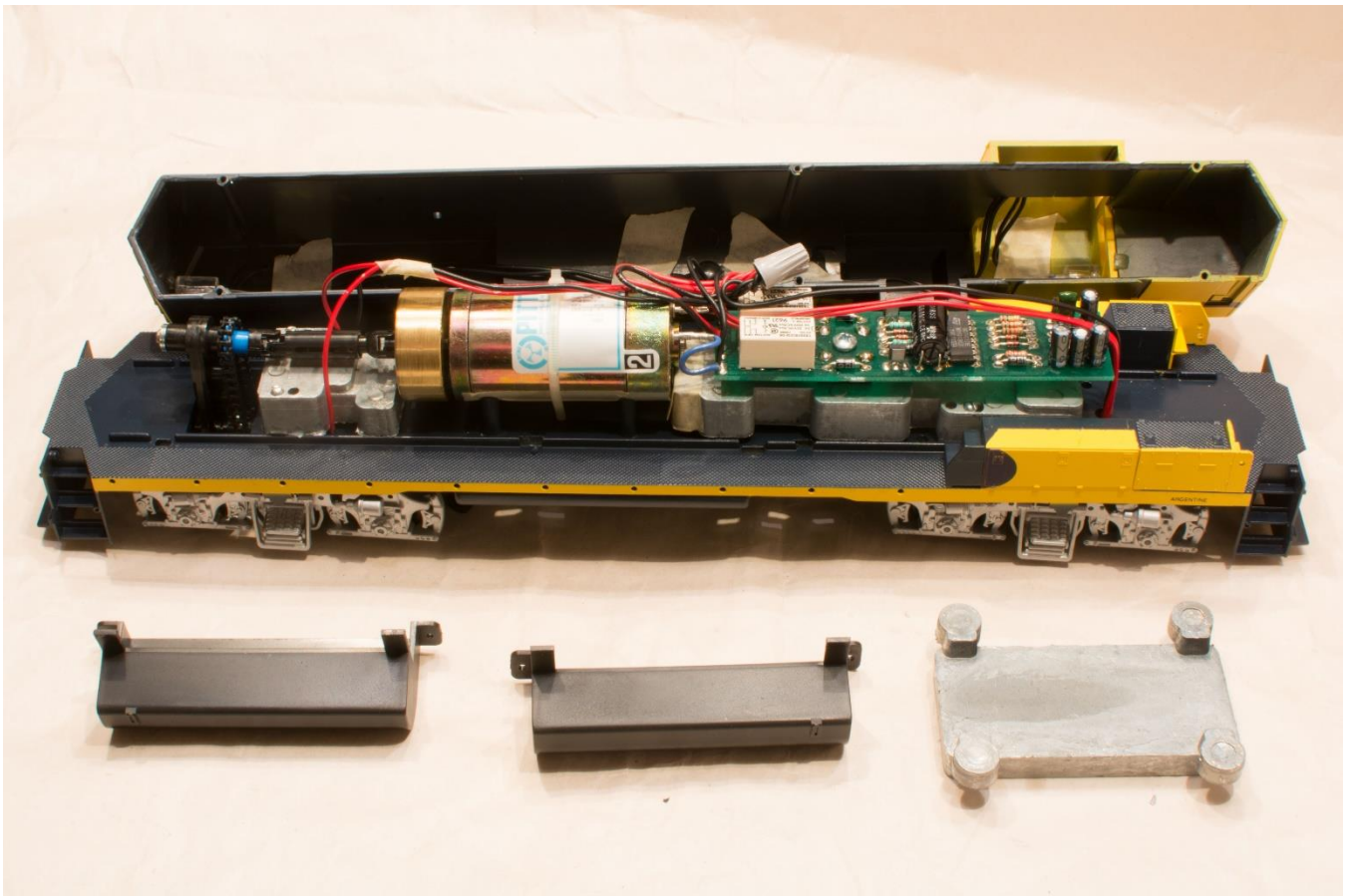


Figure 2.1. Shell and fuel tank removed to expose stock drive train and weights (GP38-2 shown).

Weaver RS3 Frame Support Installation Instructions

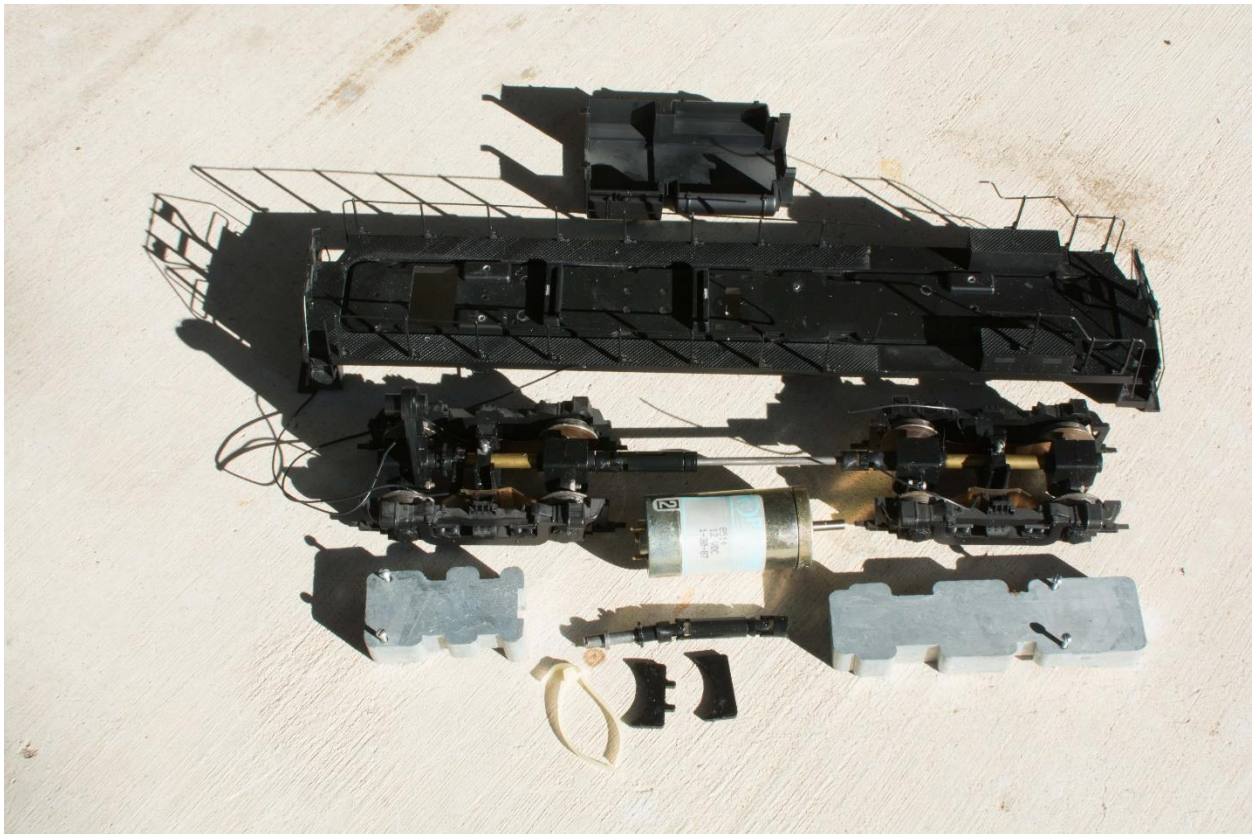
Step 3 Disassemble Drive Train

Now that the shell has been completely removed from the chassis and the internal drivetrain is exposed, it is time to remove all of the drive components and motor from the original frame. Cut the zip tie holding the motor to the motor mounts and cut any track pickup wires connected to the motor connectors. Remove the motor from the chassis. Now is a good time to inspect the chain drive sprocket mounted on the motor shaft as this sprocket is known to crack or split as it ages due to shrinkage of the plastic used in the original manufacture time period. Replacement parts are available from various hobby resellers.

In addition, the wheel wiper pickup leads coming up through the original chassis need to be cut at the motor connectors (leave the leads as long as possible for reattachment later) and pull wires back down through the holes in the plastic frame. New holes for these pickup wires will need to be drilled in the plastic frame to line up with the holes in the brass frame support; however, this will be covered later.

Step 4 Remove stock weights from the chassis

Remove weight fastening screws and remove the weights from chassis. These weights can be discarded as the new replacement frame support will provide enough weight for the model. The new frame support will actually supply more weight than all of the OEM weights combined.



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Figure 4.1. Drive train fully disassembled.

Step 5 Remove truck mounting screws

Remove truck mounting screws from the topside of the chassis and drop the trucks. At this point, you will be left with a bare chassis.



Figure 5.1. Bare frame with motor mounts removed.

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Step 6 Mark location of power pickup wire holes

Place new brass frame support on the stock plastic chassis. The engraved text on the frame support belongs at the cab-end of the chassis. Temporarily fasten in place with frame mounting screws in the corner of each truck bolster. Once the brass frame is temporarily attached, then use a sharp scribe and mark out new hole locations in the stock plastic chassis for the power pickup wires. *See Figure 6.1.*



Figure 6.1. Use scribe to mark new wire pickup hole locations.

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Remove the brass frame support and note the location of your power pickup location scribe marks.



Figure 6.2. Use scribe marks to locate new drilled holes. (RS-3 model shown)

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Step 7 Drill power pickup holes

With the brass frame support removed, now drill four (4) 3/32" holes inside the scribe marks through the stock plastic frame for the new location that the electrical pickup wiper wires that were marked out in Step 6. In addition, if you opted to use the zip tie method to secure the motor, then drill the two clearance holes for the zip tie to pass through at this time.

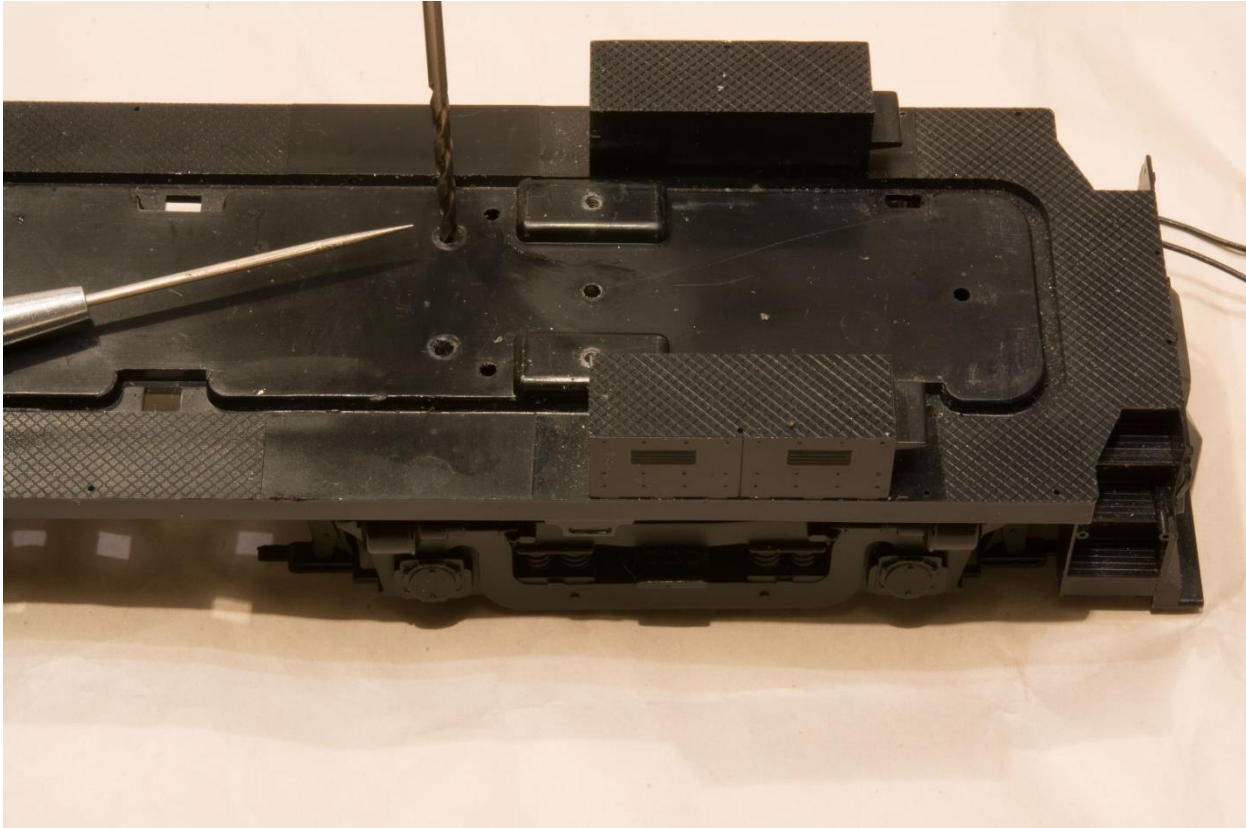


Figure 7.1. Drill 3/32" holes at scribe marks to allow power pickup wires to pass through stock chassis at new location. (RS3 model shown)

Weaver RS3 Frame Support Installation Instructions

Step 8 Install motor mount straps

Insert the formed brass motor mount straps up through the bottom of the brass frame support in the provided slots. Verify that the strap pins recess up into the bottom of the brass frame support and verify that the motor mount straps are in the proper orientation to wrap around the Pittman motor before proceeding.

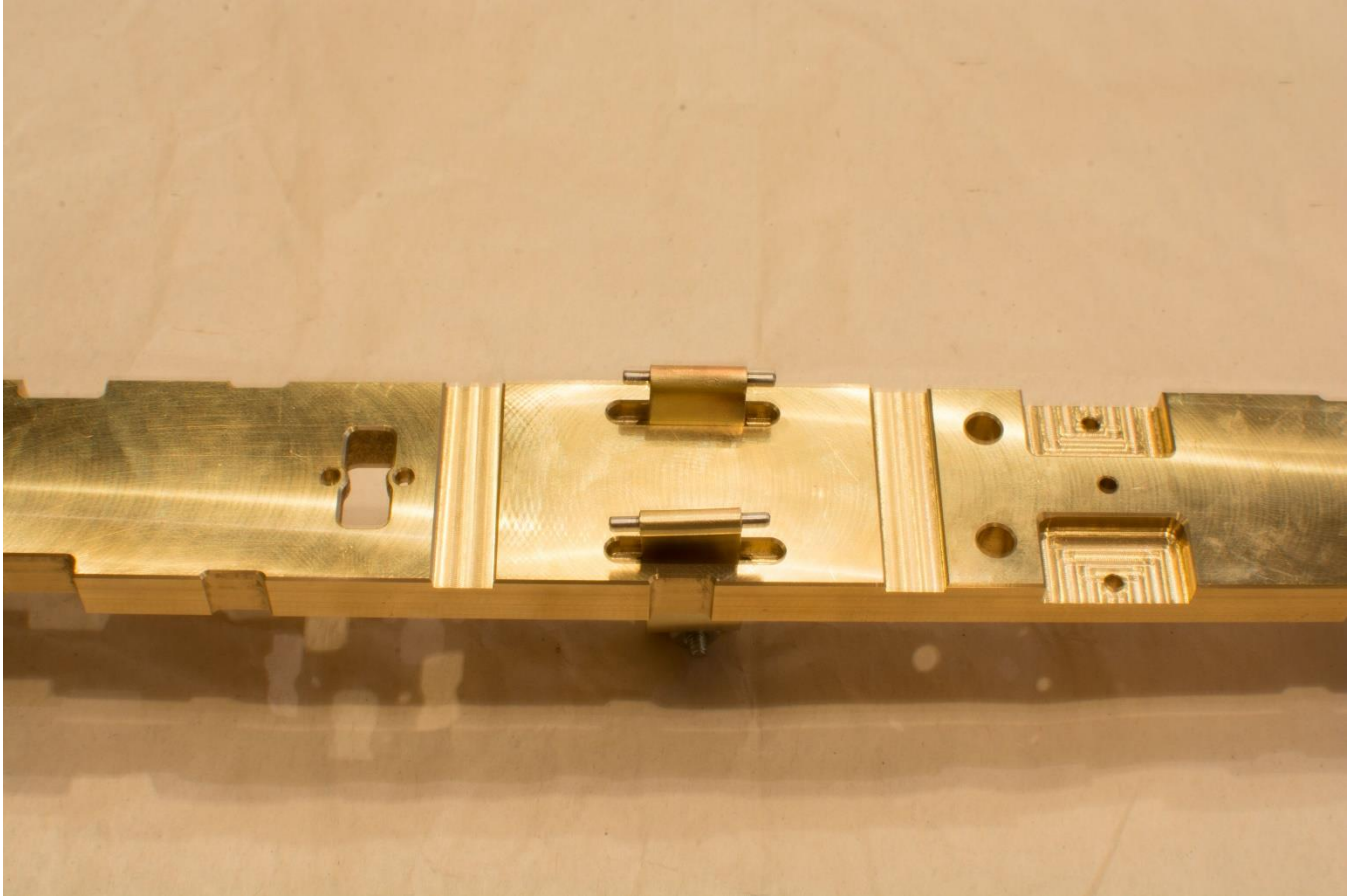


Figure 8.1. Install motor strap clamps from the underside. Retaining pins should sit down flush in the slot recess.

Weaver RS3 Frame Support Installation Instructions

Step 9 Attachment of the frame support to the chassis

Now it is time to do the final install the brass frame support onto the Weaver plastic chassis. Once again, install the brass frame support back onto the stock Weaver chassis and affix with the provided 2-56 machine screws. Install four (4) outer 2-56 x ½" long machine screws above each corner of the truck bolster and the two (2) 2-56 x ½" screws down in the center recess of the chain drive opening. Next, attach two #2 flat washers and two #2 hex nuts on the underside of the frame to firmly affix the center of the Weaver chassis to the brass frame support.

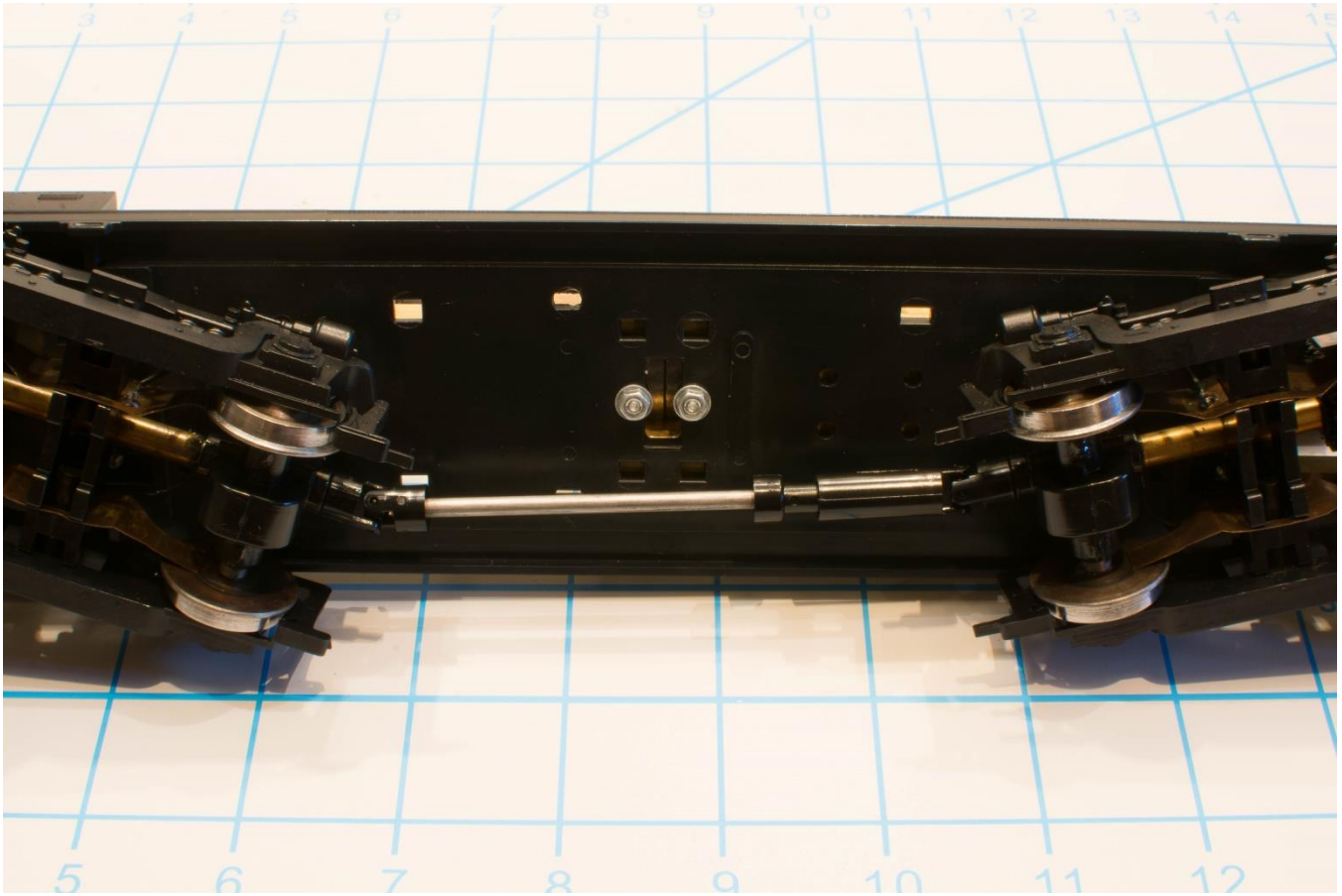


Figure 9.1. Additional attachment screws added to tie in center of plastic chassis to the frame support.

Weaver RS3 Frame Support Installation Instructions

Step 10 Route power pickup wires through new holes

Place assembled chassis on Weaver truck assembly and route track pickup wires through the new holes that you drilled for this purpose in the plastic chassis and up through the brass frame support.

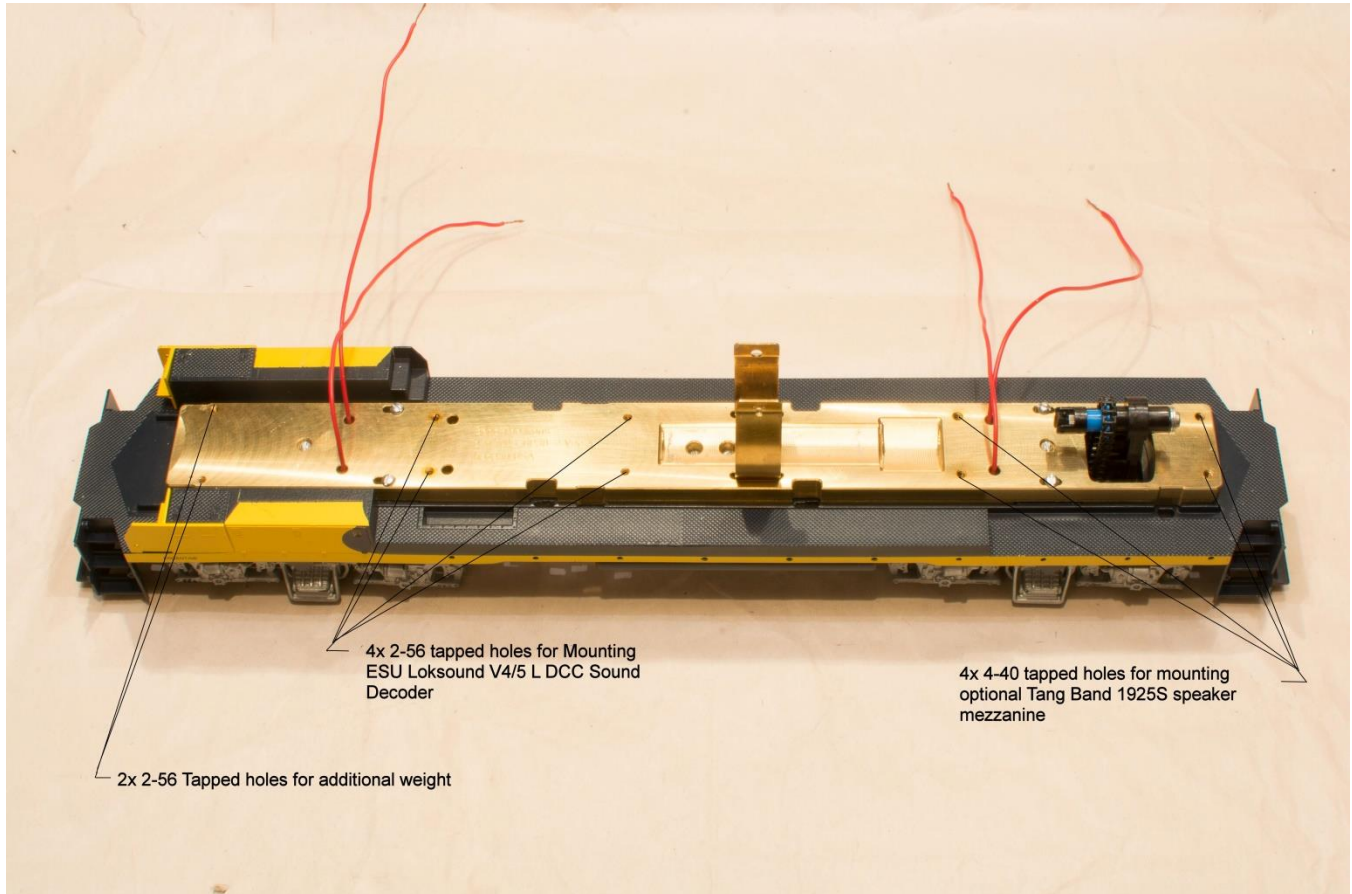


Figure 10.1. Route power pickup wires through the provided holes in brass frame support in addition to the new holes that you drilled in stock plastic frame as shown in the photo. (GP38-2 model shown)

Weaver RS3 Frame Support Installation Instructions

Step 11 Attach Trucks to chassis

Attach the truck assembly to the chassis using the 2x 2-56 x 5/8" screws. Note, this can take a bit of time to get the trucks lined up and the screw started. Do not overtighten the screws as the trucks need some play to swivel side-to-side, in addition to having some vertical up-and-down travel to go over uneven track.

Step 12 installing the motor using the formed brass motor strap clamps

Slide the stock Pittman motor between the formed brass motor straps and insert the 4-40 x 5/8" motor clamp screw and star-type lock washer. Leave the formed motor clamps loose initially as to align the chain drive sprocket to be directly above the lower chain sprocket located in the fuel tank area. Reconnect the chain to both the upper and lower sprockets and test spin the motor shaft with your hand to make sure the motor is properly aligned and that the chain has the proper tension. If you need to add tension to the chain, you can apply some type of shim material under the motor, such as layers of electrical tape. Shim as needed.

Once the motor is properly positioned and the chain is properly tensioned, you can then tighten the motor strap clamp screw down to a point where there is approximately 1/4" gap in motor clamp screw tabs. The motor should now be held firmly in place and should not be able to be rotated or moved longitudinally along the length of the frame. The gap between the motor clamp screw tabs can also double as a way to route wires across the top of the motor.

The brass frame support installation is now complete, and you can complete hooking up the remaining drivetrain and electrical related connections.

Weaver RS3 Frame Support Installation Instructions

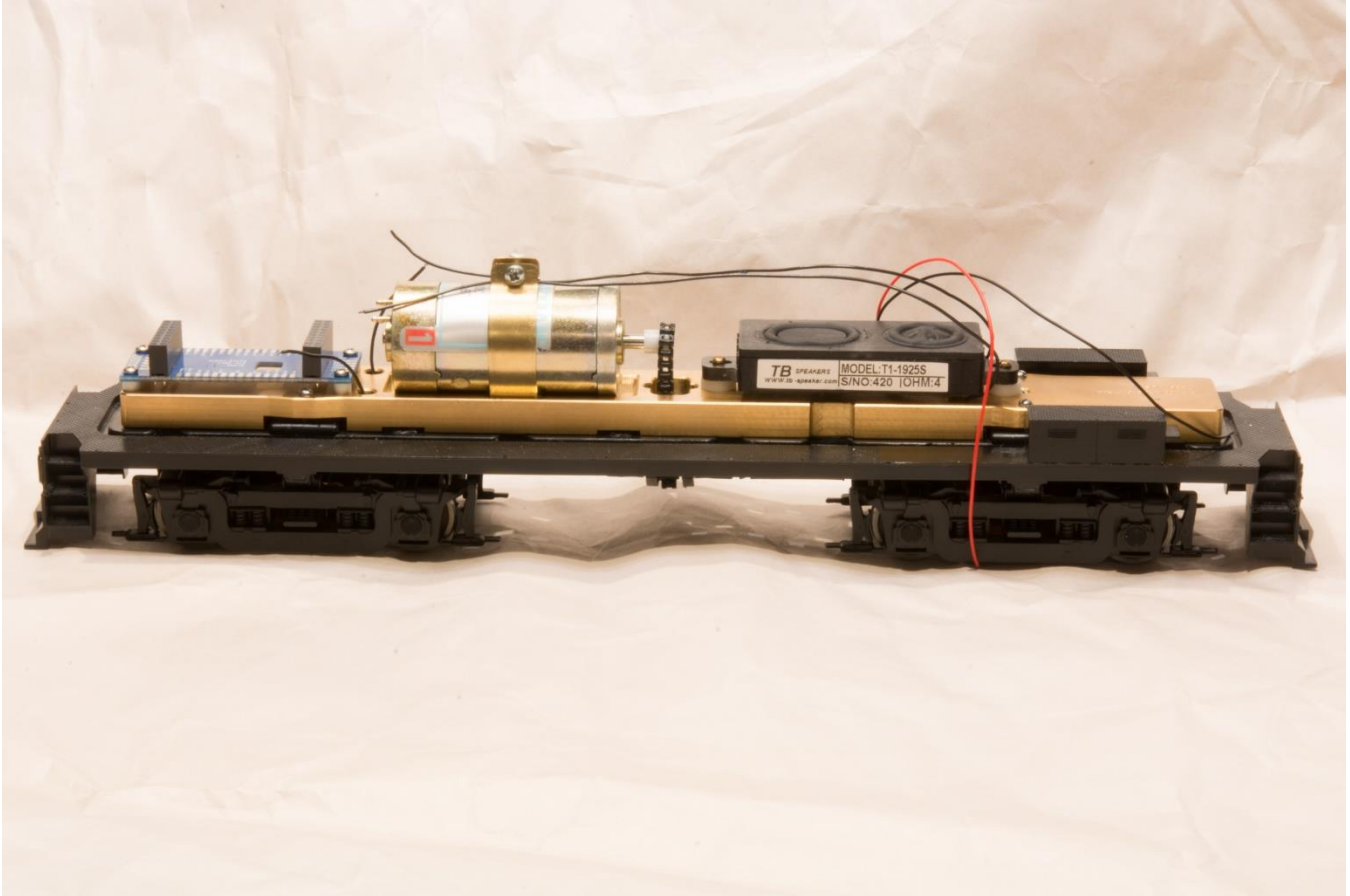


Figure 12.1. Completed brass frame support installation with **optional** RS3 speaker mezzanine (speaker not included) and ESU Loksound V5 L DCC sound decoder installed.

Step 13 Installing the ESU Loksound Sound Decoder Interface Board

If you wish to use an ESU Loksound V4 or V5 size L (large scale) DCC sound decoder in your RS3 locomotive, then there are four (4) predrilled and tapped 2-56 holes, spaced to match the ESU decoder interface board mounting holes. In the Center Drive version of the frame support, the ESU Loksound DCC Decoder gets installed in the non-cab end of the locomotive. For the End Drive version of the frame support, the ESU Loksound DCC Decoder gets installed in the cab end of the locomotive. If you are using another brand of DCC Decoder, then it is up to you where it is best to install the DCC Sound Decoder. Most other brands can be installed using a piece of double-sided foam tape.

Four (4) plastic standoffs have been provided in the frame support kit to keep the ESU decoder interface board electrically insulated from the brass frame. Once the ESU interface board is installed (or another brand), then simply wire up decoder according to the manufacturer's instructions.

Weaver RS3 Frame Support Installation Instructions

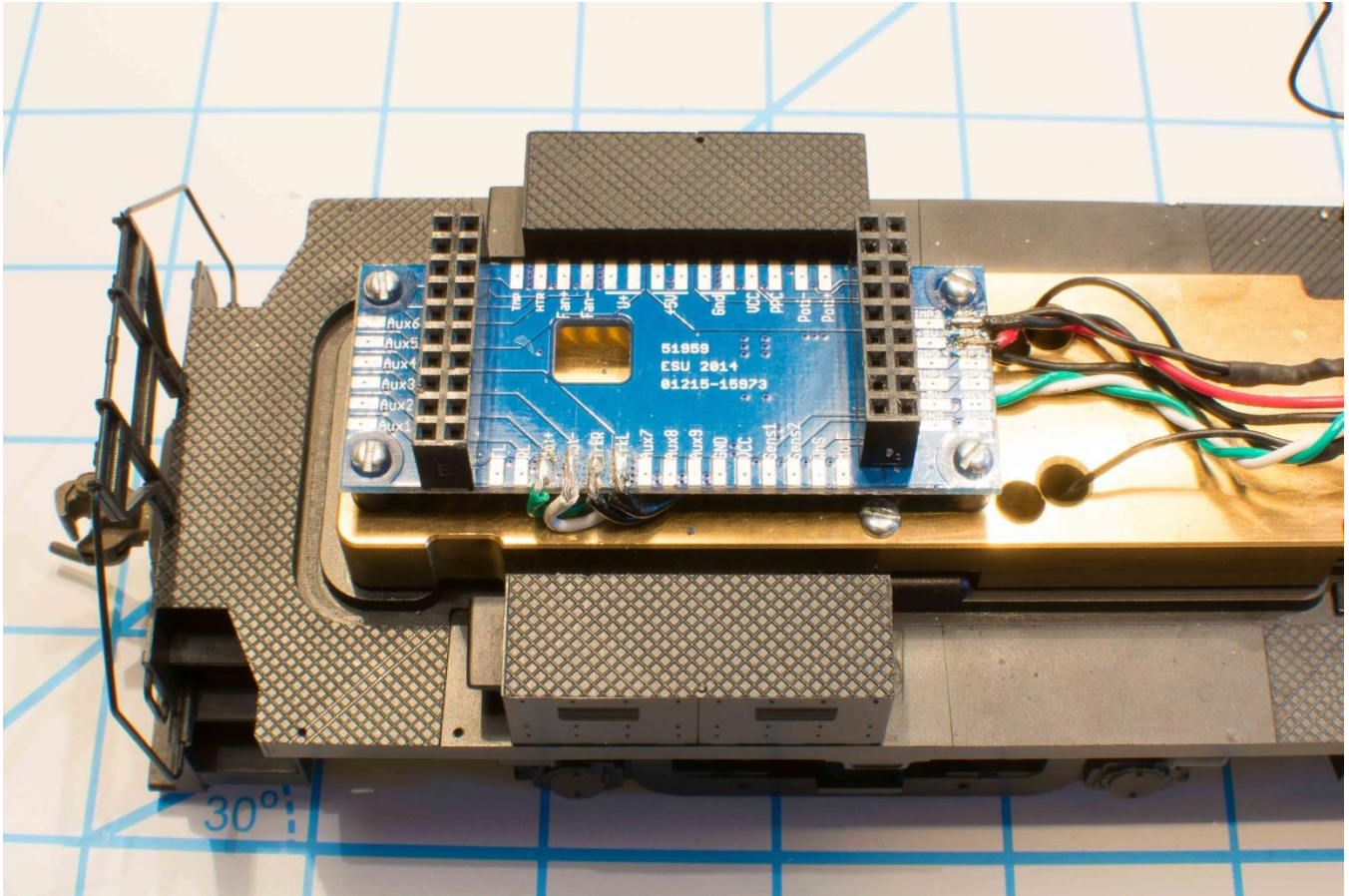


Figure 13.1. ESU Loksound V4/V5 L DCC sound decoder interface board mounting.

Weaver RS3 Frame Support Installation Instructions

Step 14 Installing the Tang Band 1925S speaker on (Center Drive) frame support

The center drive version of the brass frame support is configured to have the Tang Band 1925S speaker mounted directly on the cab-end of the support. Two nylon washers have been provided to act as stand-offs which slightly raise the speaker off of the frame support in order to not cause any short circuits from exposed electrical connections on the bottom of the speaker. In addition, the mounting ears on the Tang Band 1925S speakers are not always exactly flush with the bottom of the main speaker body. Therefore, these washers help make up for any imperfections in the speaker body component.

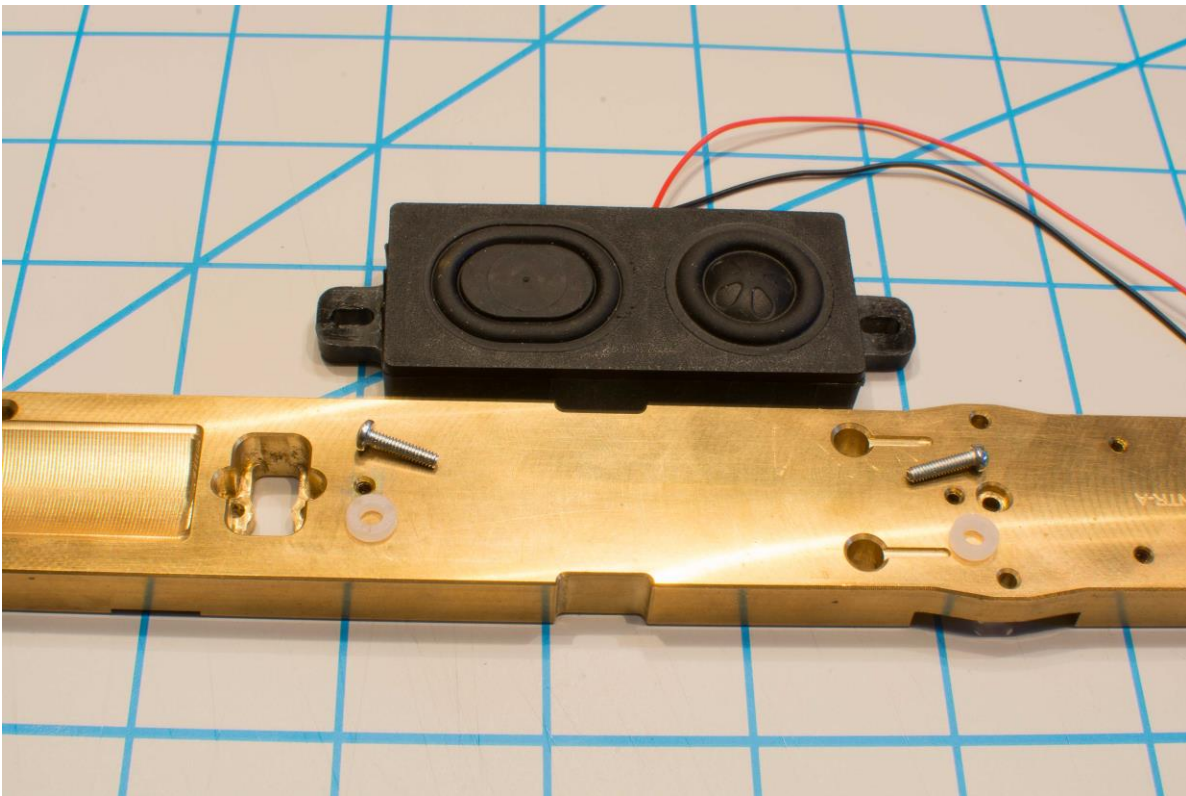


Figure 14.1. The Tang Band 1925S speaker mounts in the open space next to the center chain drive opening with nylon washers for a stand-off.

Weaver RS3 Frame Support Installation Instructions

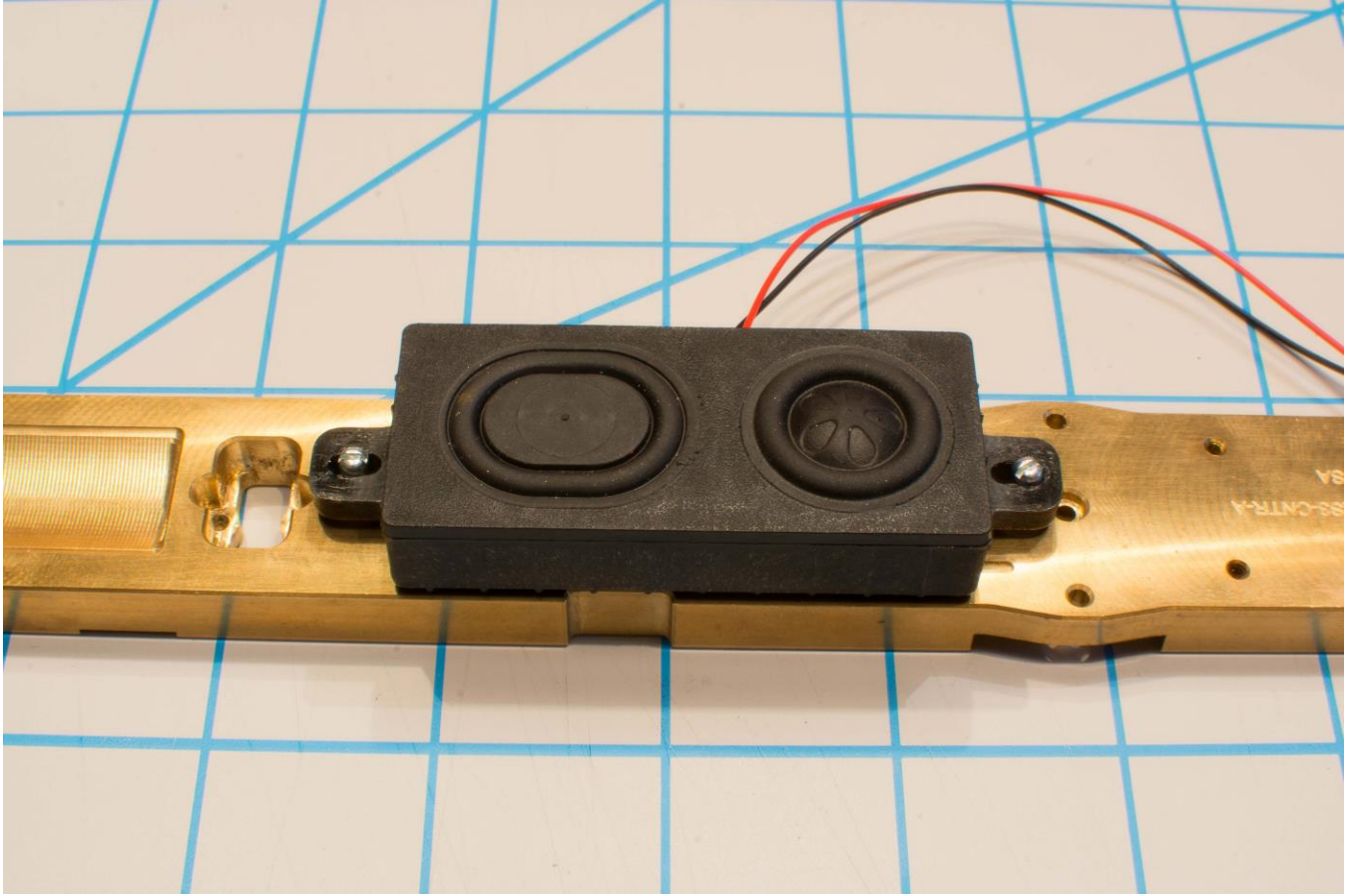


Figure 14.2. Fully installed Tang Band 1925S speaker (not provided) in RS3 center drive frame support.

Weaver RS3 Frame Support Installation Instructions

Step 15 Installing the optional elevated speaker mezzanine (End Drive-only)

If you purchased optional elevated speaker mezzanine to allow a Tang Band 1925S speaker to be installed over the top of the chain-driven truck on the end drive model, then follow the installation steps below. The speaker mounts through an inner cut-out to allow the speaker to fit over the chain-driven truck but still be low enough to fit beneath the long hood.

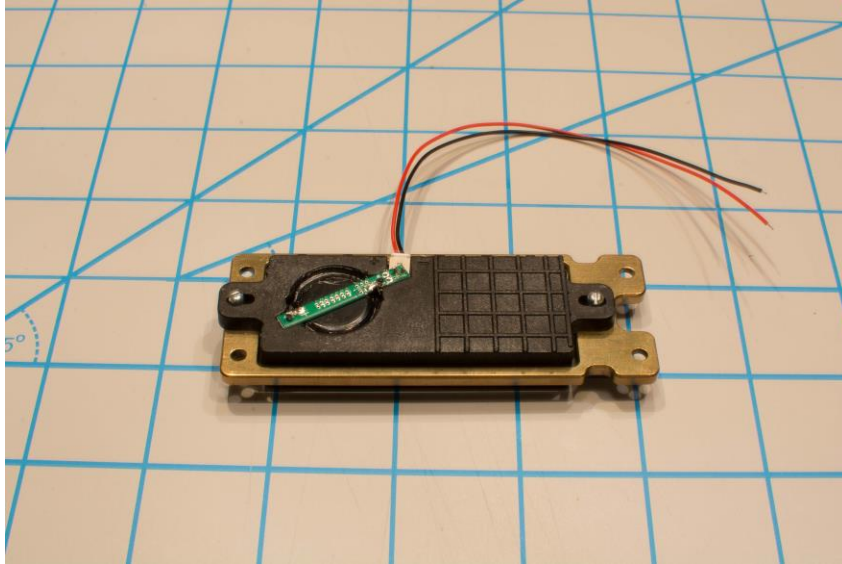


Figure 15.1. Install (user-provided) Tang Band 1925S speaker from the underside of the brass speaker mounting plate using the supplied 2-56 mounting screws.

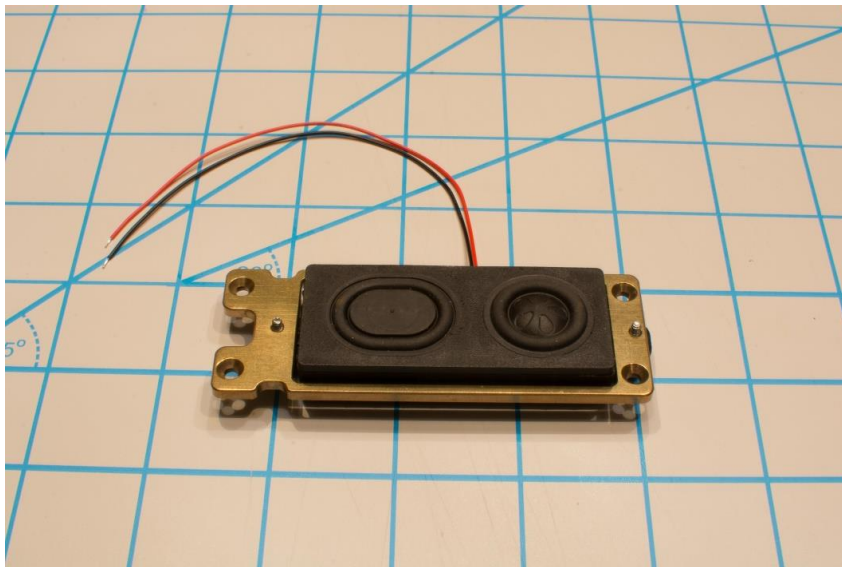


Figure 15.2. Note that the top-side of the speaker mounting plate has countersunk holes in each of the corner, so be sure the mounting plate is oriented properly before installing the Tang Band 1925S speaker.

Weaver RS3 Frame Support Installation Instructions

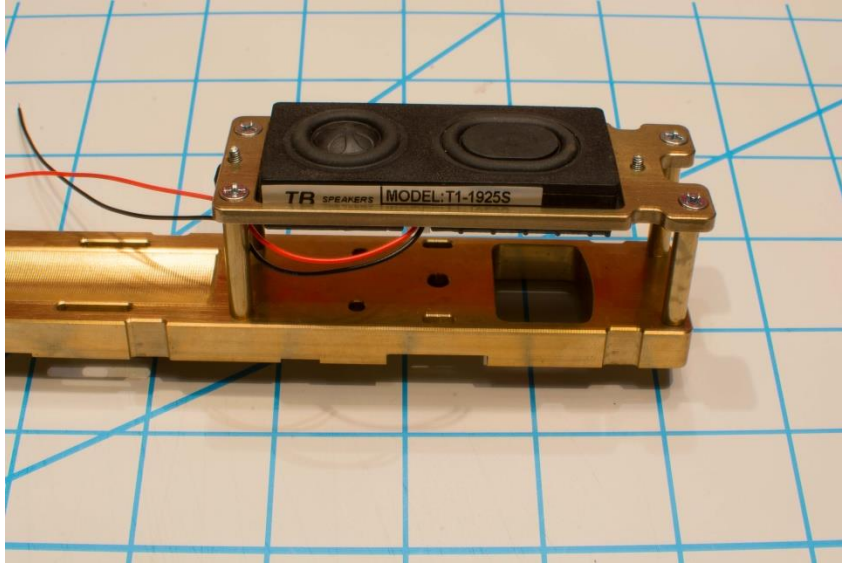


Figure 15.3. Note the orientation of the speaker mounting plate with the outer notches in the plate facing the end of frame to slide around the model's inner molded features.