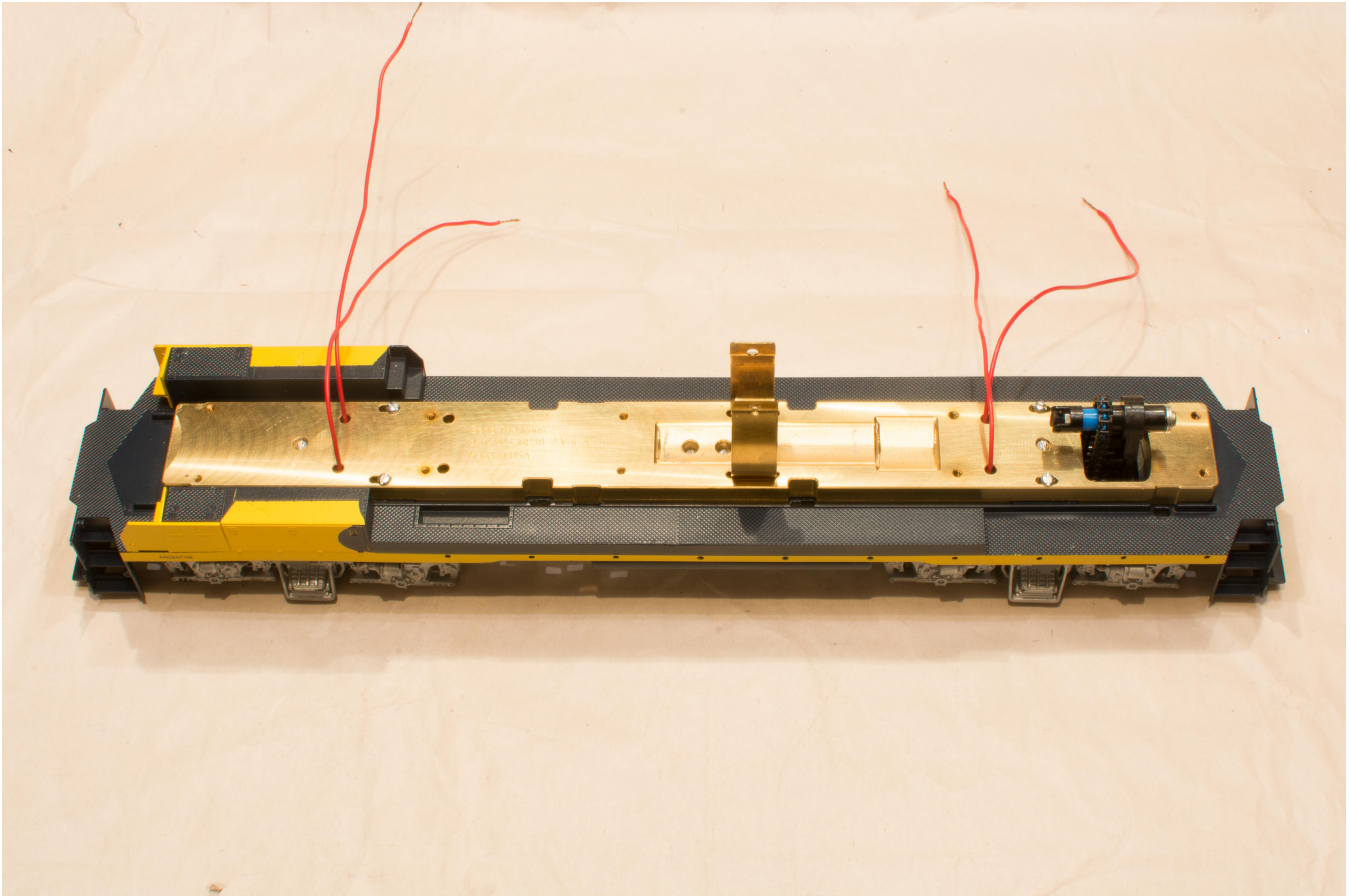


## Weaver GP38-2 Frame Support Installation Instructions

Thank you for purchasing the Weaver GP38-2 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.

## Weaver GP38-2 Frame Support Installation Instructions

- 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).
- 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.

# Weaver GP38-2 Frame Support Installation Instructions

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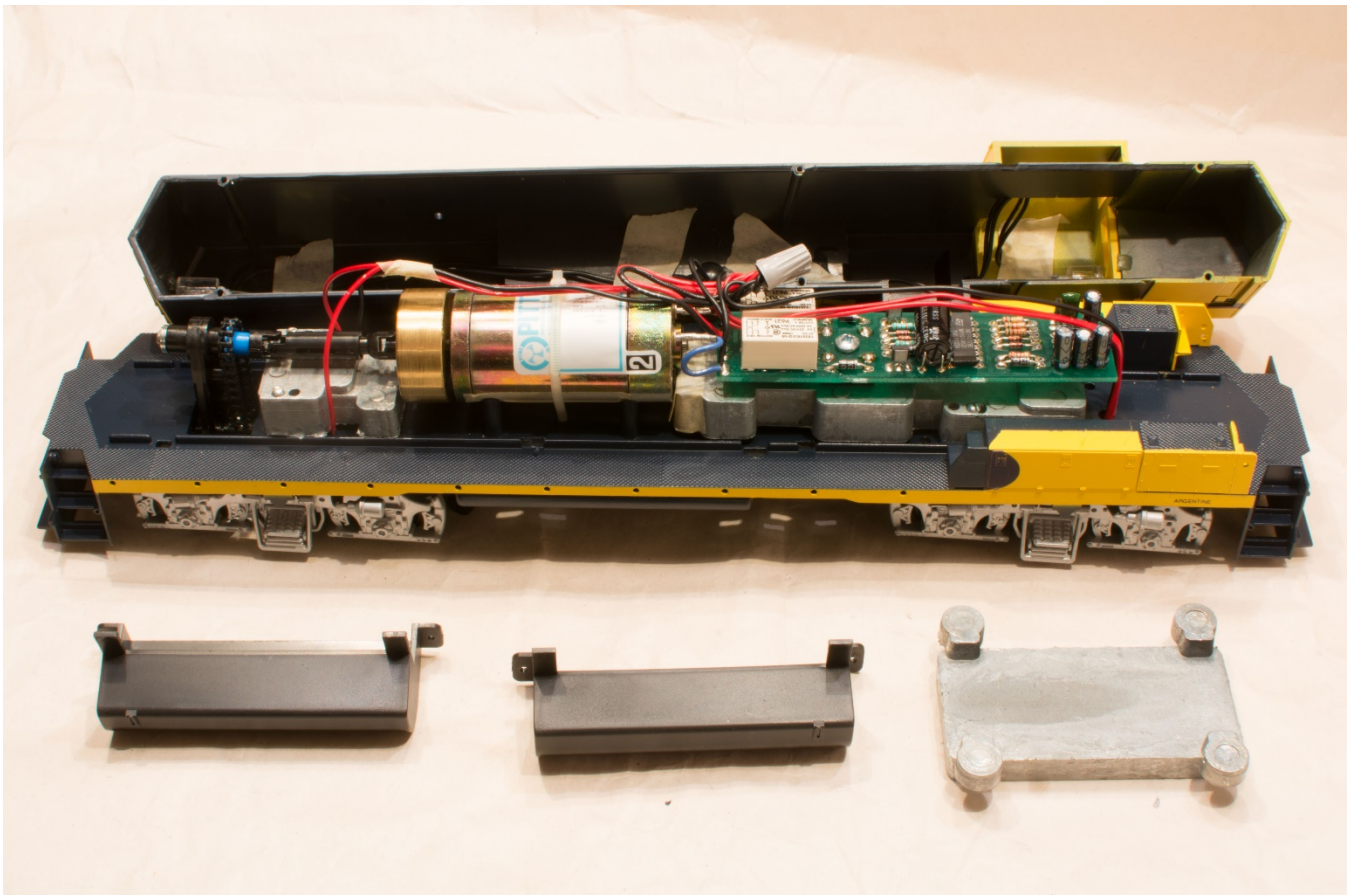
# Weaver GP38-2 Frame Support Installation Instructions

## 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 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.



# Weaver GP38-2 Frame Support Installation Instructions

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

## **Step 2 Disassemble Drive Train**

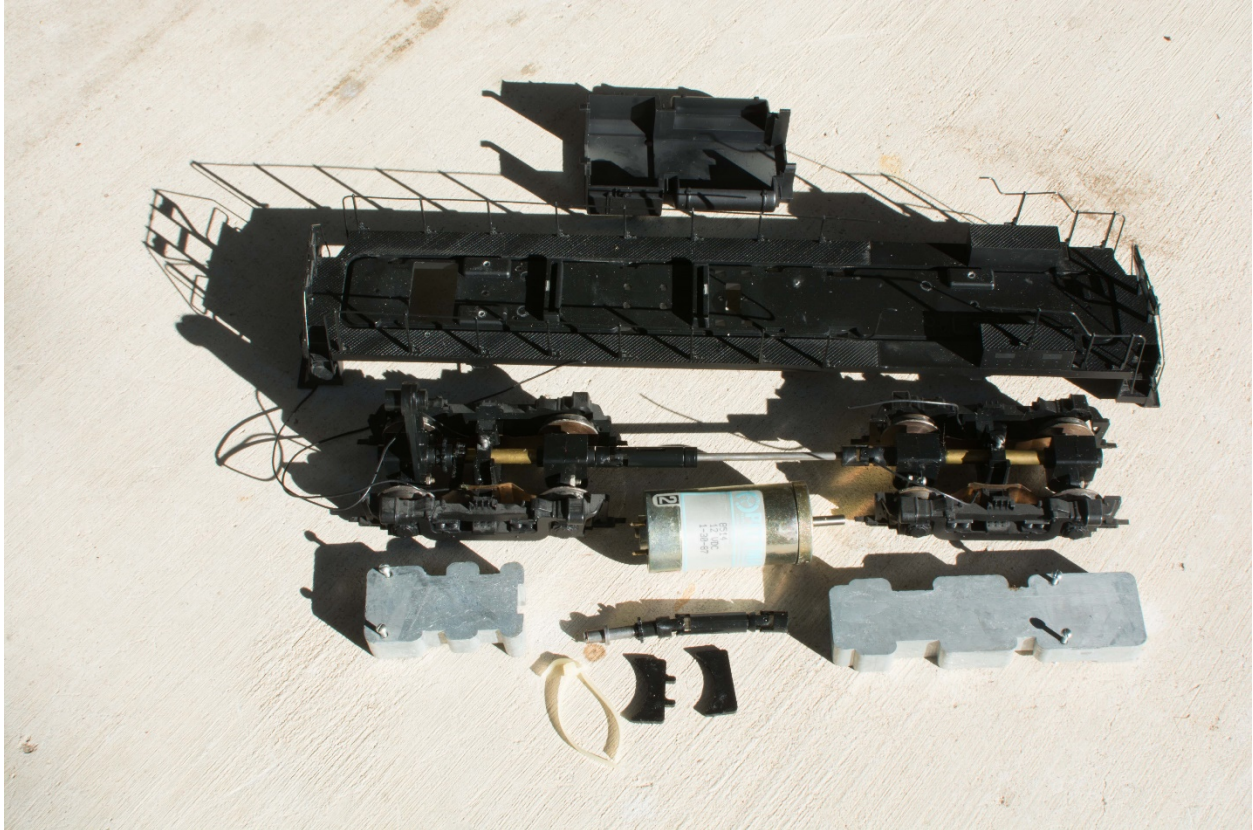
Now that the shell has been completely removed from the chassis and the internal drivetrain is exposed, it is time to remove all of the drive components and motor from the original frame. Cut the zip tie holding the motor to the motor mounts and cut any track pickup wires connected to the motor connectors. 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 3 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.

## Weaver GP38-2 Frame Support Installation Instructions



*Figure 3.1.* Drive train fully disassembled (RS-3 model shown).

### **Step 4 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.

## Weaver GP38-2 Frame Support Installation Instructions

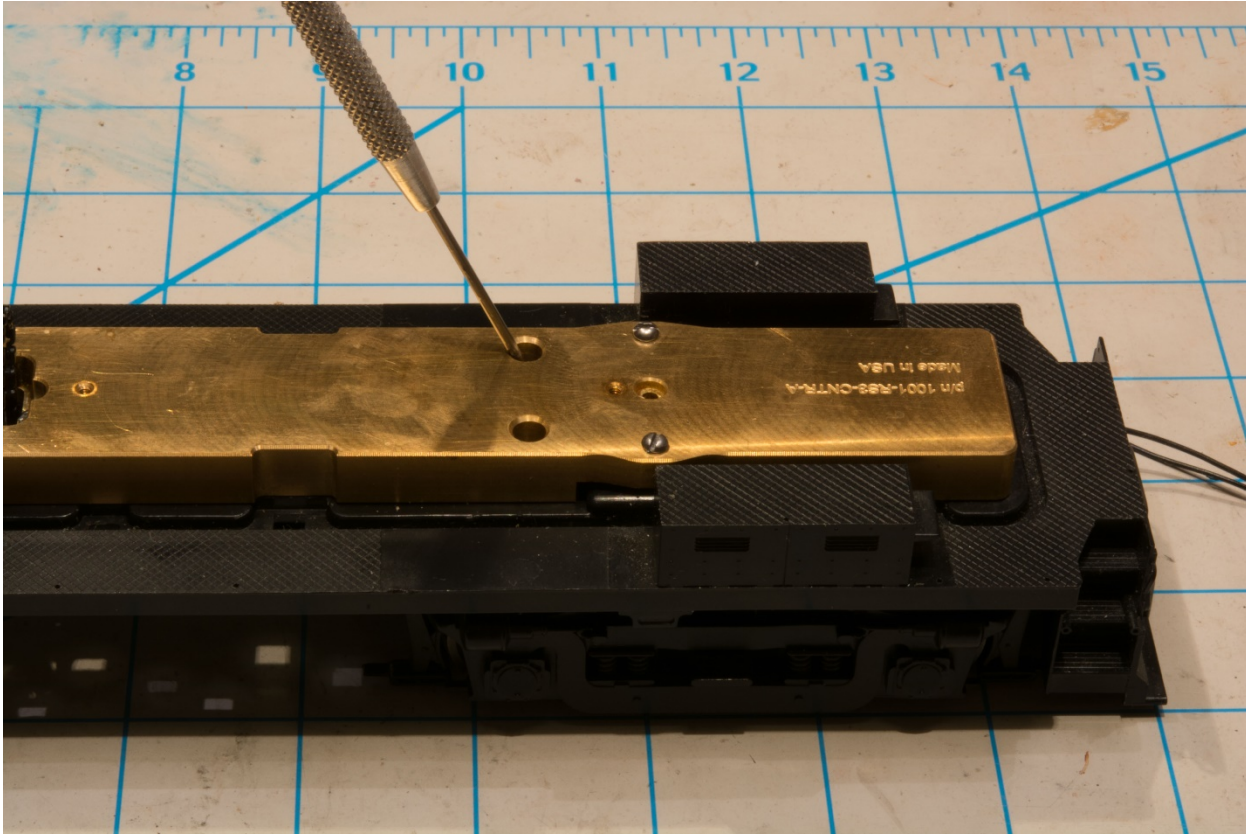


*Figure 4.1.* Bare frame with motor mounts removed. (RS3 model shown)

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### Step 5 Mark location of power pickup wire holes

Place new brass frame support on the stock plastic chassis and temporarily fasten in place with frame mounting screws in the corner of the 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 5.1.

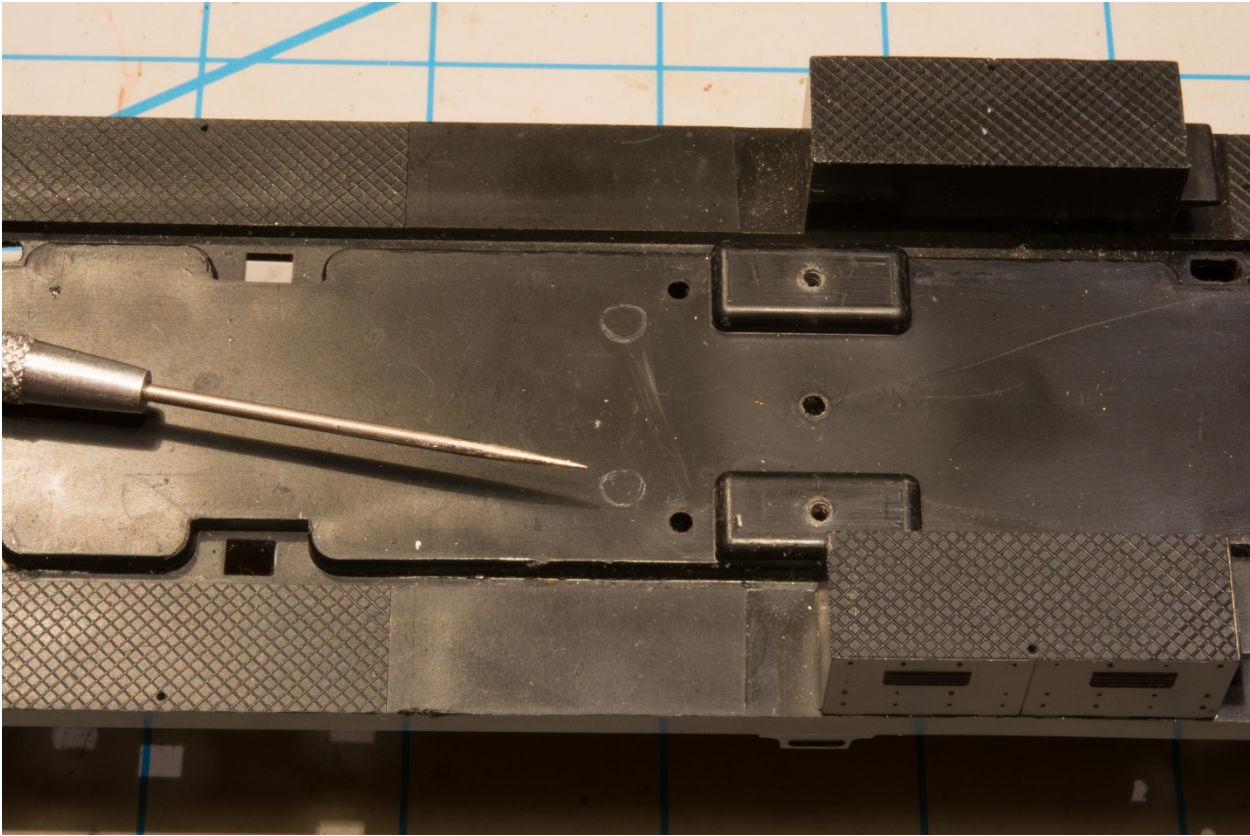


*Figure 5.1.* Use scribe to mark new wire pickup hole locations.



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

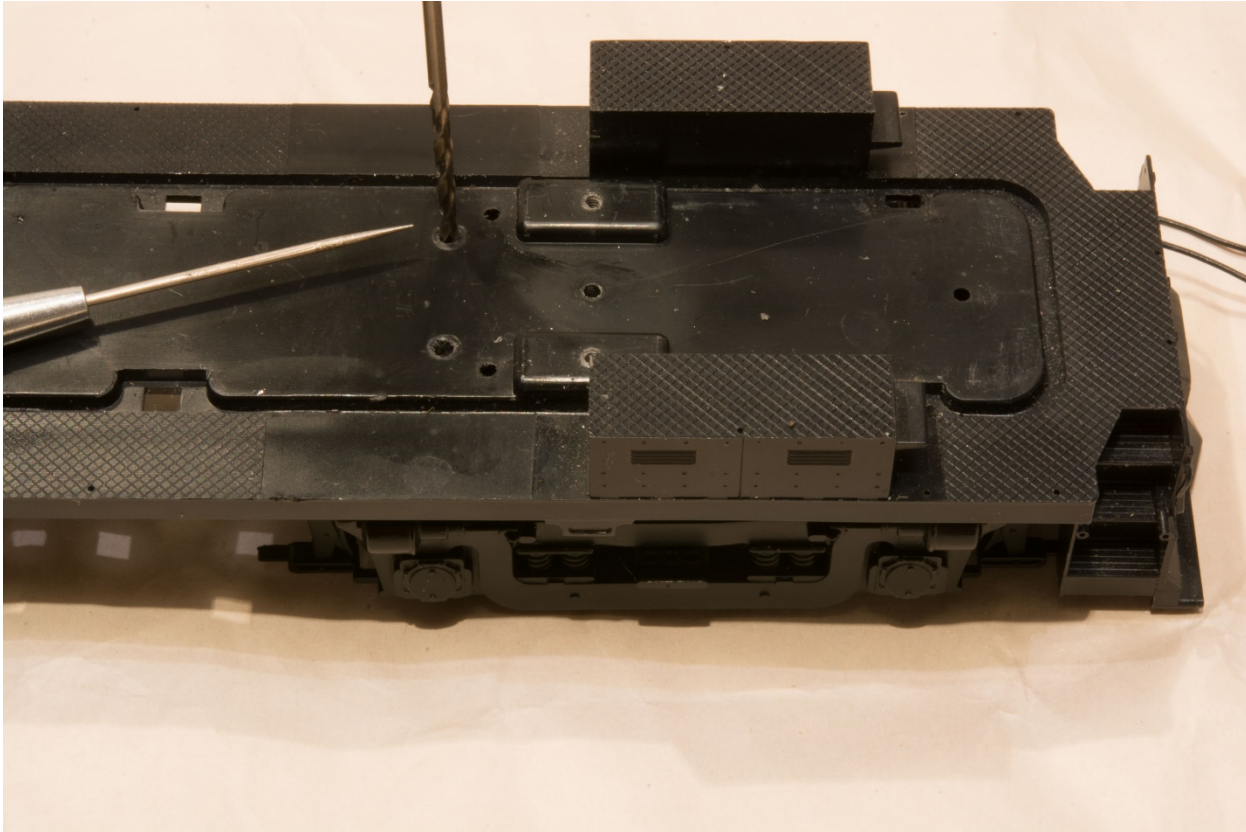


*Figure 5.2.* Use scribe marks to locate new drilled holes. (RS-3 model shown)

## Weaver GP38-2 Frame Support Installation Instructions

### Step 6 Drill power pickup wire 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.

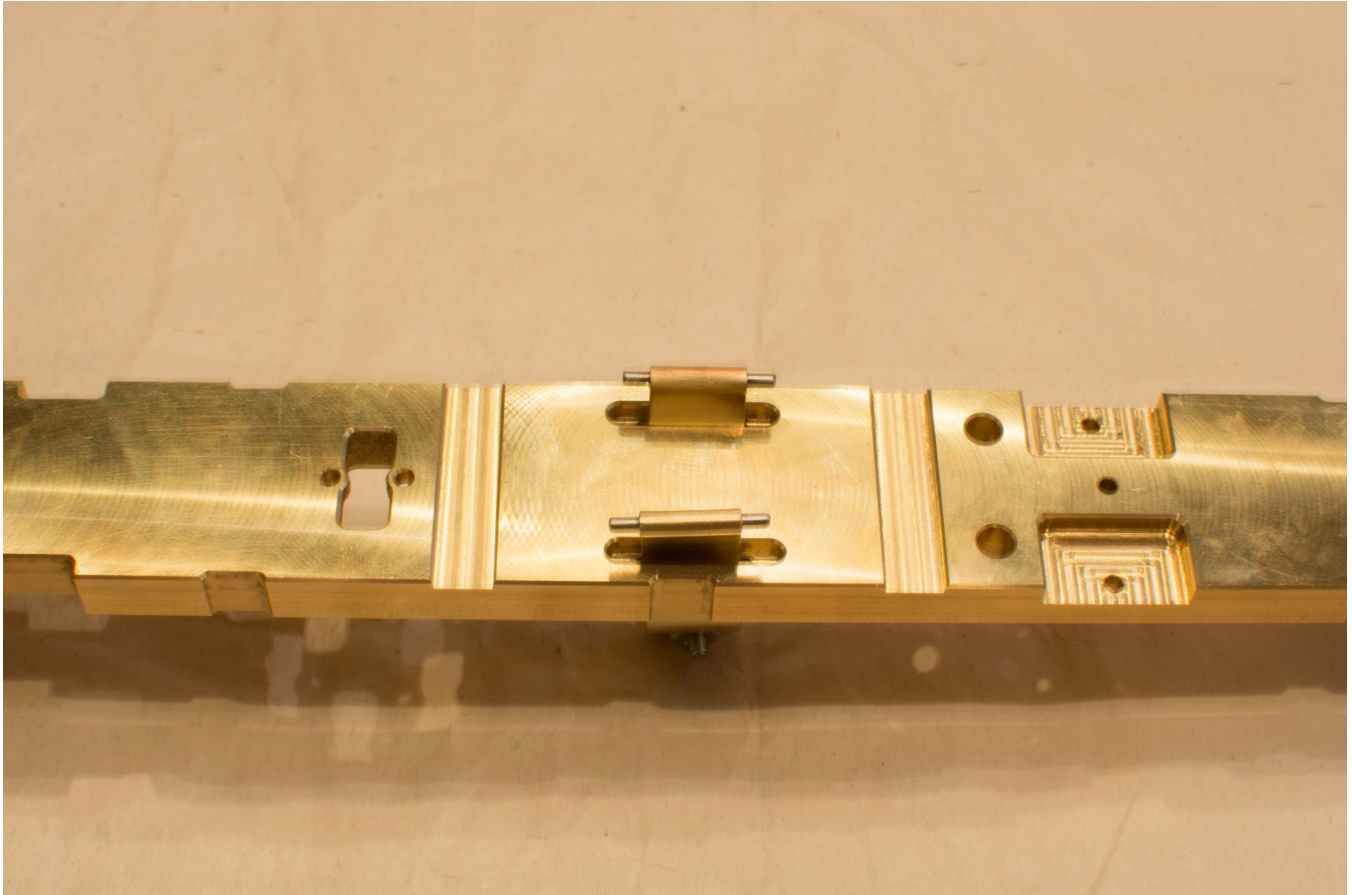


**Figure 6.1.** Drill 3/32" holes at scribe marks to allow power pickup wires to pass through stock chassis at new location. (RS3 model shown)

## Weaver GP38-2 Frame Support Installation Instructions

### Step 7 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.

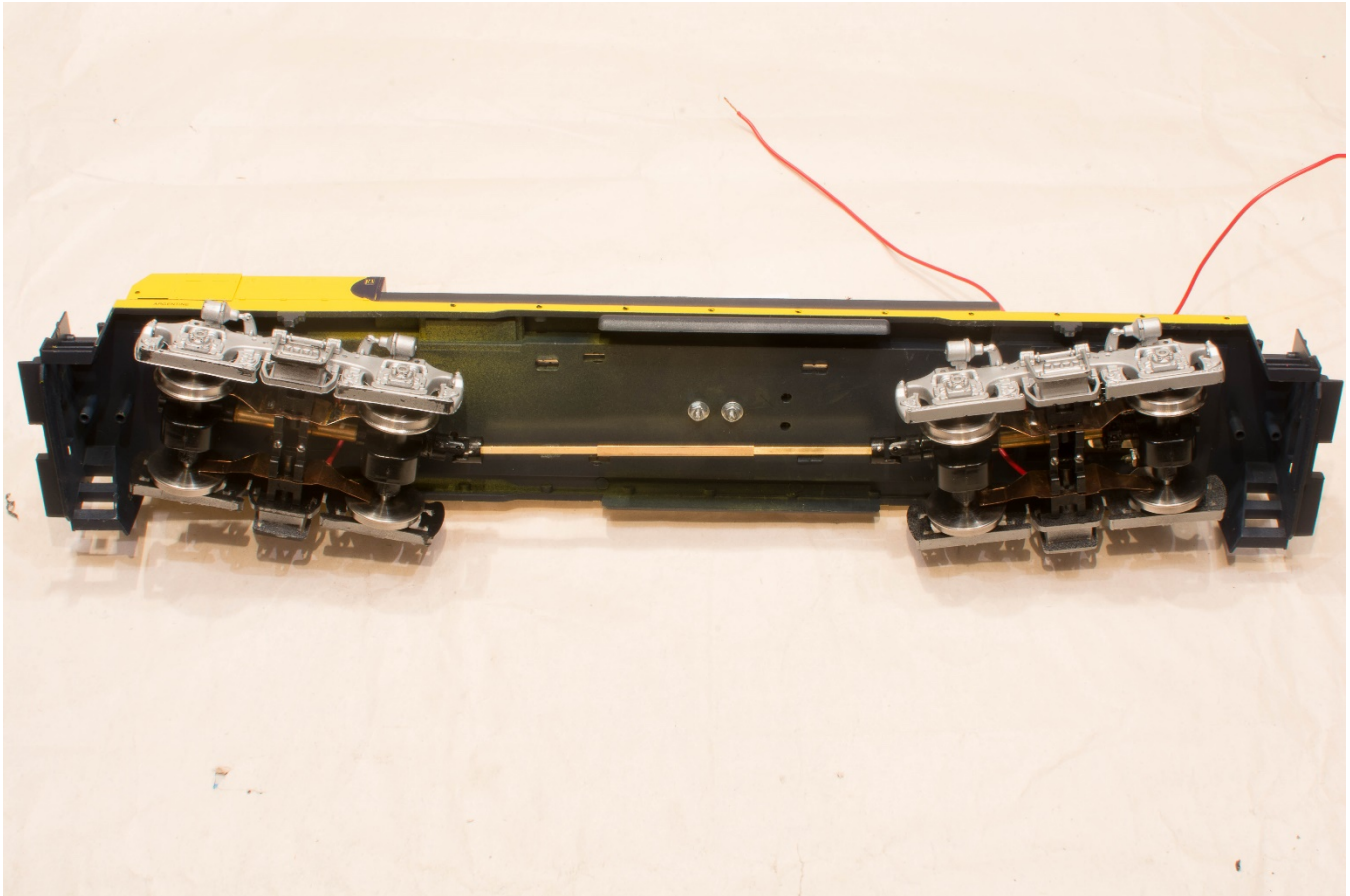


*Figure 7.1.* Install motor strap clamps from the underside. Retainment pins should sit down flush in the slot recess.

## Weaver GP38-2 Frame Support Installation Instructions

### Step 8 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 outer 2-56 x ½" long machine screws above each corner of the truck bolster and the 2x 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.

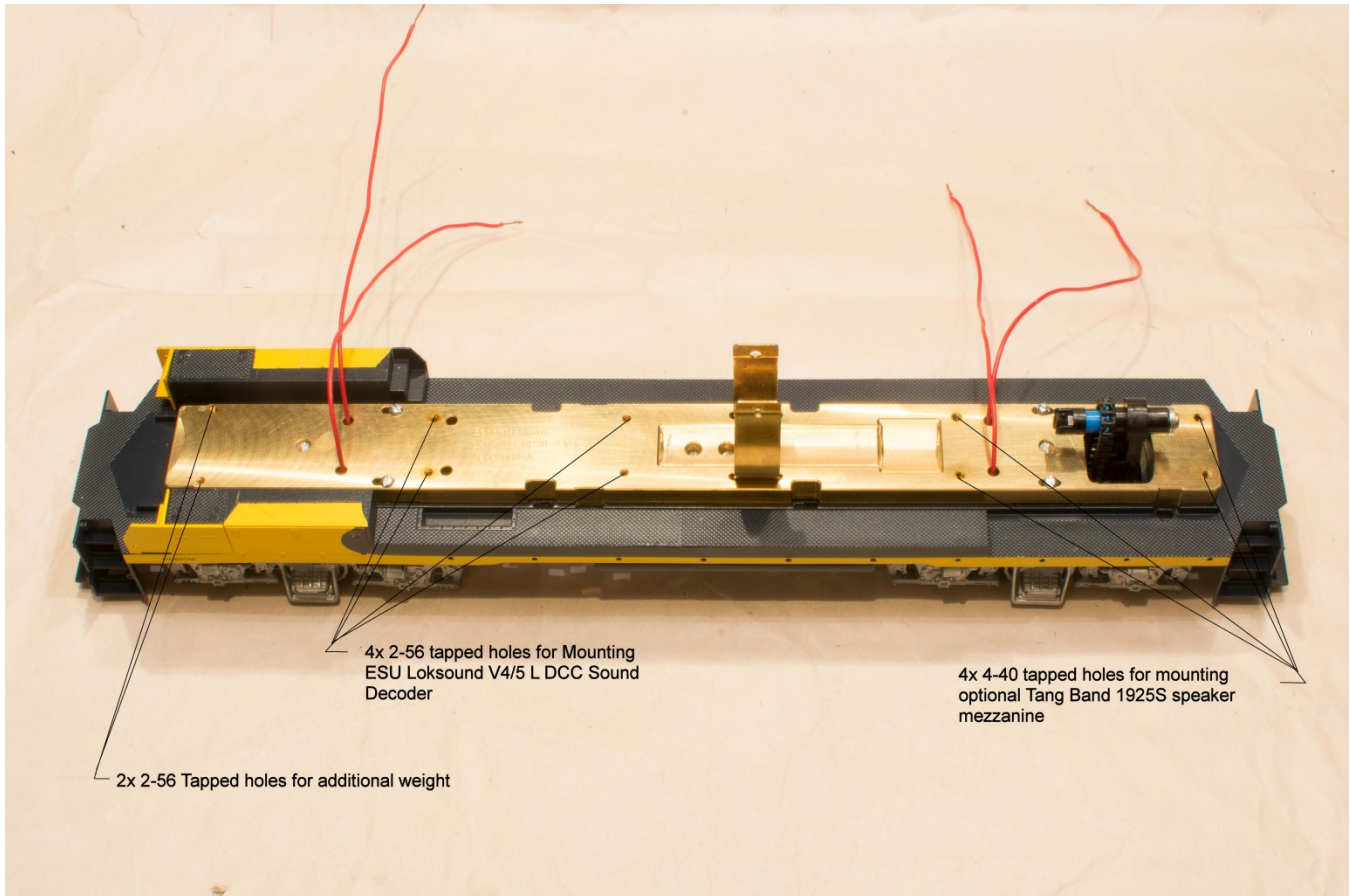


*Figure 8.1.* Additional attachment screws added to tie in center of plastic chassis to the frame support.

# Weaver GP38-2 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 truck pickup wires through the new holes in stock plastic frame as well as the holes in the brass frame support as shown in the photo.

## Weaver GP38-2 Frame Support Installation Instructions

### Step 11 Attach Trucks to chassis

Attach the truck assembly to the chassis using the two (2) 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.

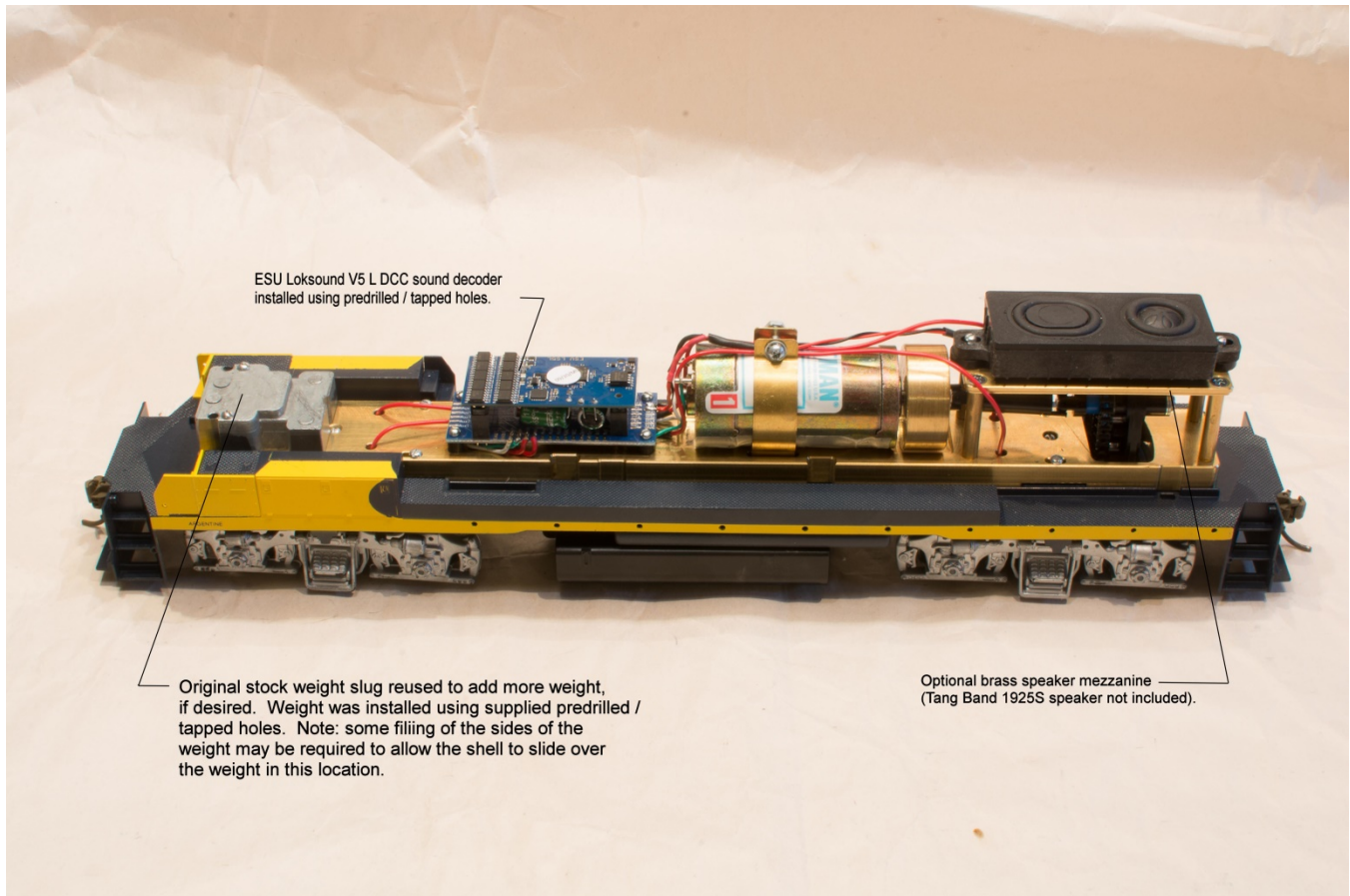
### Step 12 Installing the motor using the formed brass motor strap clamps

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, 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 GP38-2 Frame Support Installation Instructions



**Figure 12.1.** Completed brass frame support installation with optional speaker mezzanine and ESU Loksound V5 L DCC sound decoder installed. Note the reuse of one of the stock cast weight slugs at the nose end of the locomotive. Some grinding and filing of this reused stock weight slug may be needed to get the shell to fit down flush on the frame. Drilled and tapped 2-56 holes are provided in the brass frame support to allow installation of this added weight section, if more weight is desired.

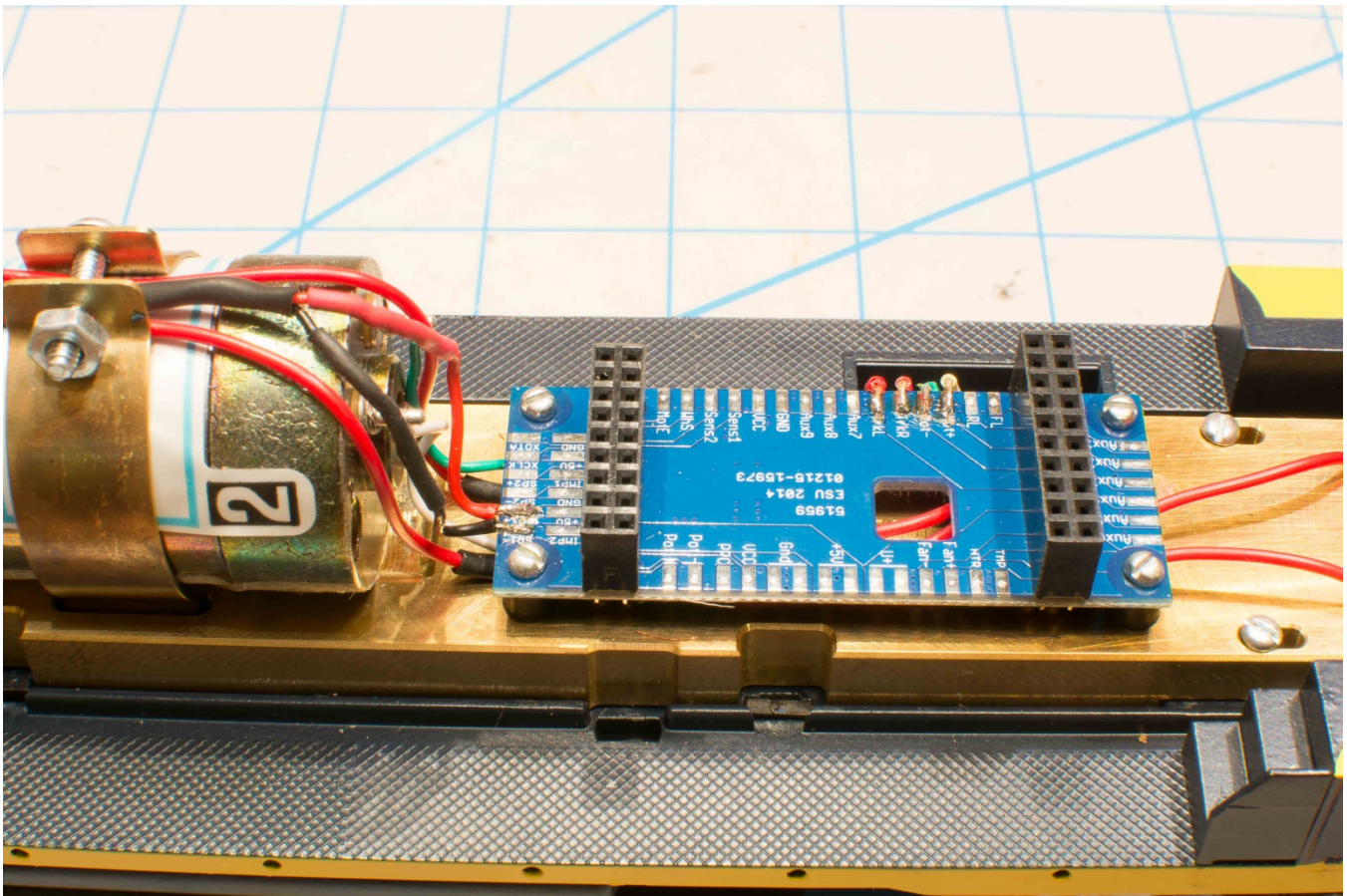
# Weaver GP38-2 Frame Support Installation Instructions

(Optional)

## 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, then there are four (4) holes, tapped 2-56, spaced to match the ESU interface board decoder mounting holes. You will need to supply some type of insulated standoff to make sure that the decoder is electrically isolated from the brass frame. One option is to use some short lengths of small 3/16" diameter plastic tubing cut to 1/8" - 3/16" long to use as interface board standoffs. Once the ESU Interface Board is installed then simply wire up decoder according to manufacturer's instructions.

Other DCC sound decoder manufacturers can obviously be used, as well; however, their mounting options generally just consist of mounting using a piece of double stick foam tape.



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