Instructions: IC Centralia Wide Vision Caboose Kit

12/7/2022 Instructions v1.0

Thank you for purchasing the Tangent Scale Models IC Centralia Wide Vision Caboose Kit! We offer two different configurations of our IC cabooses (Stanray Roof and Pullman Roof.) These kits are all very similar to each other! Here are a few quick notes before starting:

- **Do not download or print these instructions until you actually are ready to build.** Why? We update the instructions frequently, so If you saved this file or printed it for later use, please understand that we may have updated the instructions since then. Please check our website to see if this document has been updated before starting your build. We date the document and only show the most current version on our website.
- **Instructions have many large images:** Because some model builders are visually oriented, while others prefer written instructions, we have included *both* text and photos within these instructions. As you can see, many of the images are rather large, to aid in your model building.
- **There are more images at the end:** If you want to see more views of a completed model as a reference for your building, scroll to the end of this document.
- **Modeling from computer screen is ideal:** If possible, we recommend modeling from your computer or tablet screen. You can then enlarge the images as you see fit, and you save ink and paper at the same time.
- **There are several ways to complete your kit:** While there are multiple sequence steps possible to build this caboose, we believe the sequence included here yields the best results.

- **Extra parts are available online:** They are on our website under "Parts for Cars and Cabooses"
- **Prototype photos:** While you likely have your own sources of prototype photos, please recall that for each RTR scheme that Tangent releases, we include a prototype photo on our website. You can use these as references in addition to your own sources.
- **This kit is meant for adults:** While we applaud bringing younger modelers into our hobby, this model includes well over 200 parts, many of which are sharp and/or delicate. Therefore, this kit is recommended for those 14 years of age and older.
- **We offer semi-scale wheels separately:** We offer semi-scale wheels separately for our power-pickup caboose trucks in 4 axle packs.

- **This kit does <u>not</u> include lighting or circuitry:** Please note that this kit does not include lighting circuitry or bulbs. Our approach was that kit builders would want to approach lighting their own way. We have included the external-facing lighting appliances: Red/Green marker lights lenses, and red FRA lenses. Our trucks include power pickup capability and wires, and the kit is ready for whatever lighting circuit or decoder you want to use. (If any!)
- **If you plan to light the caboose:** You may want to plan the drilling of appropriate holes in the metal floor to allow any wires from the truck to pass through the bolster and interior areas. This is shown in Step #1. (Notice there are already holes in the plastic bolsters for wire pass-through. Additional holes need to be considered in the metal floor only.)
- **We want feedback:** If you find something missing from our text instructions, or you believe there is an error within these kit instructions, please let us know by submitting a comment to us on our website or sending an email to support@tangentscalemodels.com Thank you!

There are 2 prototype versions of the Tangent Scale Models IC Centralia Wide Vision Kits:

1. **SKU 60200-01 Undecorated KIT "IC 1970+ with Stanray Roof"** is an unassembled kit version of the IC Centralia Wide Vision Caboose with the Stanray roof. This kit is appropriate for 1970+ Era. Ready for building, painting, and lettering for a favorite prototype or your own private road. This kit includes Tangent's 70T roller bearing caboose trucks with power-pickup and 33" standard .110" tread CNC wheels. You supply your own favorite couplers. SKU 60200-01

   Appropriate for IC 9450-9499 and IC 9550-9599. (Later ICG 199450-199499 and 199550-199599)

2. **SKU 60201-01 Undecorated KIT "IC 1972+ with Pullman Roof"** is an unassembled kit version of the IC Centralia Wide Vision Caboose with the Pullman roof. This kit is appropriate for 1972+ Era. Ready for building, painting, and lettering for a favorite prototype or your own private road. This kit includes Tangent's 70T roller bearing caboose trucks with power-pickup and 33" standard .110" tread CNC wheels. You supply your own favorite couplers.

   Appropriate for IC 9350-9449. (Later ICG 199350-199449)

OVERVIEW OF THIS KIT'S CONTENTS:

Parts bags included:

- Item 1 – Metal Floor and Underframe
- Item 2 – Interior lockers and interior roof
- Item 3 – Assembled trucks, wheels, soldered wires
- Item 4 – Screws
- Item 5 – Etch metal Parts
- Item 6 – Steps, grab irons and mother metal parts etc.
- Item 7 – Rubber air hoses
- Item 8 – Plastic Interior and Underframe parts
- Item 9 – Plastic end parts, coupler lids etc.
- Item 10 – Engineering plastic interior parts, extended walkway tread, smokejacks etc.
- Item 11 – Engineering plastic end ladders, railings, brake wheels etc
- Item 12 – Engineering plastic interior parts, brake piping, brake gear linkage etc.
- Item 13 – Clear plastic windows, cupola wind deflector parts, red/green lenses, red FRA light lenses
- Item 14 – Center sill underframe
- Item 15 – Engineering plastic walkways
- Item 16 – 3 different plastic cupola options

Standalone parts included:

- Part 17 – Body Shell

Parts needed/recommended:

- Couplers. The coupler boxes for this caboose are designed for Kadee "whisker" shank couplers - #158.

Tools needed/recommended:

- Liquid styrene cement to bond plastic to plastic parts (Tamiya green bottle or Testors Liquid Styrene Cement are two easy to obtain example products)
- CA-type cement or cyanpoxy (sold in hobby shops, or in hardware store as "super glue" under various brands in the small squeeze tubes) for wire to plastic joins – best applied with a piece of scrap wire to keep "glue blobs" to a minimum.

  THIS IS AN IMPORTANT NOTE:

  Many of the small parts in this kit are made from slick engineering plastic. (Sometimes referred to as Delrin or POM). For these types of joins, you will need to use CA-type cement or cyanpoxy. This includes the end cage parts, end platform treadplate and the running boards) Since so many part joins are dissimilar materials (plastic to metal, Engineering plastic to plastic, wire to plastic, wire to cast metal…), you will find that most of your glue joints during this build will be using CA-type cement.
- Canopy Glue to bond clear plastic windows inside the body during final assembly.
- Hobby knives - #11 and #17 are ideal
- #65, #73, #78, #79 drill bits in a pin vise will be useful
- Small Phillips head screwdrivers
- A foam cradle to rest the model on as you work. An inexpensive offering is here: https://www.micromark.com/Foam-Cradle

PREAMBLE – THINGS YOU SHOULD KNOW

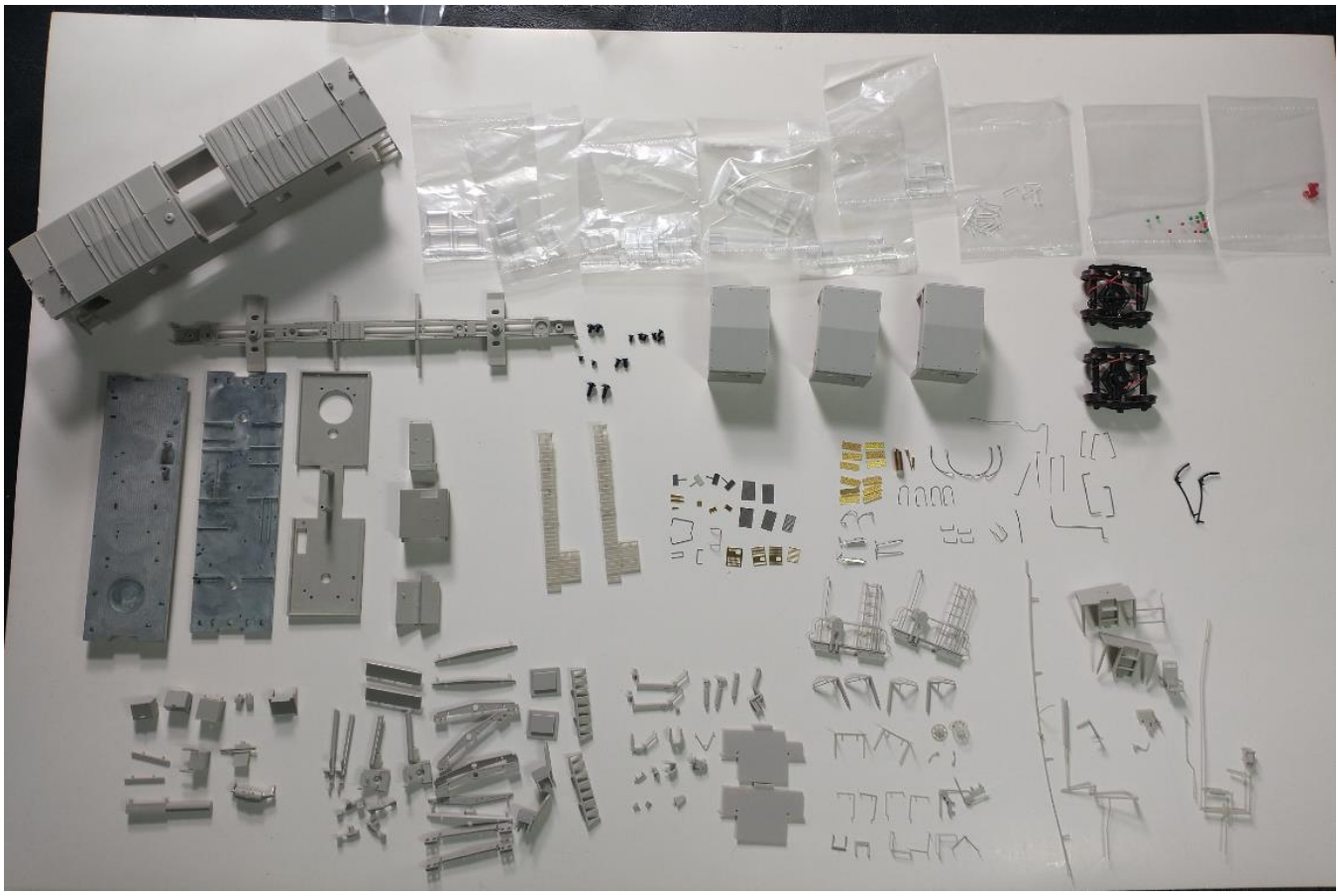
- **This kit is NOT recommended for children aged 14 and under.**
- **Small parts:** there are many very small parts included in this kit. You will not use every single part in this kit. The assembly sequence requires you to have several bags open at a time, so we recommend a clean and open work surface so that you can keep all of the parts in the open and accessible. Let's get started!
- **Assembly Sequence:** This kit is designed so that there are three separate subassemblies, allowing you to assemble, paint, and weather each one then join them to complete the kit. That being said, if you want to fully paint the interior it would be much easier to paint the individual components and the floor before assembling them. Also, when assembling the body you may want to consider leaving out the window glass until all paint and weathering is complete. There is no particular sequence to the assembly

process, meaning you can build any of the three subassemblies in any order since they are not connected by any individual parts until all are joined together. These instructions will show the interior floor first, followed by the underframe, then the carbody.

- **Painting:** For the purposes of these instructions we will begin with the interior, then the underframe, then the body. We advise painting the interior assembly prior to working on the body.

Let's get started, and enjoy your build!

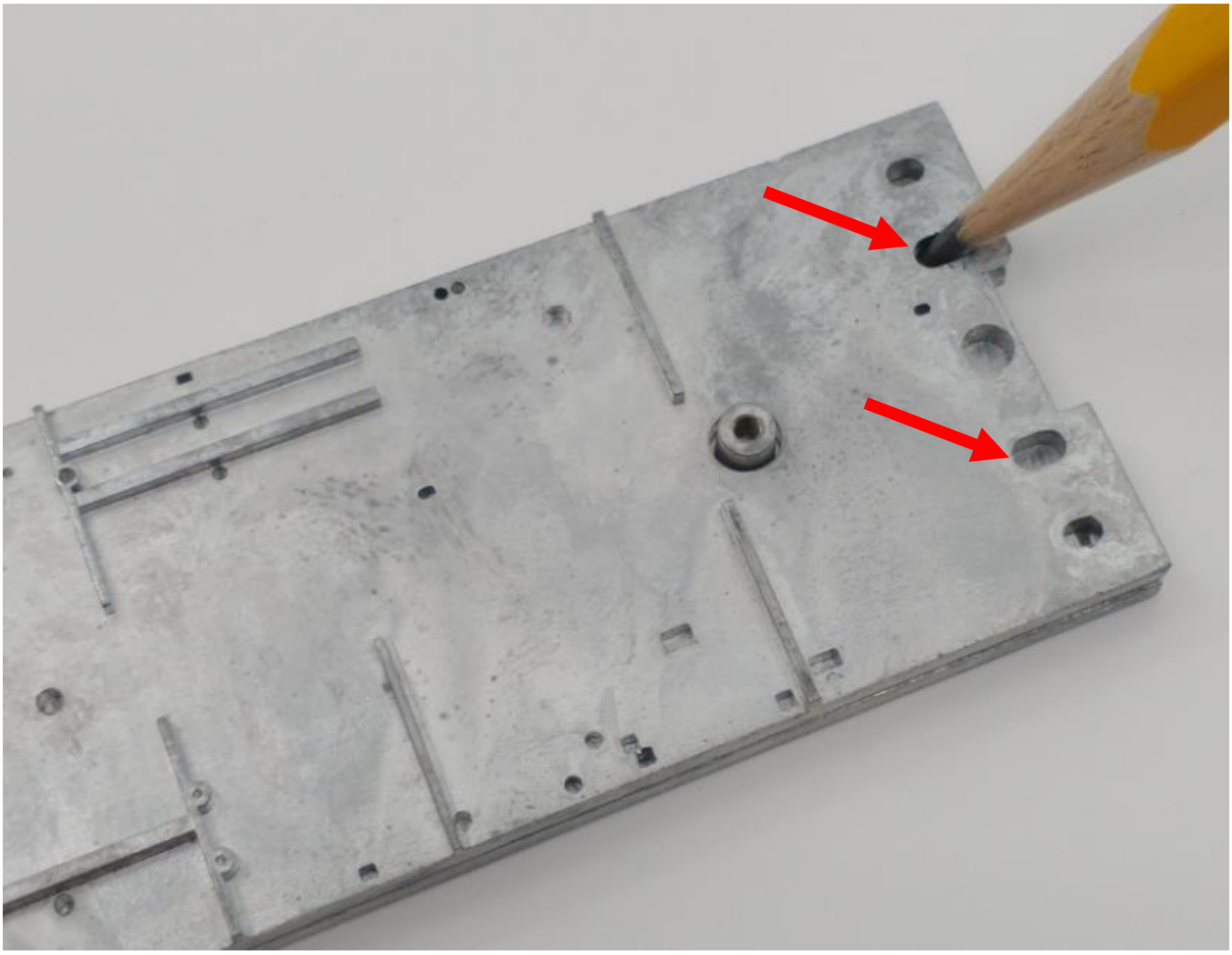
Example of laying out all the parts for easier identification and use:

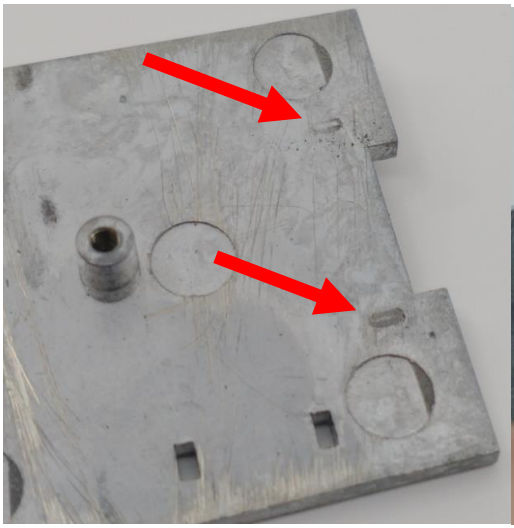


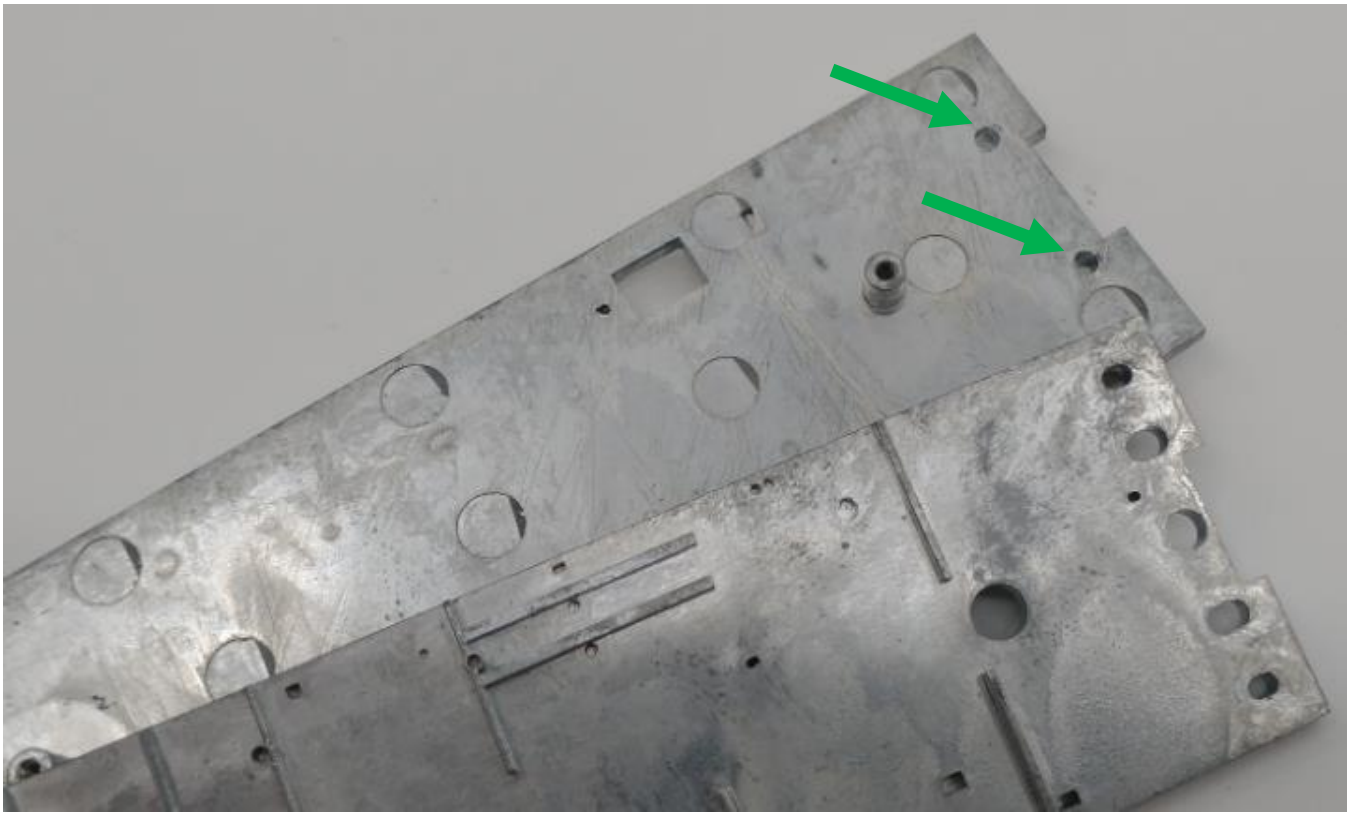
INTERIOR ASSEMBLY

1. **Locate the two metal parts: the floor and the underframe.** IF you plan on lighting the interior or marker lights, then it is now time to drill holes through the floor part. Note the orientation of the underframe photos. Press them together.

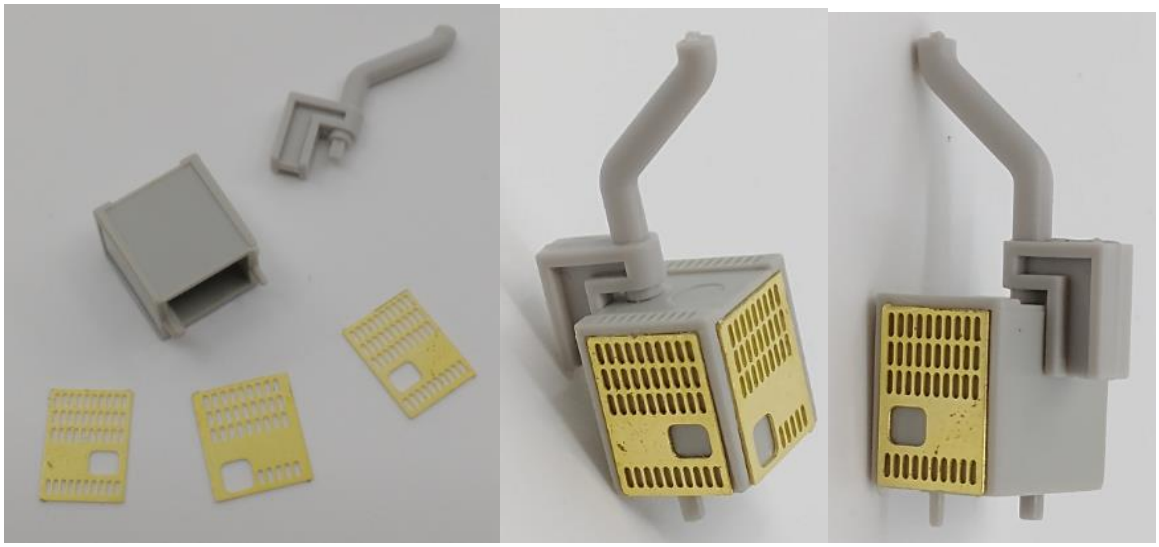
Use a pencil to mark these two holes at each end onto the floor. We are going to drill #44 holes at the marks, so the wires from the truck can pass through later.



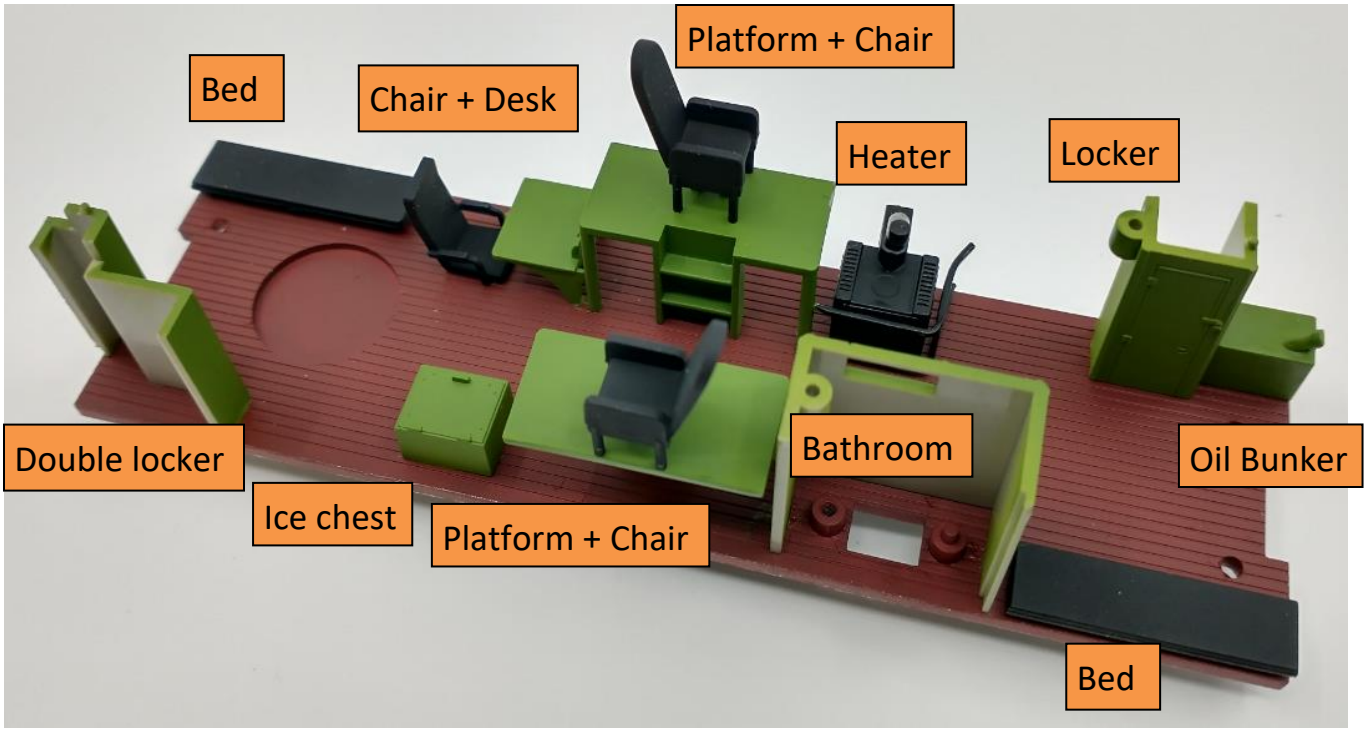


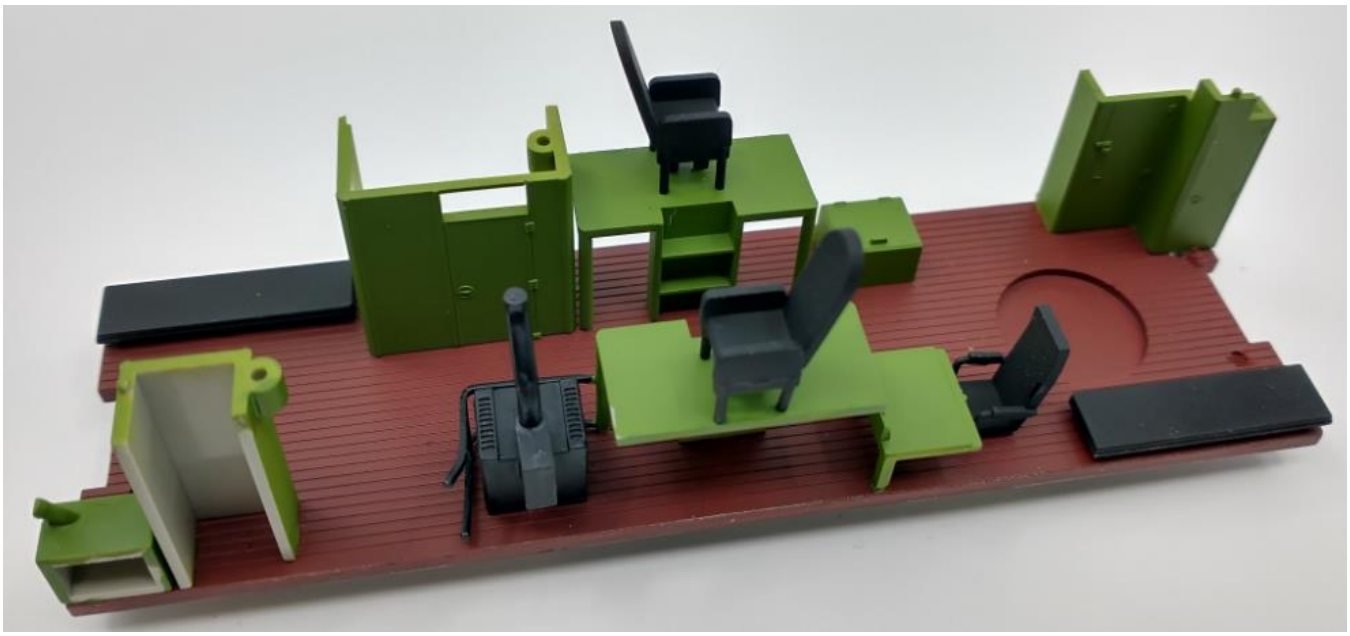


2. **Assemble the Caban Heater (i.e. stove):** Locate all of the heater parts: Heater, stack and three metal detail parts. Glue together as shown.



3. **Assemble the Interior parts to the floor as shown:** Note that you may want to pre-paint these parts before assembly. In these photos, the parts and floor have already been painted. Carefully test fit parts into the holes on the metal floor. Once you are satisfied with the location and fit, then glue. Each part has exactly one proper placement in holes in the floor. Take your time.

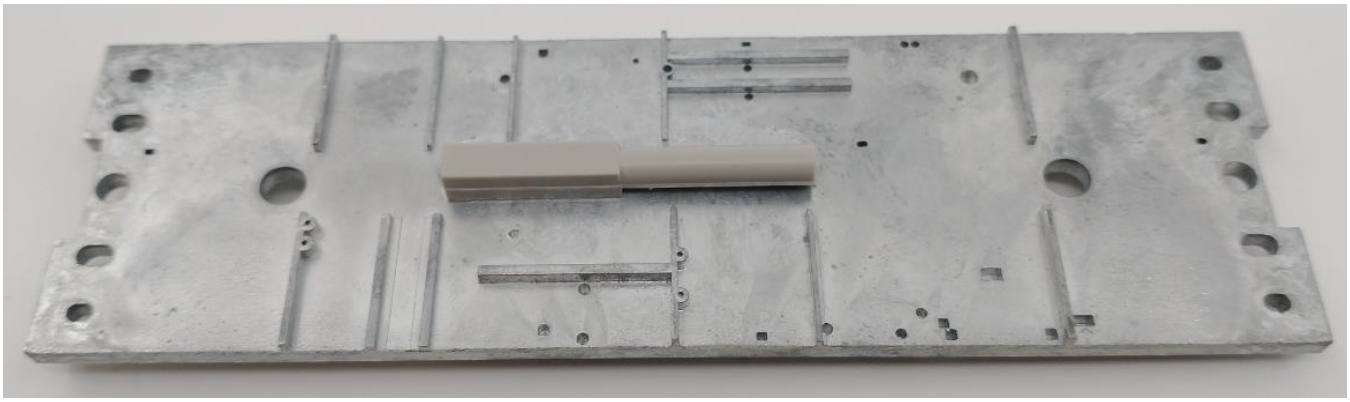




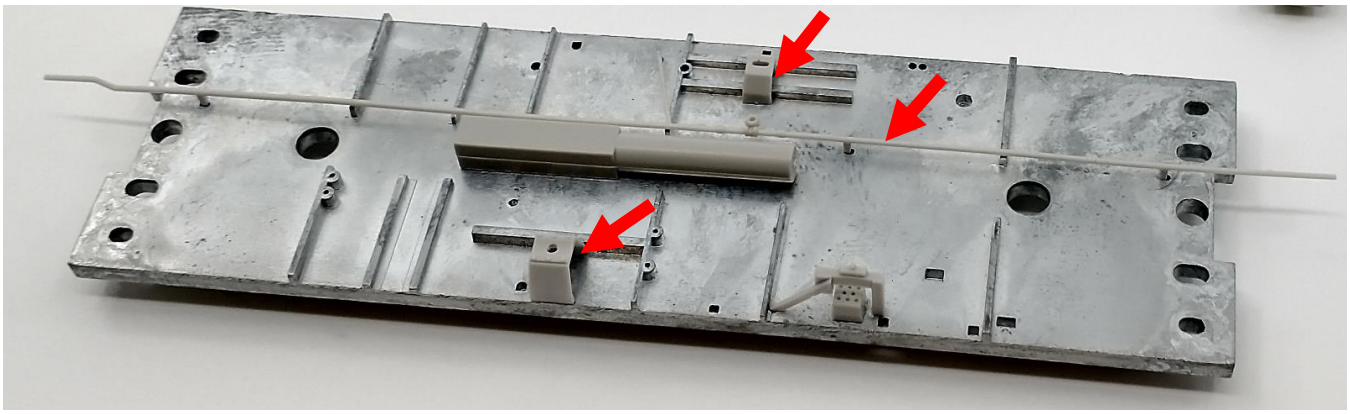
Ok, it's time for a high-five: You have successfully built the interior floor assembly !

UNDERFRAME ASSEMBLY

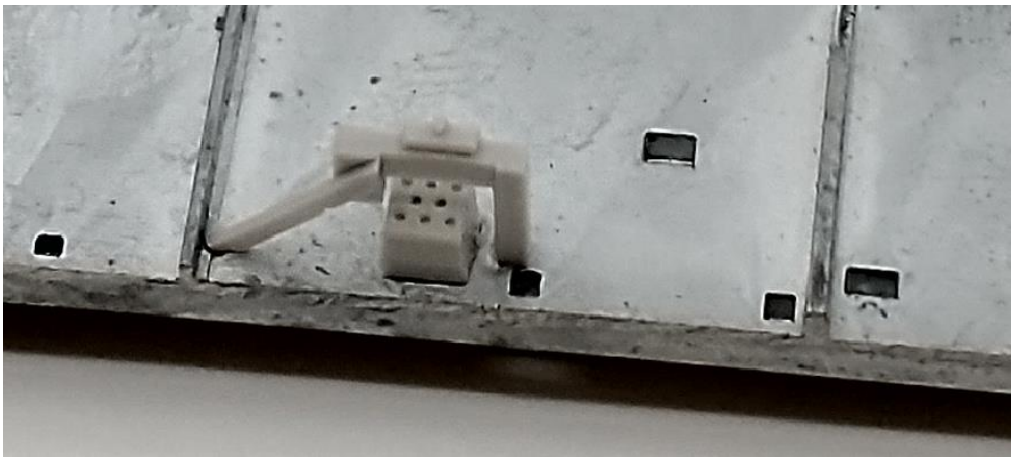
4. Locate the metal floor piece and place it on your work surface with the trench for the lighting wires facing down.



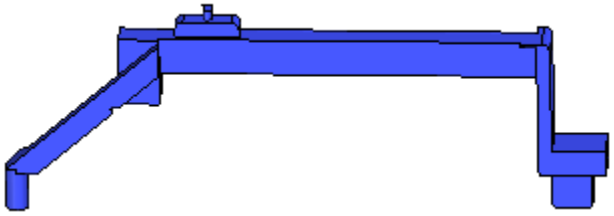
5. **Install the Keystone cushion unit to the center sill.** The rectangular shape points to the left as shown above.
6. **Install the Train line, the large Brake Cylinder support and the small AB Valve support.** Note the small AB Valve support, the angled side as shown in the photo is orientated towards the center sill. Also note that the train line rests on the perepndicular risers on the metal underframe.



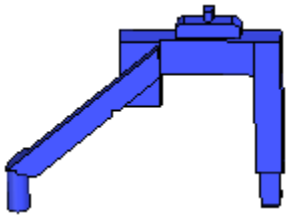
7. Install the short Heater Breather Block (square part) and the support.



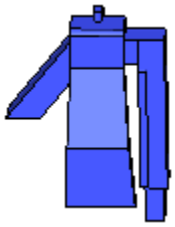
Note that there are three support variations:
I. For Stanray Roof as-built (No battery box part used):



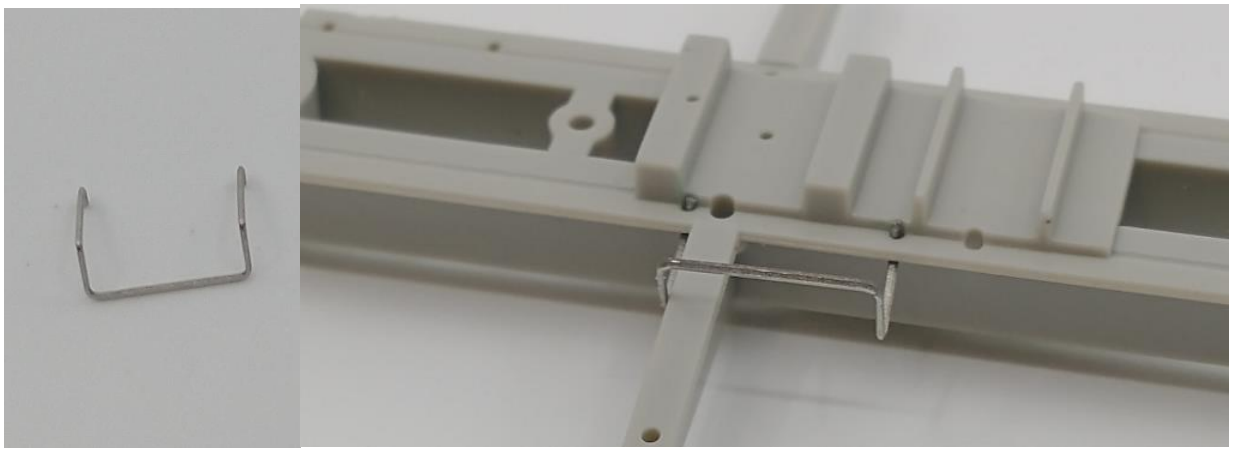
II. For Stanray Roof later modified (for use with a battery box part in Step #10 below):
(The example build used this setup as shown in the photo)



III. For Pullman Roof (for use with a battery box part in Step #10 below):

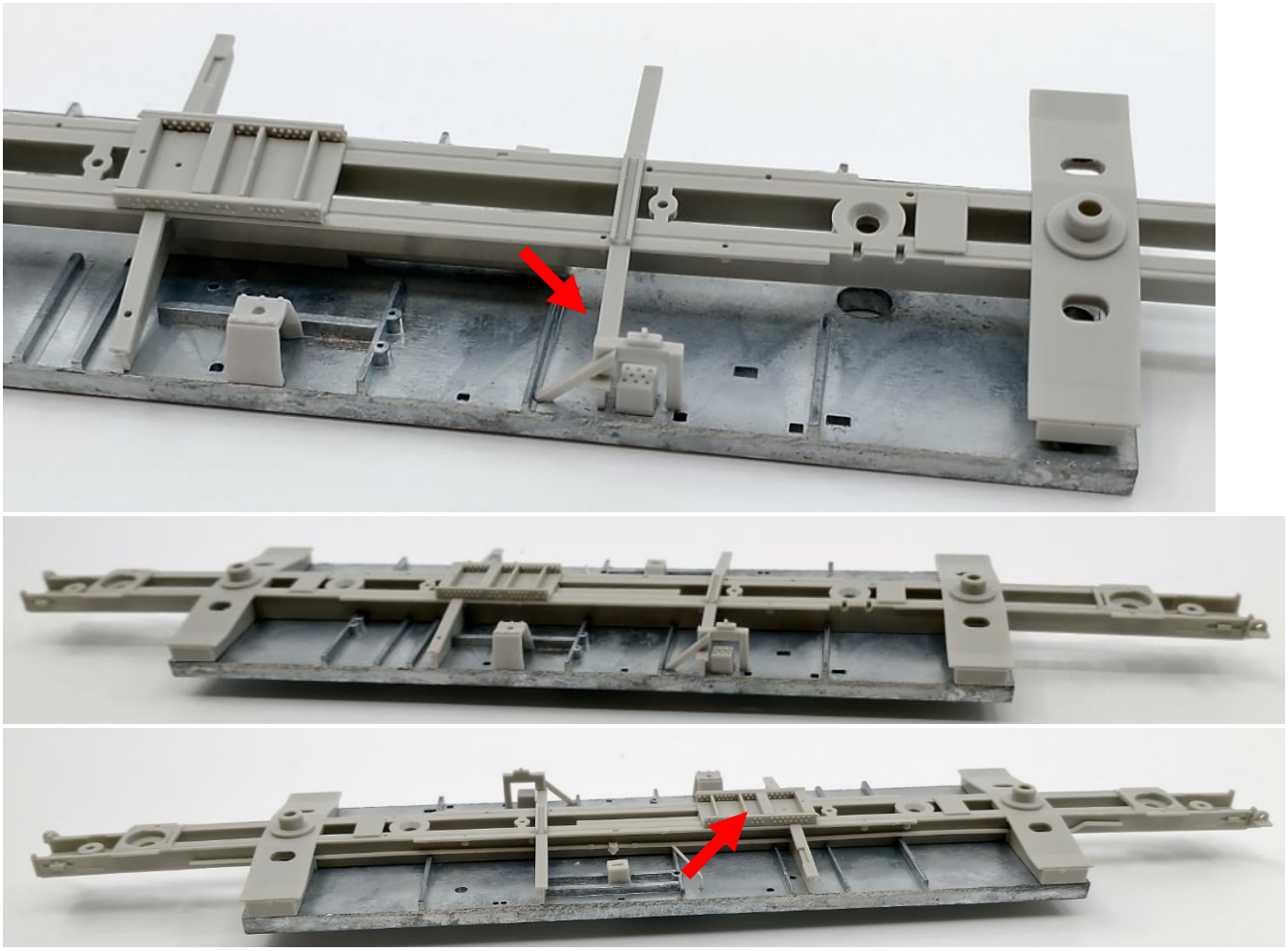


8. **Install the wire support bracket.** Locate the wire support bracket and glue as shown.

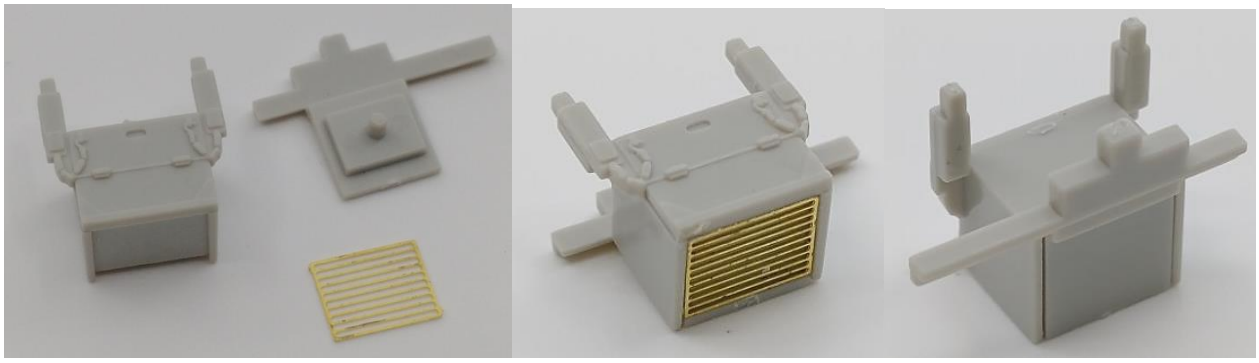


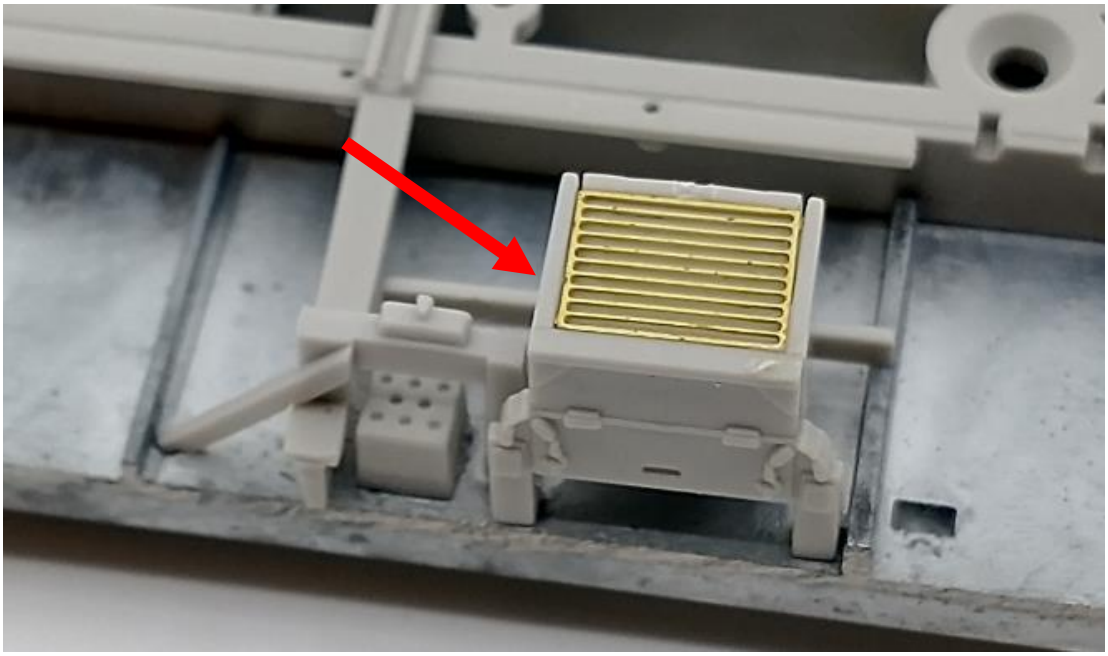
9. **Install the Underframe.** Next, install the underframe. First tuck the crossmember under the support as shown, then align the entire part and press it into the holes. Note how the

trainline part is situated next to the centersill.

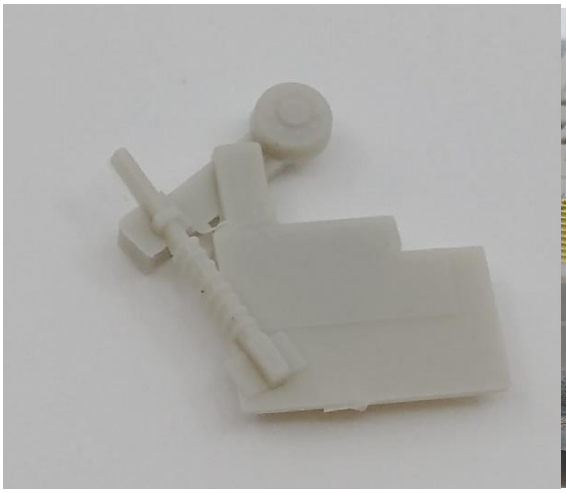


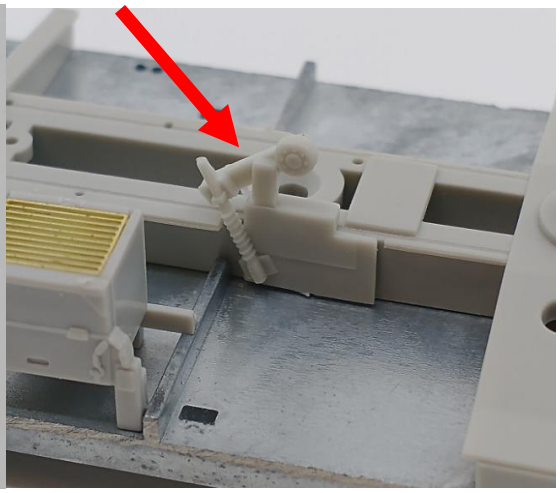
10. **Optional: Assemble and Install the battery box.** The battery box is NOT used on Stanray Roof as-built cabooses. (Long support bracket in step 7 above). Otherwise, If used, then assemble the box parts as shown and install into the underframe.



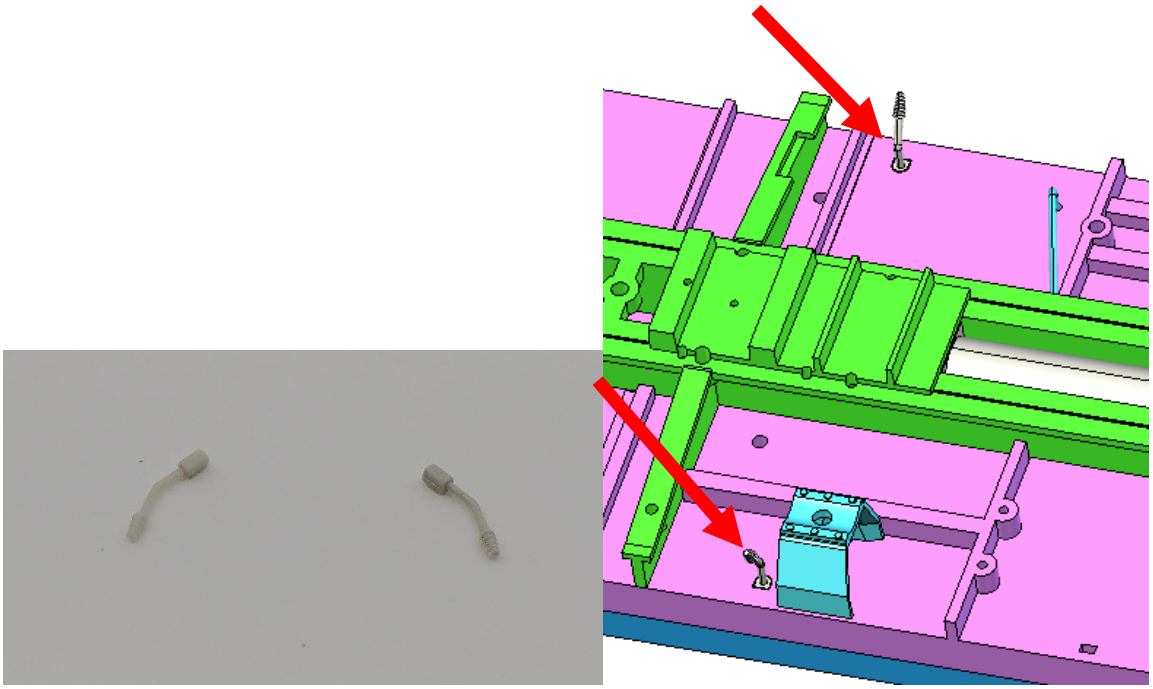


11. **Install the axle generator.** It attaches to the side of the underframe in the notch.

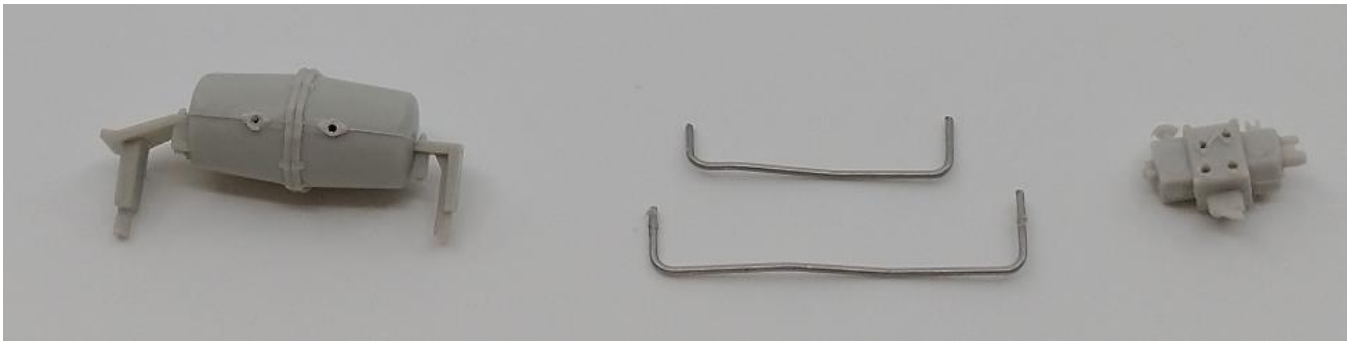


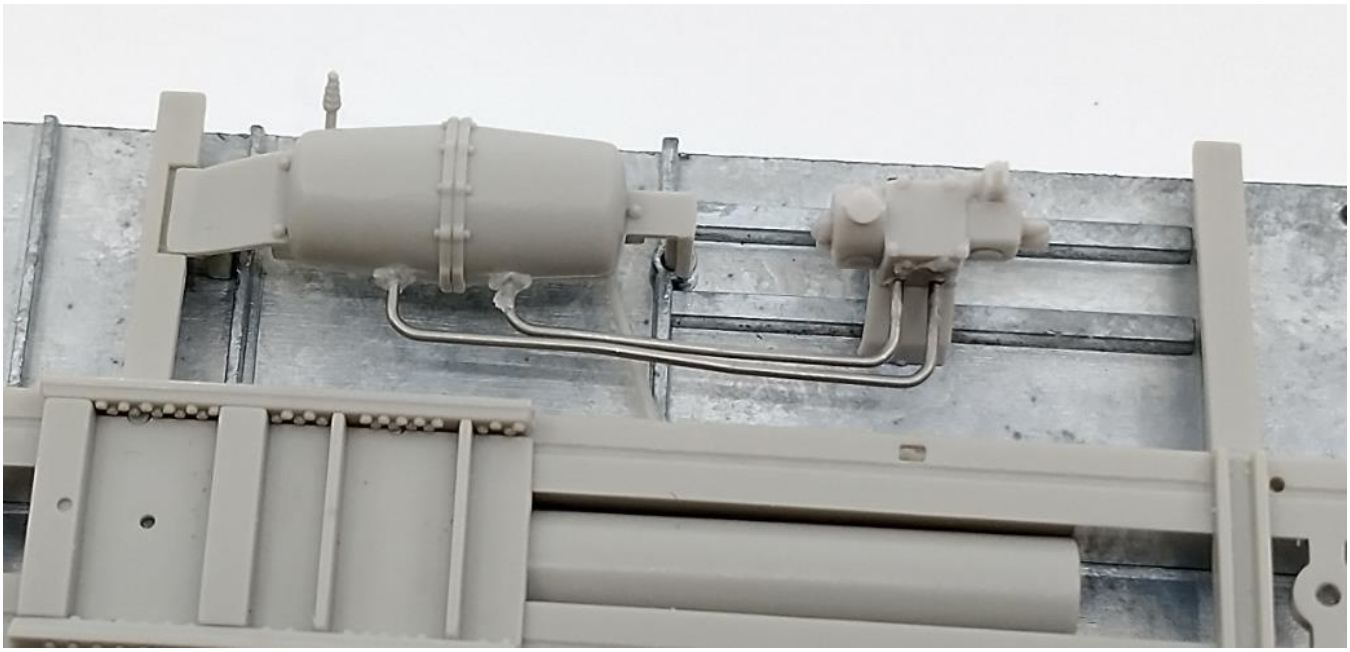


12. **Install the water fill pipes.** Locate the two tiny water fill pipes and install them pointing outward as shown.

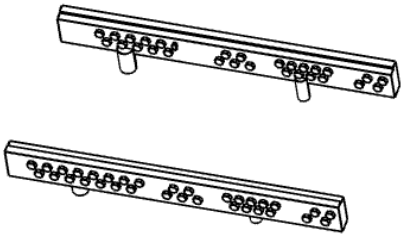


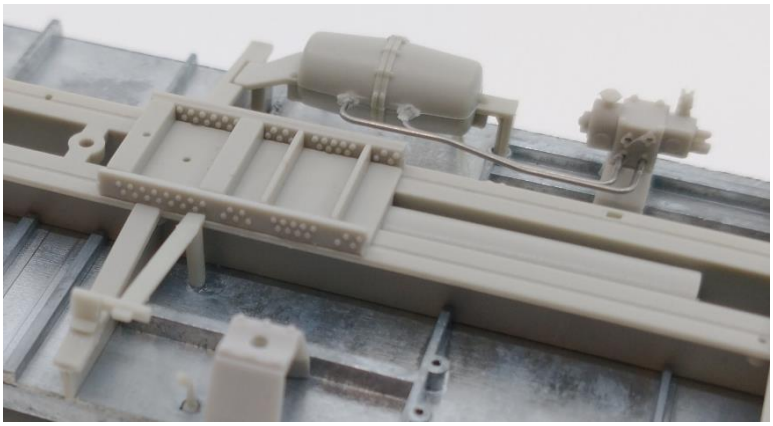
13. **Install the Air Reservoir, 2 wire air lines and AB Valve.** Verify parts orientation and install as shown. The wire parts will fit into the lower two holes in the AB valve



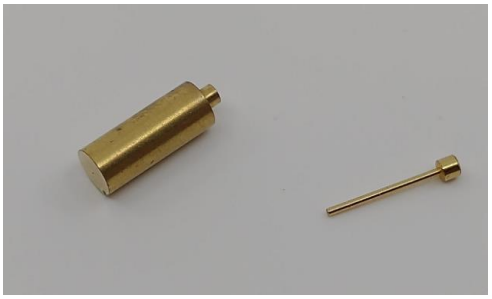


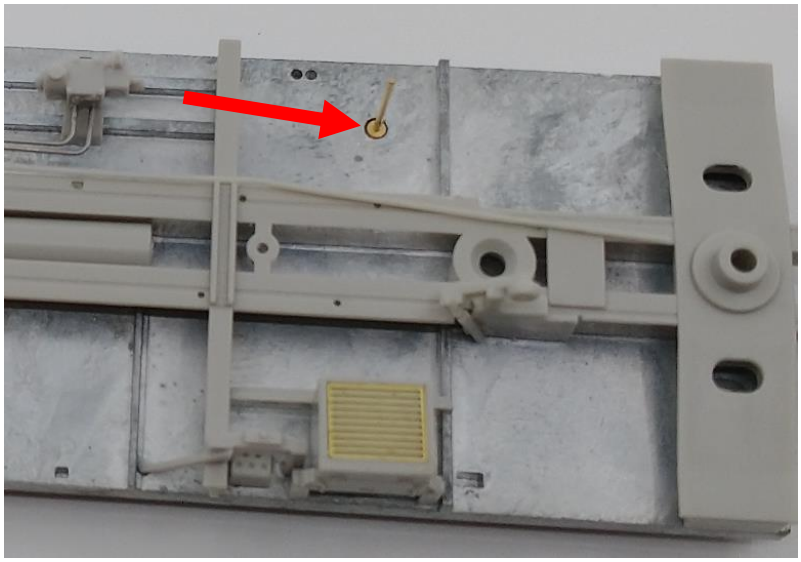
14. **Install the Keystone Cushioning Side details.** Verify parts orientation and attach as shown.



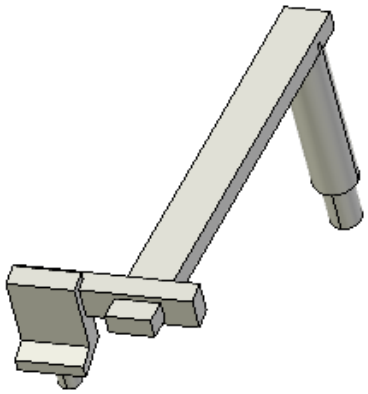


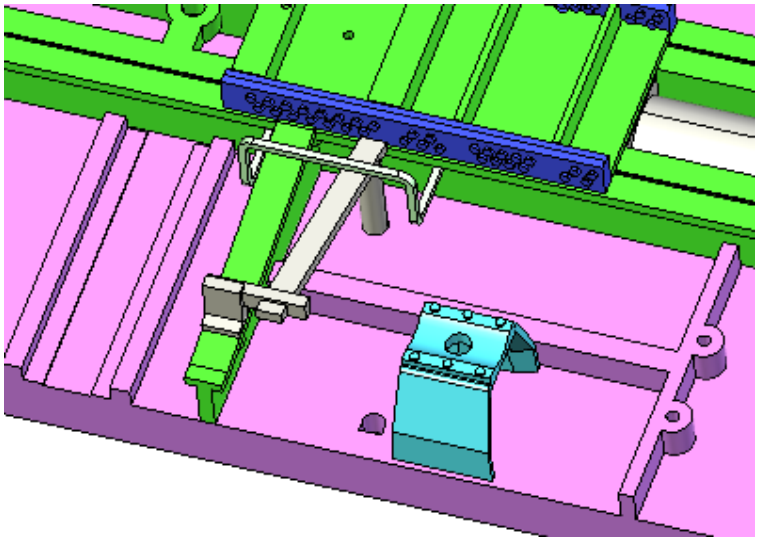
15. **Choose the large Toilet dump pipe or small Sink Drain pipe.** The large dump pipe is used on Early Stanray Roof cabooses. The sink drain pipe is usually used on later Stanray Roof and Pullman Roof cabooses. Install selected part in hole on underframe as shown.



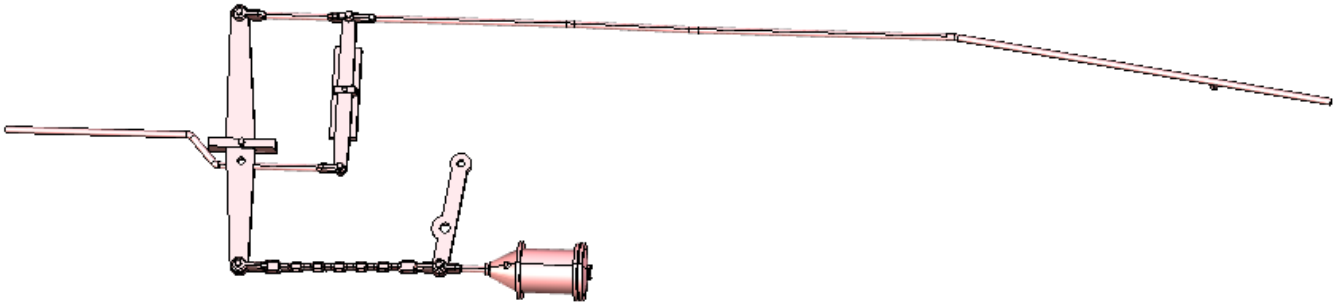


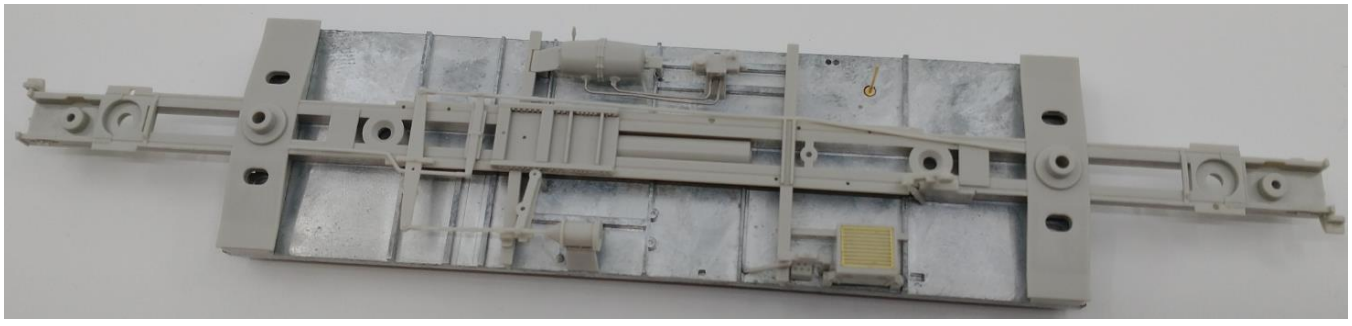
16. **Install the Brake Cylinder linkage support bracket**



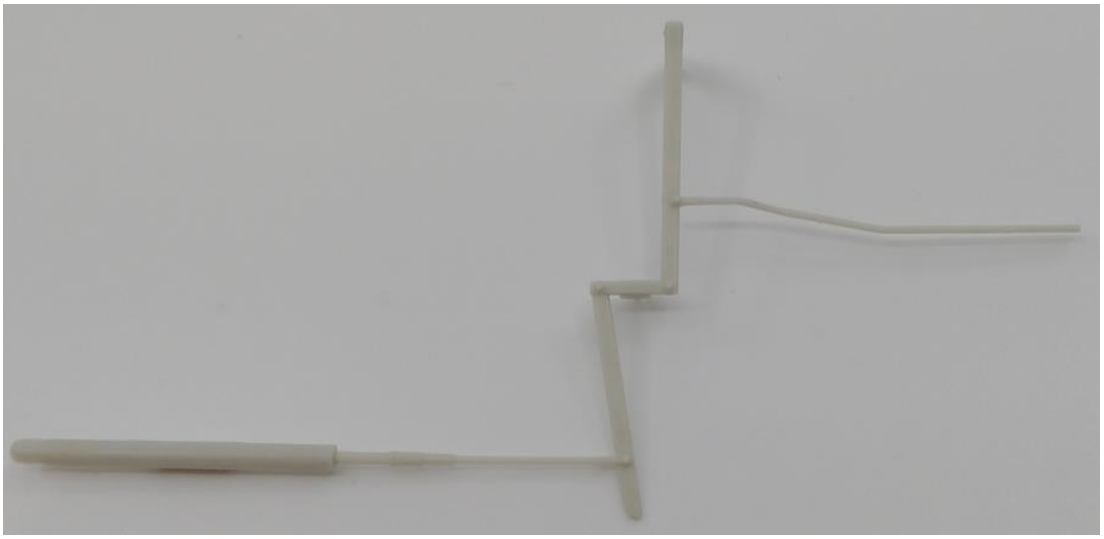


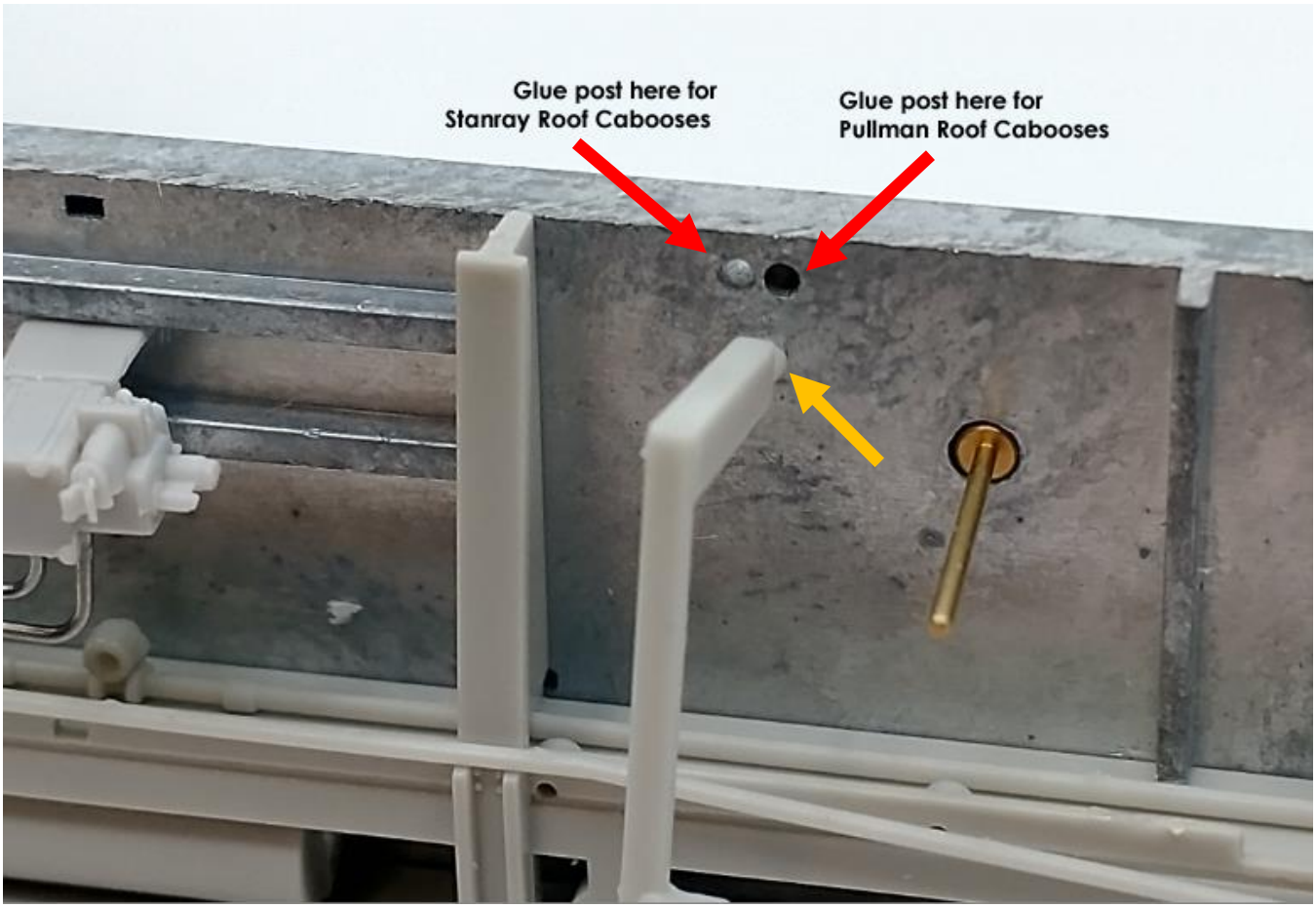
17. **Install the Brake Cylinder and linkage part.**

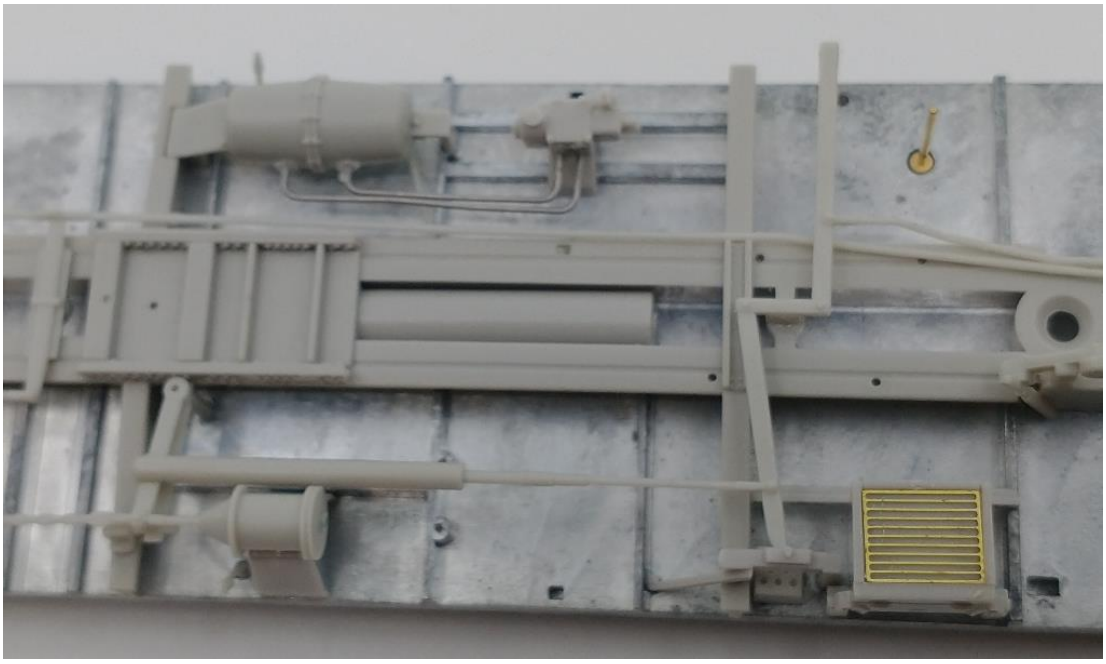




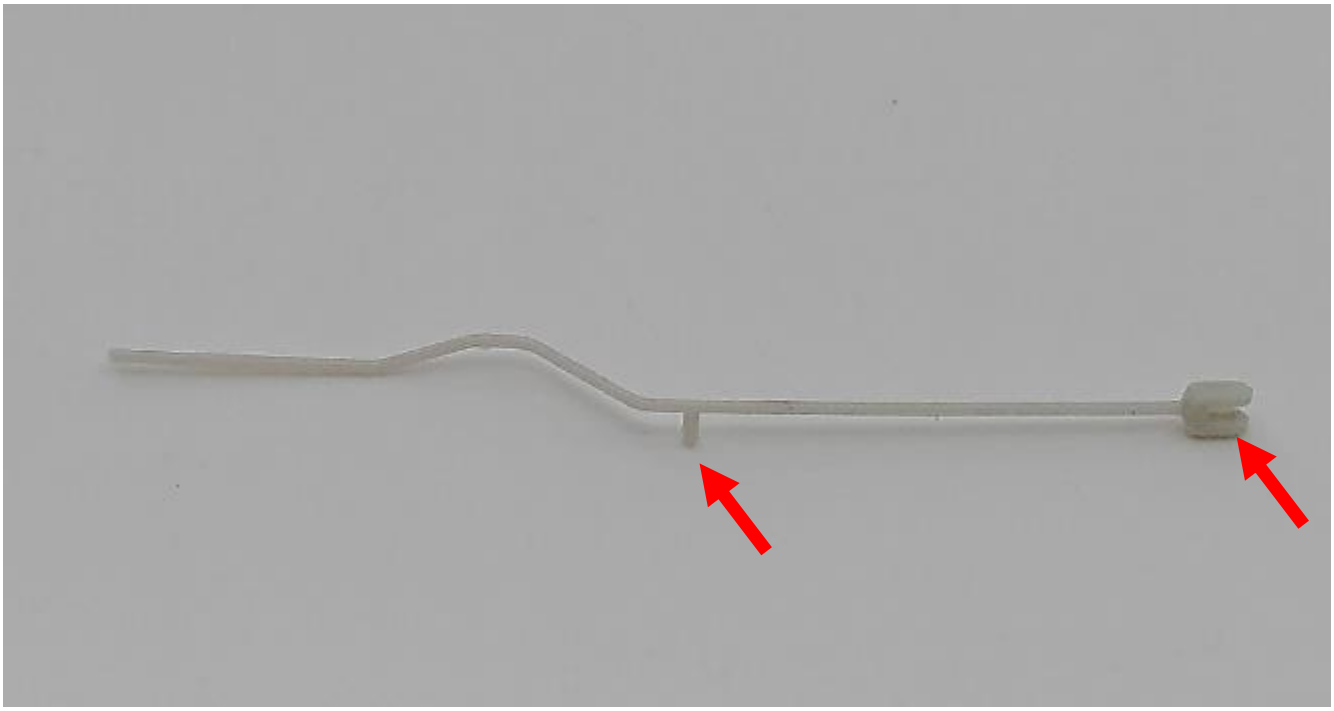
18. **Install the snubber linkage part.** There are two versions of this part. Only ONE is included in the kit – based on the Stanray Roof or Pullman Roof choice of kit. The mounting pin location on the post is slightly different, based on the kit chosen.

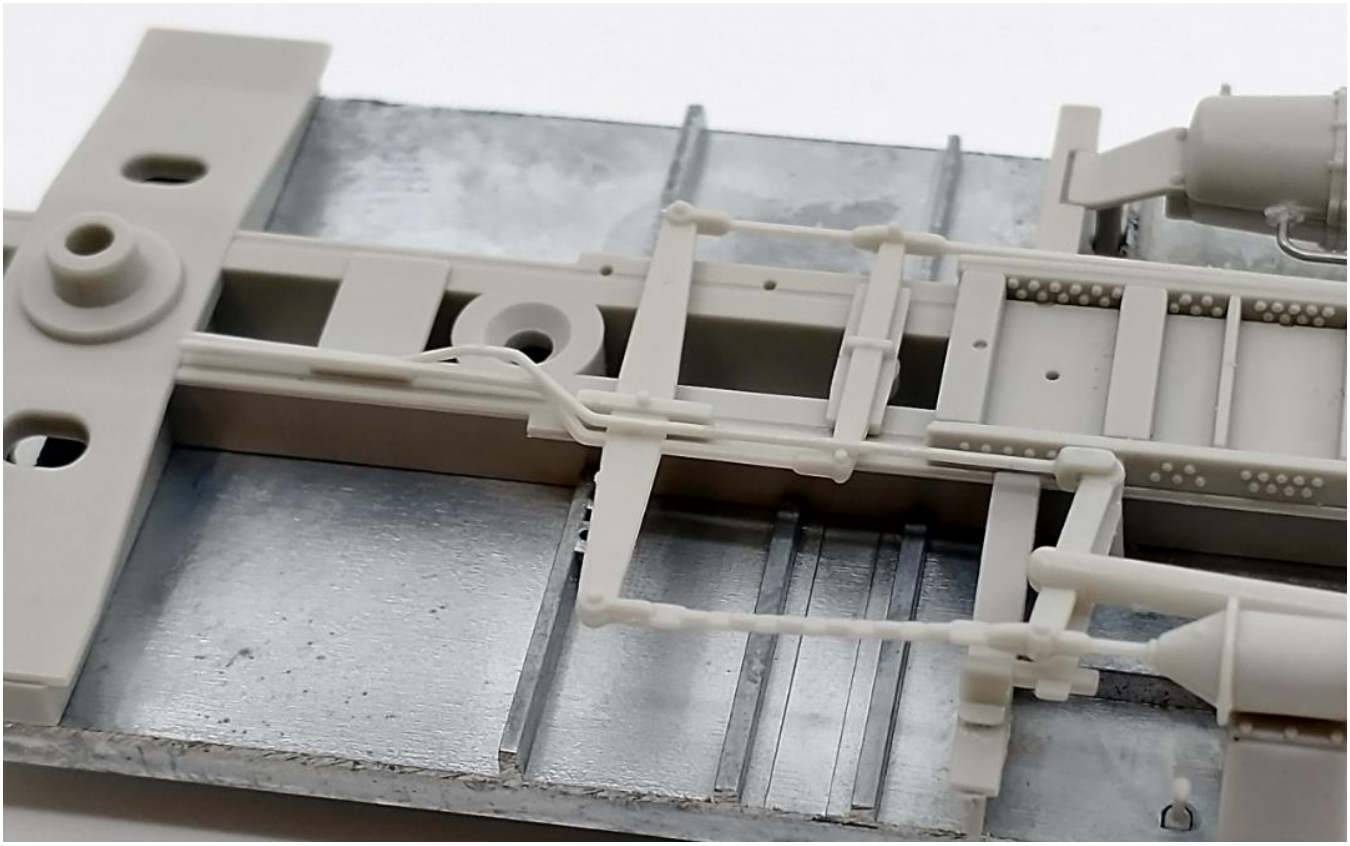



Glue post here for
Stanray Roof Cabooses
Glue post here for
Pullman Roof Cabooses

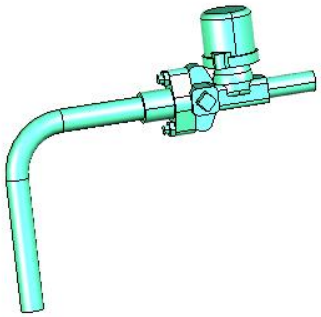


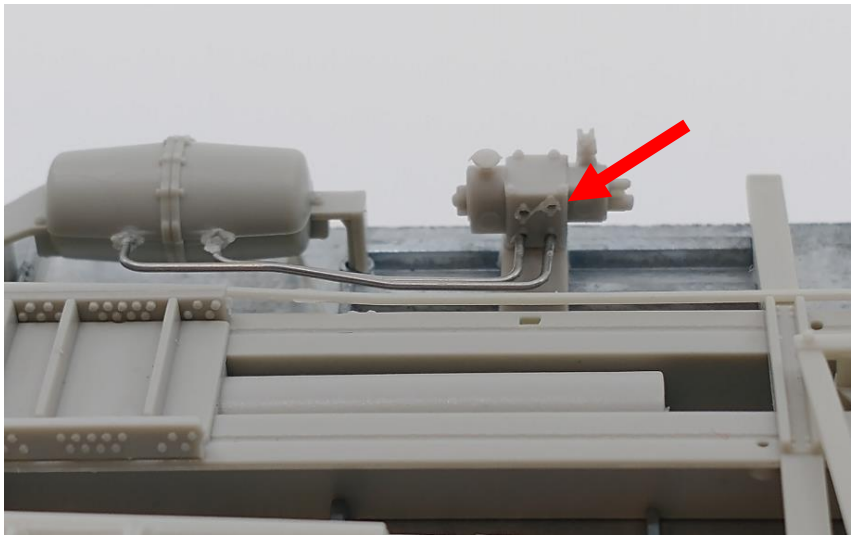
19. **Install the Brake Linkage rod.** Locate the linkage rod. Glue as shown.

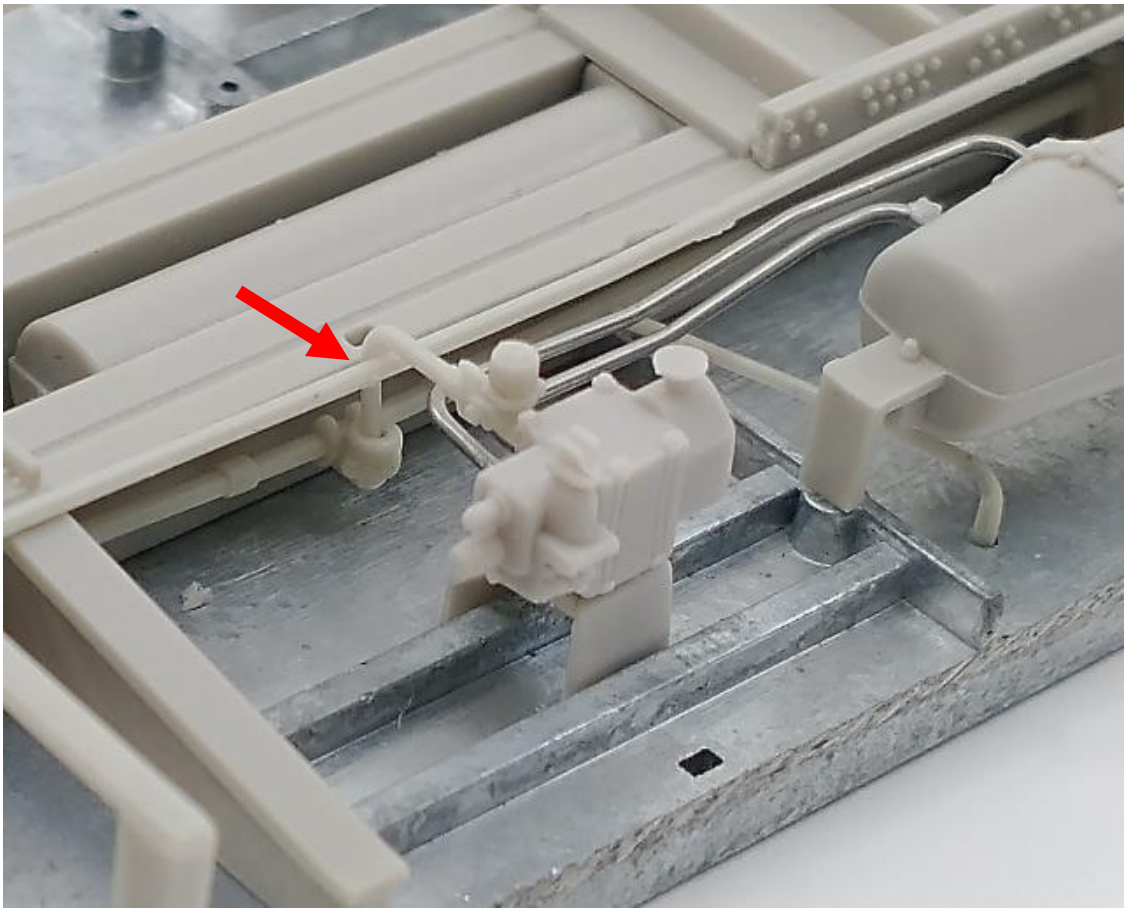




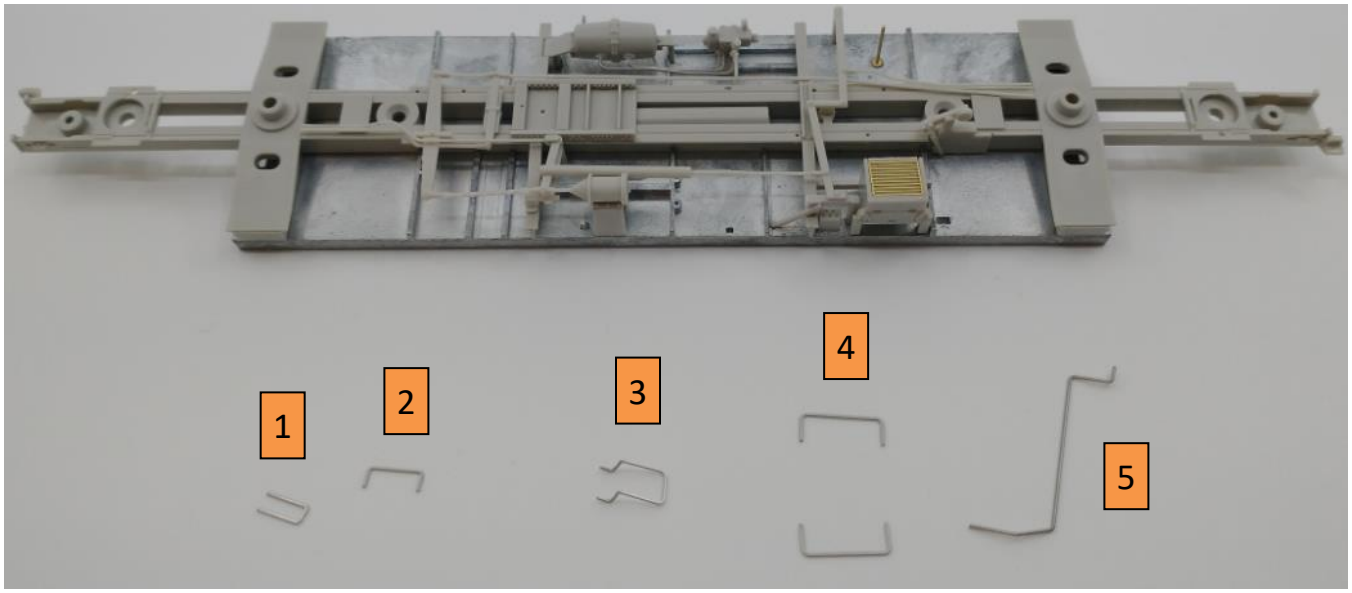
20. **Install the AB Valve dirt trap pipe.** Note the correct hole for the pipe part is the upper right hole. Also note the pipe tucks between the linkage and underframe.

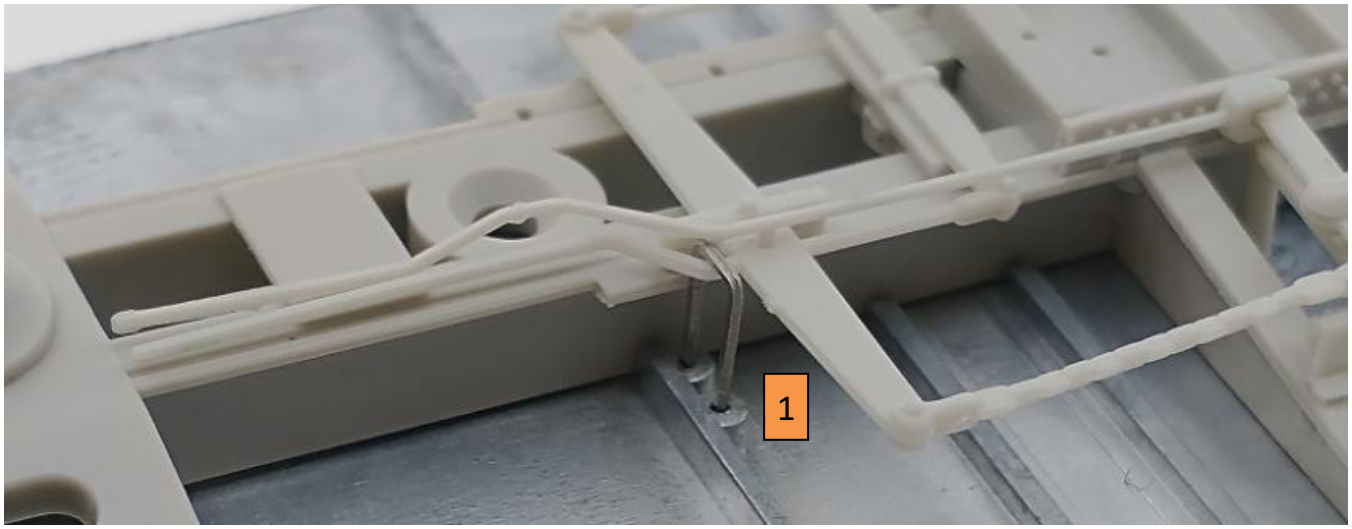


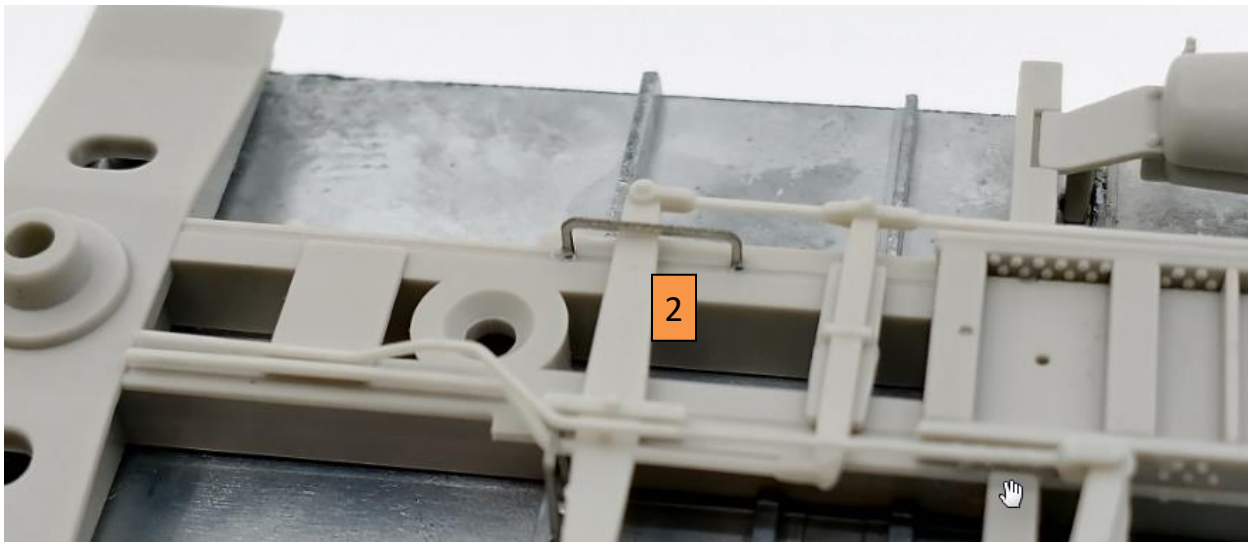


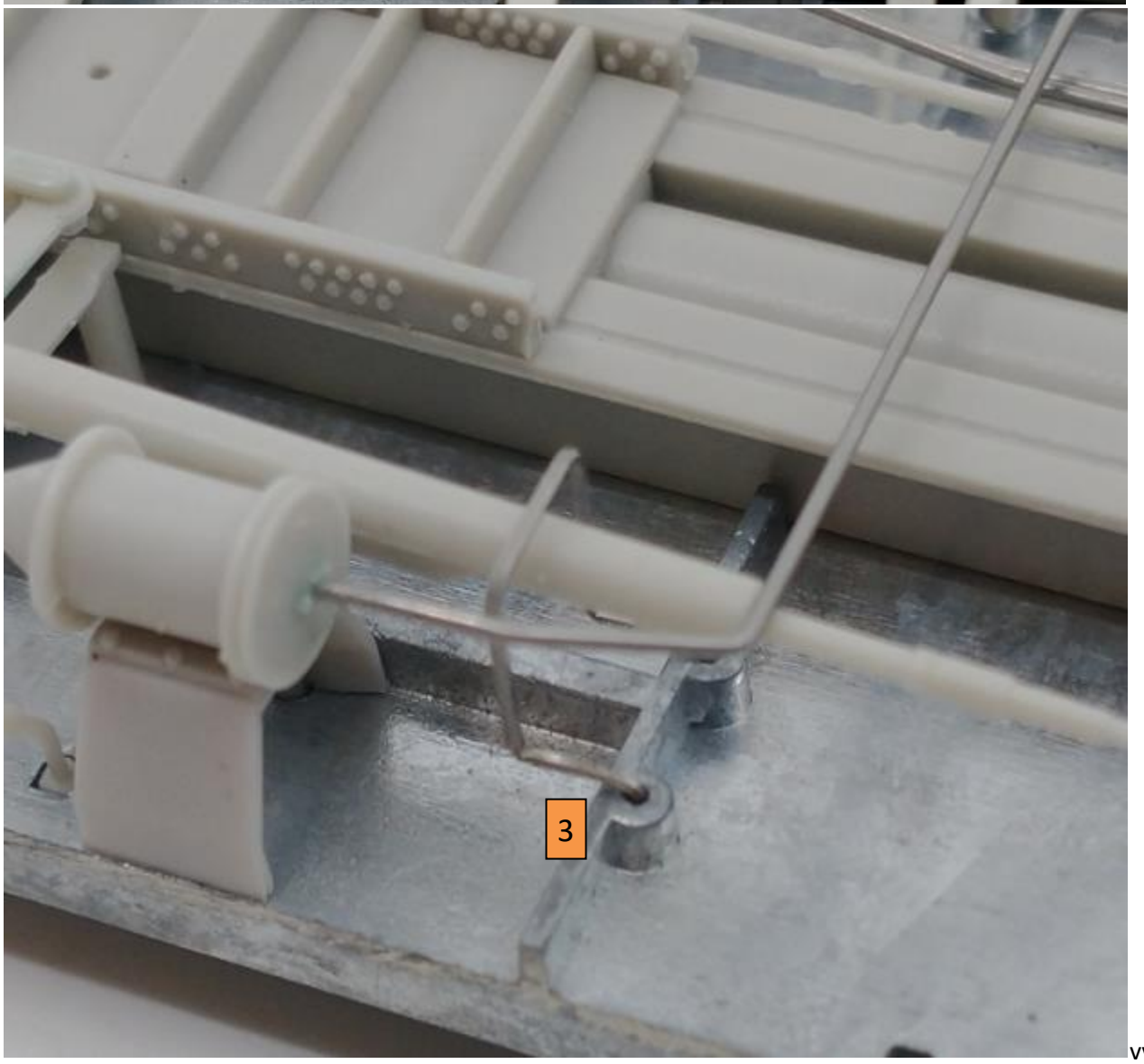


21. **Install underframe wire parts as shown.** Note the #5 wire part is installed under the snubber linkage

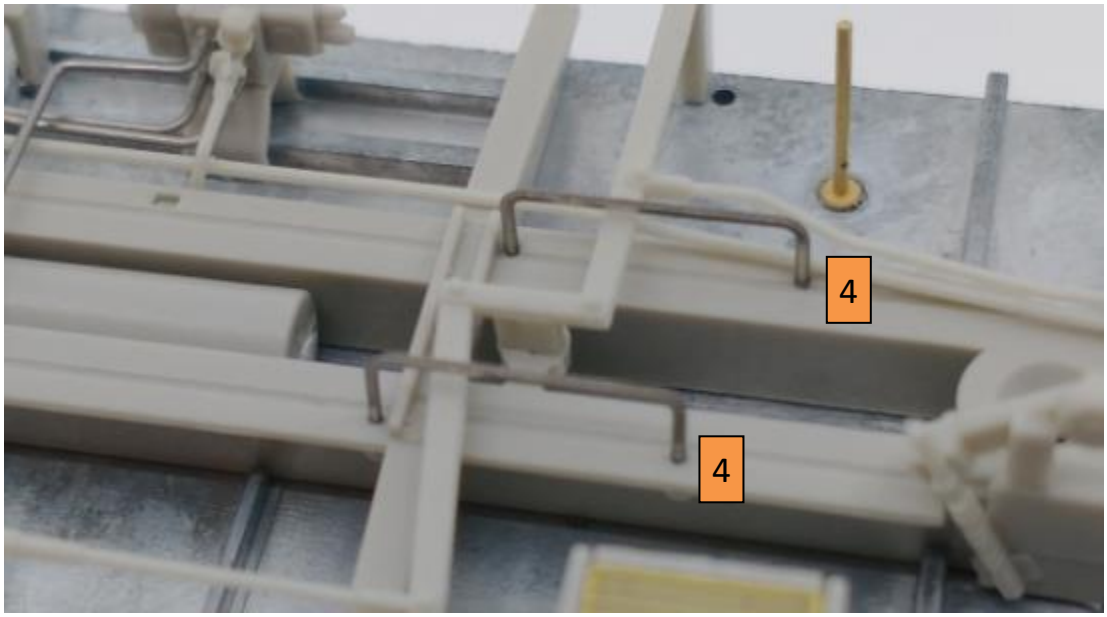


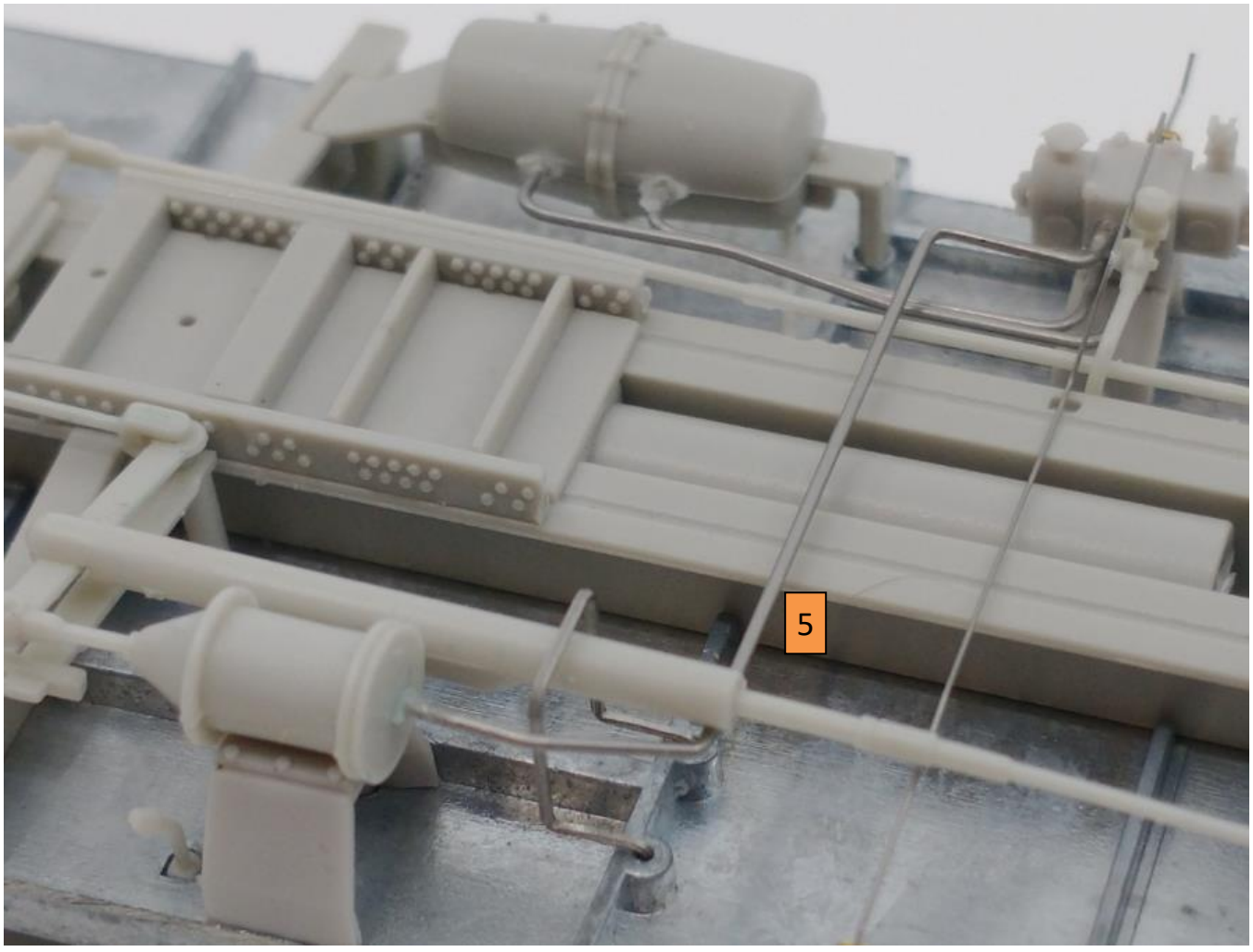




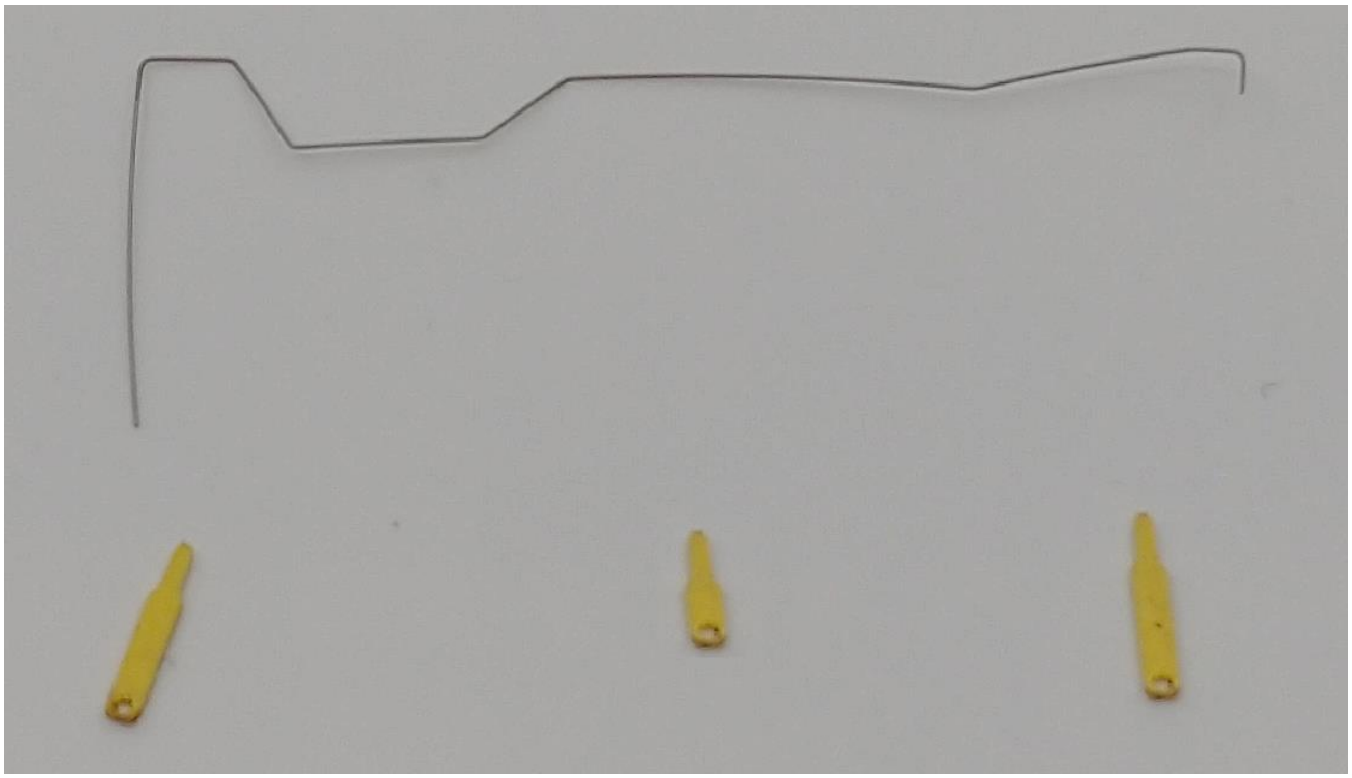


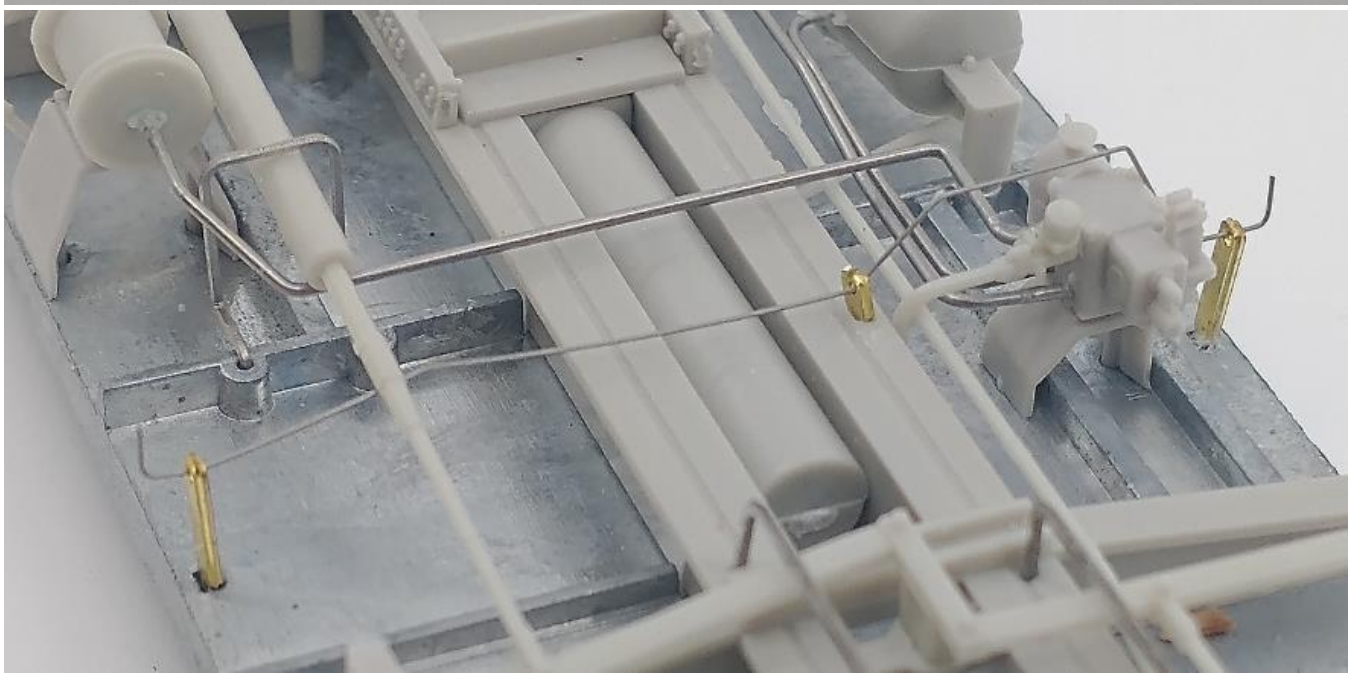
vvvvv


4
4

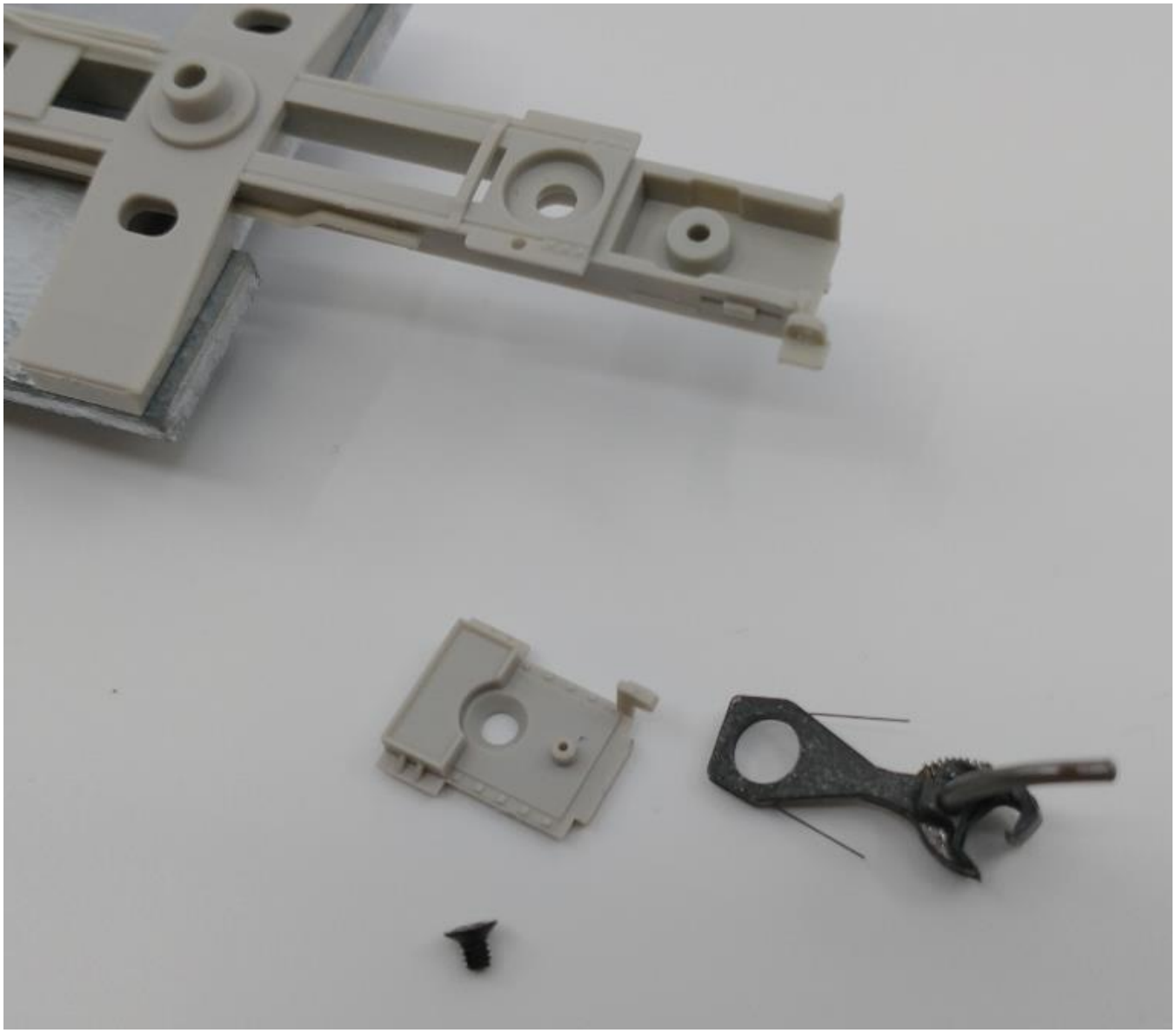

5

22. **Install the Release Rod and 3 brackets.** Locate the thin wire release rod part. Carefully thread the three brass brackets onto the wire. Glue brackets as shown into slots on plastic center sill and metal underframe. Trim end of wire part when finished.

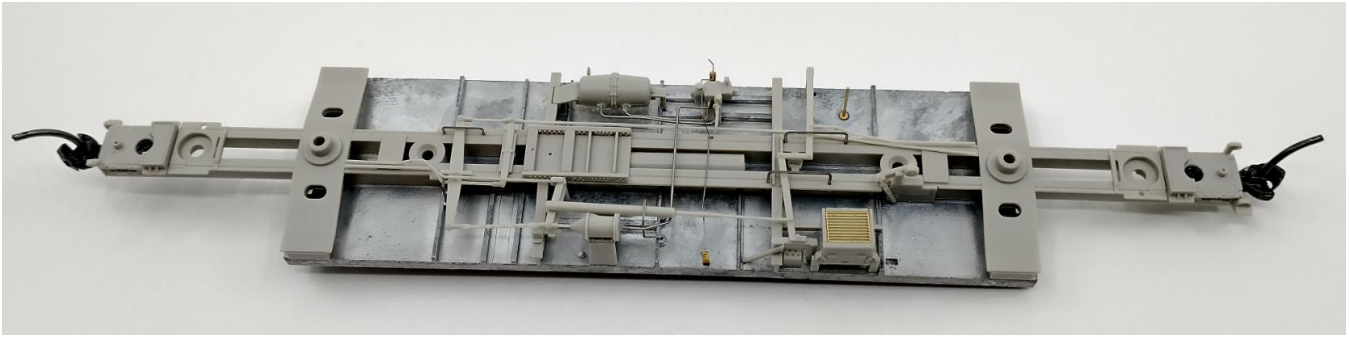




23. **Install Coupler lids and screws.** (Optional step: You can also leave these off until after painting!)

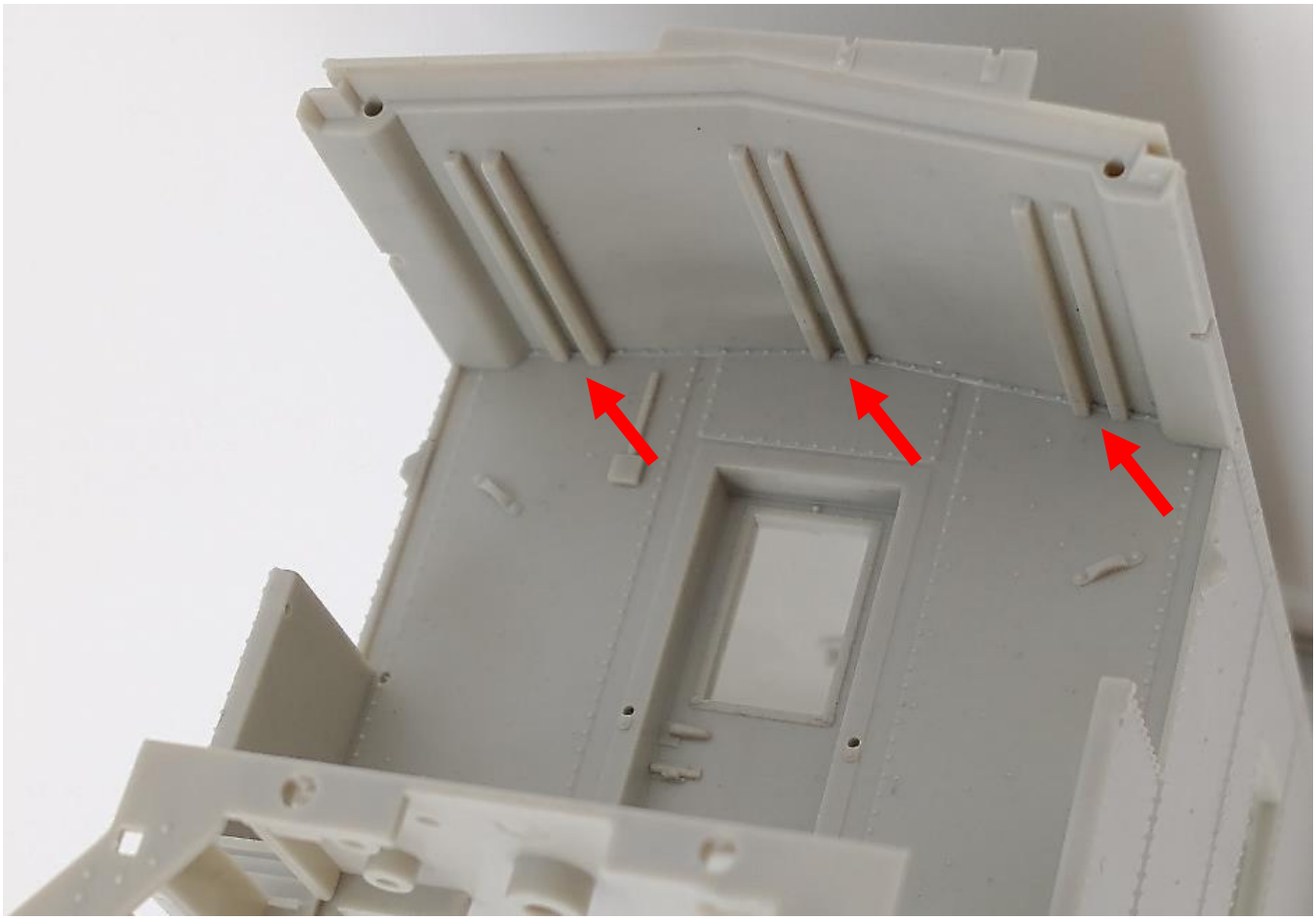


Ok, it's time for another high-five: You have successfully built the underframe assembly !

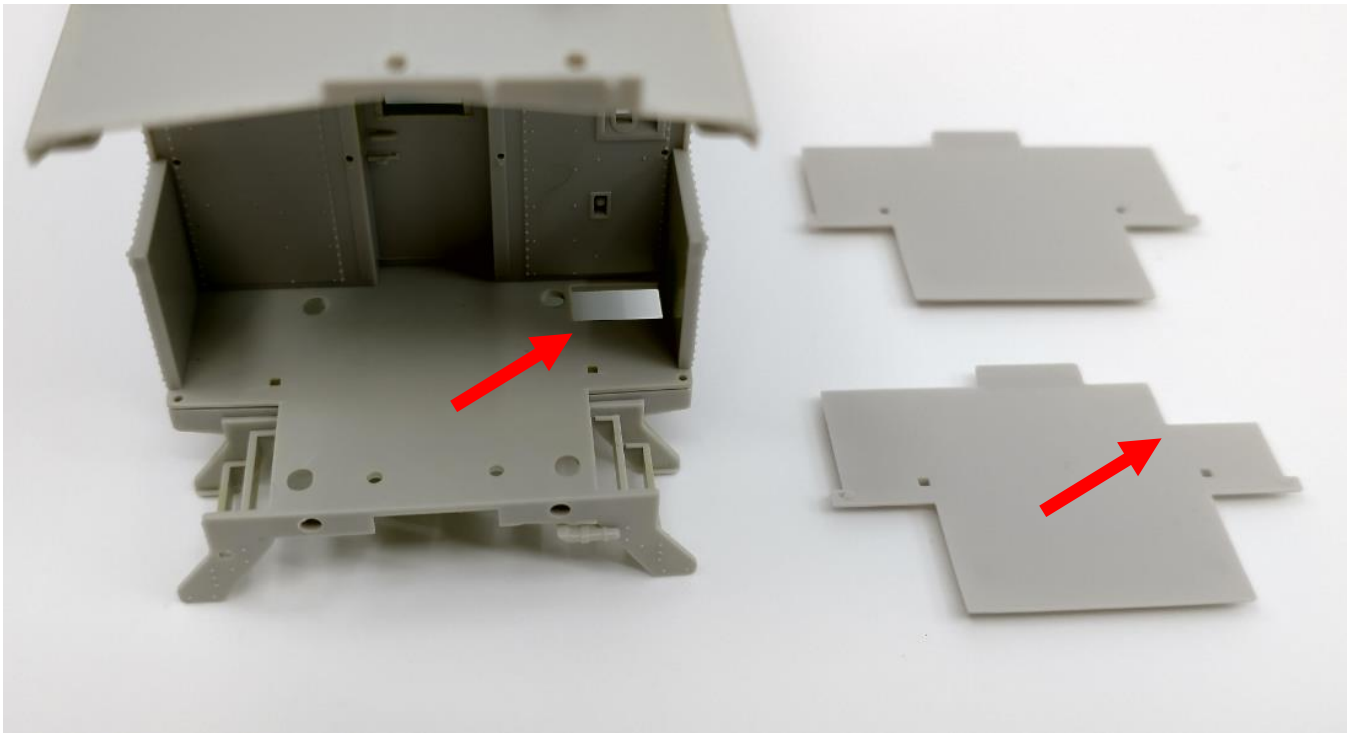


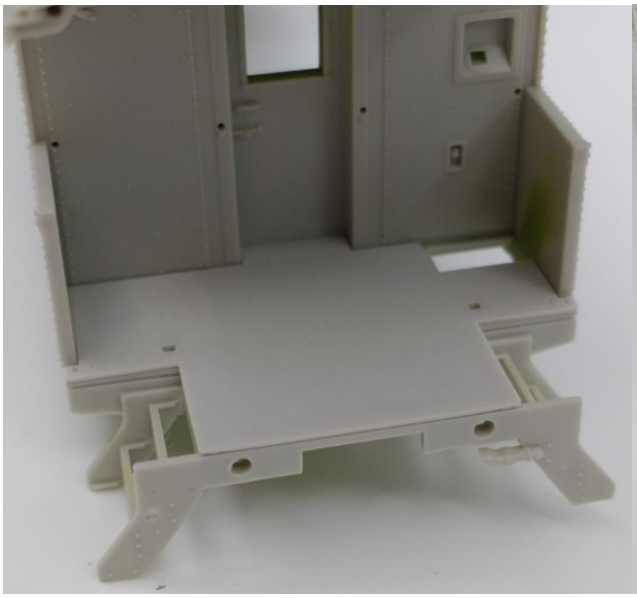
CARBODY ASSEMBLY

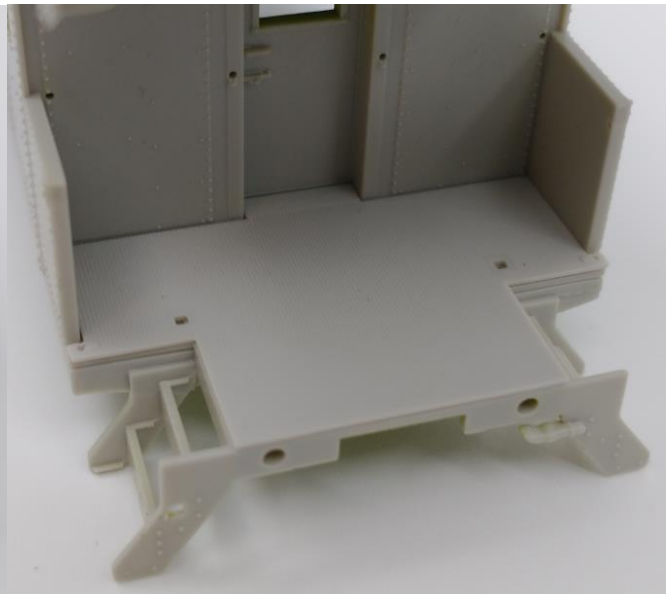
24. **Optional: Drill body holes if you will be installing any end lighting.** Now is a good time to plan out your lighting and drill any needed holes for your custom lighting wires into the body ends. Note the channels in the underside of the roof eaves, useful for hiding wires. Any holes can be drilled at the ends of these channels, where they meet the body end wall.



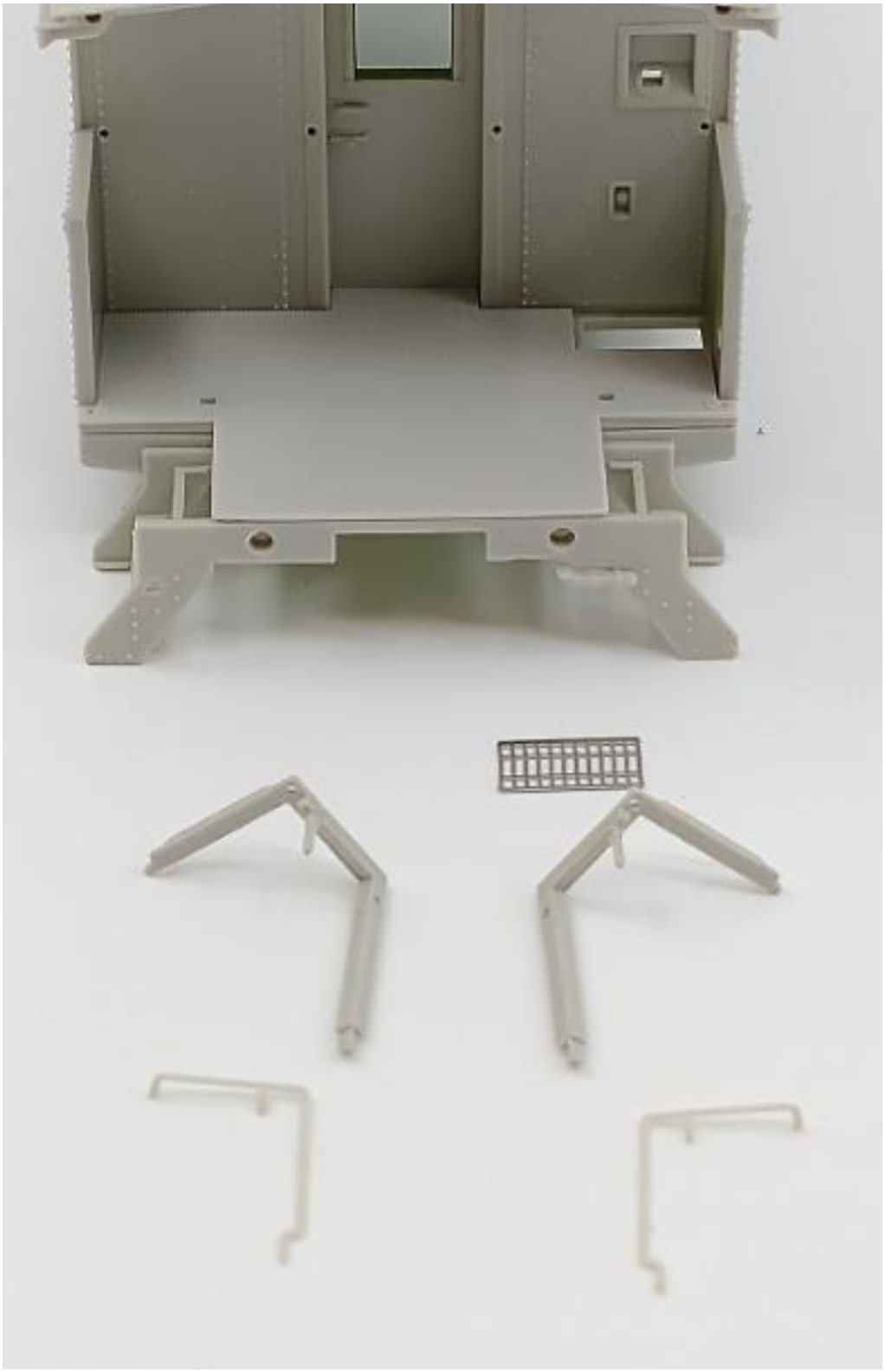
25. **Install the end platforms.** Identify the two end tread pieces. Note that one of them is notched to match the body A-End of the caboose for the floor drain grate to be added later.

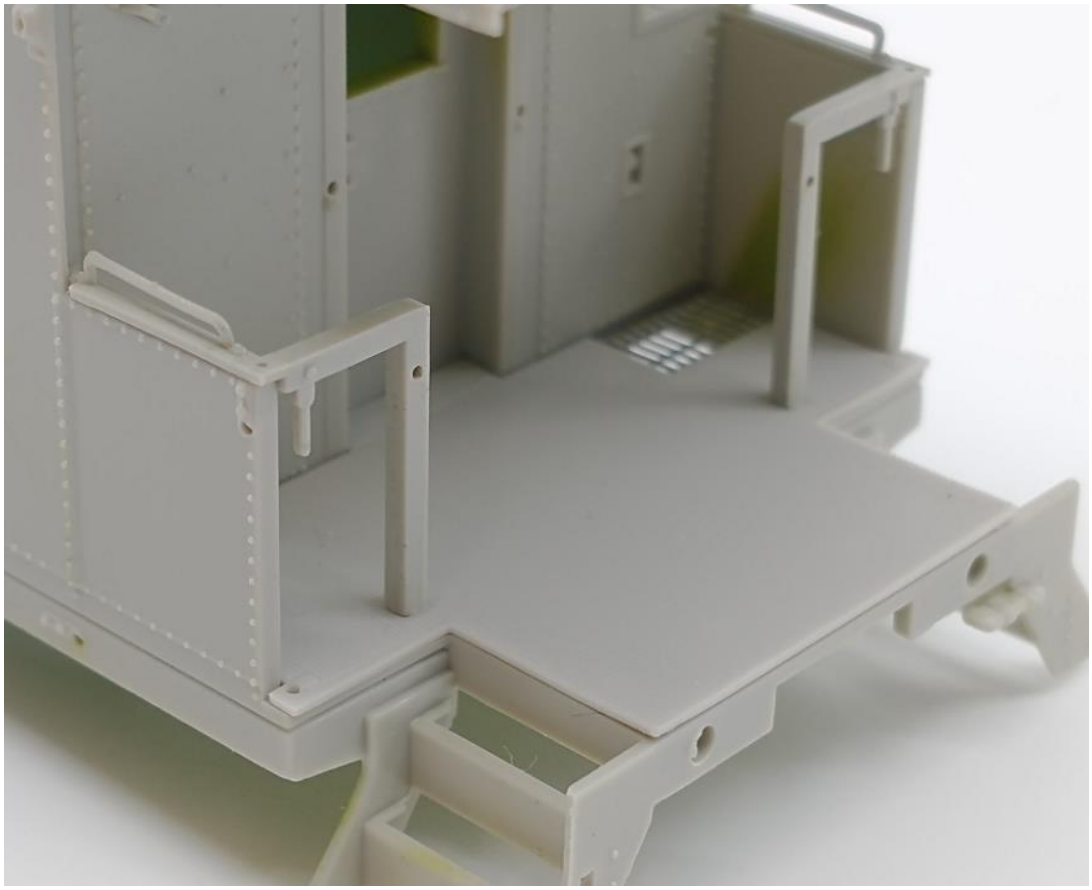


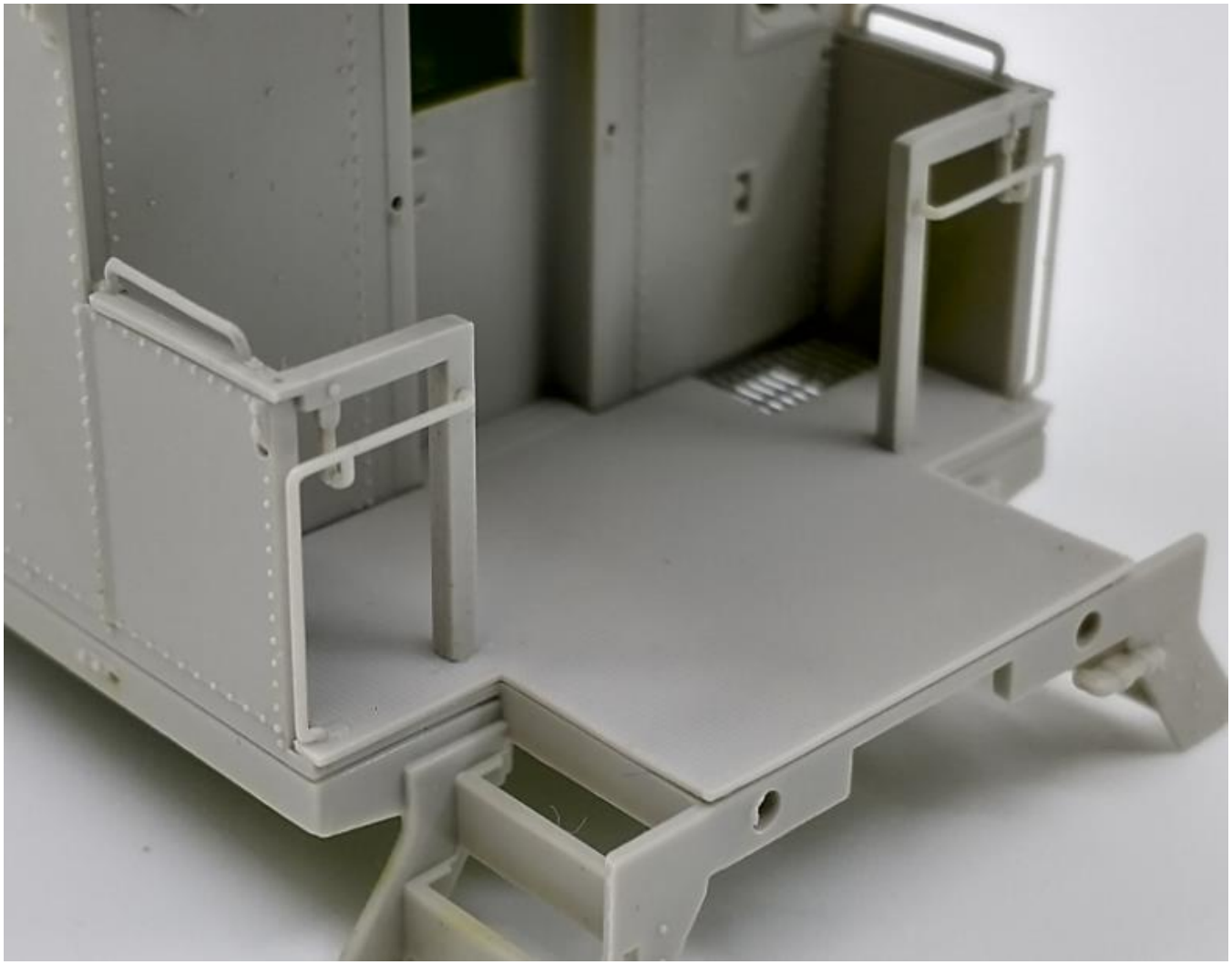




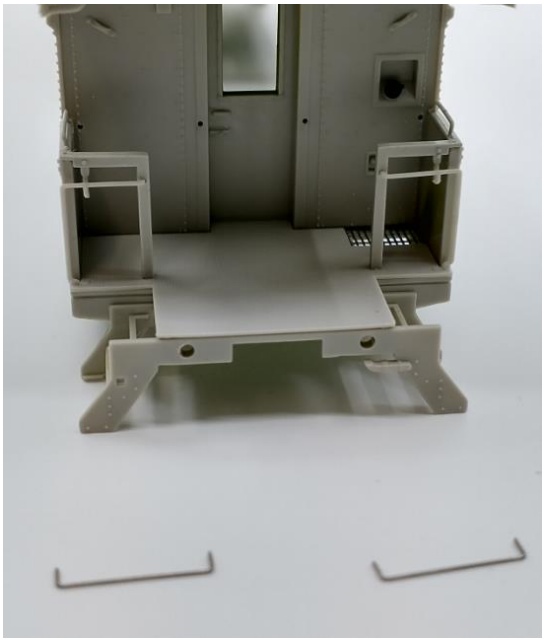
26. **Install the Corner post supports, grab irons and metal drain grate on the ends.** Identify the corner posts and grabs as shown. Only one end gets the metal grate at the rectangle drain.

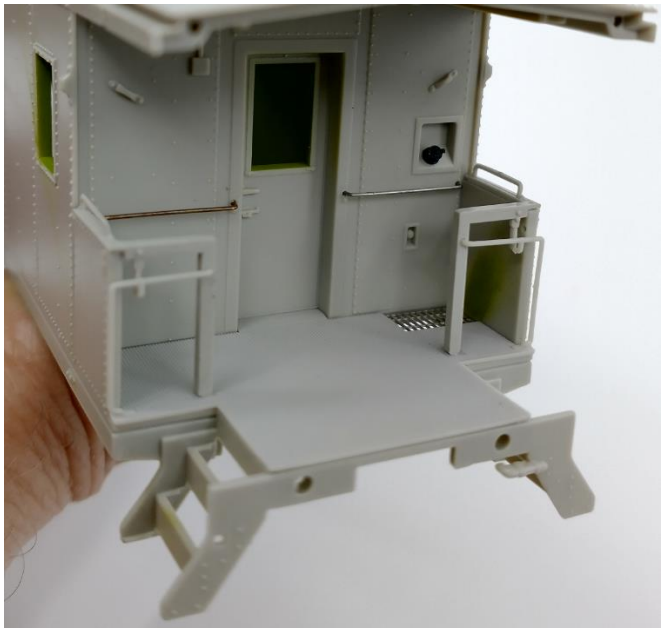




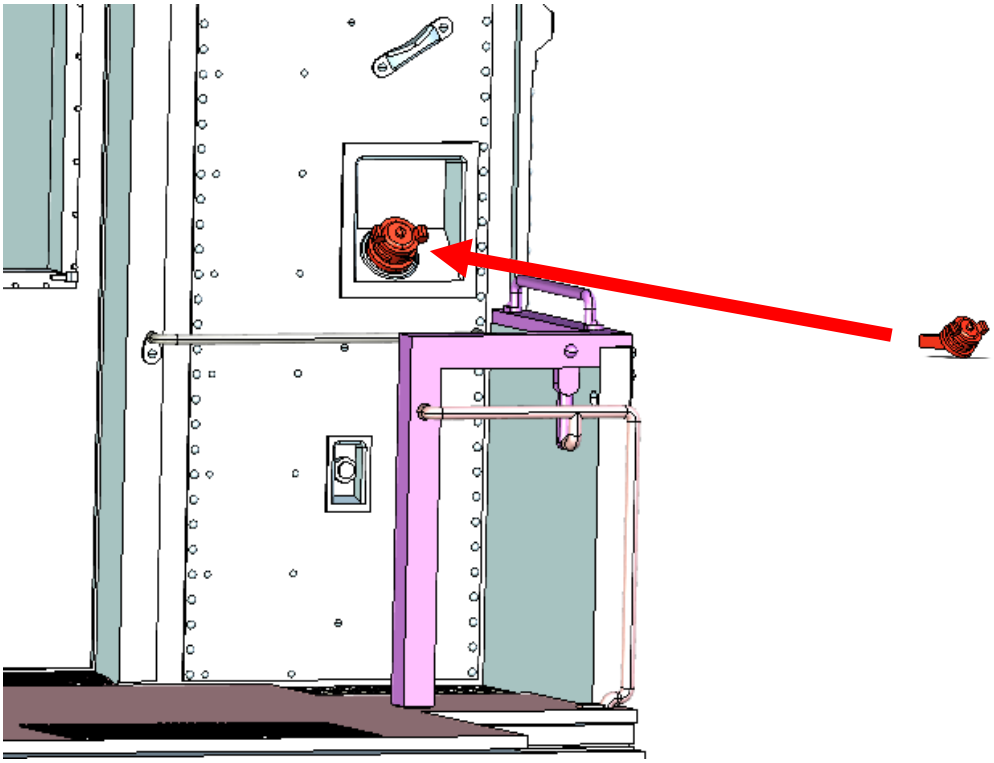


27. **Install the end horizontal railings.** Identify the wire parts as shown and install on each end.

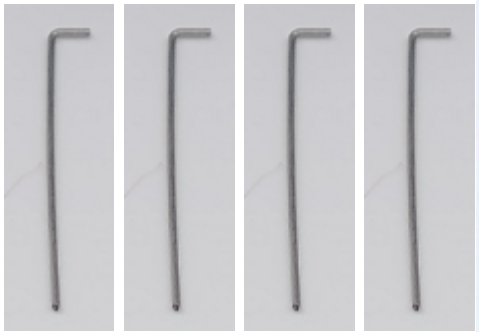


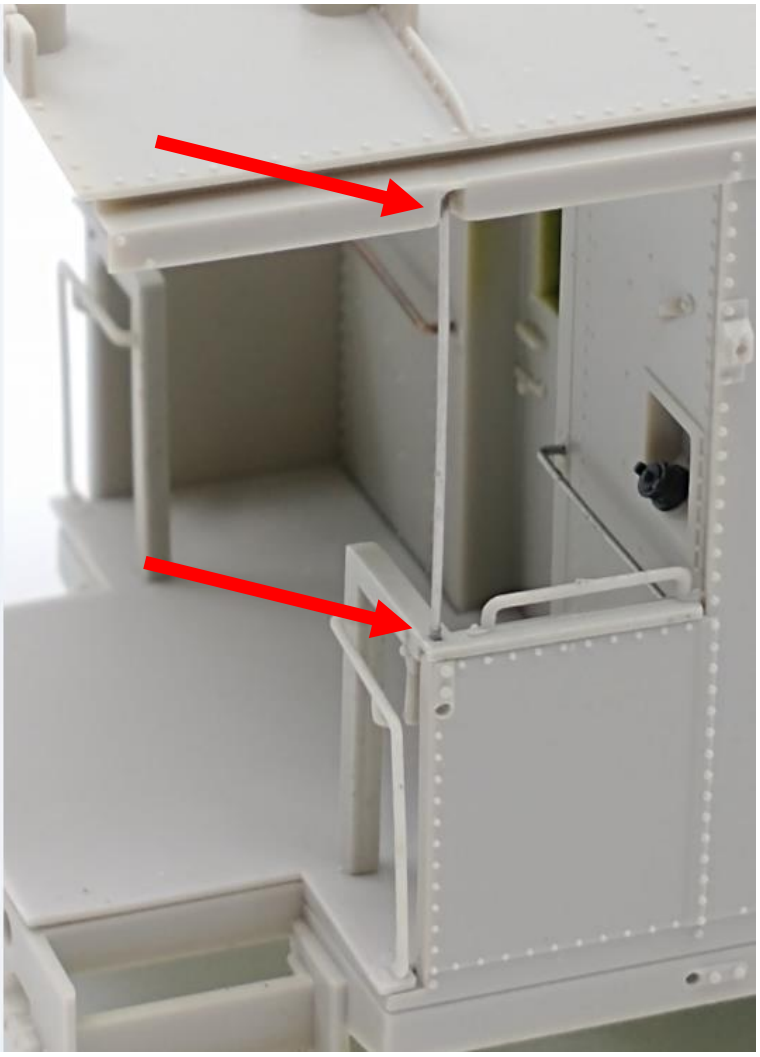


28. **Glue in the oil fill cap on one end.** Identify the tiny part and glue into slot.

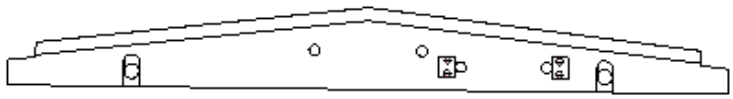


29. **Glue (4) Vertical Support Handrails.** There is a dimple hole at the lower location. The "L" shape goes into a hole at the roofline.

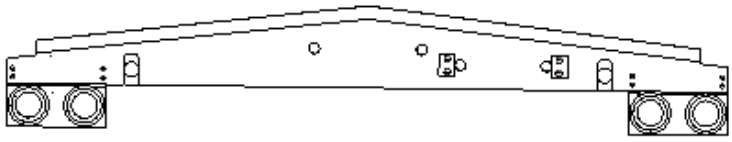




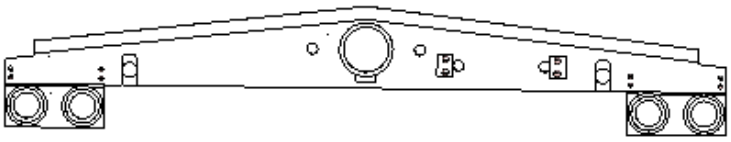
30. **Install the End Roof parts.** Decision time! There are 5 different parts. Install the verison of the part appropriare for your era/prototype selection on each end.



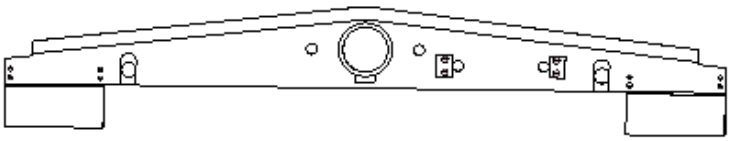
No Marker Boxes, No FRA Light:
(a.k.a Throwing a bone to the as-built IC 1966 Kitbashers…)



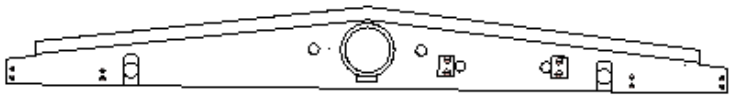
Yes Marker Boxes, No FRA Light:
IC, ICG Eras 1970-1977



Yes Marker Boxes, Yes FRA Light:
ICG 1978+ Era examples

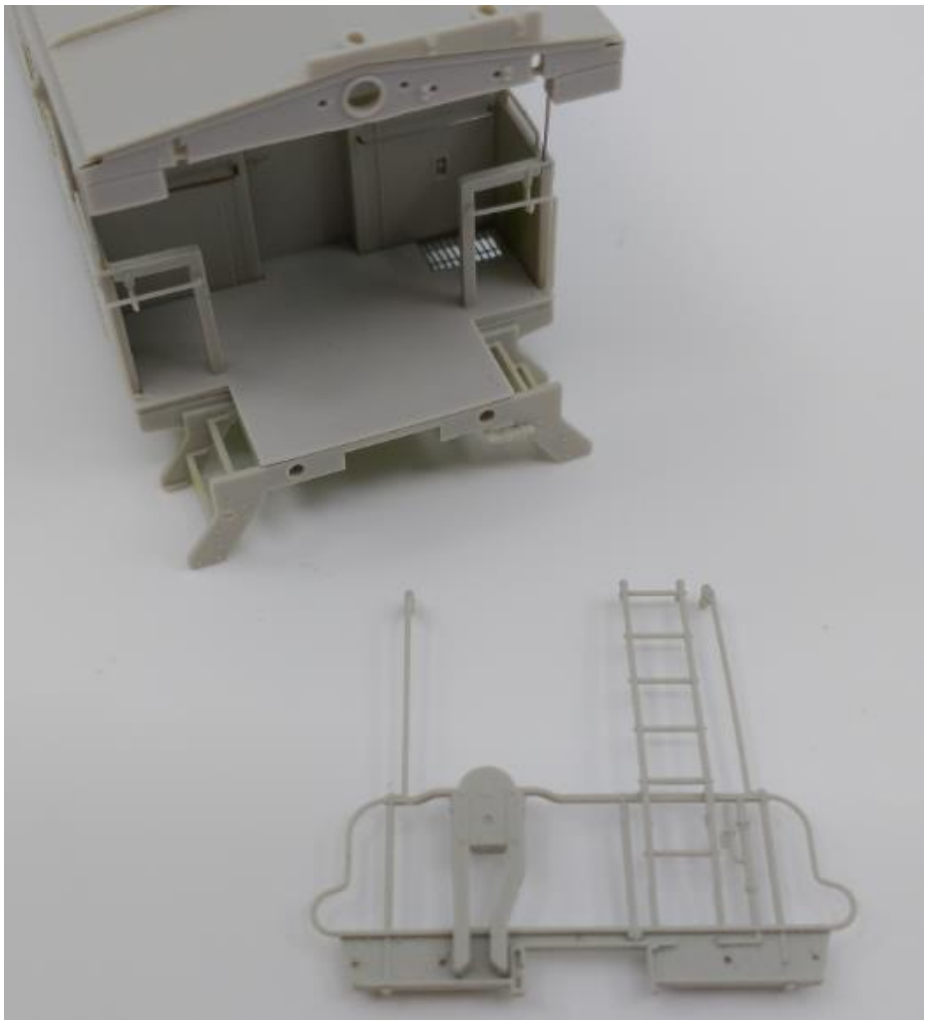


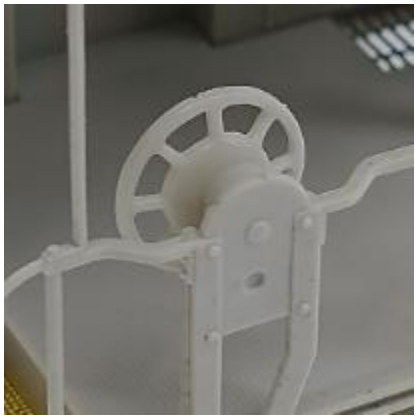
Blanked Marker Boxes, Yes FRA Light:
ICG 1979+ Era examples



No Marker Boxes, Yes FRA Light:
Some ICG/IC/CN Late examples

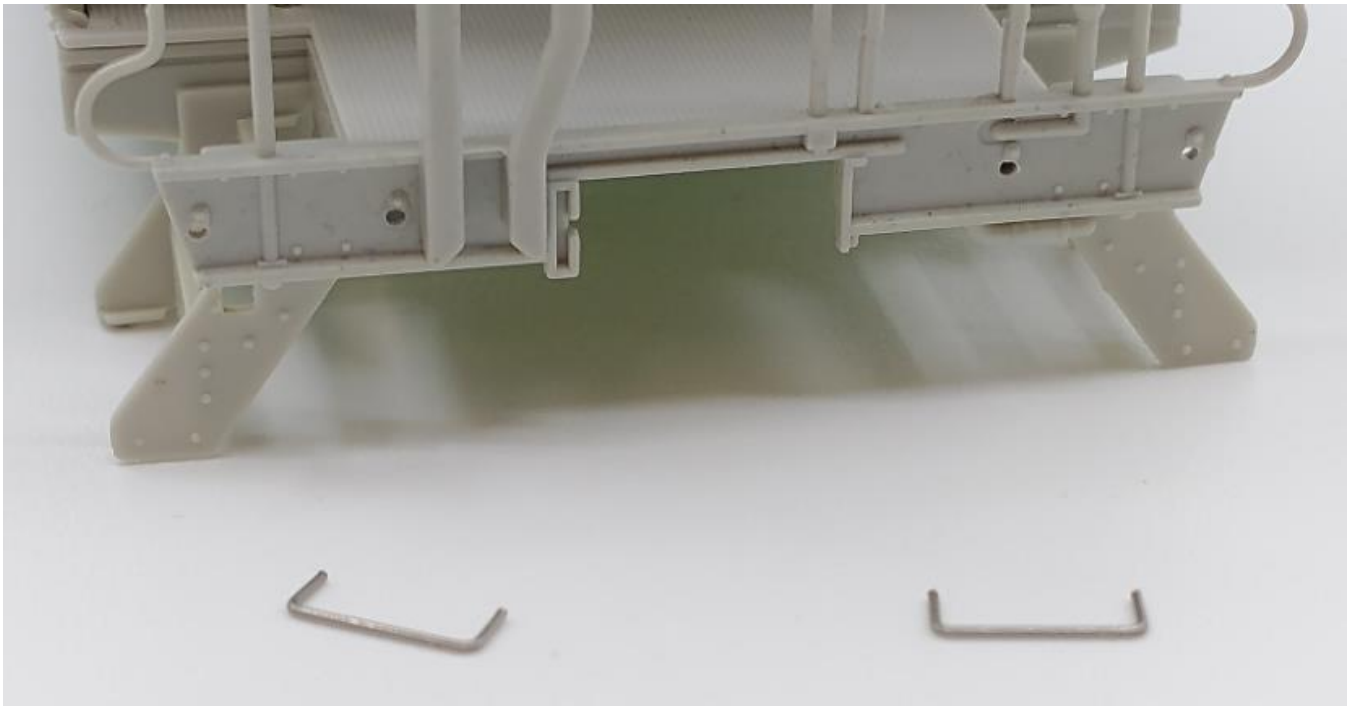
31. **Install the Brake Wheel and End Ladder Cage parts.** Make sure parts fit before gluing. Clean out any holes etc. This is a CA-type join, and your careful part-fitting diligence will pay off here. Fit carefully, and glue as the final step. Pro tip: Glue the brake wheel to the end ladder handrail part first, then test fit/glue the assembly to the end of the caboose.



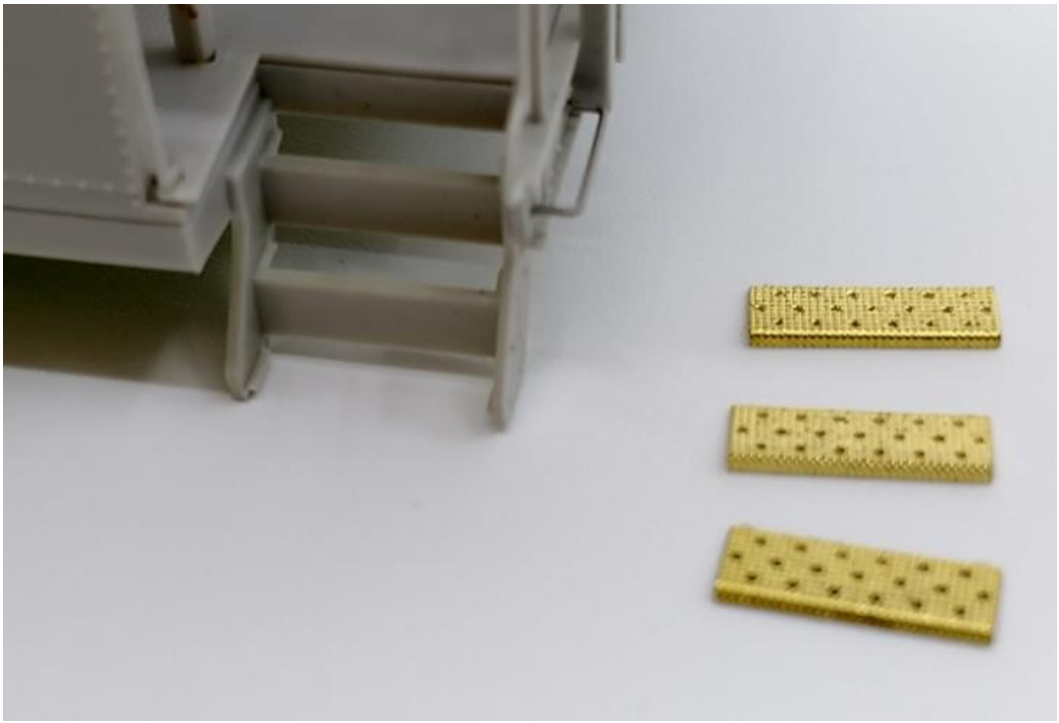


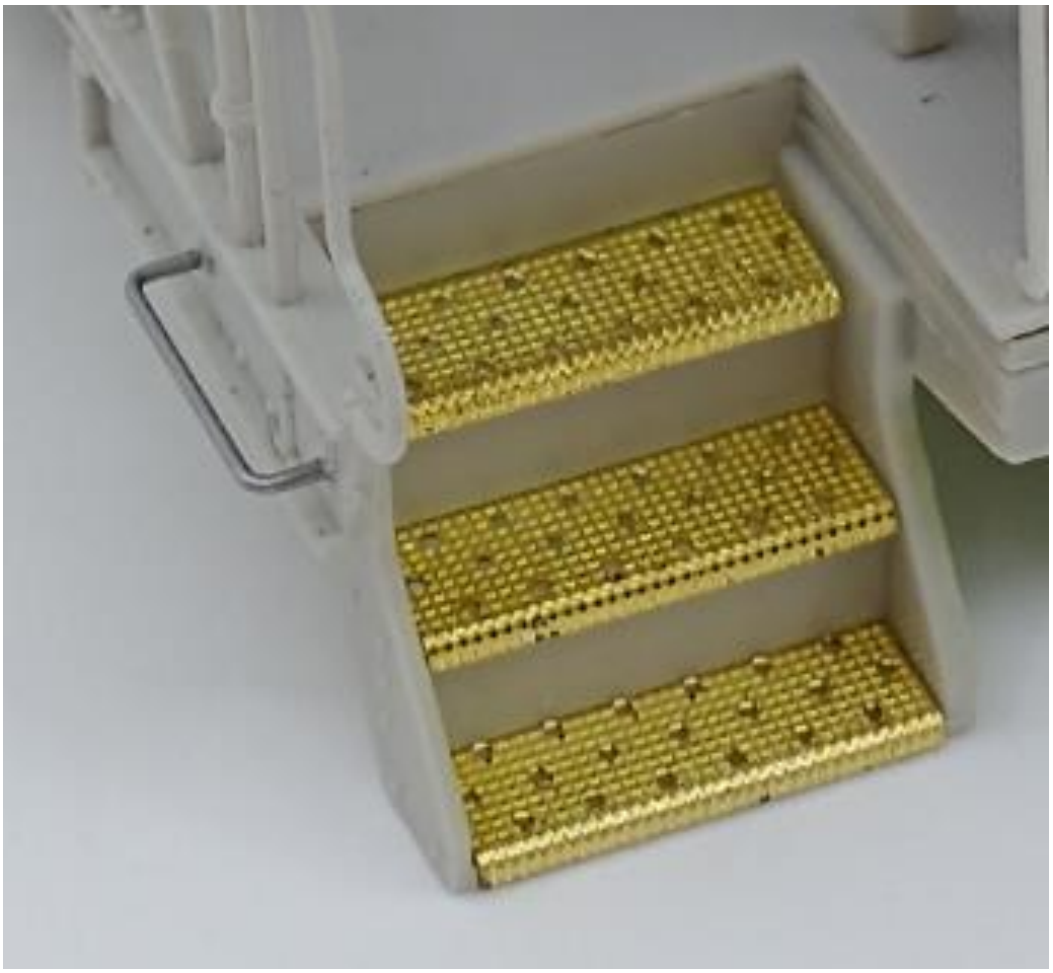
Oh yeah, it's starting to look like an IC caboose now!

32. **Install the end grab irons.** Identify the wire parts and attach as shown on each end.

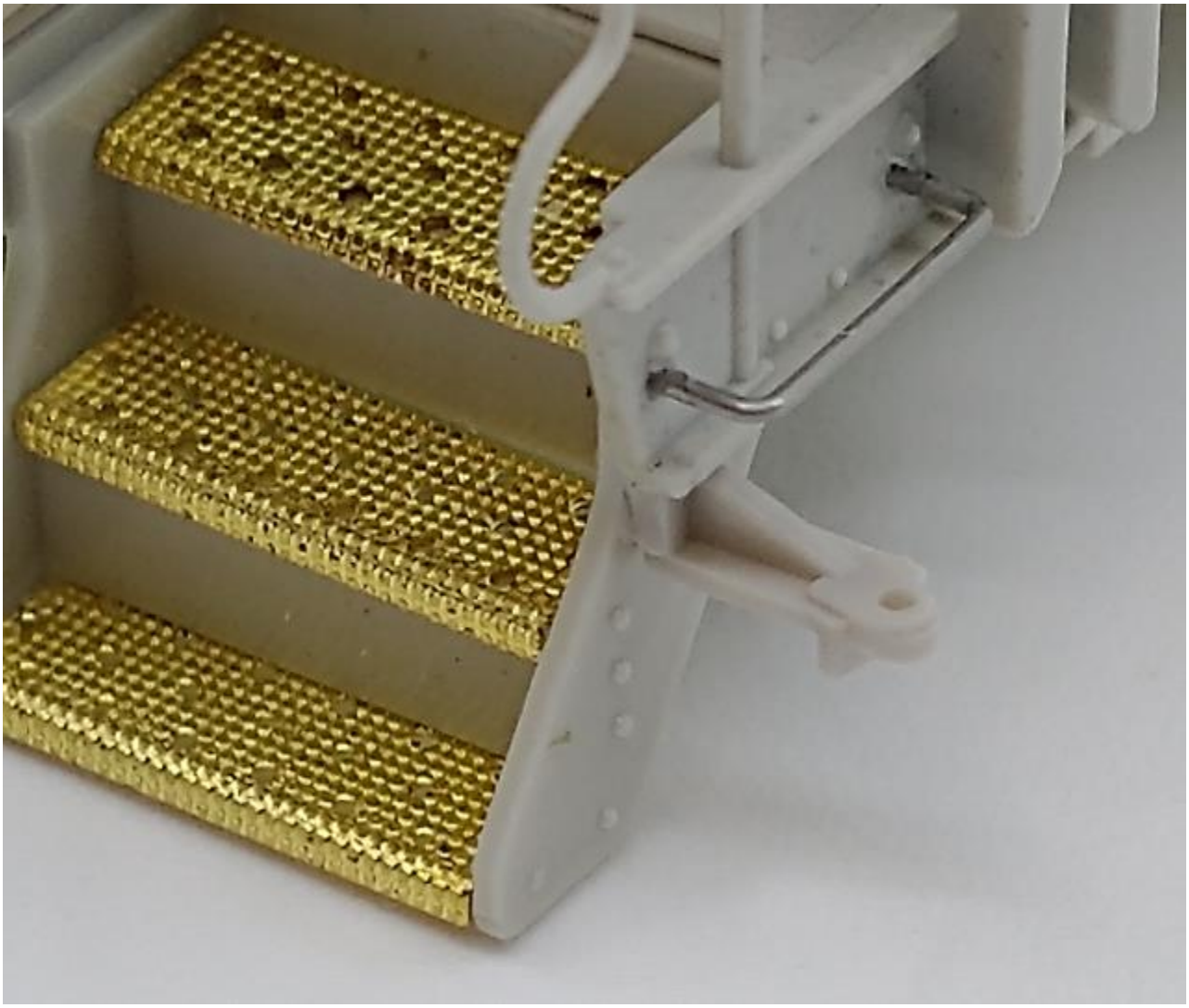


33. **Install the step treads.** Identify the (12) brass-formed step tread parts. (Use three per step well.) The step wells have small ridges on the sides that the treads sit on and the front lip of the tread fits over the vertical supports. Position the treads in the step wells so that they rest on the ridges and the front lip sits flush on the vertical support. Secure from the back side with CA.

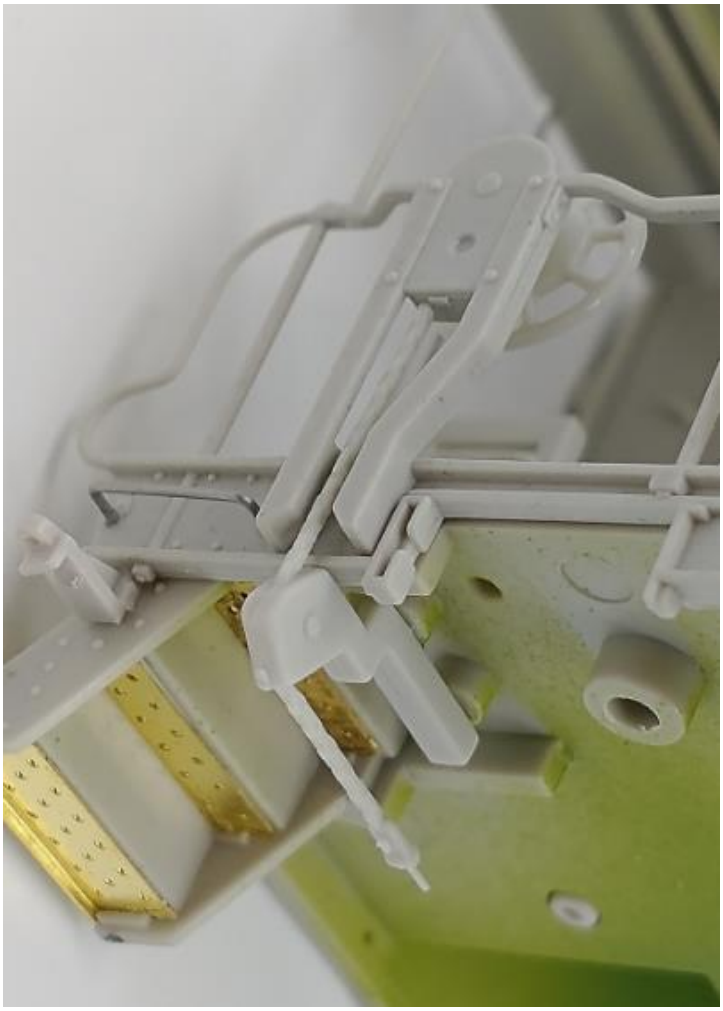




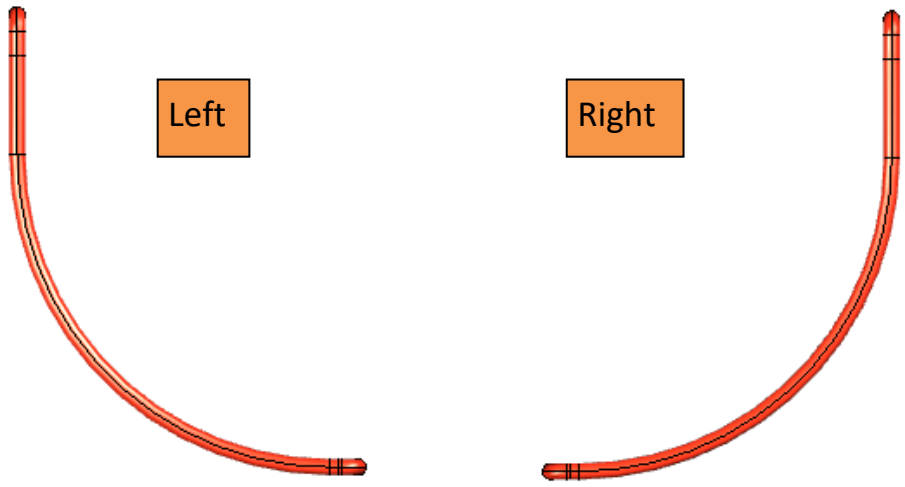
34. **Install the pin lifter ("coupler lift bar") support bracket.** Identify this small part and glue in place in the hole on the face of the left step well on each end.

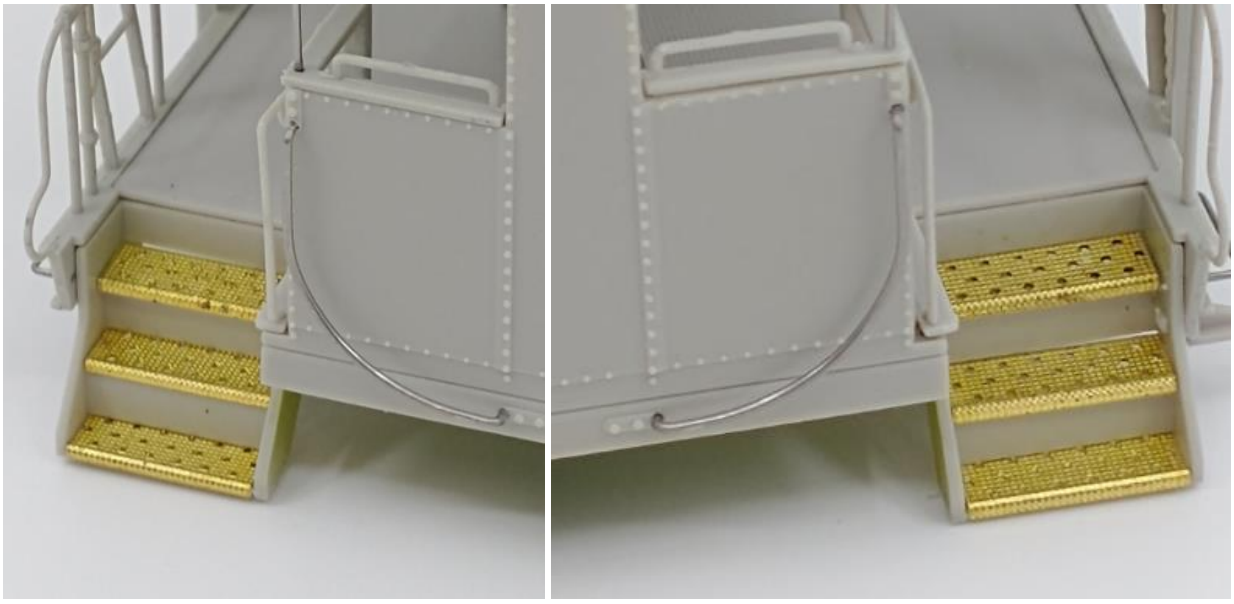


35. **Install the fulcrum and chain.** The fulcrum/chain assembly fits into two holes on the bottom of the carbody, and the vertical chain fits up to the brake wheel housing. Glue in place on each end.

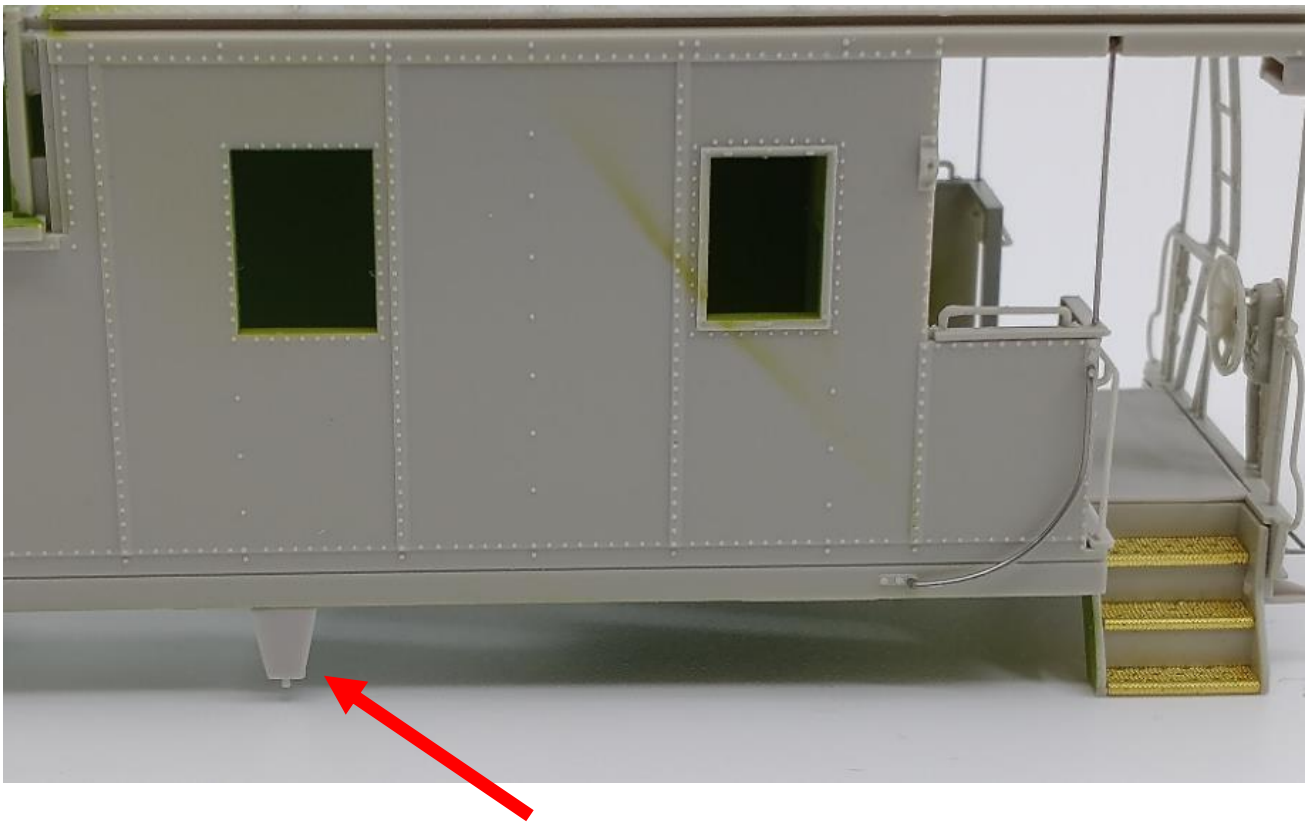


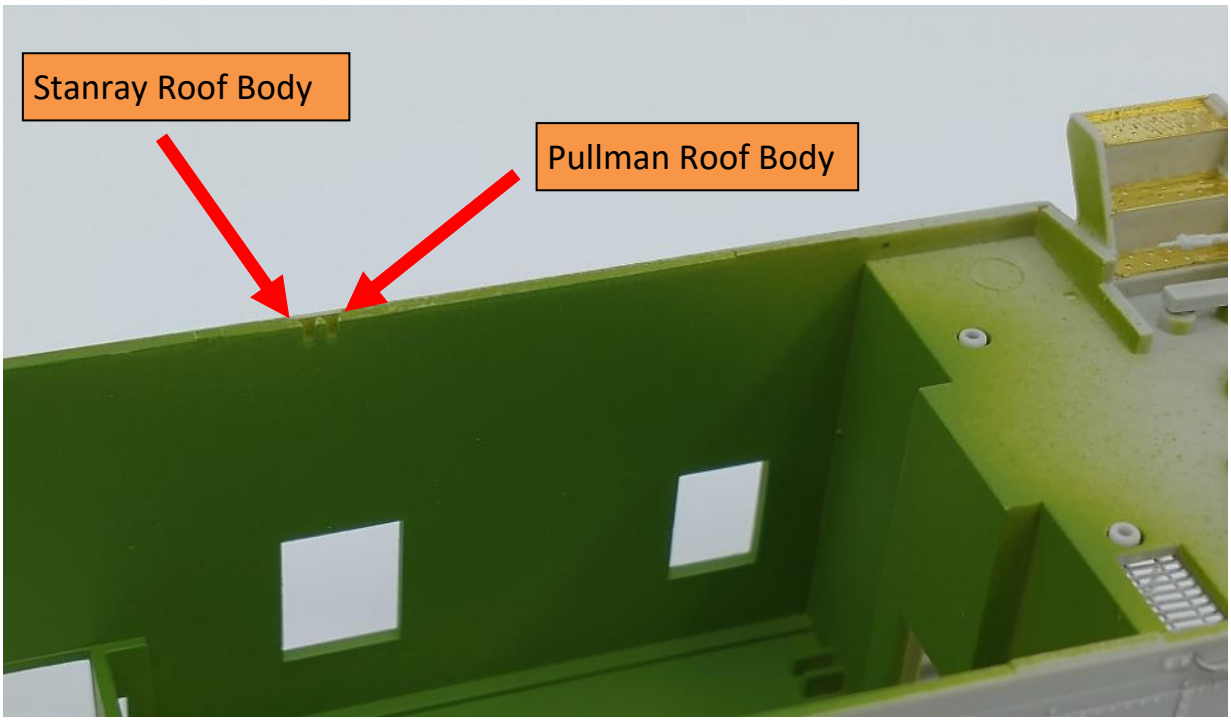
36. **Install the curved left and right body grab irons.** Take a moment to identify these parts correctly. Note the upper "vertical" part of each grab iron is straight. (In other words, there is a "Left" and "Right" part to this step!) Glue in place on each side.



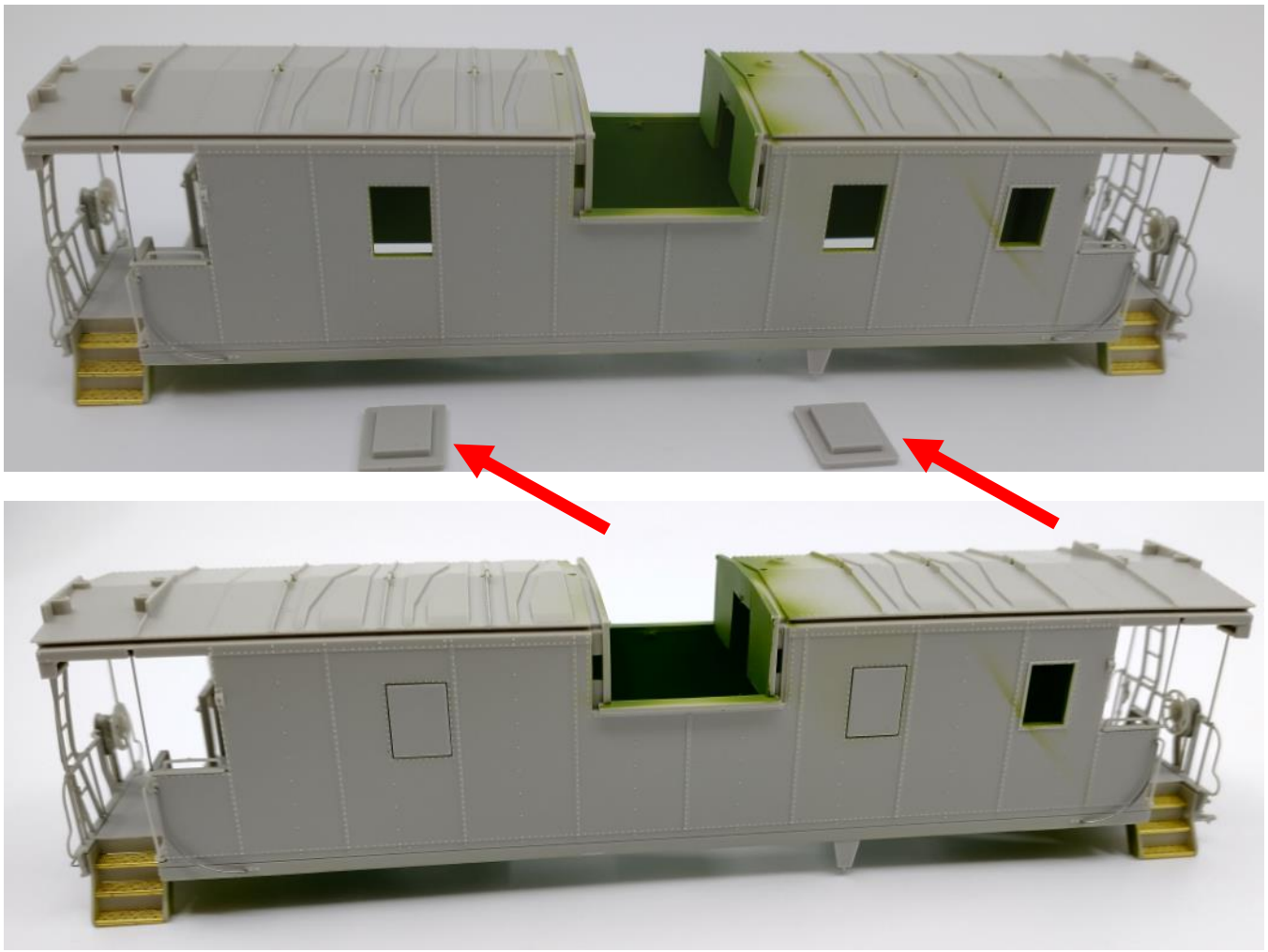


37. **Install the support shroud.** This trapezoid-shaped part can be glued in one of two locations. Arrows indicate the Stanray Roof or Pullman Roof mounting slot locations. (Note how this location matches the Stanray vs. Pullman part location in step 18 !) Glue in place.



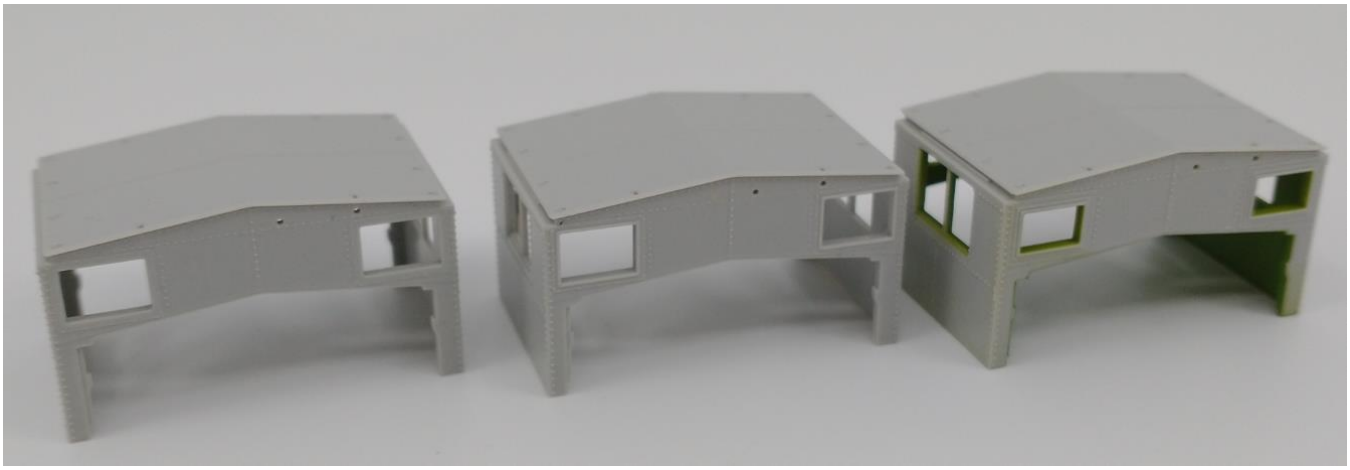


38. **Window Blank Parts.** Some later cabooses have some windows plated. If you are modeling one of these prototypes, now is the time to glue in the plastic window blanks, matching your photos. (Some cabooses have one blank window on each side, while others have 2 blanks on each side) If your caboose has all of it windows intact (yes, many made it this way until the end!), then skip this step. Note: The clear glass windows will be glued in at the end, after painting.

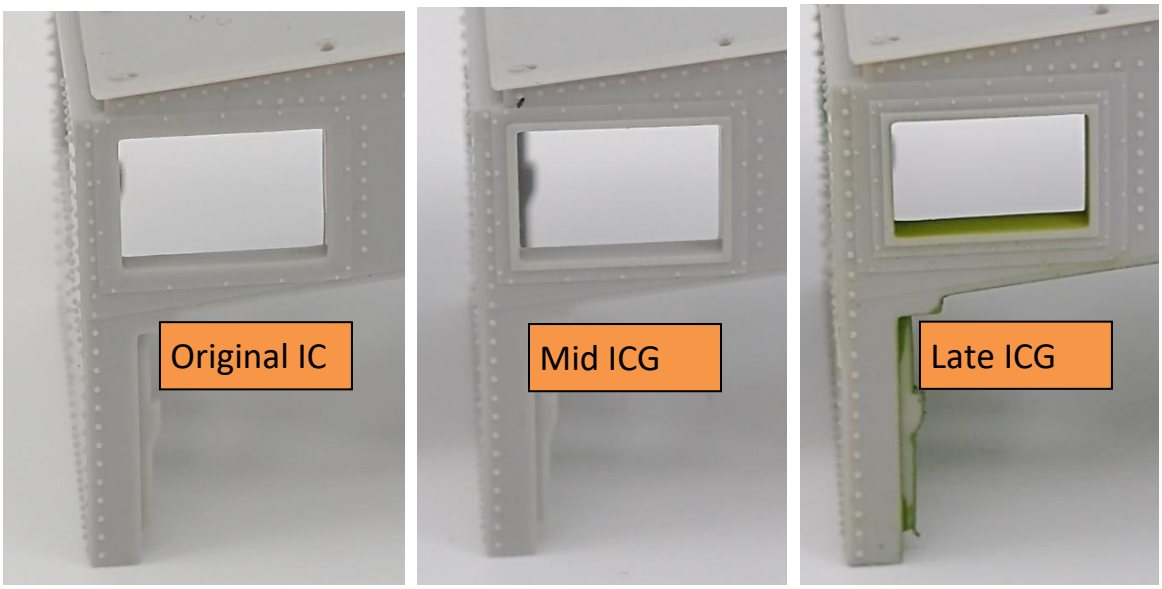


Alternative window plating option: Some modelers may choose to make their own window blanks from .005in styrene rectangles. This method will allow attachment from the outside of the body, with no visible gaps.

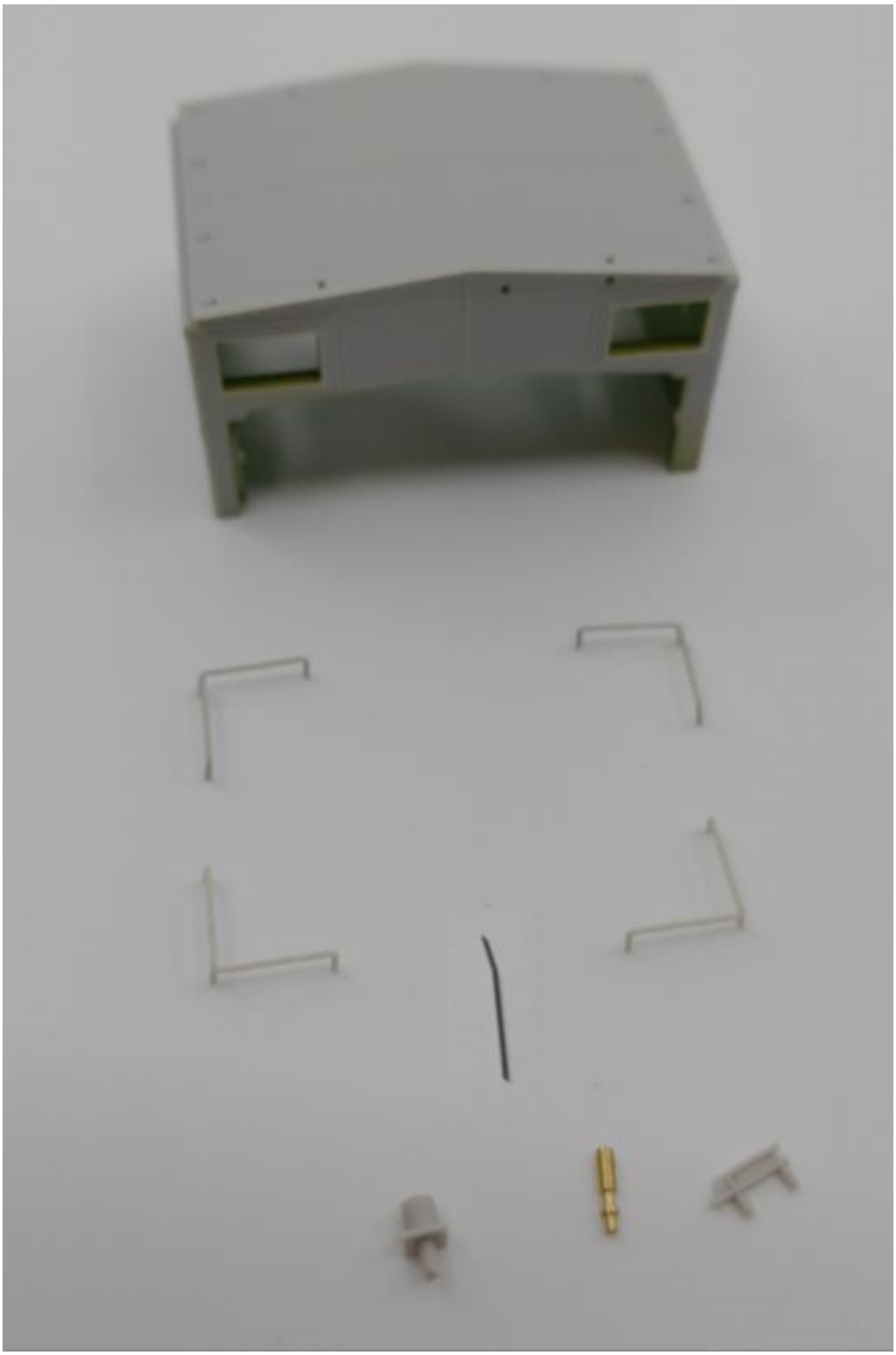
39. **Choose the Cupola.** There are three Wide Vision cupola choices. It's time to decide which one will be used on your caboose model.



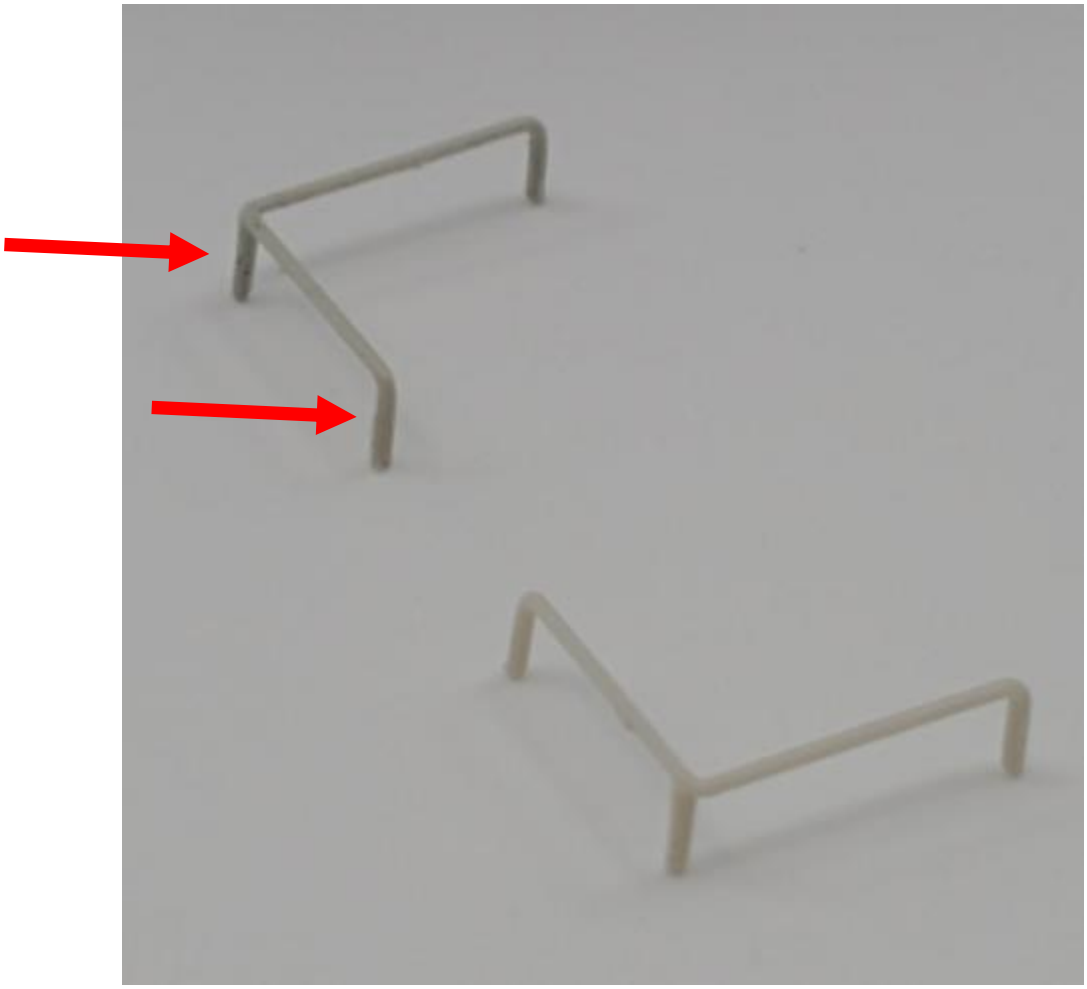
What's the difference? On the prototype cabooses, the end windows sometimes changed over the years. Look carefully at the window frames in your prototype photos. Not all cupolas had their windows changed.



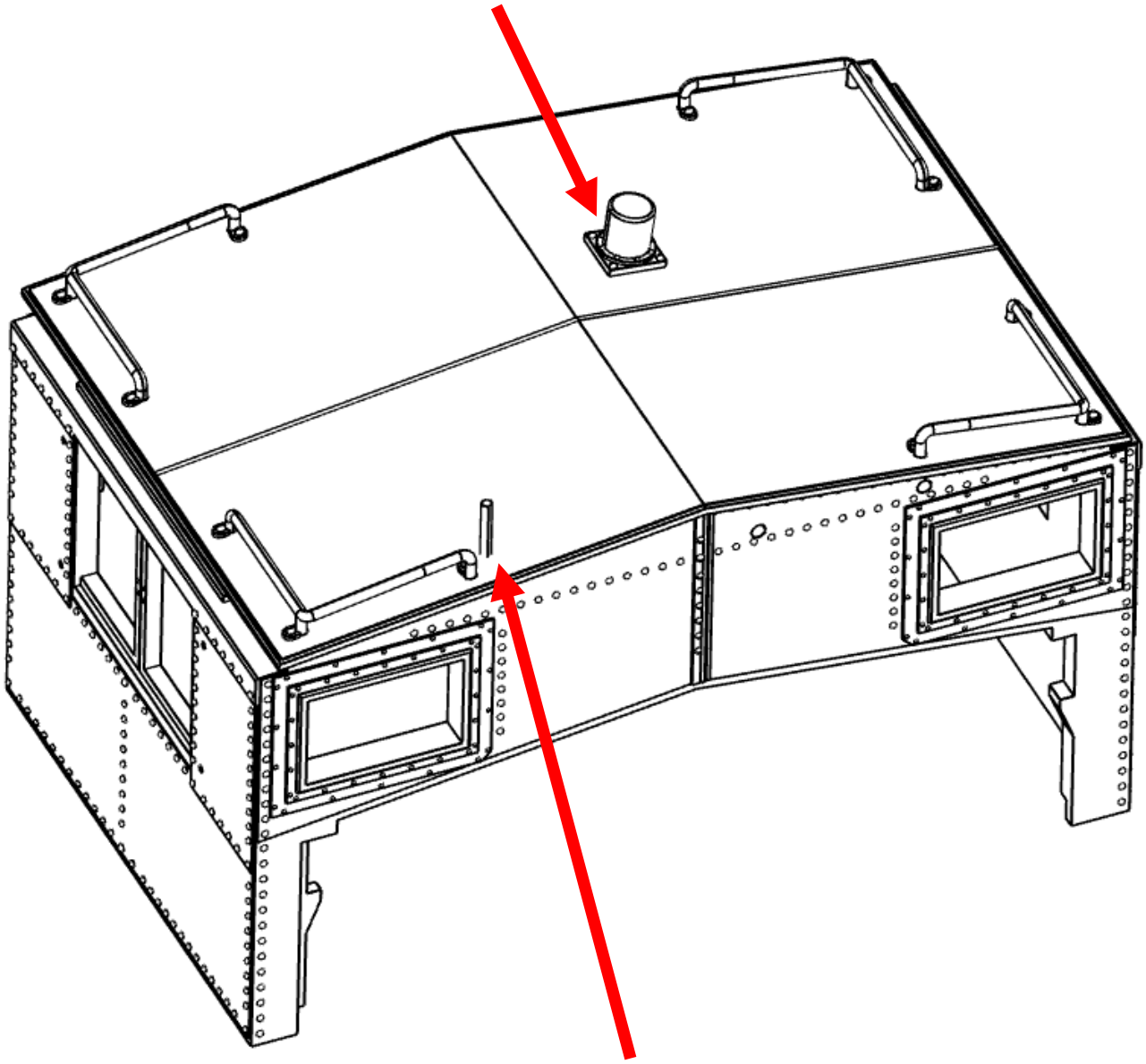
40. **Build the cupola details.** Locate the 4 plastic roof grab irons, 3 antenna choices and breather pipe wire part.



The roof grab irons only go in the holes one way. Carefully inspect the vertical parts orientation and glue with CA.

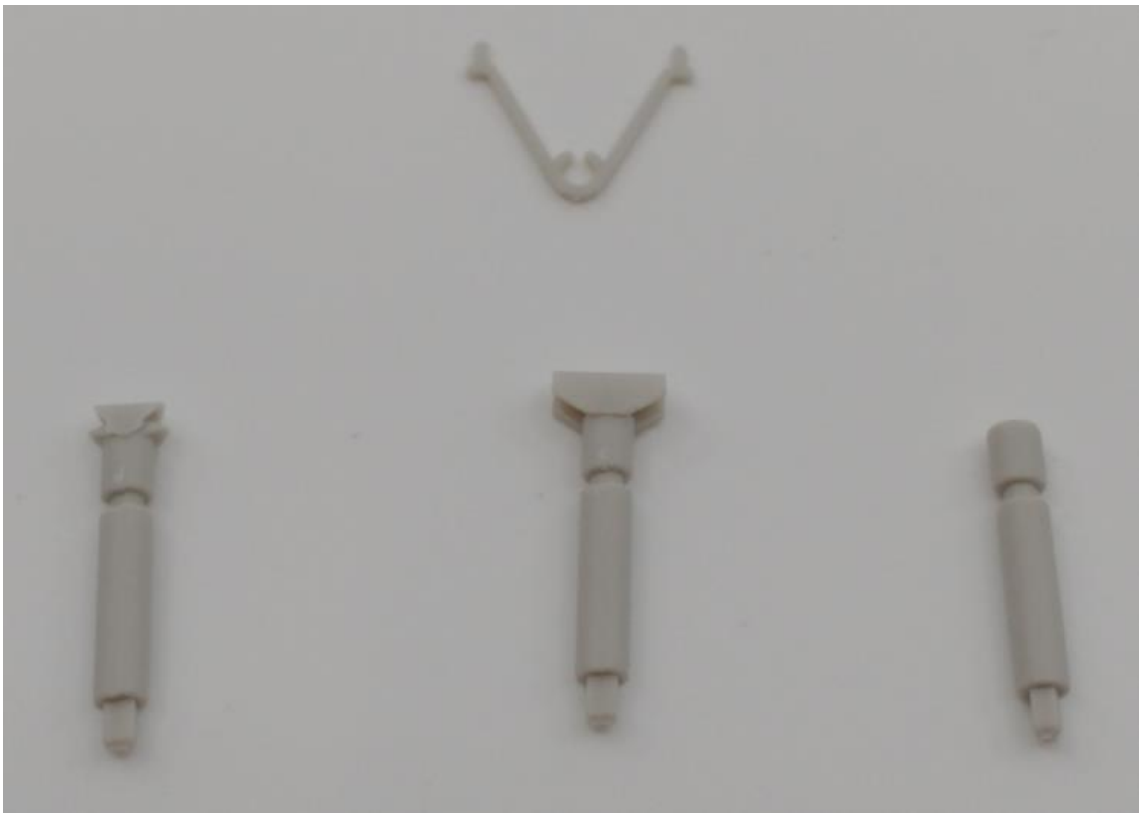


Choose your roof antenna. All of the cabooses have the "can" style antenna, but some later ICG prototypes also have an added "Firecracker" style or "Sinclair" style. Drill a #65 hole for the can antenna in the roof as shown and glue. For the other 2 styles, consult your prototype photos for location direction. Use a #73 bit for the Firecracker and/or Sinclair mounting



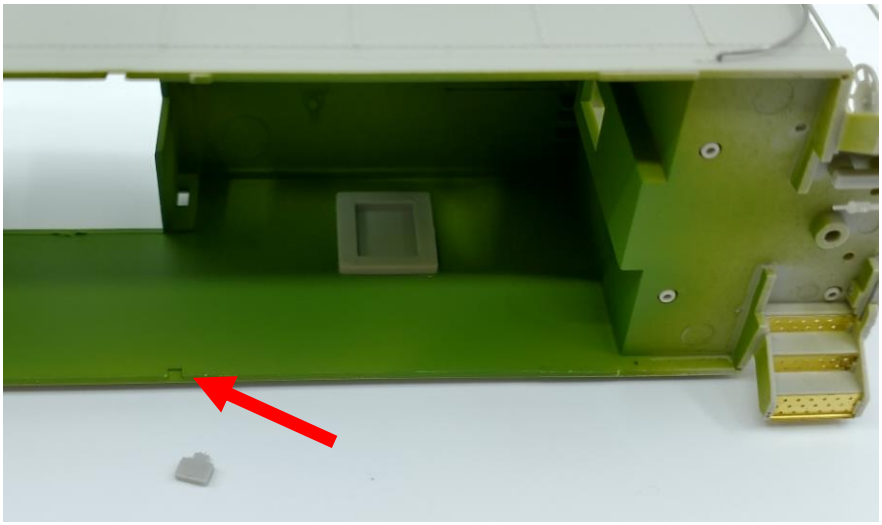
Optional: Drill a #79 hole and install the toilet tank breather pipe. You can trim this wire part – you don't have to use the entire length! (This breather pipe detail exists on most of the prototype Centralia Wide Vision Cabooses, but skip it if you are modeling an early Stanray Roof caboose as-built with the large underframe toilet dump pipe.)

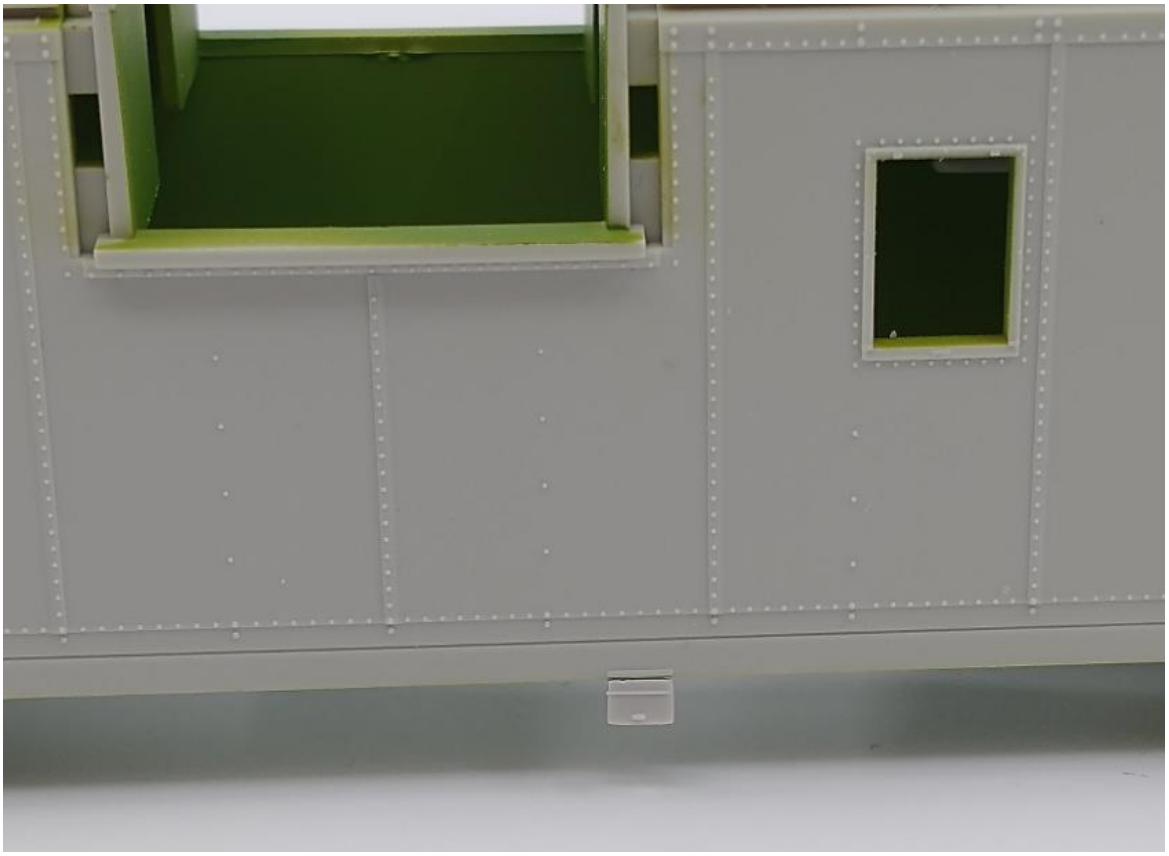
41. **Choose and assemble the smokejack.** The kit includes three different smokejacks: Original cone vent, replacement "T" style and a later "cut off" style. Once you choose, carefully snap on the support brace. All three smokejacks use the same support brace part. This assembly will be installed later – after the cupola is attached to the body.

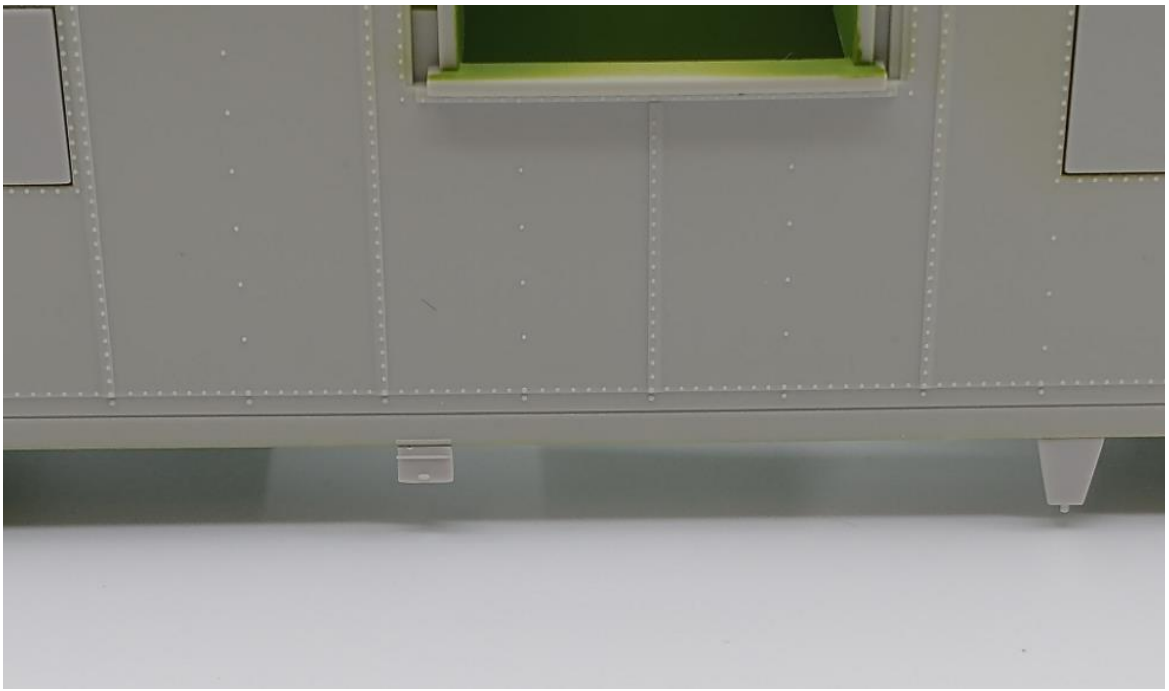


42. **Optional: Install the water filler covers.** Each side of the body has one water filler cover down along the bottom edge. There is a mounting tab notch on the back wall of the caboose on each side.

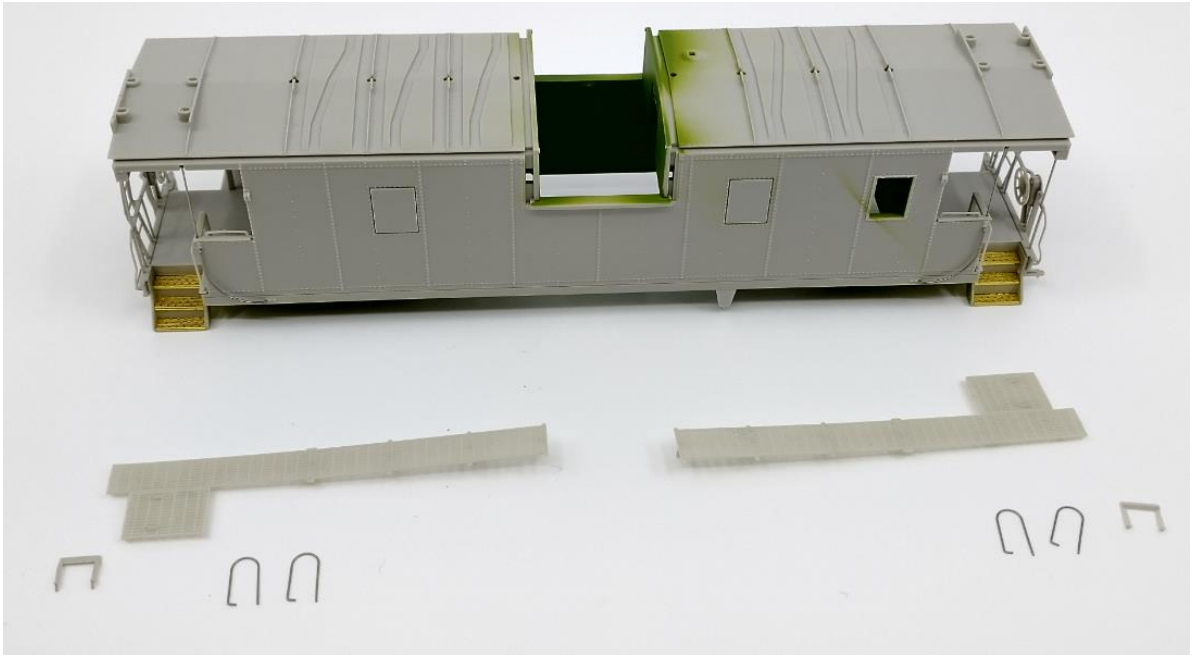
    (Note that for some later era cabooses, these covers are missing. In this build example, we show the parts in the photos here, but our prototype example caboose does not use the parts due to it being a later era repaint.)



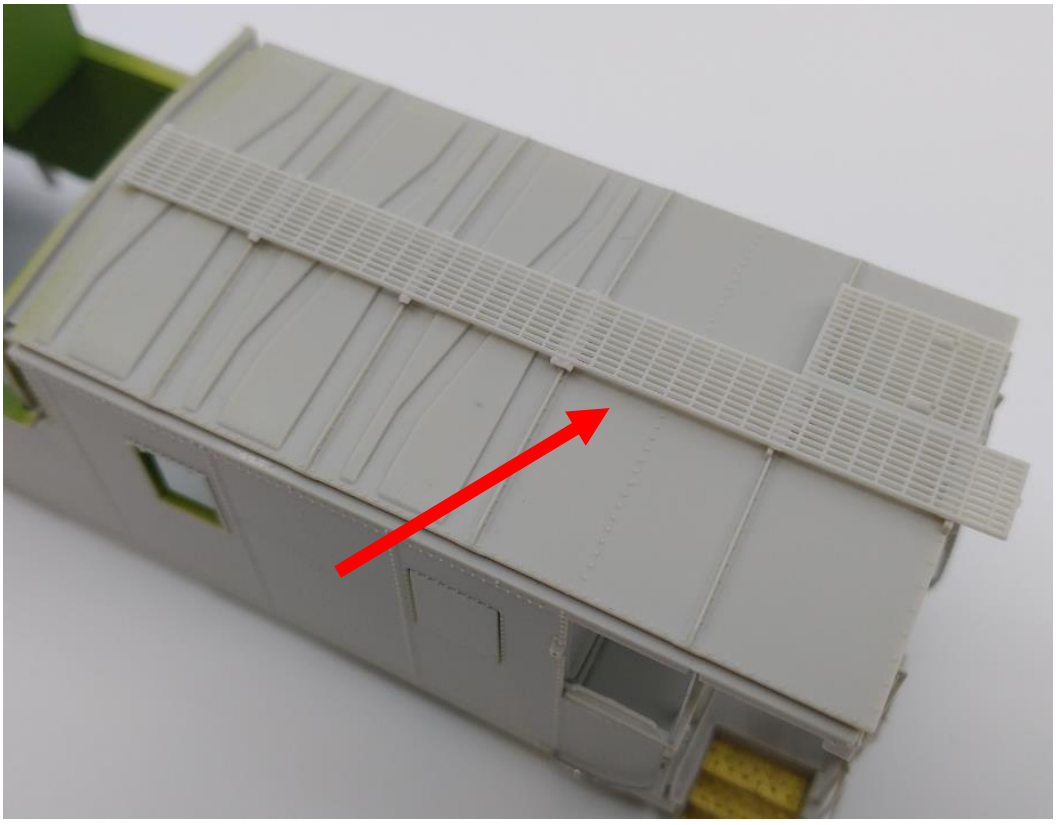




43. **Locate your roof details.** Two plastic roof walkways, two plastic supports, and 4 wire top ladder hoops.



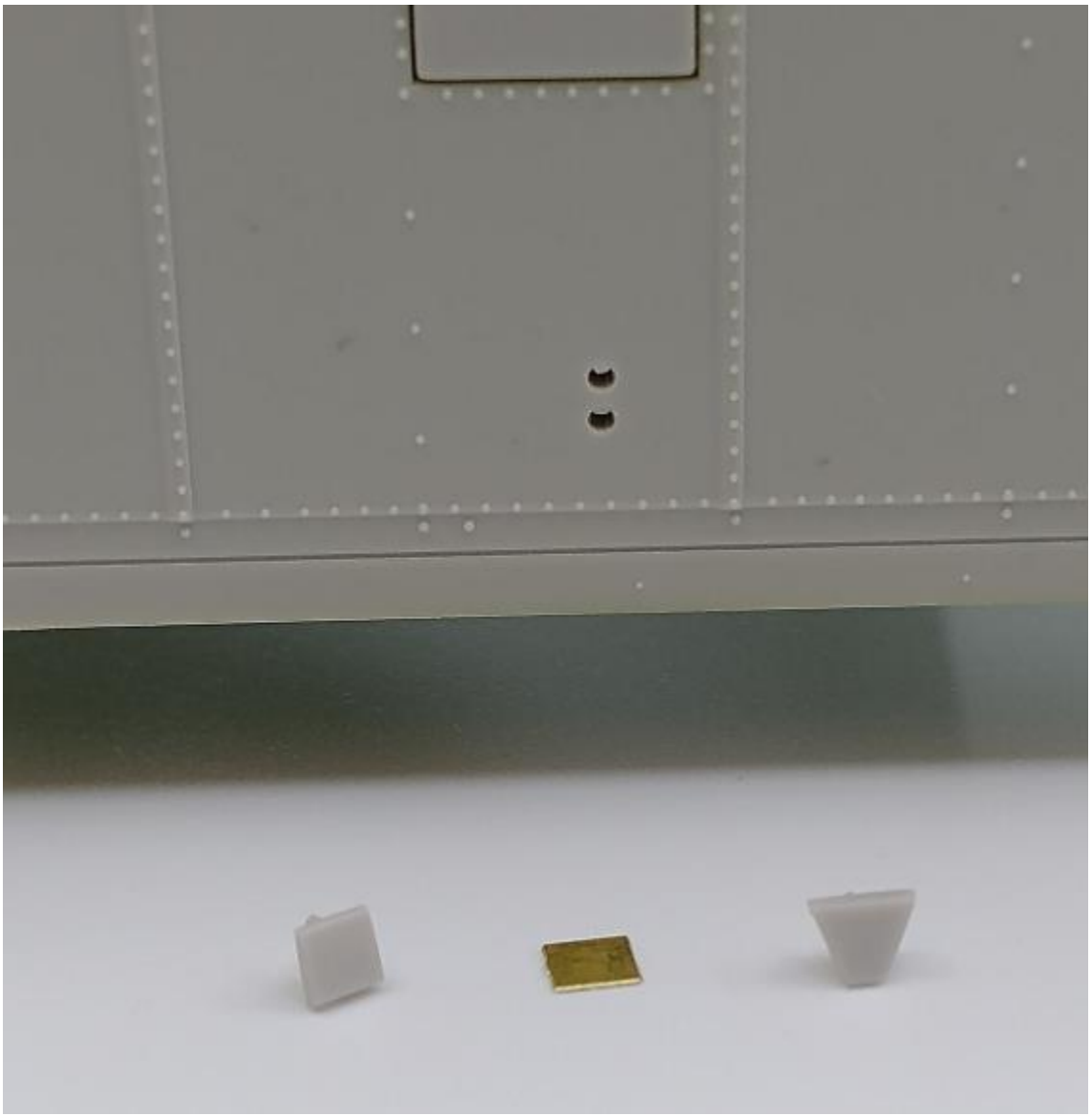
44. **Test fit and glue each walkway.** Use CA adhesive. Note that the walkway parts are slightly different between the Stanray Roof and Pullman Roof kits. This photo shows a Stanray example, but the Pullman roof uses the same attachment method.



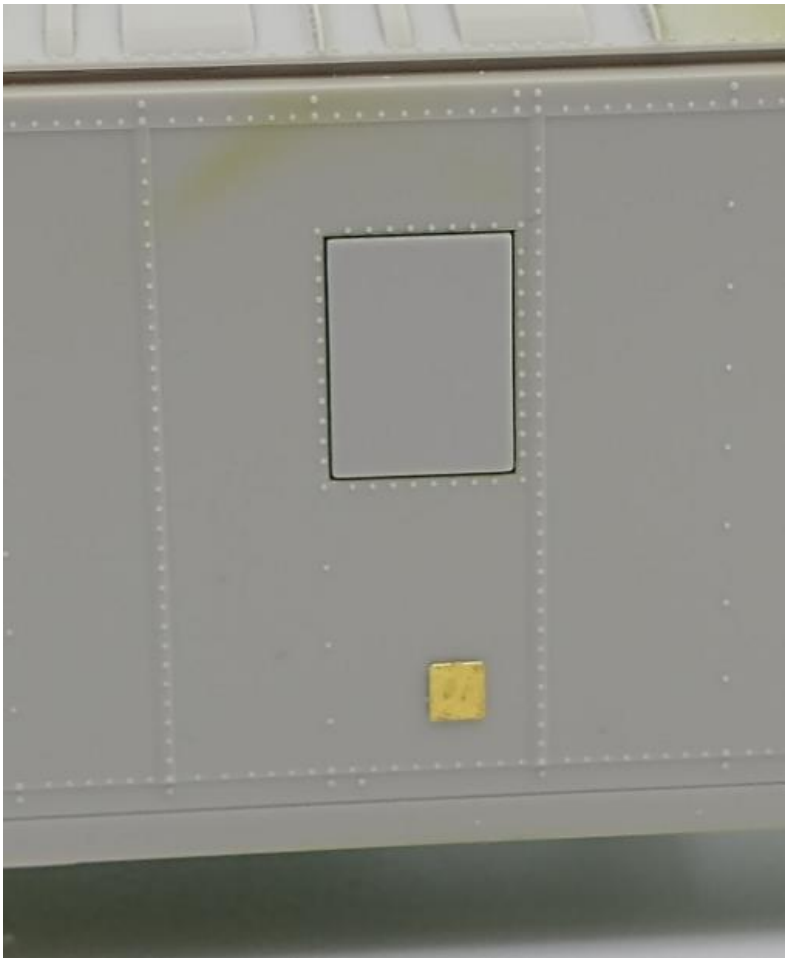
45. **Install the end walkway supports.** Test fit and secure with CA.

46. **Install the wire ladder hoops.** Use CA adhesive as shown – Make sure the parts stay vertical when gluing.

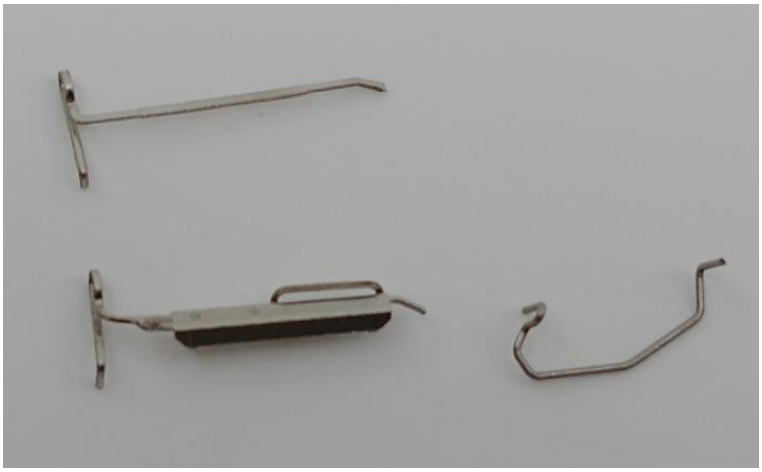
47. **Optional Side Vent Installation: Stanray Roof Caboose ONLY.** On <u>one</u> side of the Stanray Roof body, you will notice two holes. Locate the three vent options: Original angled vent (plastic), blank square (brass etch) or alternative trapezoid vent (plastic).



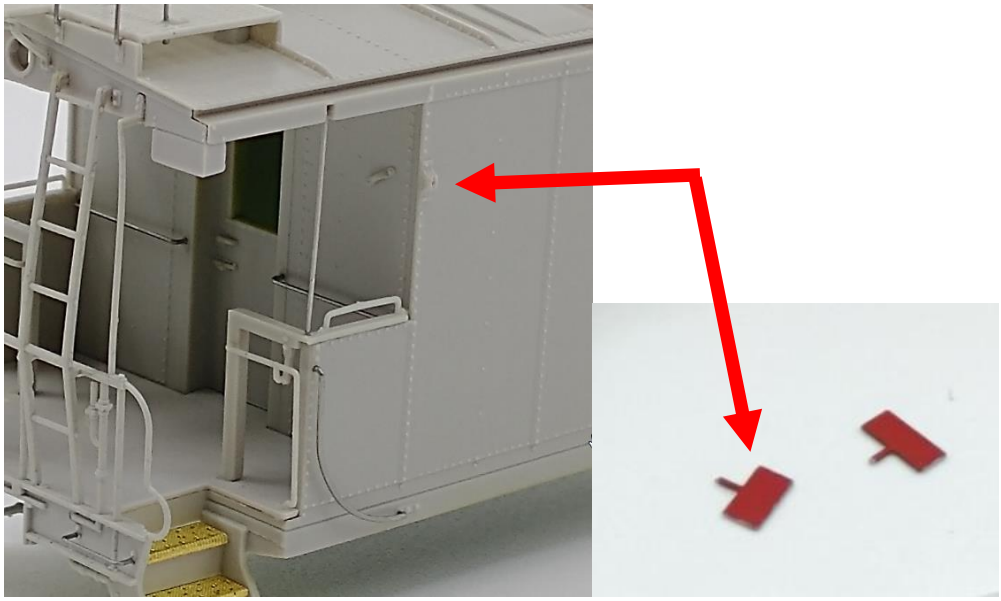
Glue on your part selection. For this model, we chose the blank square, modeling a later caboose that lost its vent after modifications and addition of the underframe battery box. Use CA adhesive.



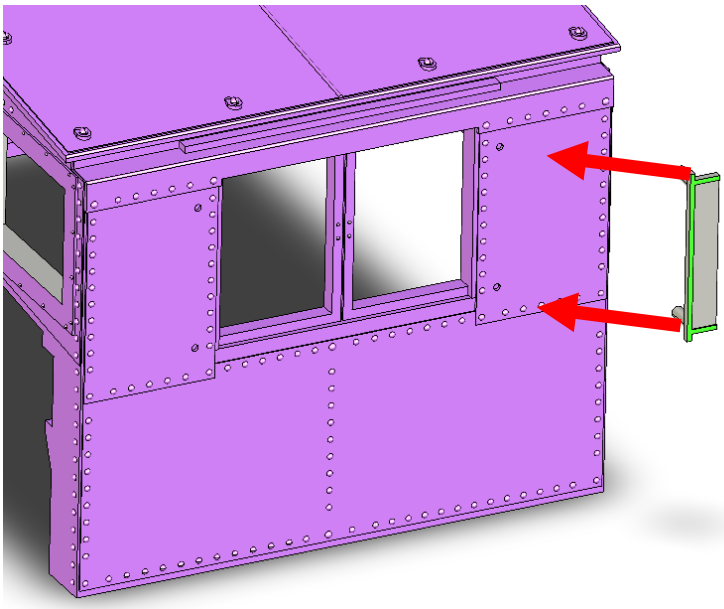
48. **Decide which Pin Lifters to use ("Coupler Life Bars").** There are two options: The original 2-piece style and the later replacement single piece style. Both are etch/wire pre-formed parts. Once you have decided, set these apart for later use. These will be attached after painting and final assembly.



49. **Drill holes for flags, if needed.** If you are going to install the red/green metal flags on one end, you may want to carefully drill a shallow #78 hole in the body flag holders and test fit the parts now as shown. The flags were used during the daytime, and typically had the red facing to the rear on the back of the train. Trim the long tail on the metal flag part to fit your shallow drilled hole. Do not install these parts until after you have painted your caboose.



50. **Drill holes for cupola wind deflectors, if needed.** If you are going to install the clear plastic wind deflectors, then drill #80 holes in the cupola sides now and test fit the parts. Small dimples are provided to aid in location of the holes. Note that wind deflectors were prone to damage, so many cabooses do not have them intact. Always check your photos! Do not glue these parts on the cupola until after you have painted your caboose.



PAINTING STEP

Now is a good time to pause and review these major assemblies:

- Floor and Interior.

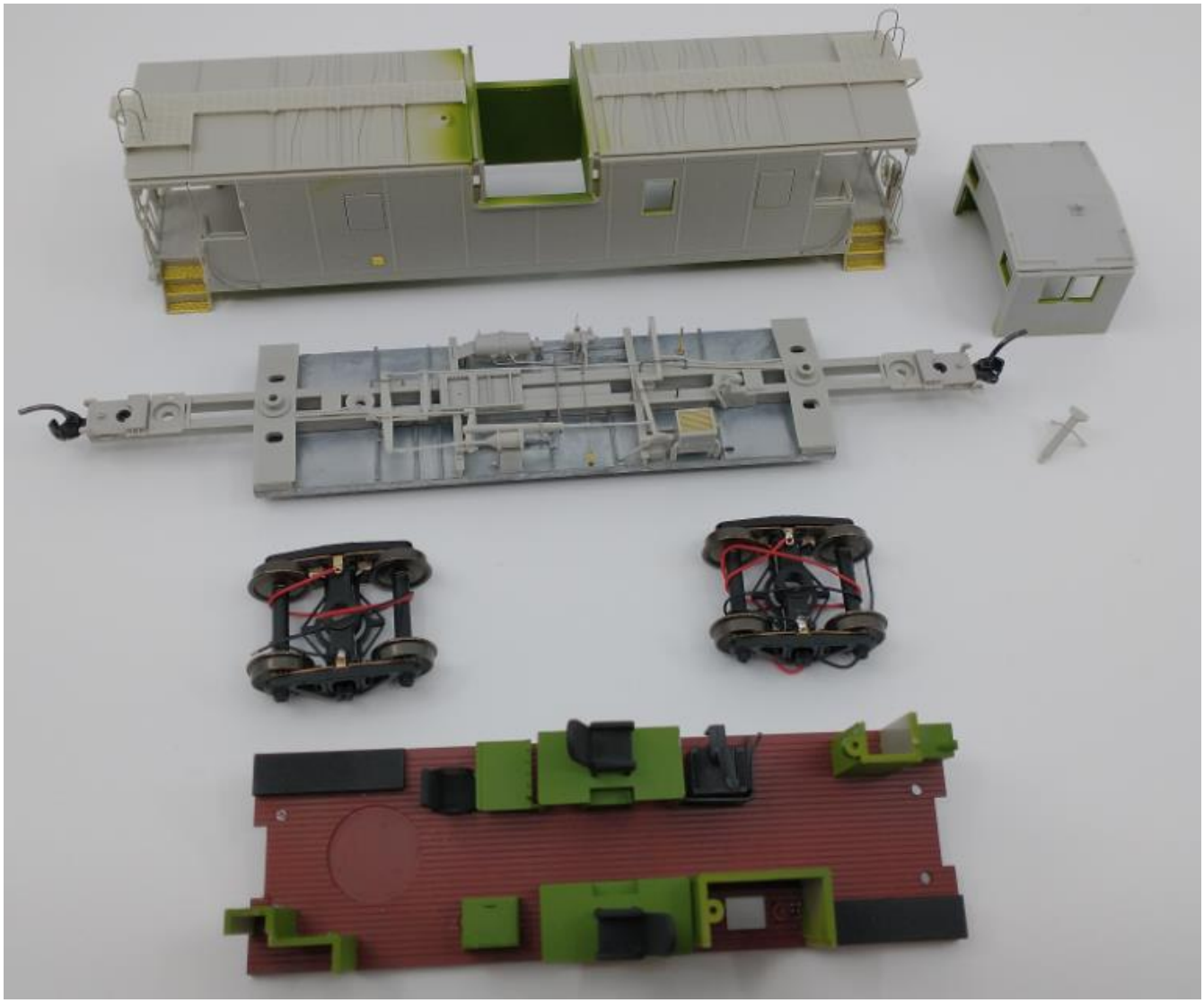
- Underframe

- Body

- Cupola

- Smokejack

- Trucks



IT'S NOW TIME TO PAINT AND DECAL THE CABOOSE, <u>BEFORE</u> THE FINAL ASSEMBLY STEPS.

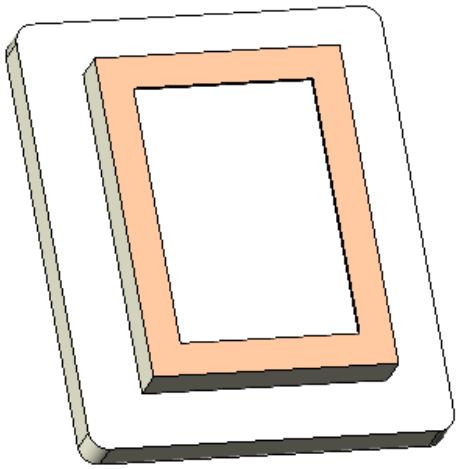
For this example build, we used a light gray primer on body, cupola, smokejack and coupler boxes, following up with a nice ICG orange. Then, we painted a black underframe and trucks. We pre-painted the interior parts as well as the interior body and cupola walls green.

Here are some tips:

A. Don't forget to paint the Pin Lifter parts from step 48.

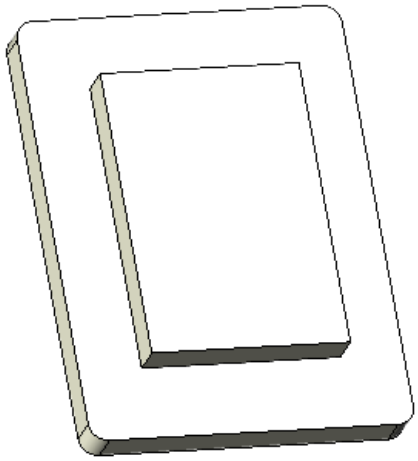
B. Mask off the couplers with some tape if you have already installed them. Painting couplers could make them very "sticky" and not perform at their best. If the couplers are not installed, we recommend you stuff a small piece of paper towel into the coupler pocket to keep paint from getting inside. This is not absolutely necessary, but it will allow couplers to operate more freely.

C. Note that the (4) clear body side windows (two on each side that you haven't installed/used yet) have a frame molded onto the part. This frame is usually either silver (original IC cabooses) or body color (ICG and other railroad repaints) – but always check your photos! We bring this up, because you will likely want to mask these four windows (if used) and paint the frames along with the rest of the caboose. (The light orange color on the part illustration below denotes the suggested paint area)



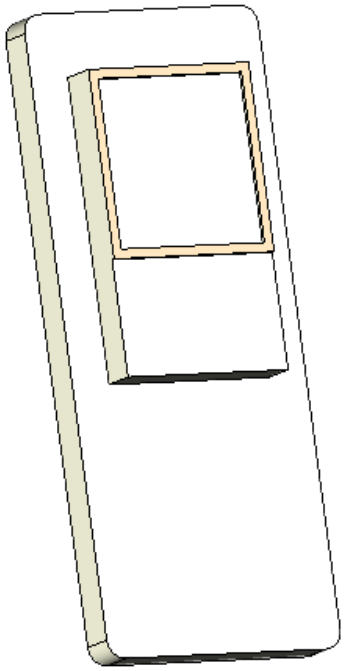
Up to (4) side windows used with molded-on frames to paint

D. Note that the (2) other side windows used (one on each side) are behind screens, and do not have any frames to paint.



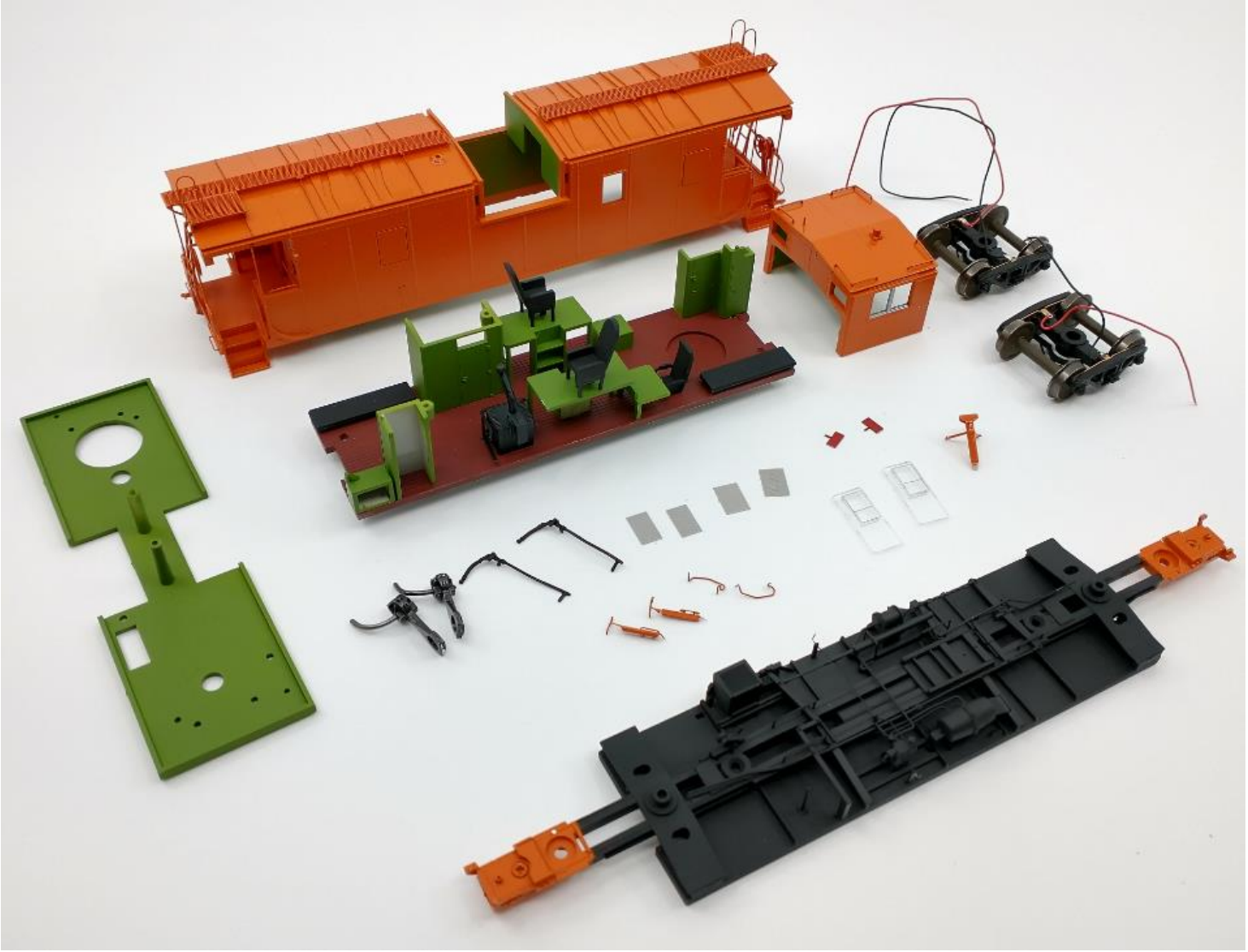
(2) side windows with NO frames to paint

E. Note that there are (2) body end windows that are usually behind screens, but will need a silver frame. Scotch tape and silver Sharpie brand markers are very useful here! (The light orange color on the part illustration below denotes the suggested silver paint area)



(2) End Door windows with silver frames

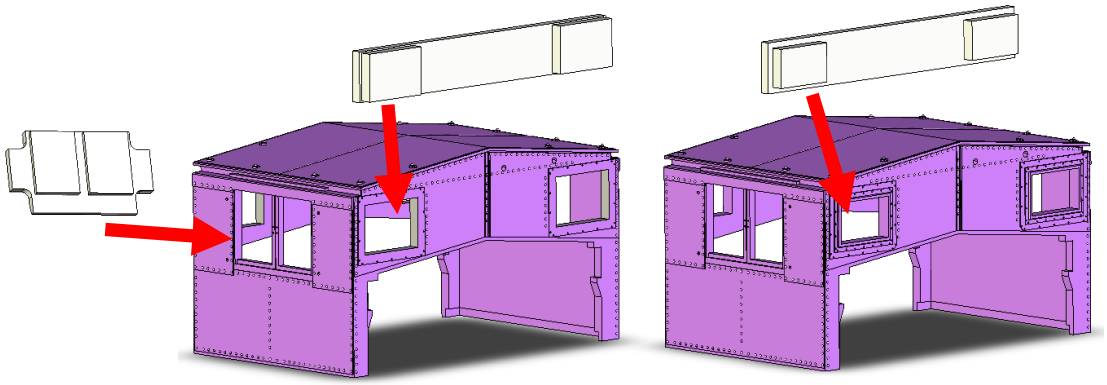
Painted caboose assemblies: Note the interior roof to the left. This is an optional part – but is useful if you are installing your own electronics.



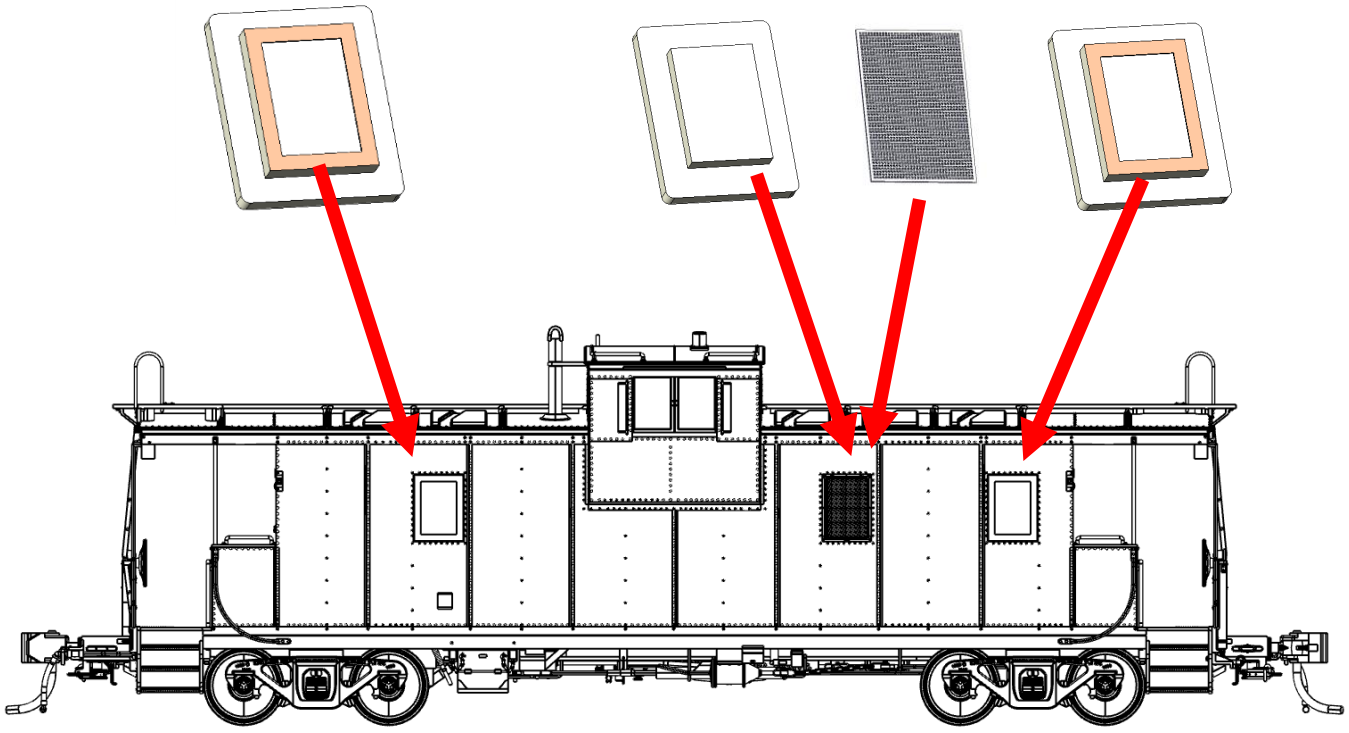
WINDOW TREATMENTS

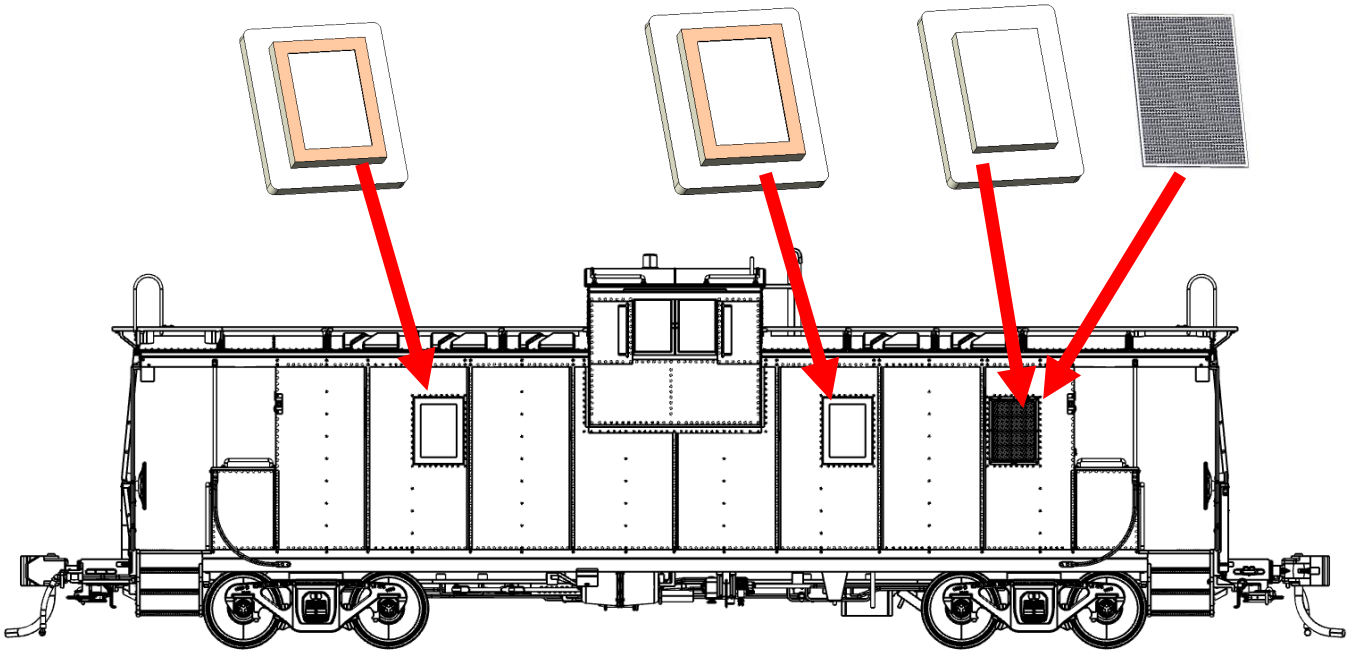
51. **Install the windows, screens and end marker lenses.** The last parts to be added to the carbody are the windows and any end markers lenses/FRA red light lenses correct for your prototype selection. We recommend that you use canopy glue to secure the windows as any CA type glue could cause the windows to fog and any solvent could cause damage to the clear plastic. The **metal screen parts** (if used) are glued from the front, after the clear window part is glued from the back.

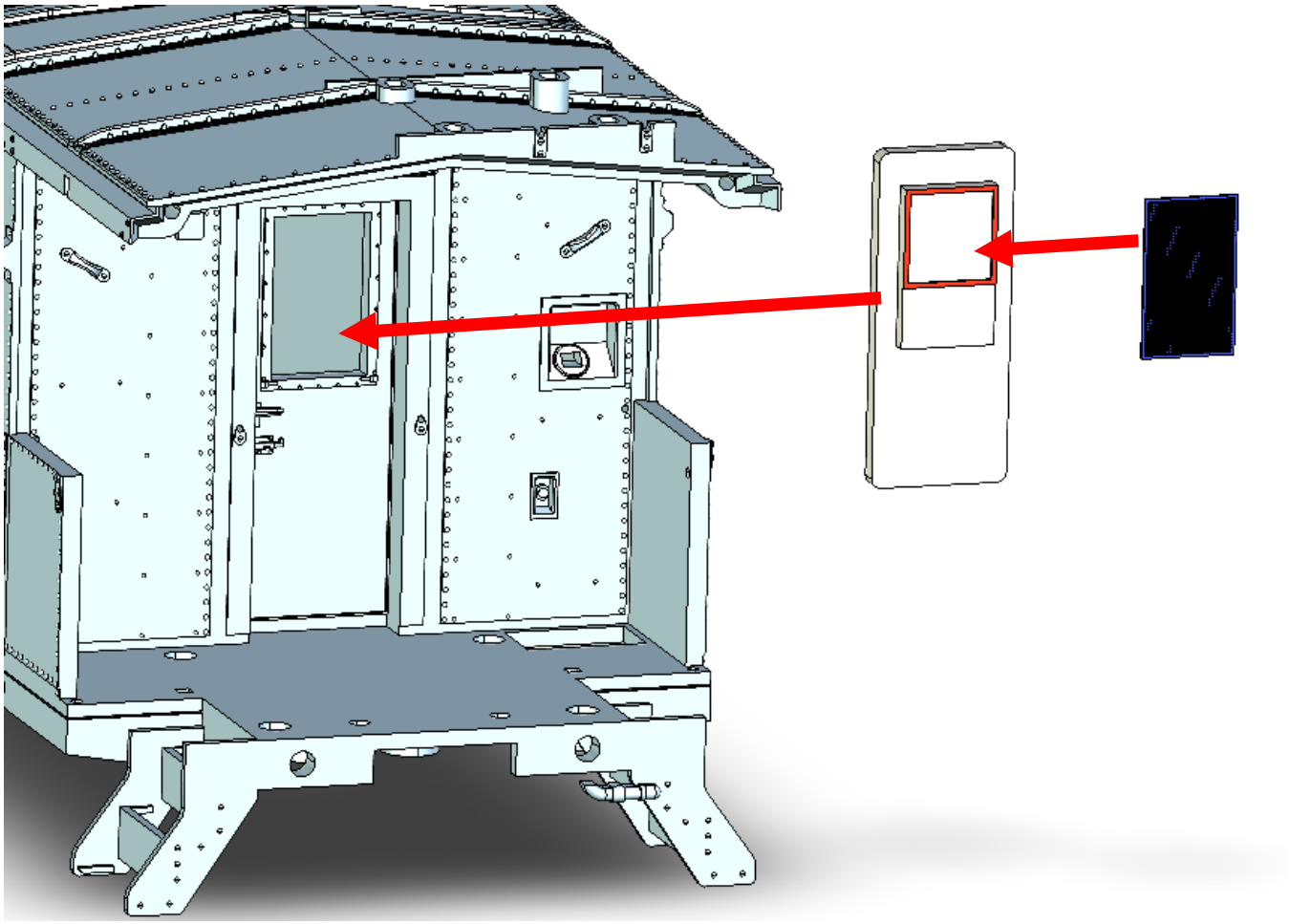
Make sure that you install the correct cupola end windows for the type of cupola chosen in step 39. The "Original IC" and "Mid ICG" cupolas use the same kind of end window. The "Late ICG" cupola uses the other (smaller) style of end windows.



This is the layout for clear window parts and metal screens. (You can ignore some of these, if you plated over some of the windows back in step #38 for a later era caboose!)

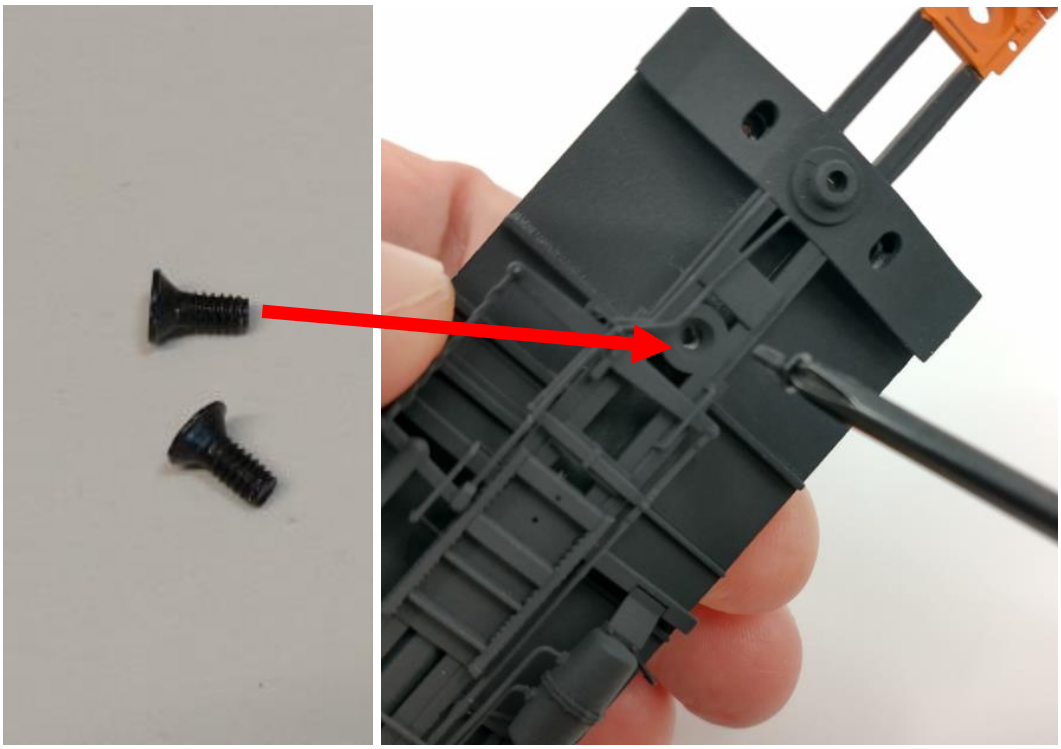




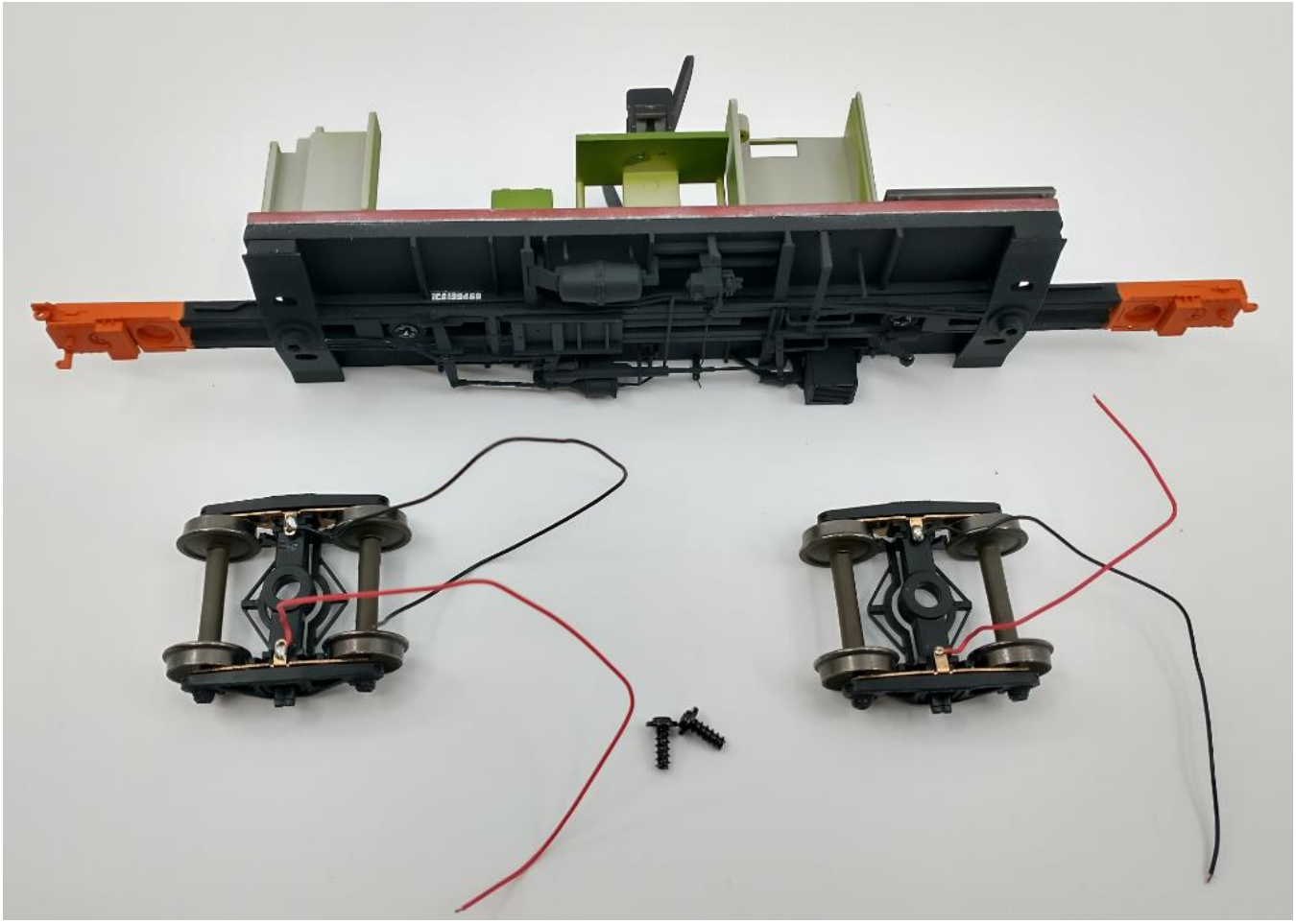


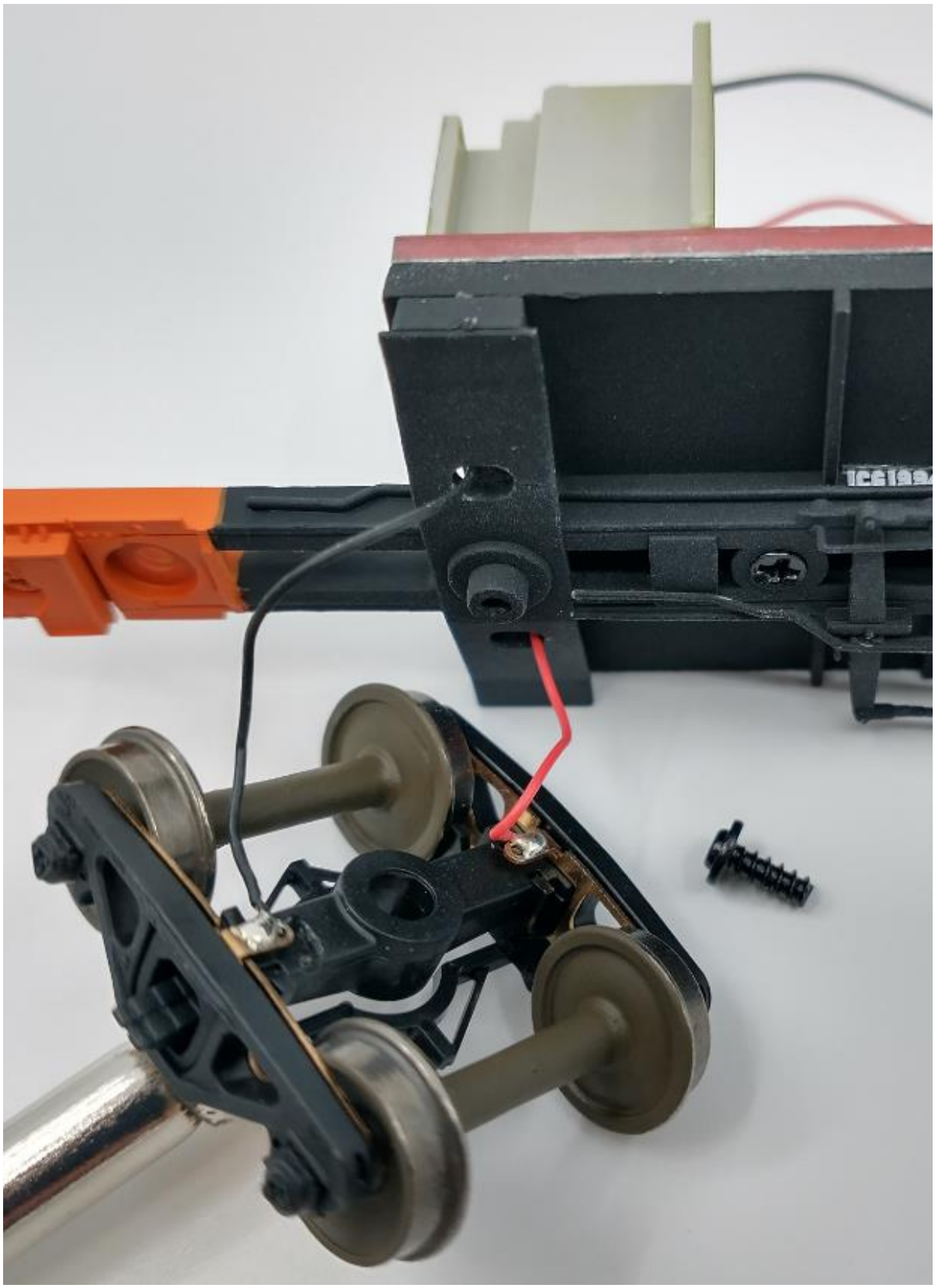
FINAL ASSEMBLY

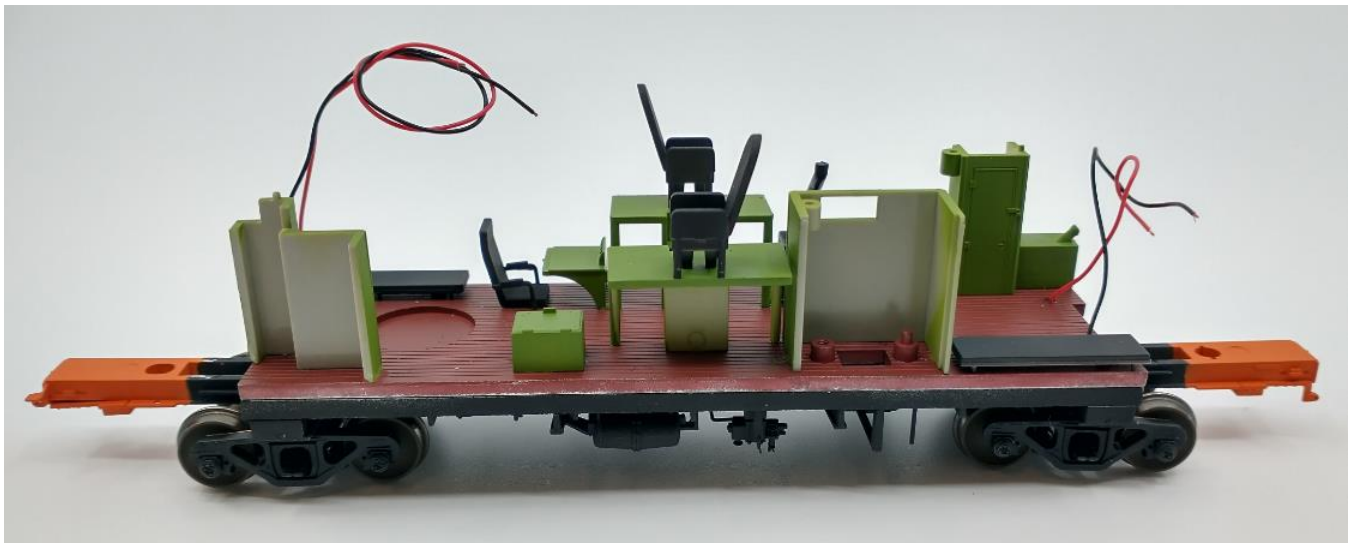
52. **Attach the underframe to the interior.** Screw the metal underframe to the metal interior assembly floor making sure to orient it properly as shown in the photo. Join the two assemblies together using the (2) flat head machine thread screws.



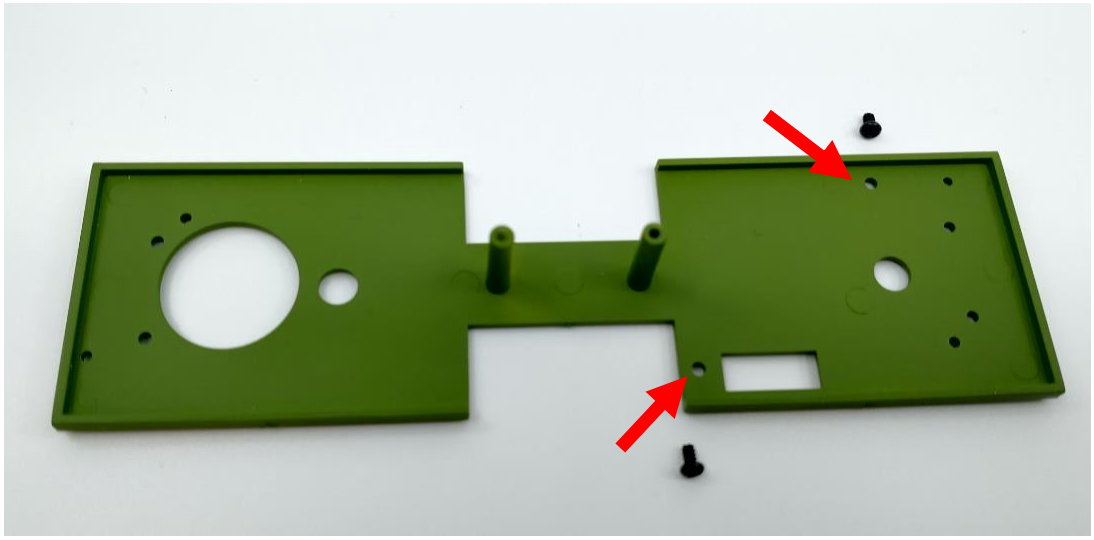
53. **Screw the trucks to the caboose.** Attach the trucks using the long screws. Repeat on the other end of the caboose. Don't forget to thread the wires through the bolster and interior. (Remember those holes you drilled way back in Step #1 ?)

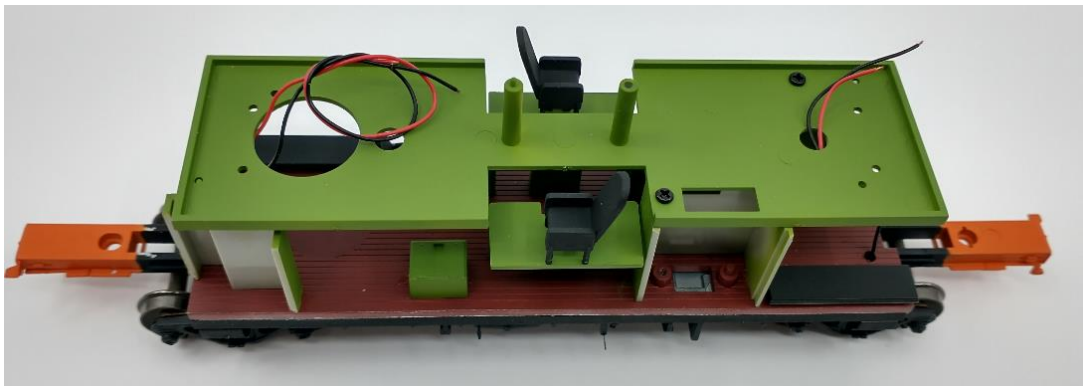




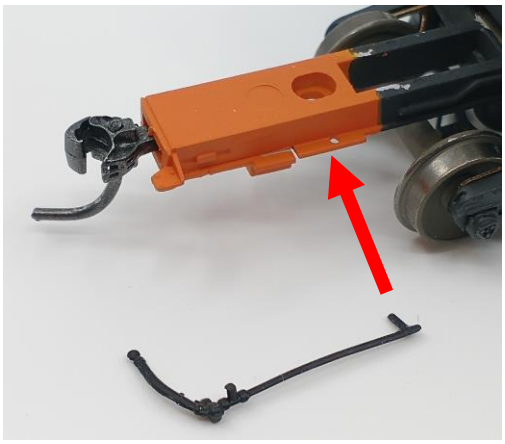


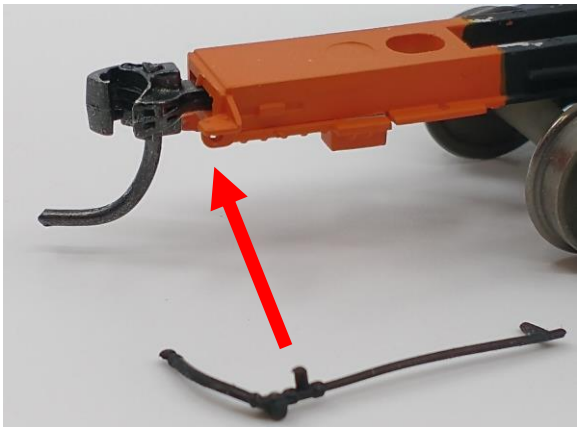
54. **Attach the interior roof (if used) to the interior/underframe assembly.** Use two small coarse thread screws.



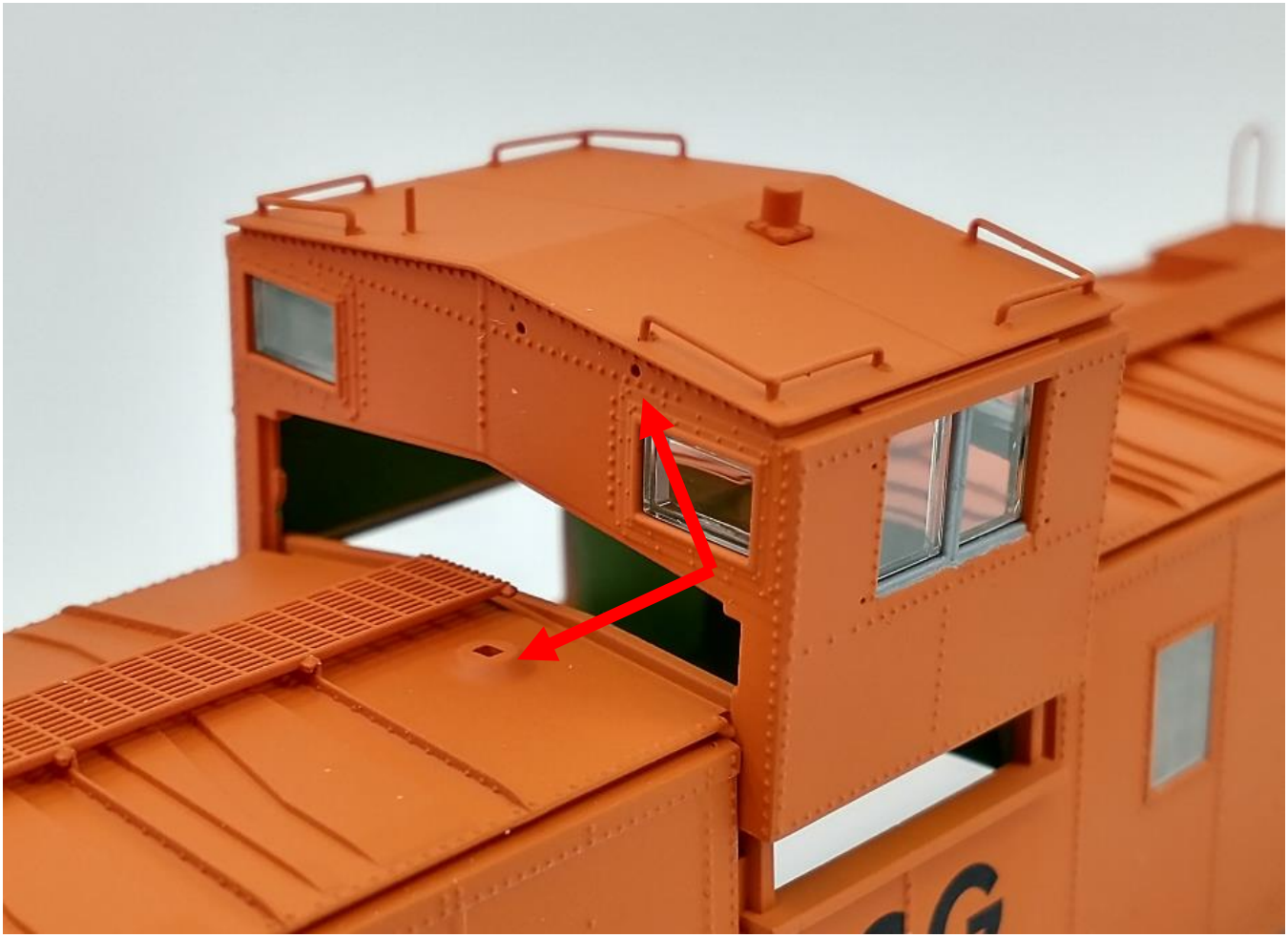


55. **Attach the two rubber airhoses next to the draft gear as shown on each end.**

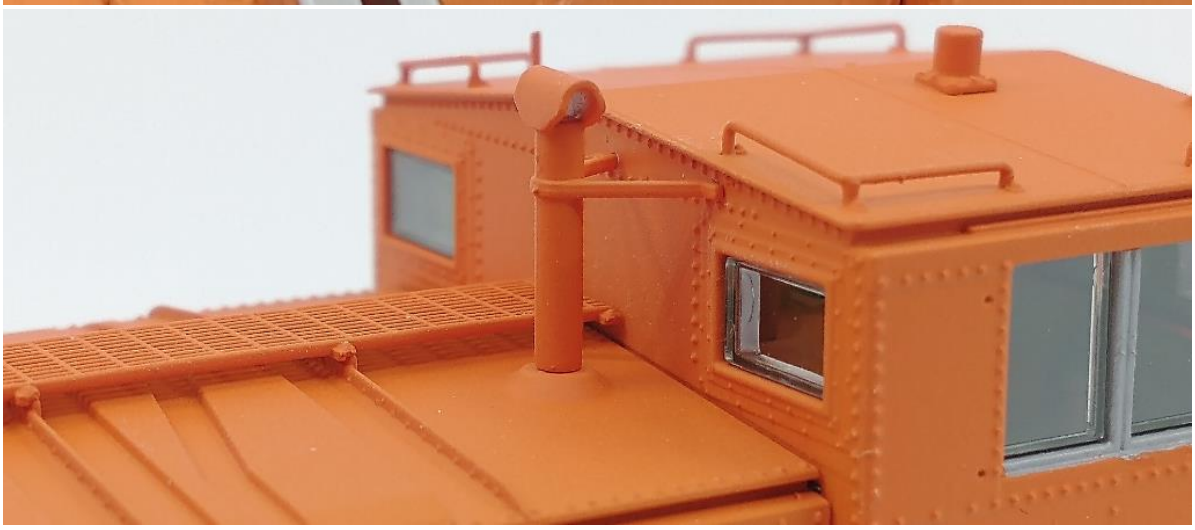




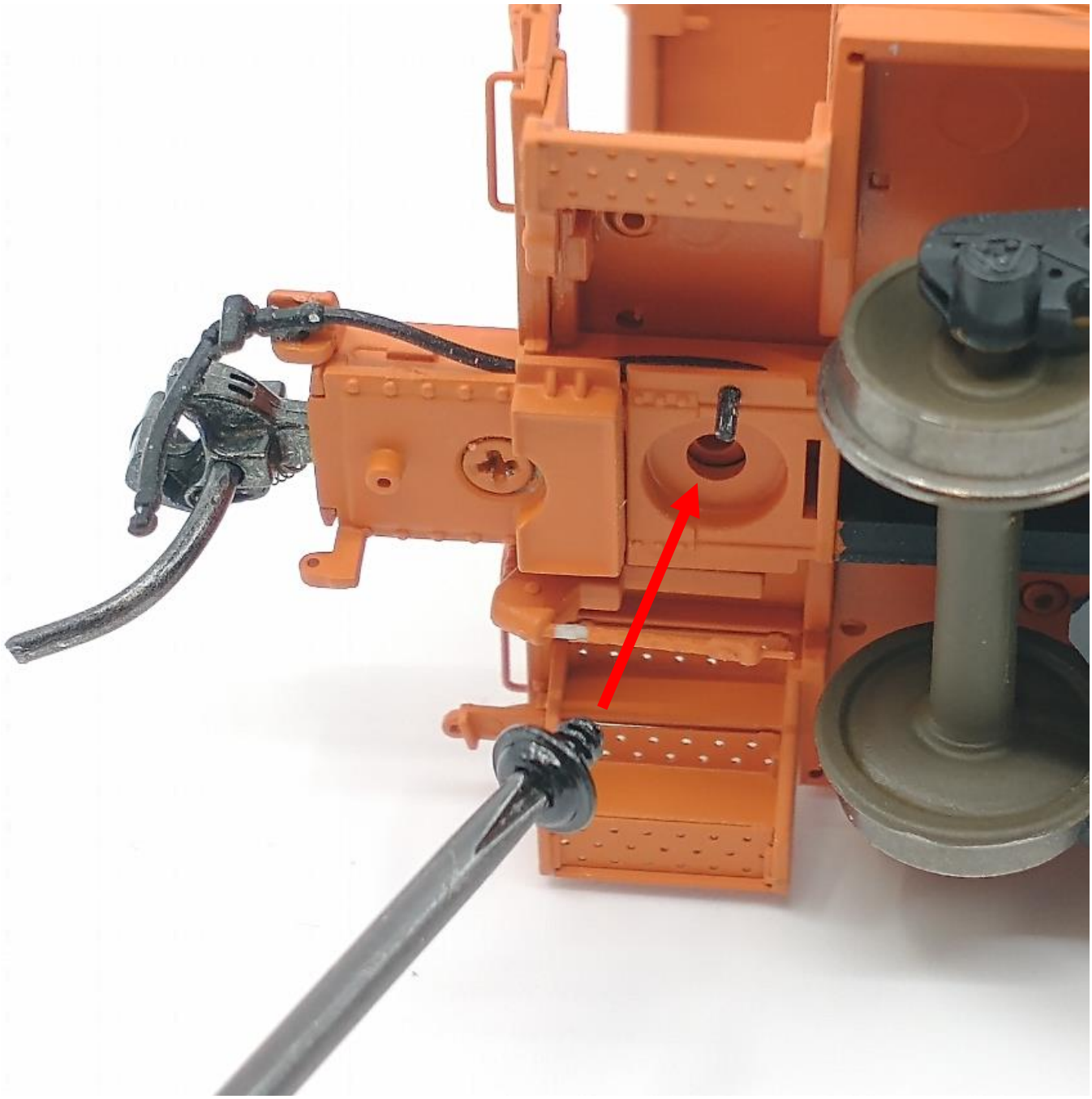
56. **Snap the cupola onto the body.** Important: Make sure you have the cupola oriented properly as shown. It will only snap on one way! (The two small holes in the one end of the cupola wall must point towards the body smokejack hole as shown..) **No glue is needed here – the cupola will snap down onto the body.**



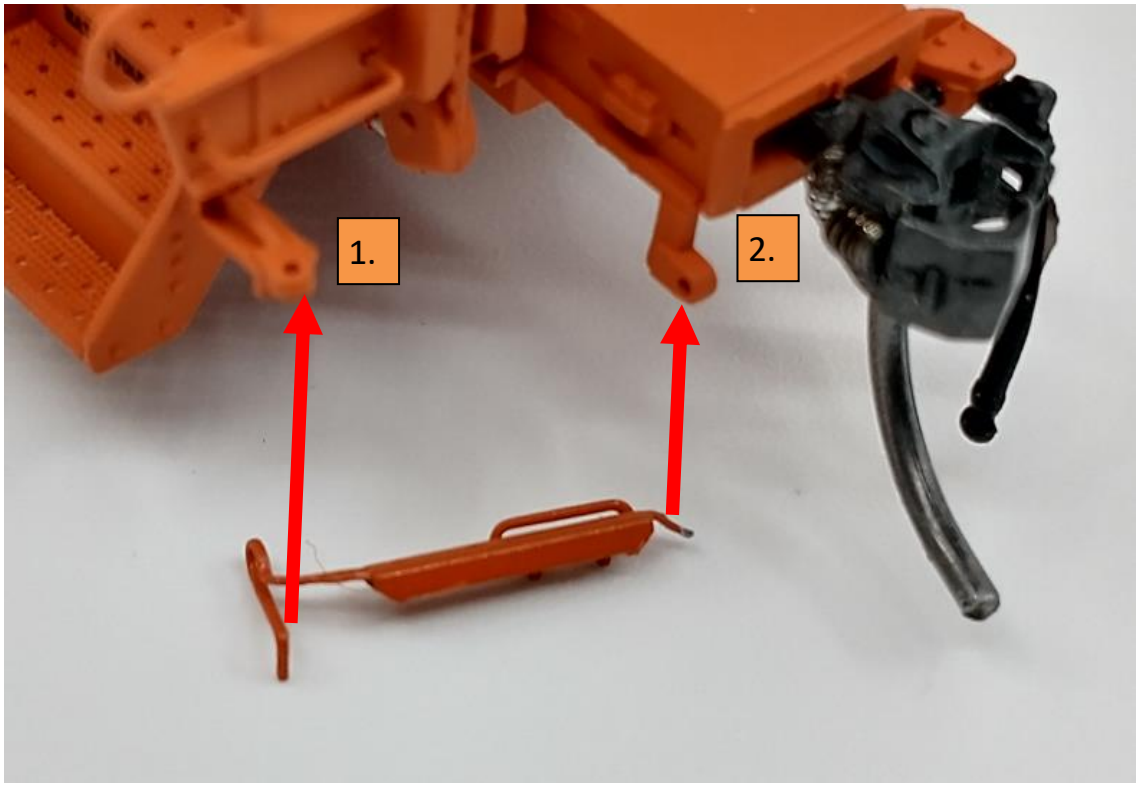
57. **Attach the smoke jack and strap brace into the holes as shown.** Glue can be optional here, since all three holes are a tight press fit if you have pre painted the parts!



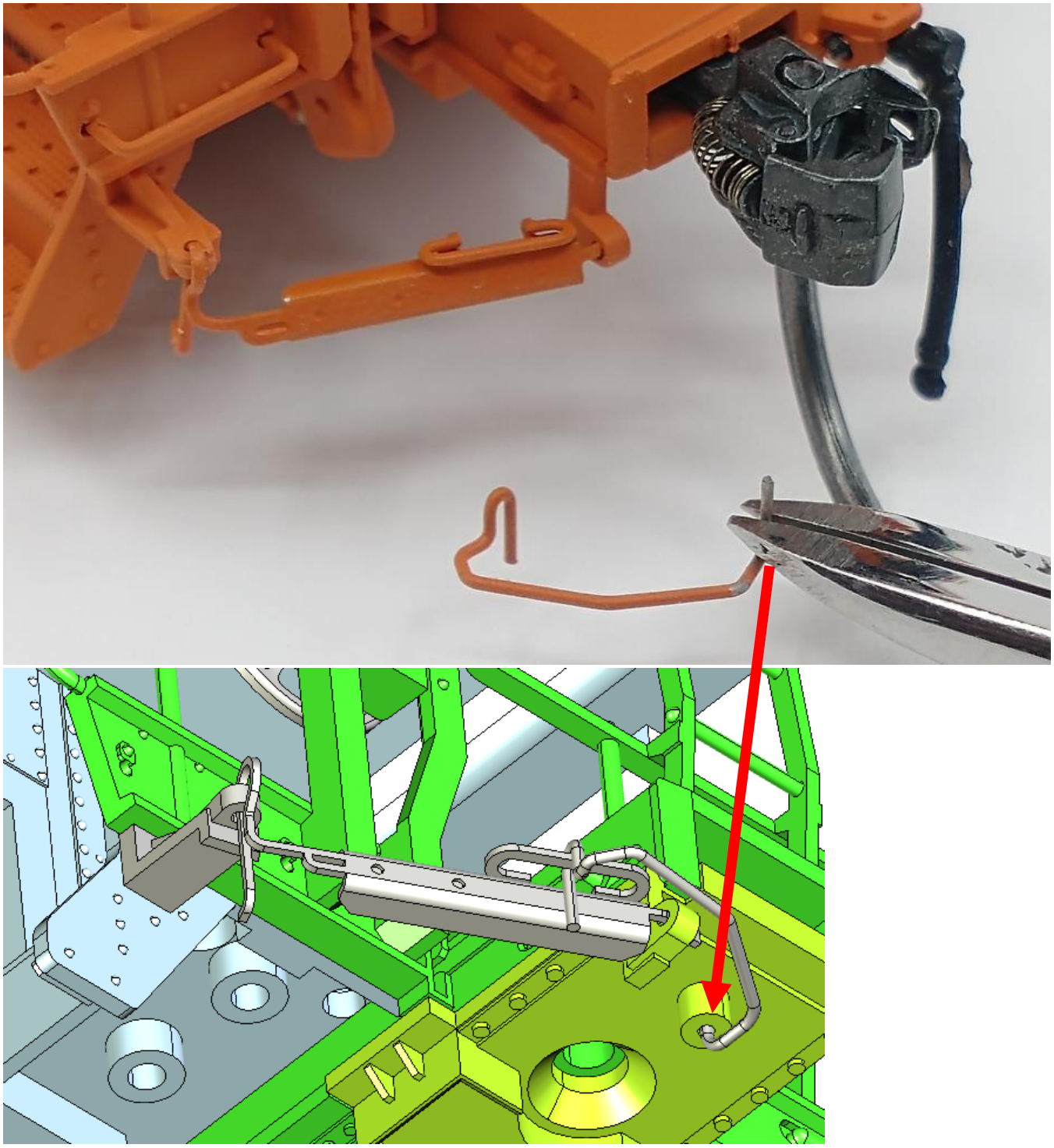
58. **Slide the entire underframe / interior / trucks assembly into the body of the caboose.** Important: Make sure you have the underframe oriented properly as shown. (Note that the smokejack hole in the roof aligns over the stove in the interior.) Once the assembly is seated properly, and the draft gear is snapped into the recesses between the step areas on each end, then screw it together with the two screws as shown. Note that the screws have a washer built into the screw. Do not overtighten!

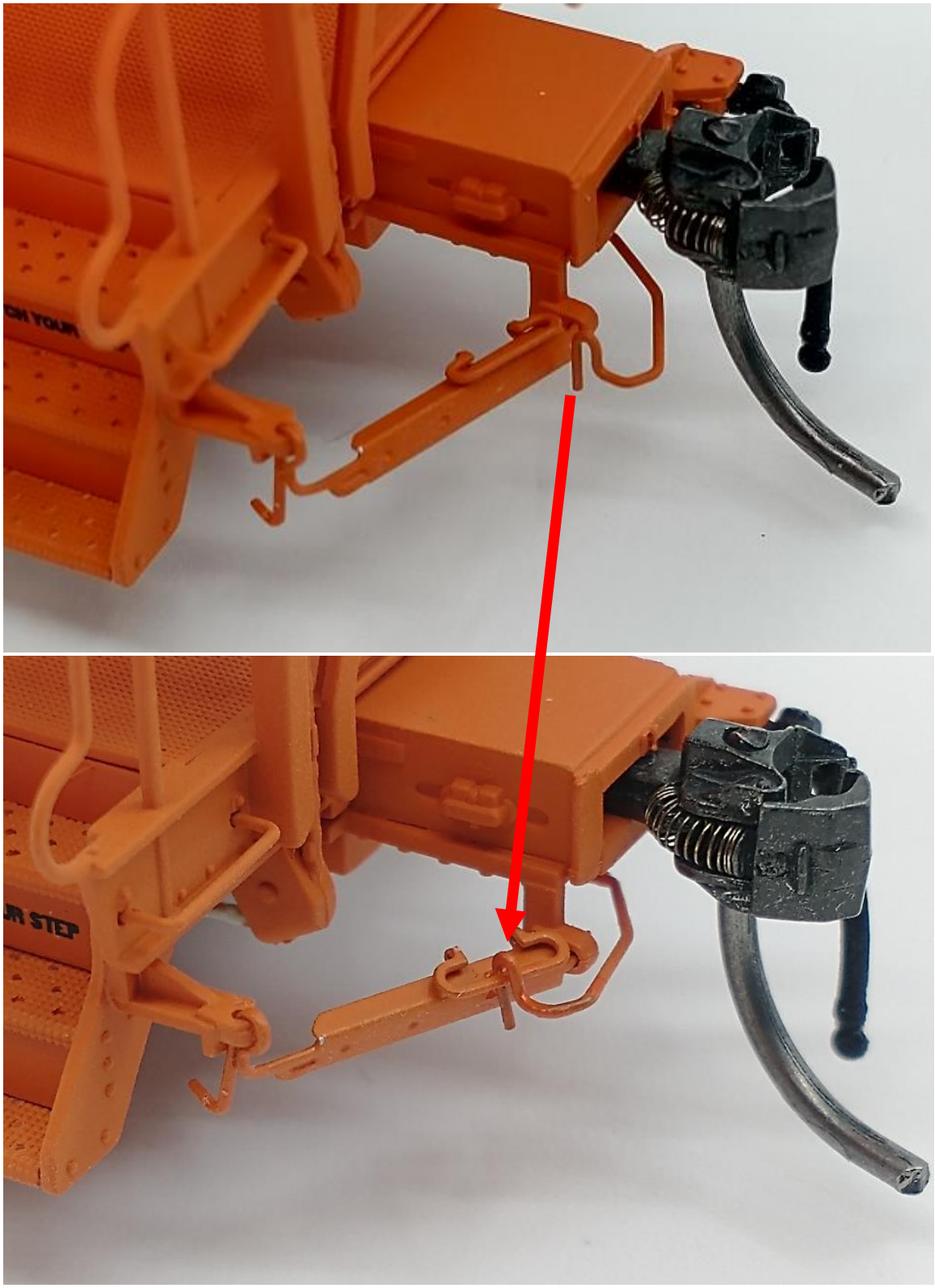


59. **Attach the Pin Lifters ("Coupler Lift Bars") as shown**. First, thread the short 90 degree handle through the hole on the body bracket, Carefully pivot the part through the hole until the bracket rests at the curved "top" part of the part. Second, gently flex other end at the pin and insert it into the hole on the coupler lid area. No glue is required for this step. The Pin lifter should be semi-flexible when done.



If you are using the original style pin lifters, glue the second wire part into the bottom of the coupler lid, then "hook" (no glue) the other end through the loop on the main pin lifter part.





This concludes the assembly. Congratulations on finishing this kit !

Thank you again for buying this caboose from Tangent Scale Models. Your hard-earned dollars allow us to continue to bring you more models in the future.

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More images of finished cabooses are shown on the following pages to aid in model building.


ICG
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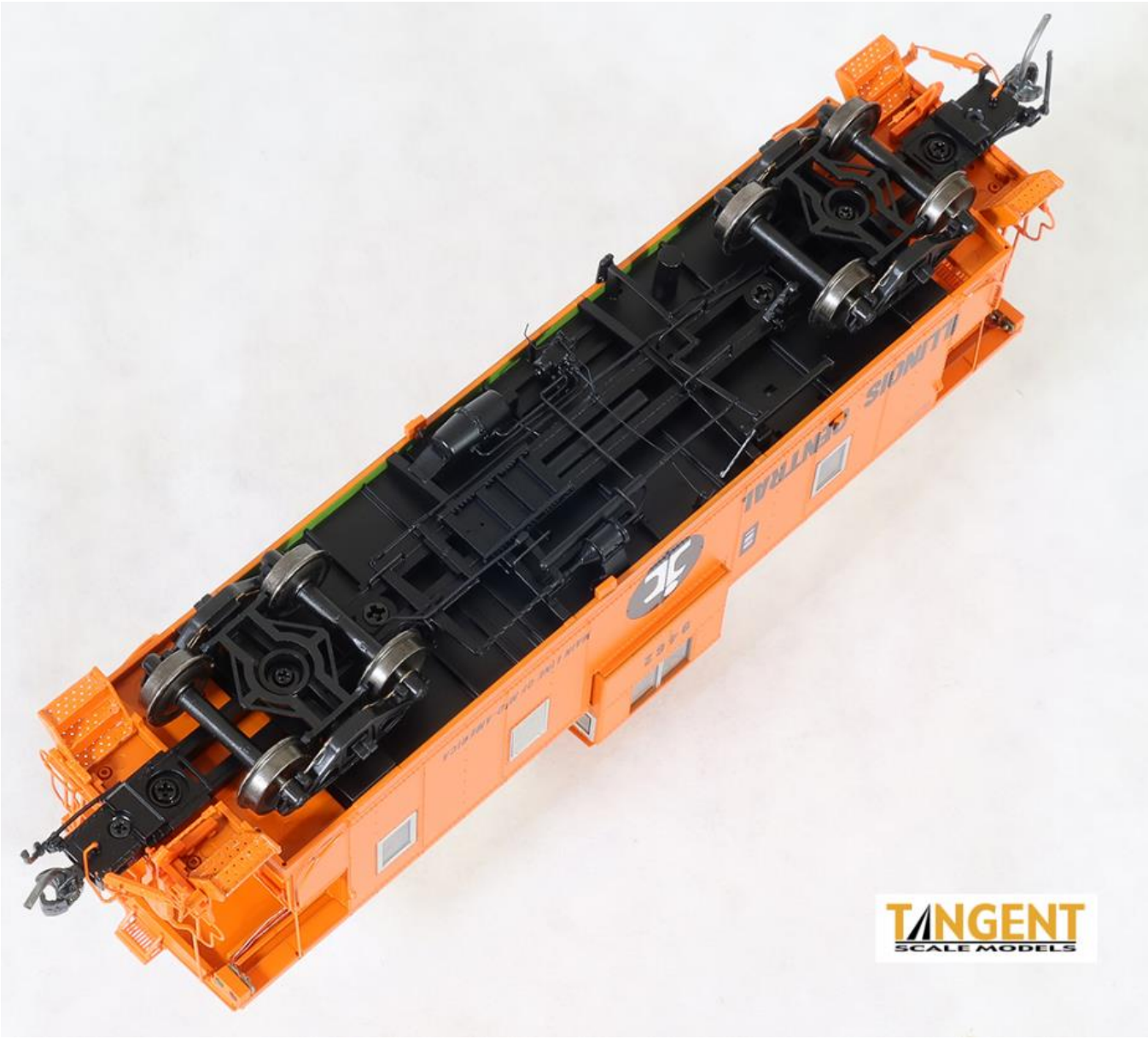
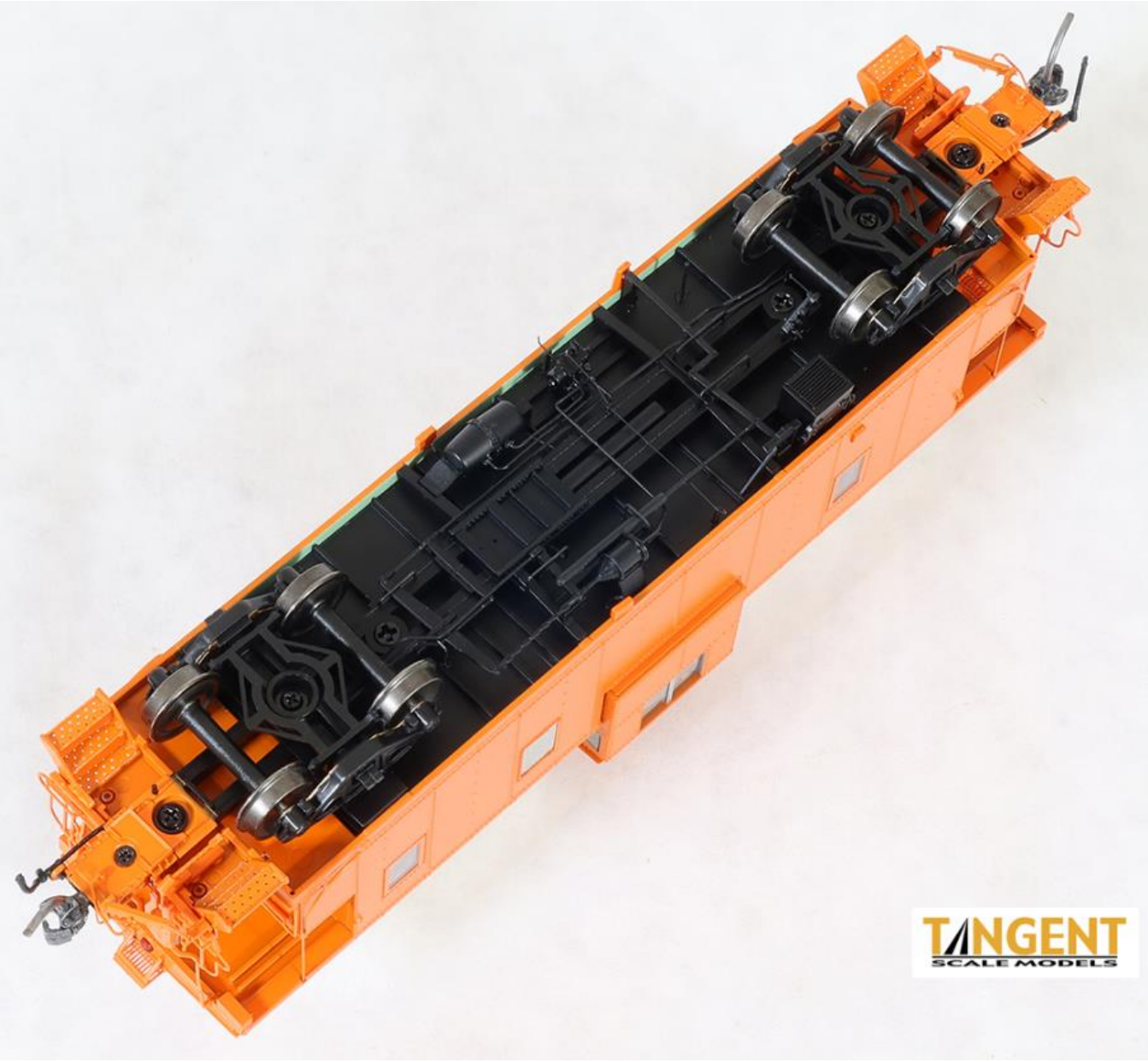
Stanray Roof Underframe Example, As Built



Stanray Roof Underframe Example, with modified battery box addition



Pullman Roof Underframe Example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