



Instructions: Greenville 6,000CuFt 60' Double Plug Door Box Car

Tangent Part Numbers: 33000-01 through 33004-01
04/2024



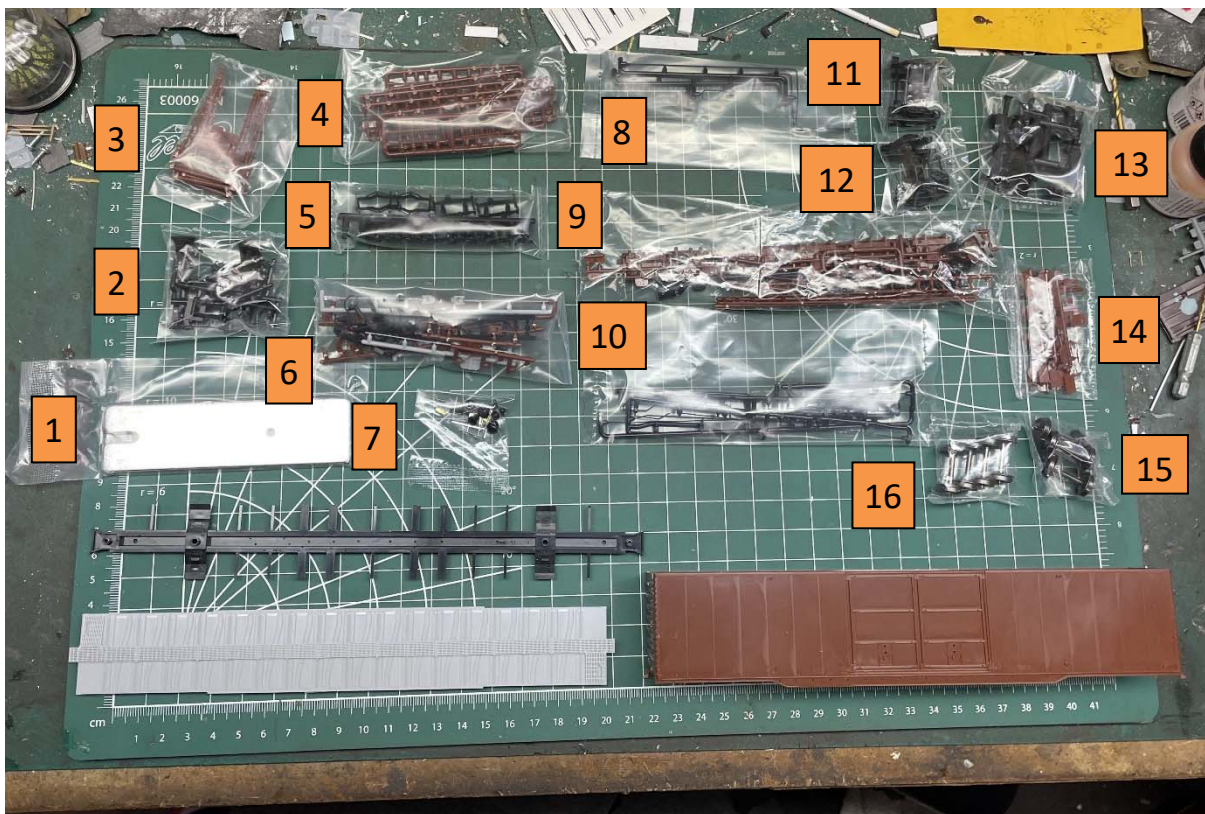
Thank you for purchasing the Tangent Scale Models Greenville 6,000CuFt 60' Double Plug Door Box Car Kit! A few quick notes before starting:

- **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. This is another advantage of a "digital download" over a printed instruction sheet.
- **Modeling from a computer screen is ideal:** If possible, we recommend modeling from your monitor. 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 car, we believe the sequence included here yields the best results.
- **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.

- **We want feedback:** If you find something missing from our text instructions, or an error within these instructions, please let us know by submitting a comment to us on our website or sending an email to support@tangentscalemodels.com. Thank you!
- **This kit is meant for adults:** While we applaud bringing younger modelers into our hobby, this model includes many small parts, some 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 in 12 or 100 axle packs – in either 33" or 36" diameters - to fit all our trucks – and those from other brands!



Overview of this kit's contents:



Standalone parts included:

- Car Body
- Roof with Roof Walk

- Underframe

Parts bags included:

- Bag #1 – Weights
- Bag #2 – Coupler Pocket Covers, Brake Fulcrums, Other Detail Parts
- Bag #3 – Door Rod Details
- Bag #4 - Ladders
- Bag #5 – Friction Bearing Caps, Brake Appliances
- Bag #6 – Brake Housings, Brake Wheels, Roller Bearing Caps
- Bag #7 – Etched Metal Parts, Wire Parts and Screws
- Bag #8 – Air Lines
- Bag #9 – Crossover Platforms, Lower Door Tracks, Underframe Cross braces, Air Lines
- Bag #10 – Underframe Details
- Bag #11 – Converted Friction Bearing Trucks
- Bag #12 – Rolling Bearing Trucks
- Bag #13 – Air Tanks, AB Valves, Underframe Cushion Systems
- Bag #14 – Tack Boards, Door Lock Handles, Door Details
- Bag #15 – Friction Bearing Trucks
- Bag #16 – Roller Bearing Trucks

Parts needed/recommended:

- Couplers. Our draft sills are designed for Kadee “whisker” shank couplers - #158.

Tools needed/recommended:

- Liquid styrene cement
- CA-type cement or cyanpoxy – for wire to plastic joins
- Canopy cement – for running board to plastic roof joins (made by Pacer and other brands)
- Hobby knives - #11 and #17 are ideal
- #78/#79 drill bit in a pin vise is useful, although a #11 blade can be used gingerly
- Small Phillips head screwdrivers
- Tweezers

PREAMBLE – THINGS YOU SHOULD KNOW

Before we begin, we’d like to point out a few things about this kit:

- **This kit is NOT recommended for children aged 14 and under.**
- **Review Instructions First:** To help getting familiar with both the parts and assembly sequence you may want to read through these instructions completely before beginning construction.
- **Kit Version:** This particular build is for a Phase I car with a Keystone underframe (SKU#33002-01).

- **Kit variations:** There are parts included in this kit for several different variants of the car, therefore you will not use everything in the parts bags. Each kit version will be similar in build but will use different versions of some parts.
- **Multiple Bags:** You will need to access parts from several different bags simultaneously during the construction, so it is suggested that you only remove the needed parts and leave the rest in the bags. There are many small parts that can become easily lost (especially in the bag containing the wire parts) so be very careful to not lose any along the way.
- **Use the Pictures:** Some of the parts and processes are difficult to describe so photos of virtually every step are provided. Therefore, you see the comment “refer to photo” to help provide clarity and assist in the build process
- **Subassemblies:** There are basically two subassemblies to the kit – the underframe and the carbody. You can build them in any order you choose but we will build the underframe first followed by the carbody.
- **Assembly Orientation:** For the underframe photos and description, we will orient it so that the B end (brakewheel) is to the left to maintain consistency

Underframe Construction:

1. **Installing Weights:** We will begin the assembly process by installing the weights in the carbody. The weights have a slot on one side that goes toward the ends of the car and a hole that fits over a post on the floor.



Set the weights in place and secure them with the four panhead screws from the wire parts bag.



2. **Install Underframe:** The underframe is probably already installed but if it's not install it now. You will notice that the bolsters have small posts that fit into holes in the floor, and that they are spaced differently to allow the underframe to only fit one way.



After it is installed identify the B end of the carbody (the one that has additional mounting holes for the brake equipment) and orient it so that it faces to the left on your work surface. The underframe will be secured in a future step but for now leave it loose so it can be moved to allow the installation of other parts.



3. **Locate and Install Keystone Cushioning Assembly:** Locate the three parts of the Keystone cushioning assembly (see photo).



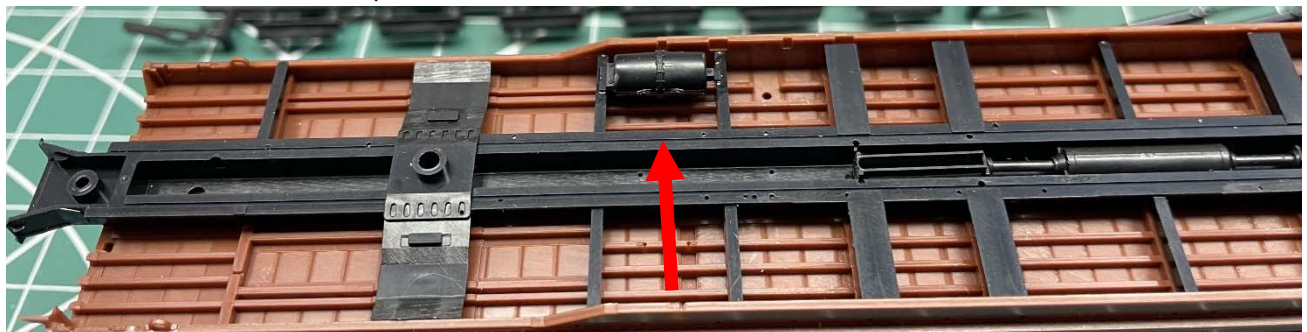
They all have mounting pins that fit into holes in the floor between the center sill. Use the photo as a guide to orient the parts in their proper place and glue.



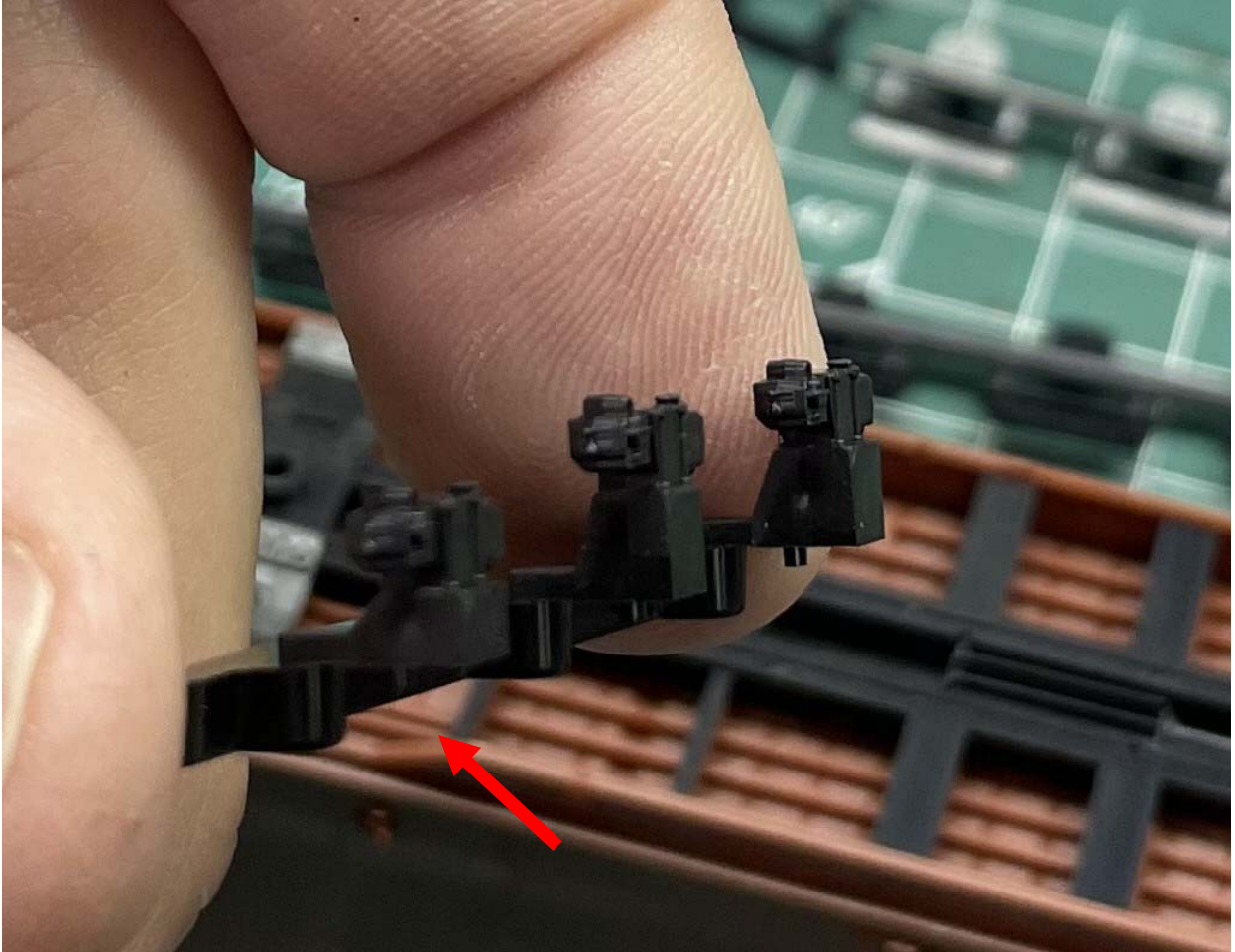
4. **Locate, Choose and Install Reservoir:** There are three different reservoirs to choose from. Refer to the photo to help identify the proper one for this version of the car.



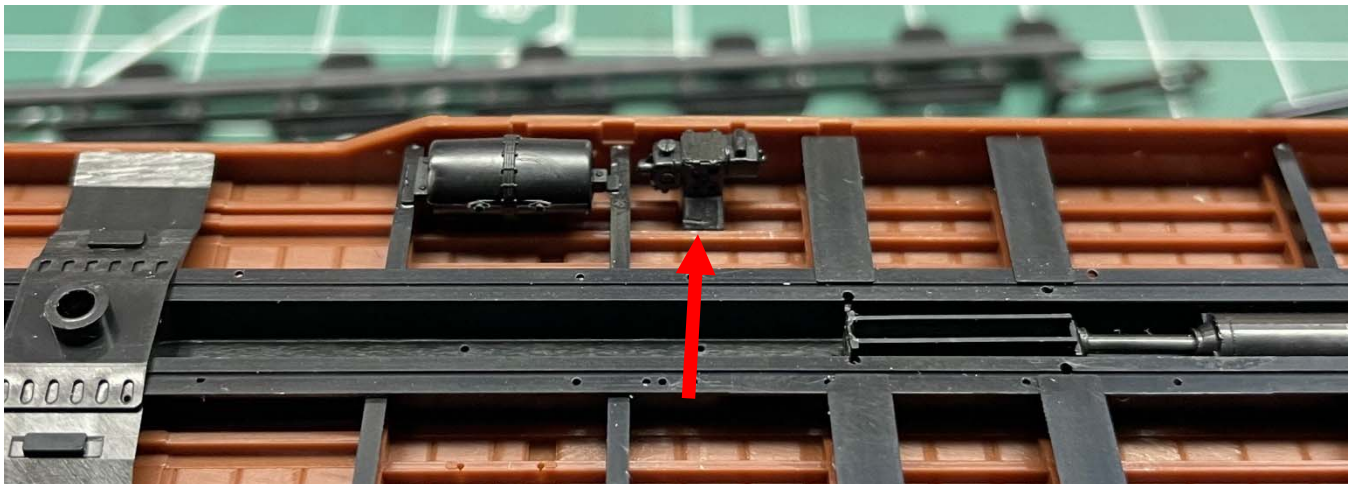
It has a pin that fits in a hole in the floor between the last set of crossmembers next to the bolster. Using a #80 drill open the holes in the reservoir to allow the wire parts to fit properly. Insert the post into the hole ensuring that it is resting on the crossmembers. Glue in place.



5. **Locate, Choose and Install AB Valve:** There are also three different AB valves. The correct one for this build is the one that has the shortest pedestal (Sprue #12).



Again, using a #80 drill, open the holes in the part. Insert into the hole in the floor next to the reservoir and glue. When installed the top of the AB valve should be level with the side sill.



6. **Locate and Install Crossbearer Connectors:** There is a sprue of black plastic that has four cross braces that fit across the center sill marked 008, 009, 010, and 011. They have a small hole in them that will be a guide for the brake piping.



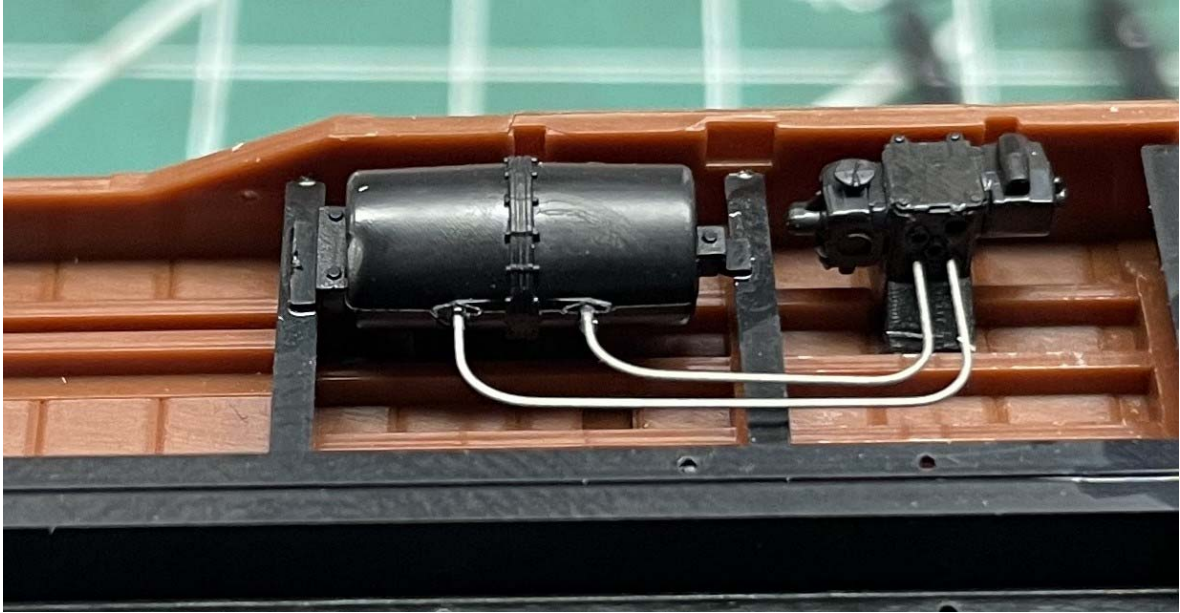
To make it easier to feed the piping through open the holes with a #77 drill. They have posts on the bottom that fit in holes in the center sill and also have small gussets on one side.



When installed the two sets will have the holes all lined up and the gussets of each pair will face each other. You will install them in order left to right 008-009-010-011. See photo for final placement.

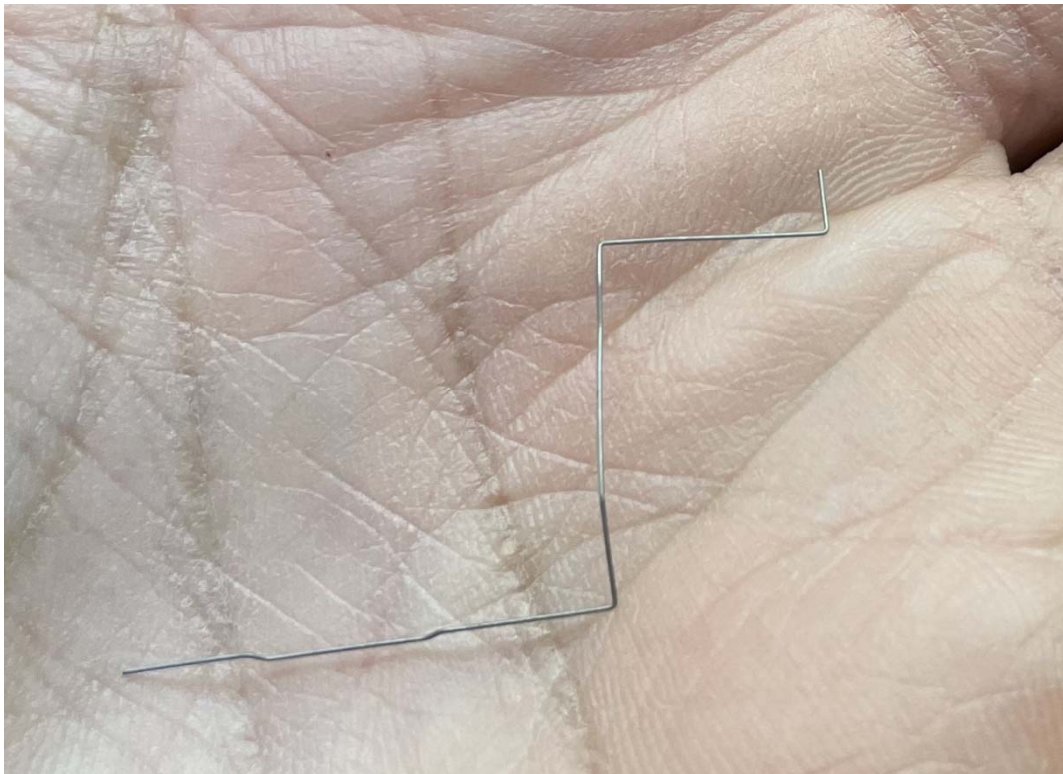


7. **Locate and Install Reservoir Piping:** From the wire parts bag locate the two U shaped wires for the reservoir piping. They will go from the reservoir to the bottom two holes of the AB valve, with the shorter "leg" going in the reservoir and the longer into the AB. Secure in the reservoir with CA but not at the AB valve yet to ensure you don't block the other holes.

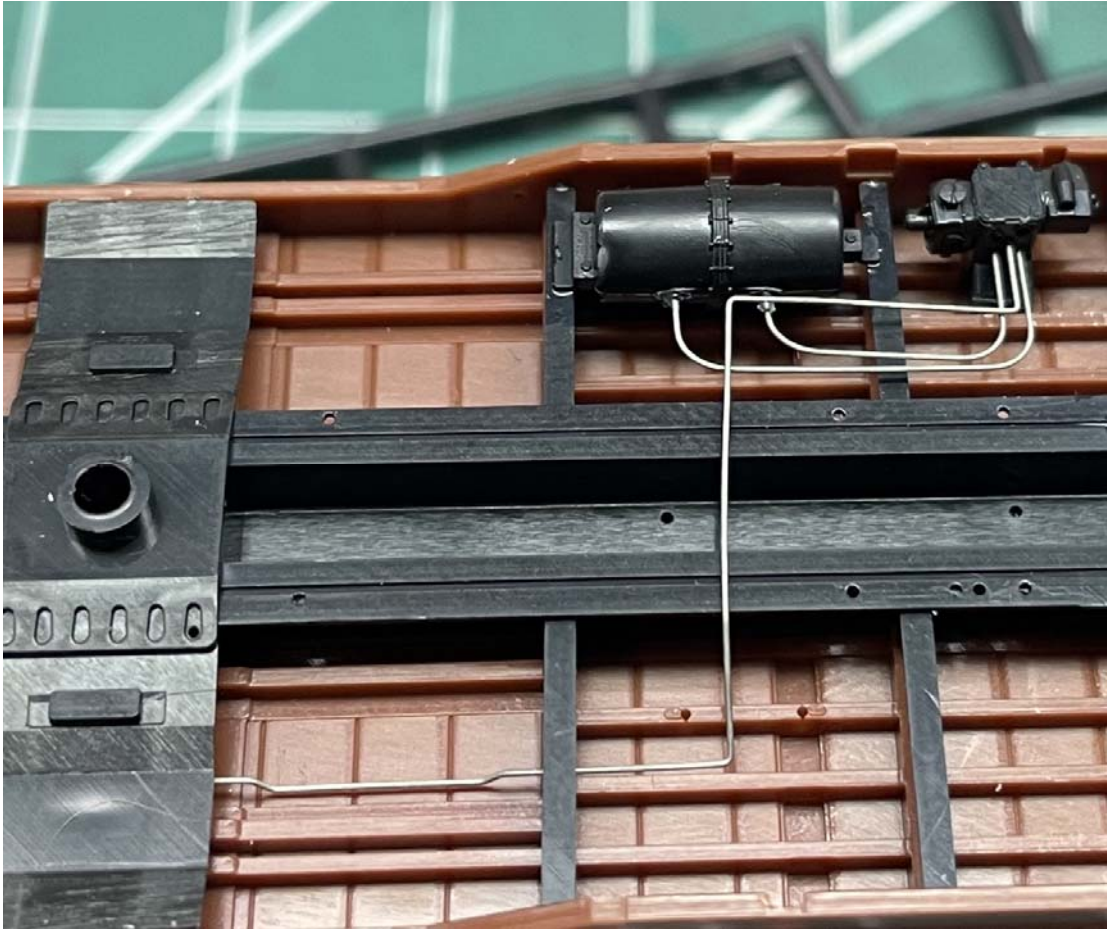


8.

9. **Locate and Install Retainer Line:** Locate the large Z shaped wire (see photo) for the retainer line.



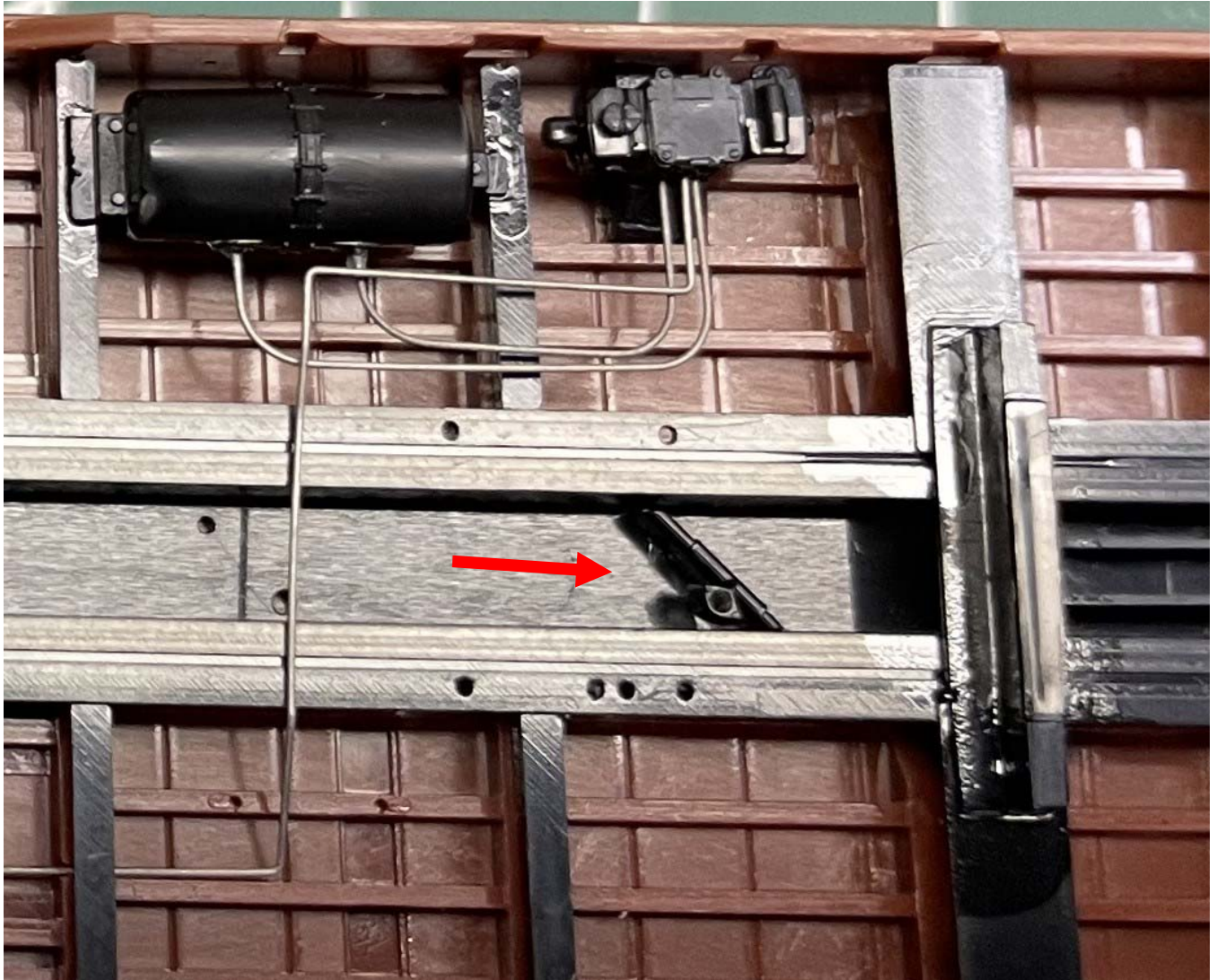
It will be fed from the AB valve, across the center sill, and under a cross member in a notch in the floor. The other end fits in a slot in the bolster. Put in place and secure by attaching it to the center sill with a drop of CA.



10. **Locate and Install Brake Pipe Crossover:** Locate the brake pipe crossover bracket (see photo).



This part will fit into holes in the floor between the center sill. The pins are different sizes so it can only fit one way but see the photo of the part installed to ensure proper placement.



11. **Locate and Install Brake Line.** Referring to the photo locate the two halves of the brake line. Be extremely careful when removing these parts from the sprue as they are easily broken.



Also, try to remove as much flash from the attachment points to allow it to pass through the holes in the sill braces.



There are mounting holes on the center sill that aid in locating the part. Begin with the larger of the two parts and feed the brake line through the holes in the braces until the pins line up with the mounting holes, and the part that extends to the AB valve fits into the upper left hole. When satisfied with the positioning glue in place. Repeat the process for the shorter section.



12. **Locate and Install Dirt Collector Pipe:** Locate the dirt collector pipe (see photo).



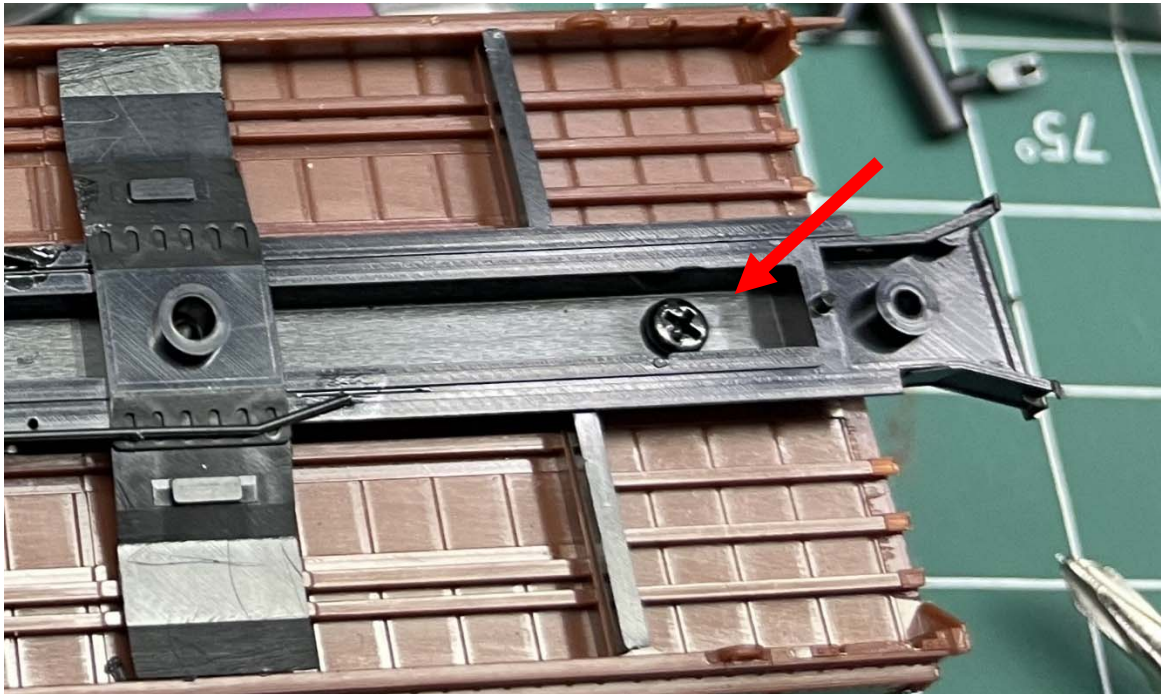
The curved end may need to be positioned so it will fit in the coupler in the center sill so very carefully make any adjustments and remove from sprue. The part fits in the last hole in the AB valve (upper right) and the curved end fits in the coupler. Glue in place.



13. **Locate and Install Underframe Screws:** From the wire parts bag locate the two small round head screws. These will be used to secure the underframe to the floor.



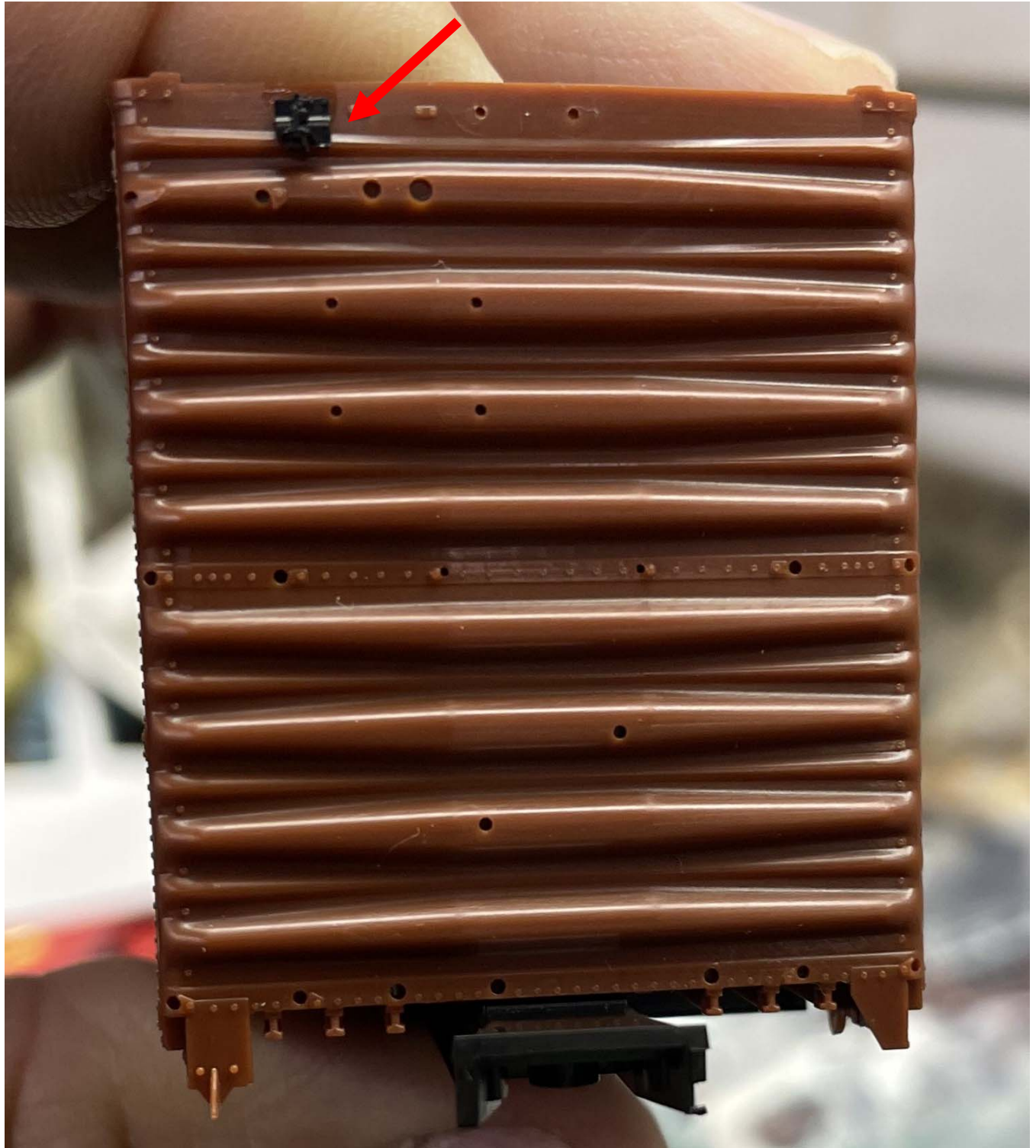
The mounting holes are just behind the coupler pockets. Install the one on the A end of the frame but not the B end yet as a few more parts need to be maneuvered into position that require the underframe to be loose.



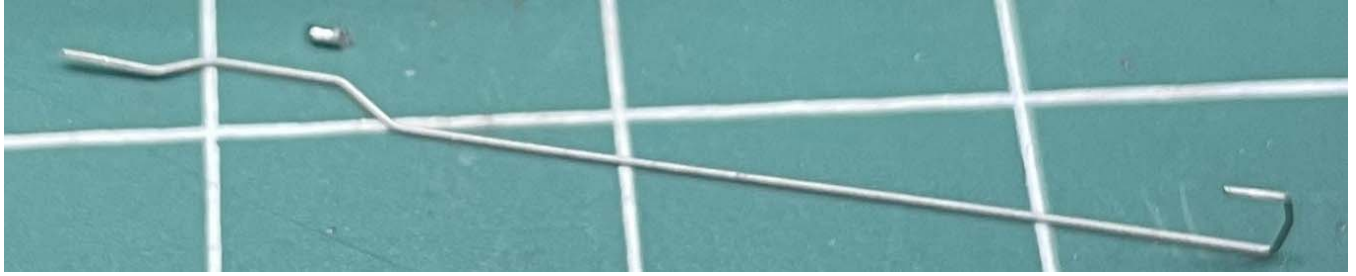
14. **Locate and Install Retaining Valve:** There are two different retainer valves included. See photo for the version used for this build.



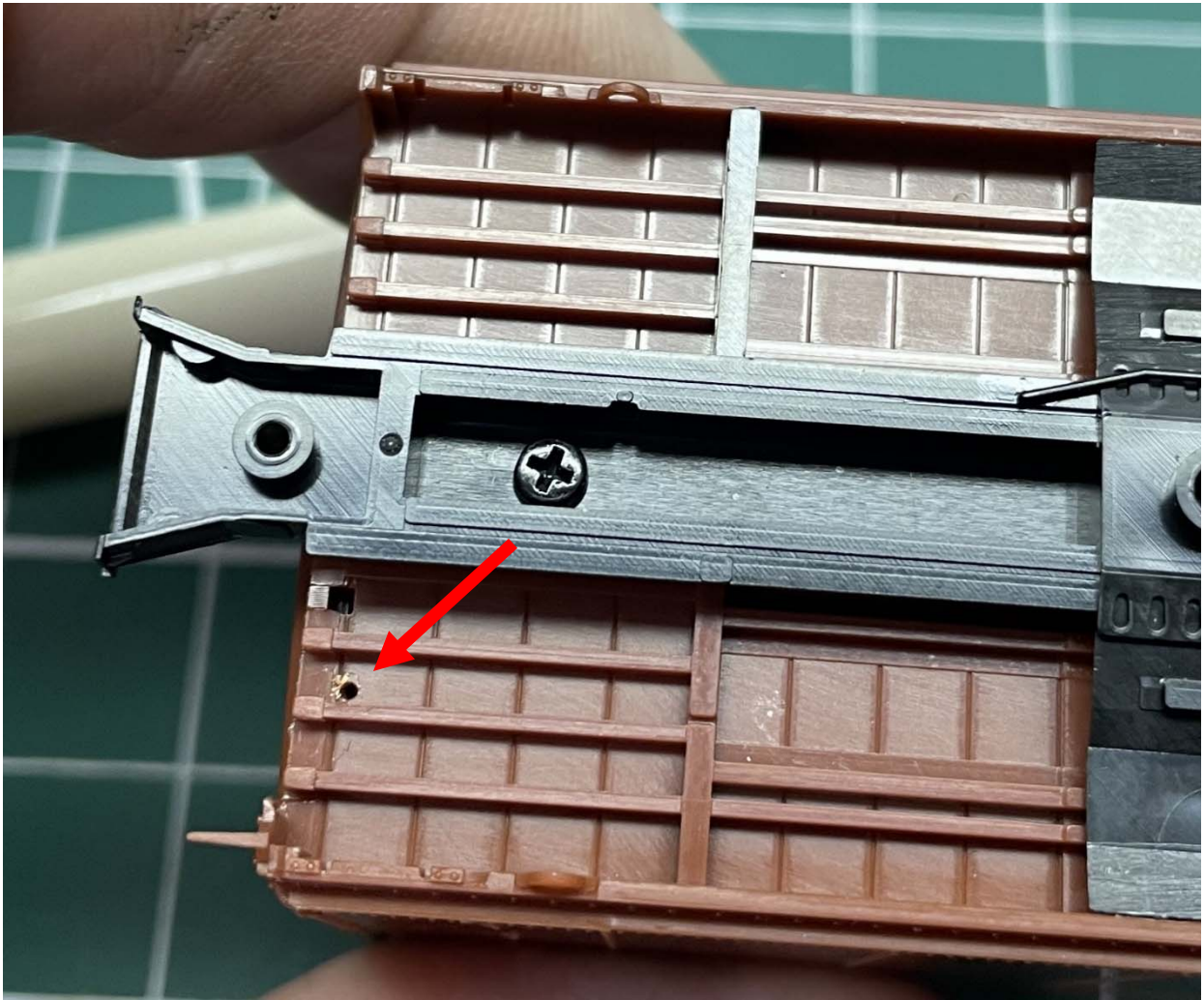
The mounting pin will need to be shortened slightly to allow the part to seat properly. It will go into the hole in the top left of the end. Insert and glue in place.



15. **Locate and Install High Mount Retainer Pipe:** Locate the retainer pipe from the wire parts bag. It is the part that has a 180 degree bend on one end (see photo).

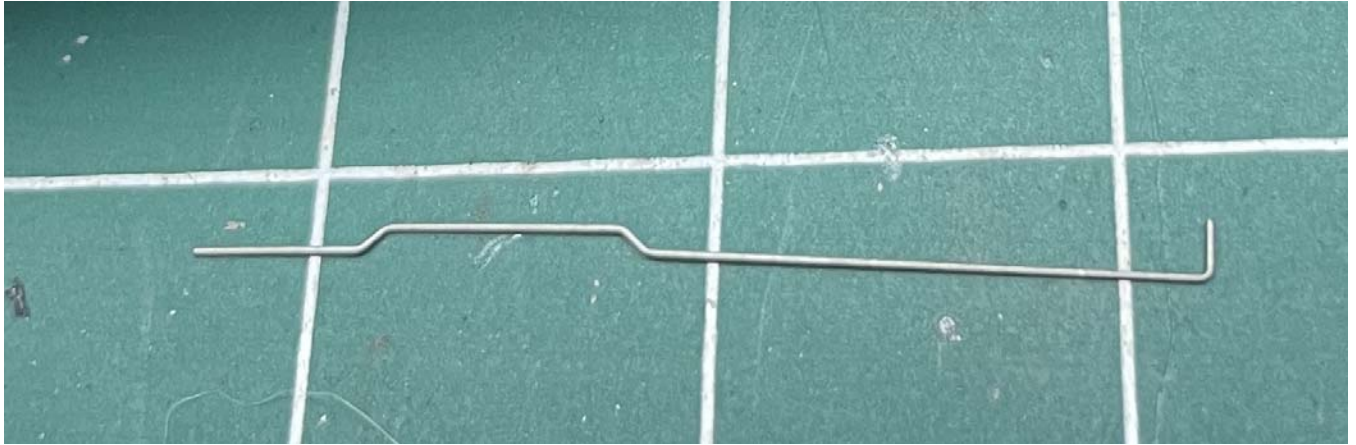


This end will fit into a hole in the floor just inside the second floor stringer (if there is no hole there, use a #76 drill and make one using the photo as a guide for location) and the other end will fit into a slot on the back side of the retainer. Set in position and secure with CA at the valve but not the floor yet as another part uses the same hole.





16. **Locate and Install Underframe Retainer Line:** The second half of the retainer line is also located in the wire parts bag (see photo). The part with the 90 degree bend goes into the hole with the first part of the retainer line and it fits in a slot in the floor next to the bolster. The end of the wire fits in a slot in the bolster itself. When positioned use CA to secure in the hole in the floor but not at the bolster to allow placement of the next part.



17. **Install Dirt Collector Pipe:** There is one cross member that needs to be added on the B end of the floor that has a cut out for the fulcrum rod. On the sprue it is identified as part #13. It has a tab that fits into a notch in the center sill.



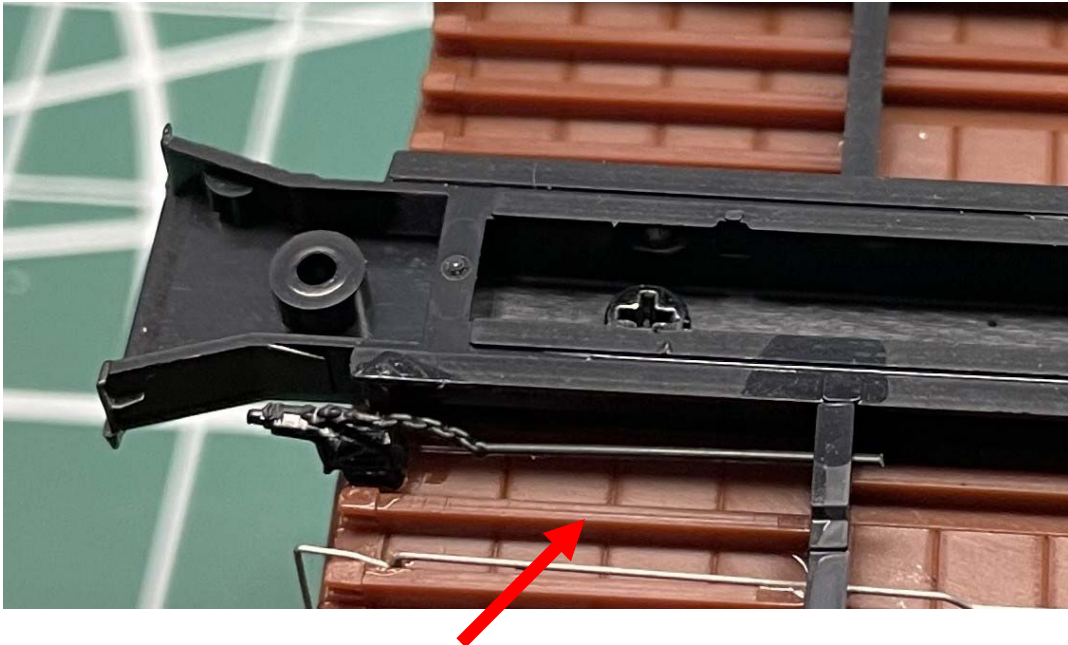
Carefully lift the center sill enough to allow the part to fit in the slot and when in position replace the center sill. Glue the part in place and you can now add the screw at the B end to secure the underframe.



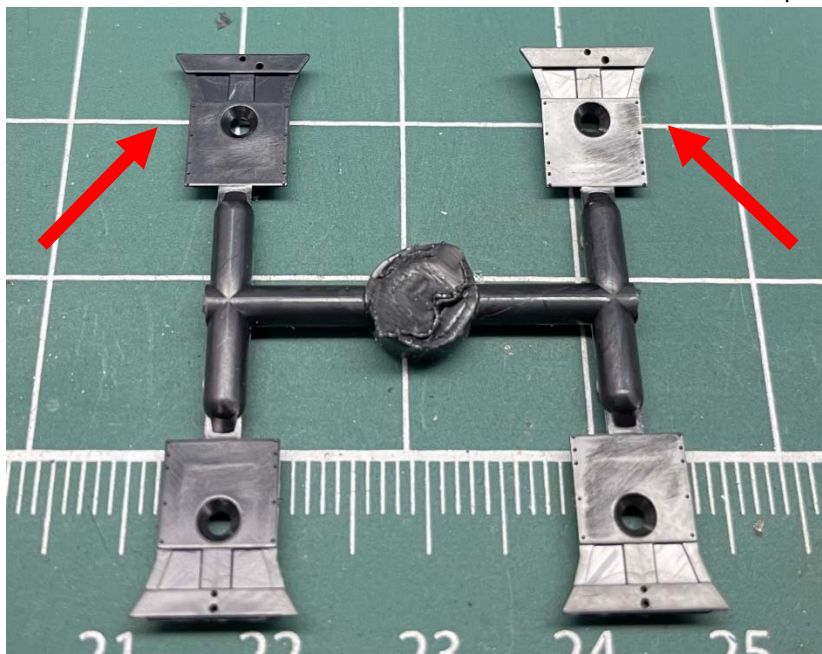
18. **Locate and Install Brake Fulcrum:** There are two different fulcrums to choose from. For this build we will use the one that has small flat spots on either side to the tip.



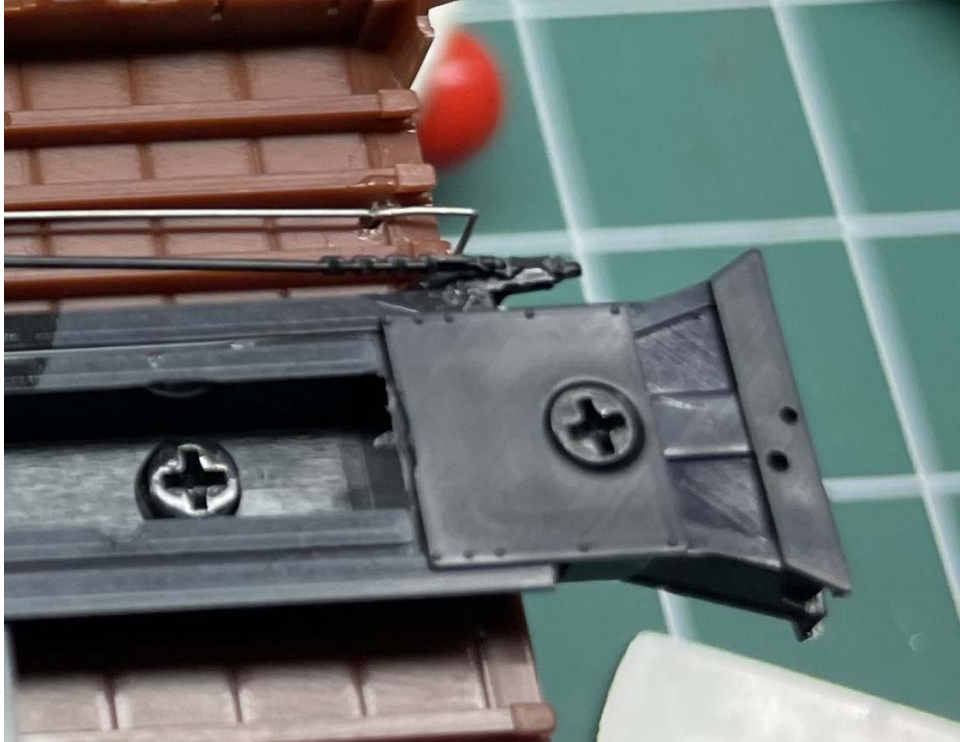
The pipe feeds through the opening in the crossmember just installed and the pin fits into the square hole next to the coupler pocket. Glue in place.



19. **Install Coupler Box Covers:** There are two different coupler box covers. The one we need for this version is the one that has the two holes at the edge of the cover slightly offset. There may be two small mold pins on the back edge of the coupler pockets that will need to be trimmed off to allow the covers to sit properly.



Locate the two small flat head screws from the wire parts bag and secure* the covers in place.



*you may choose to install the couplers at this point but we would suggest waiting until after all painting is complete to ensure proper coupler operation. There are a few steps remaining that involve glueing parts on or near the covers-be very careful not to glue the covers permanently.

20. Locate and Install Air Hose Lines: Locate the air hose lines (see photo).



These parts fit into the rear hole in the cover and into a slot in the center sill. To make the installation go a bit smoother open the rear hole with a #70 drill. Position the part as shown and glue in place being careful not to glue the cover to the pocket.



21. **Locate and Install** : The angle cock and air hose is a rubber part (see photo). It has a small tab that fits into a notch on the side of the coupler box.



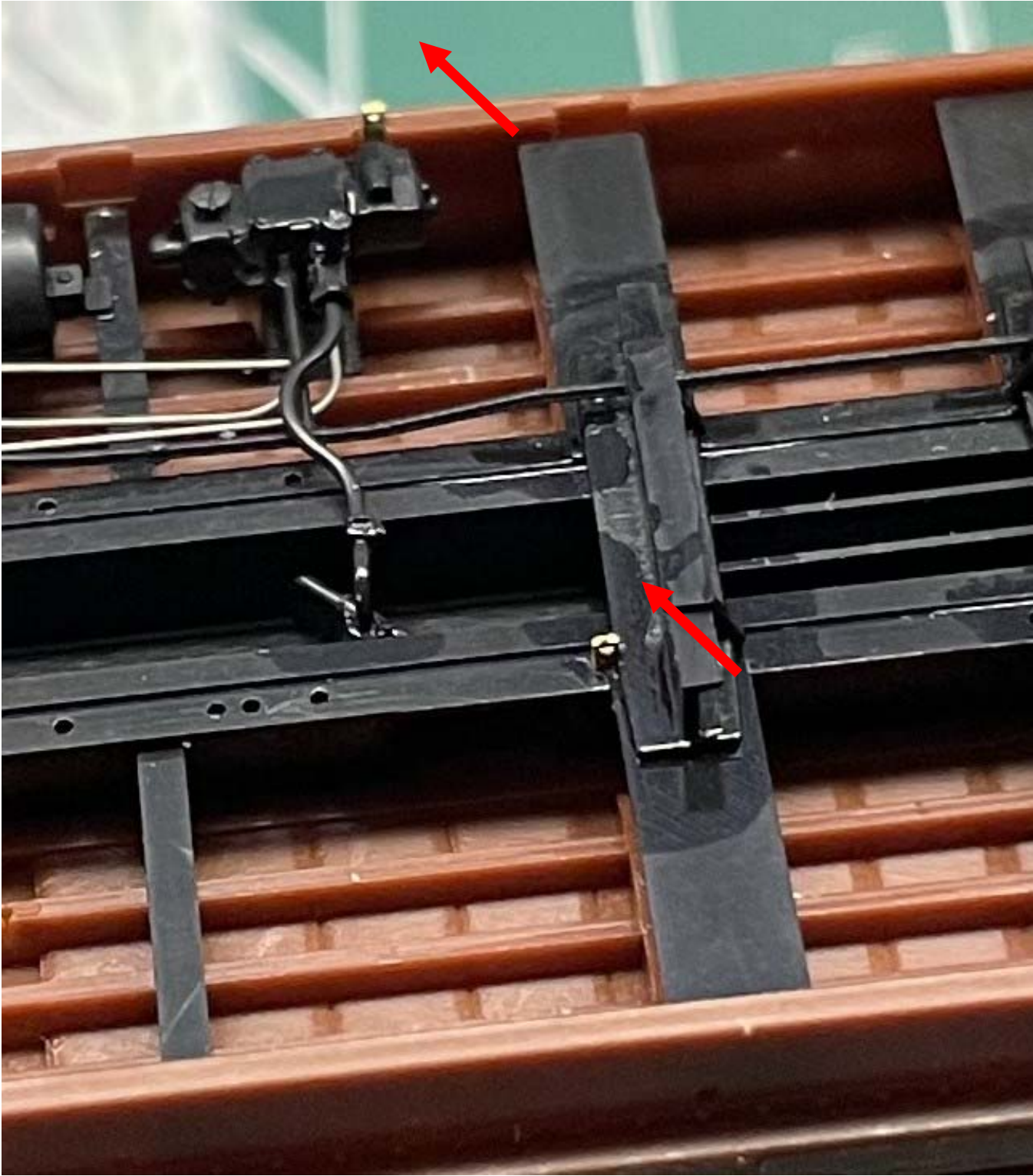
Position it so the tab fits in the notch and the bracket is lined up with the side of the pocket vertically. Secure with CA, again being careful not to glue the cover on. Also, attach the end of the air hose line to the bottom of the bracket with CA.



22. **Locate and Install Bleed Rod:** From the wire parts bag locate the parts for the bleed rod. There is a long wire piece, a small eyelet, and two brass guides - one short and one long.



The short guide goes into a hole at the center sill and the longer one fits in a slot in the side sill next to the AB valve. Install the two guides with CA being careful not to block the holes.



There is a hole in the side sill where the longer half of the bleed rod fits through (if it is not there drill a #76 hole below and to the right of the fifth lower door guide locating hole so that it is in line with the small guide at the center sill). Feed the wire through the hole and the small guide and into the tube on top of the AB valve. You may need to shorten the leg of the eyelet to allow it to sit the proper distance from the large bracket by the AB valve. Test fit the part and when satisfied with it secure both wires in the tube on top of the AB.

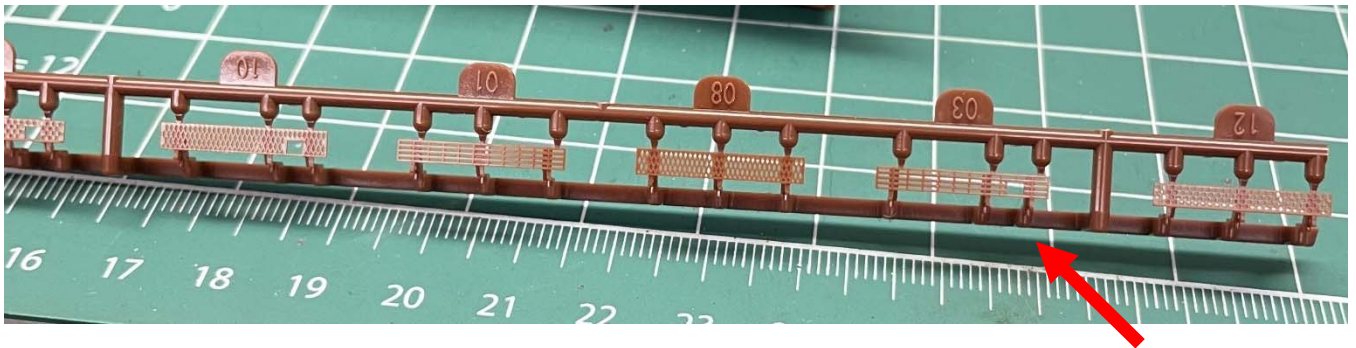


This completes the underframe assembly.

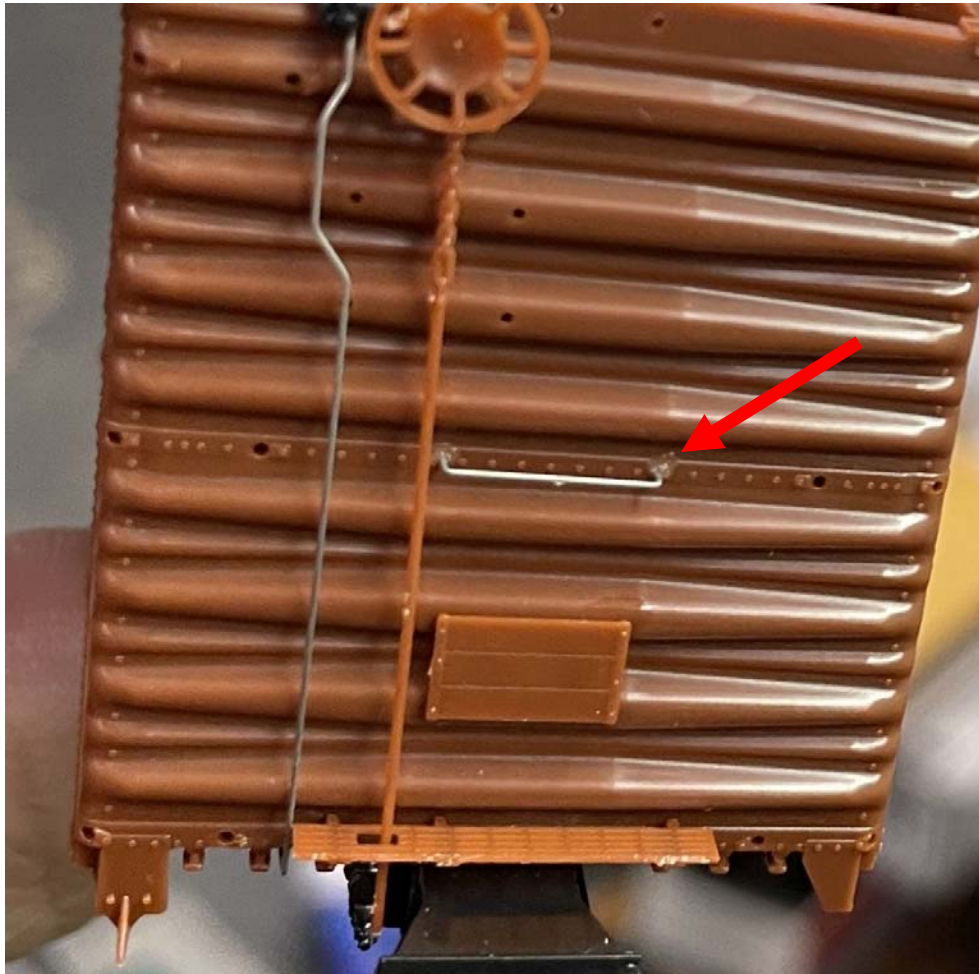
Carbody Assembly:

B-End Assembly Instructions:

1. **Locate Correct Brake Housing:** We'll begin the body detailing with the B end. There are multiple power brake assemblies included in the kit. Select which one that is appropriate for your prototype. With this build, we are using one off of one of the brown sprues identified as 05. Carefully remove it from the sprue and set it aside.
2. **Locate and Install B End Crossover Platform:** There is a sprue that contains multiple lower crossover platforms. Referring to the photo, choose the one indicated with the opening for the brake staff.

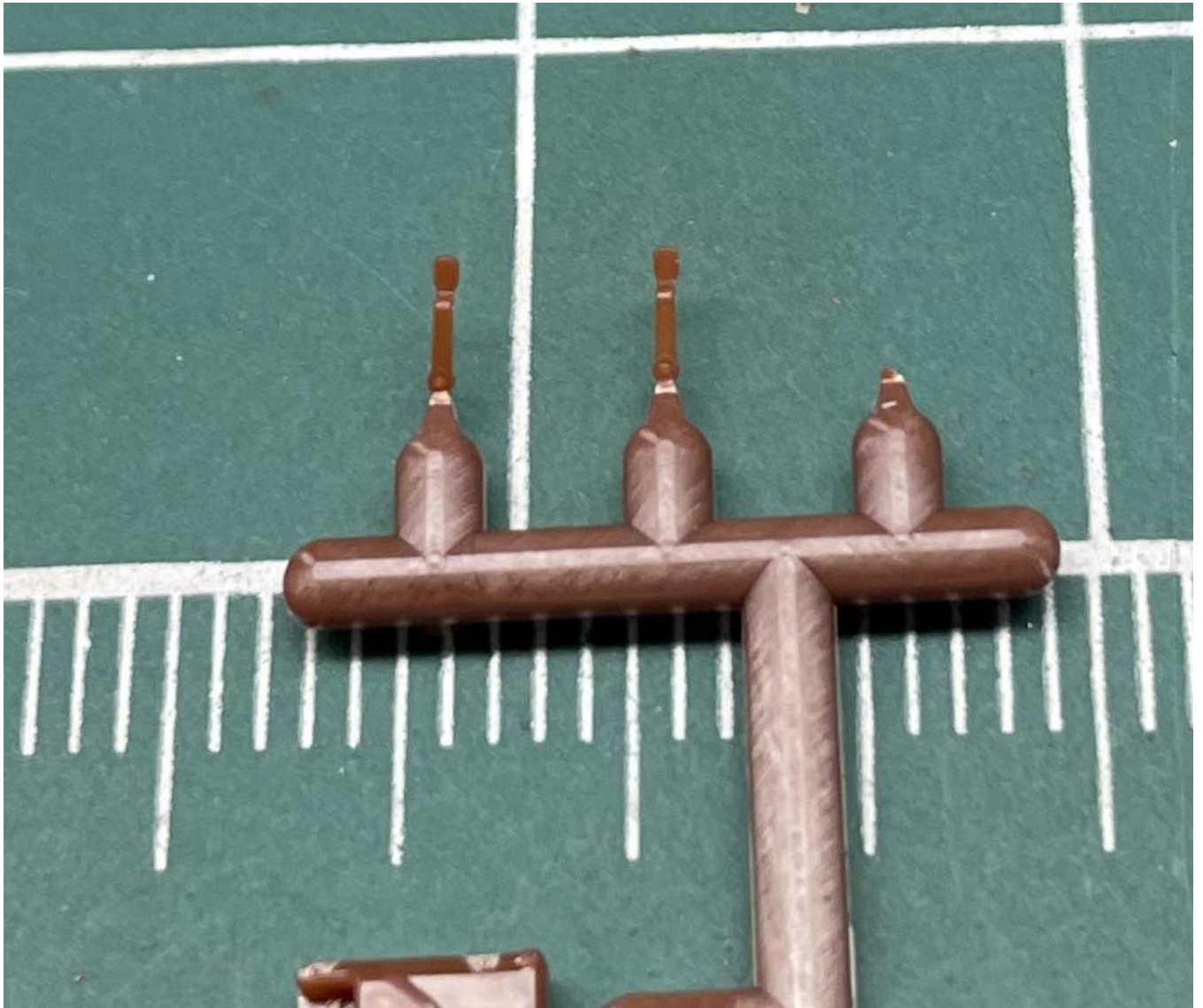


There are mounting holes along the bottom edge of the end that the pins on the platform fit into. Insert the pins into the holes and glue in place.



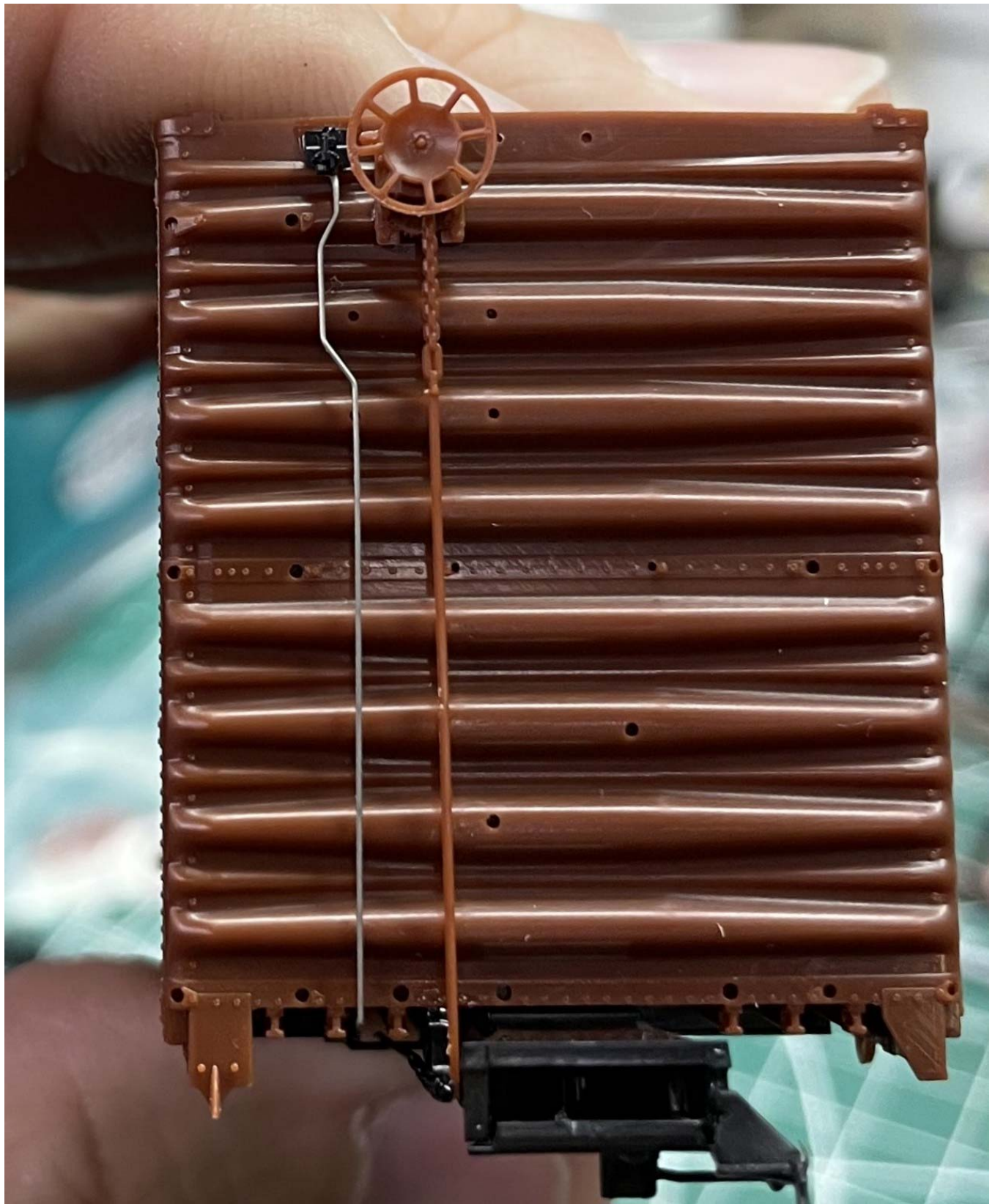
3. **Install Brake Housing:** You can now insert the brake staff through the opening in the platform and insert the pins of the brake housing into the locating holes of the car end. Glue in place at the housing and at the fulcrum.

There are also brake release levers provided (see photo). This fits into a hole at the top of the housing. Position it so that it sits at a 90 degree angle and glue in place.



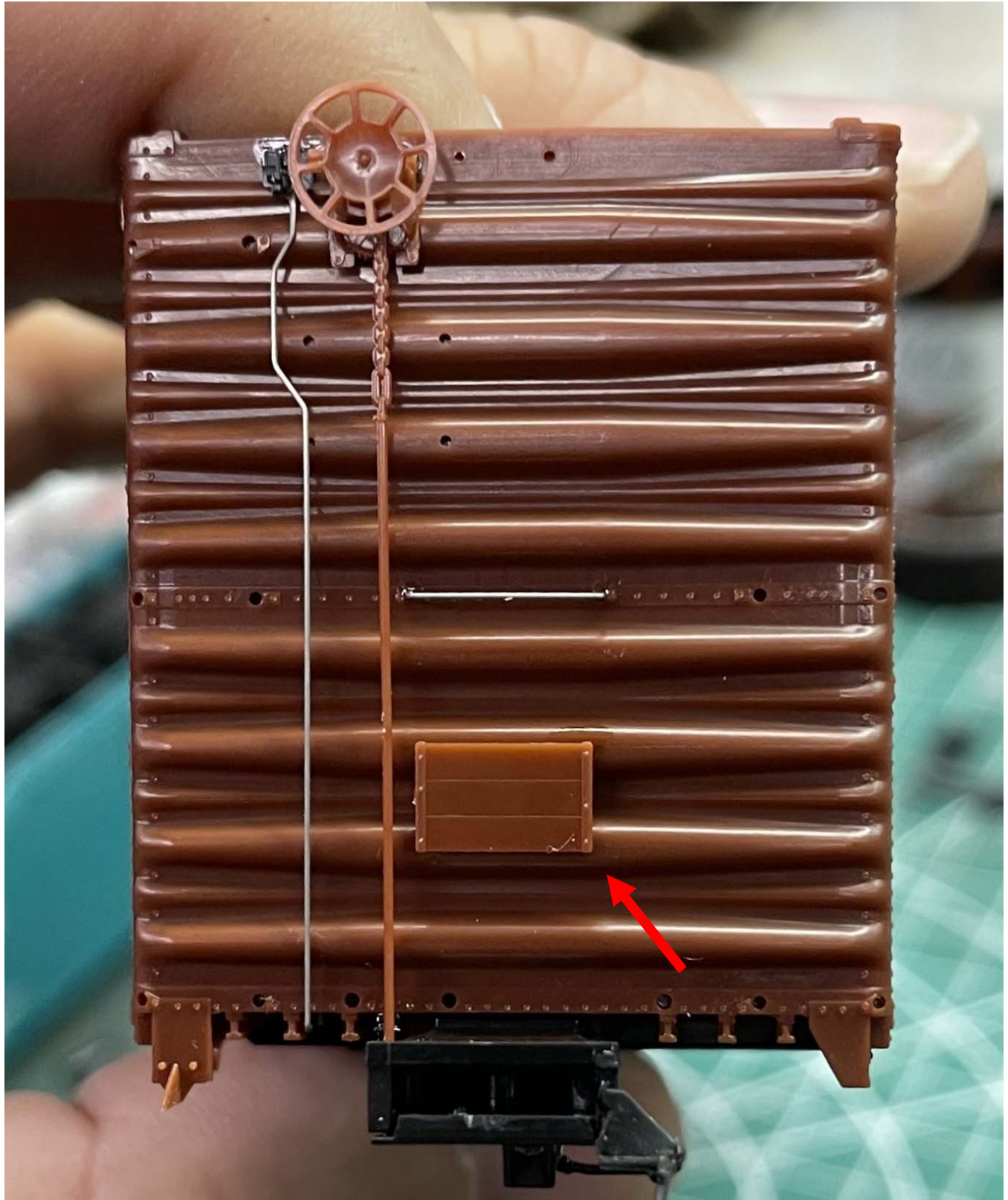


There are multiple brake wheels provided. Choose the one that fits your prototype and install it in the housing. Glue in place.



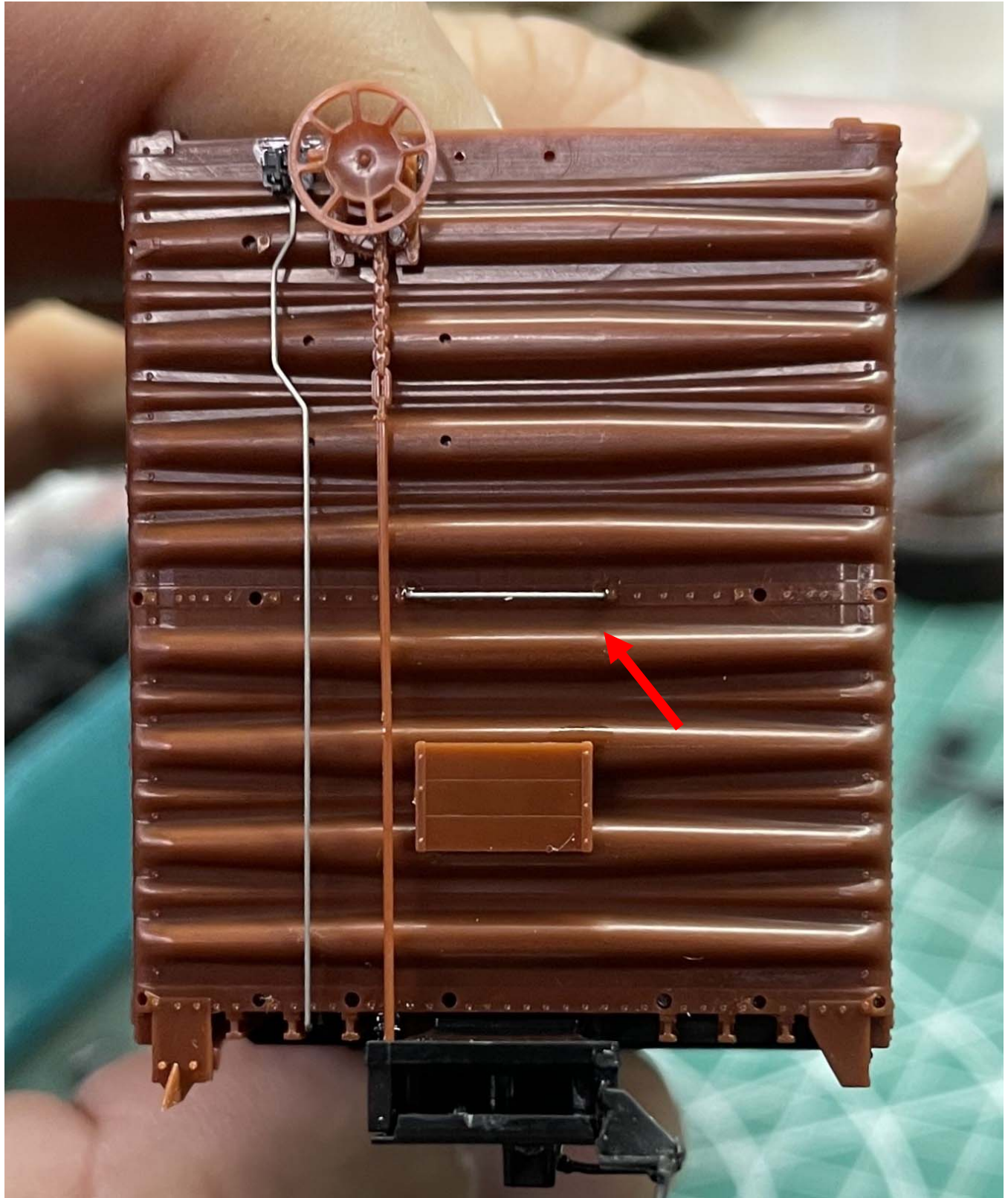
4. **Install End Tack Board:** Locate the tack board and glue it in the mounting holes in the end ribs.



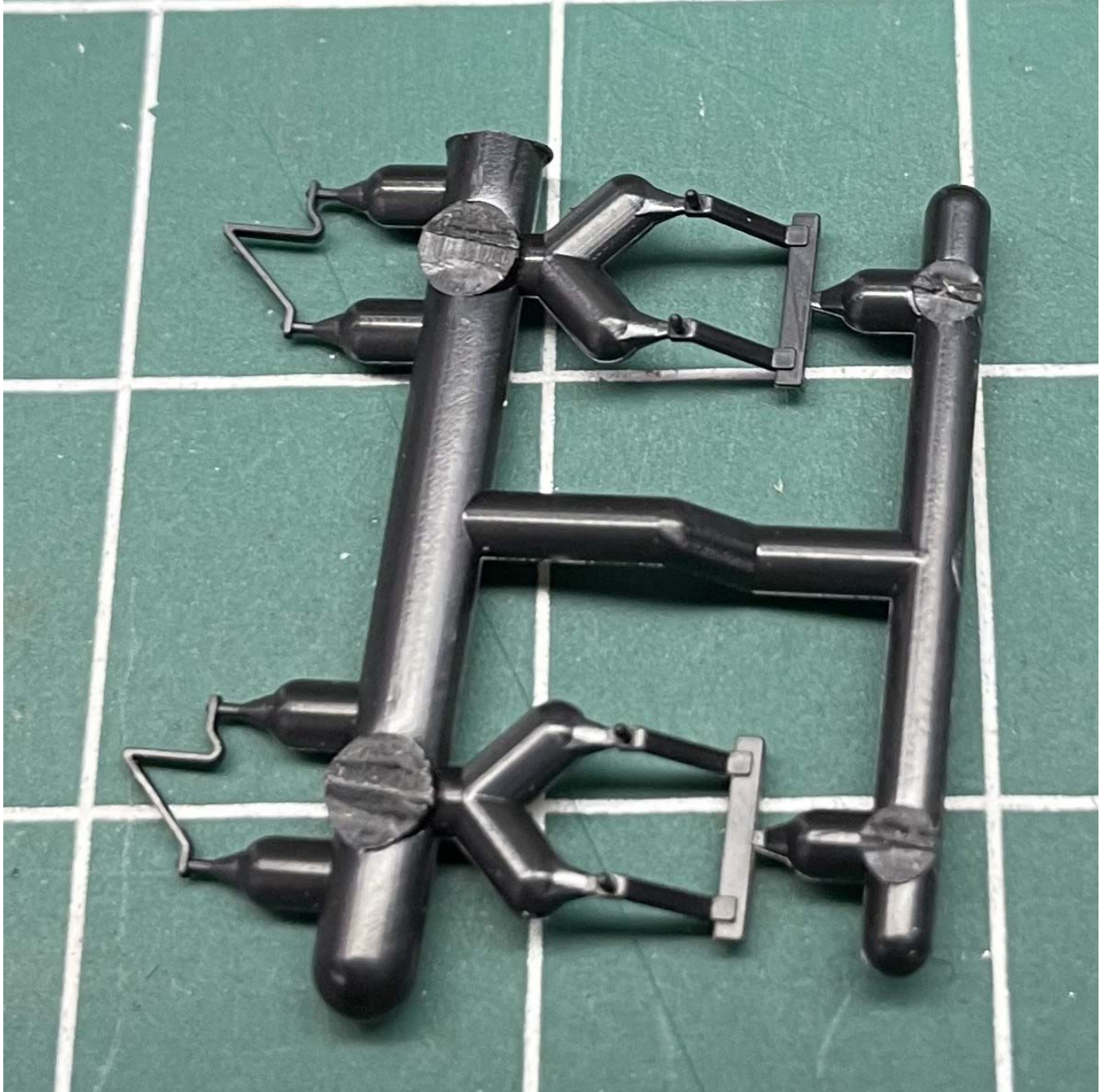


5. **Locate and Install End Grab Iron:** From the wire parts bag locate the end grab iron. Insert in the mounting holes and secure with CA.



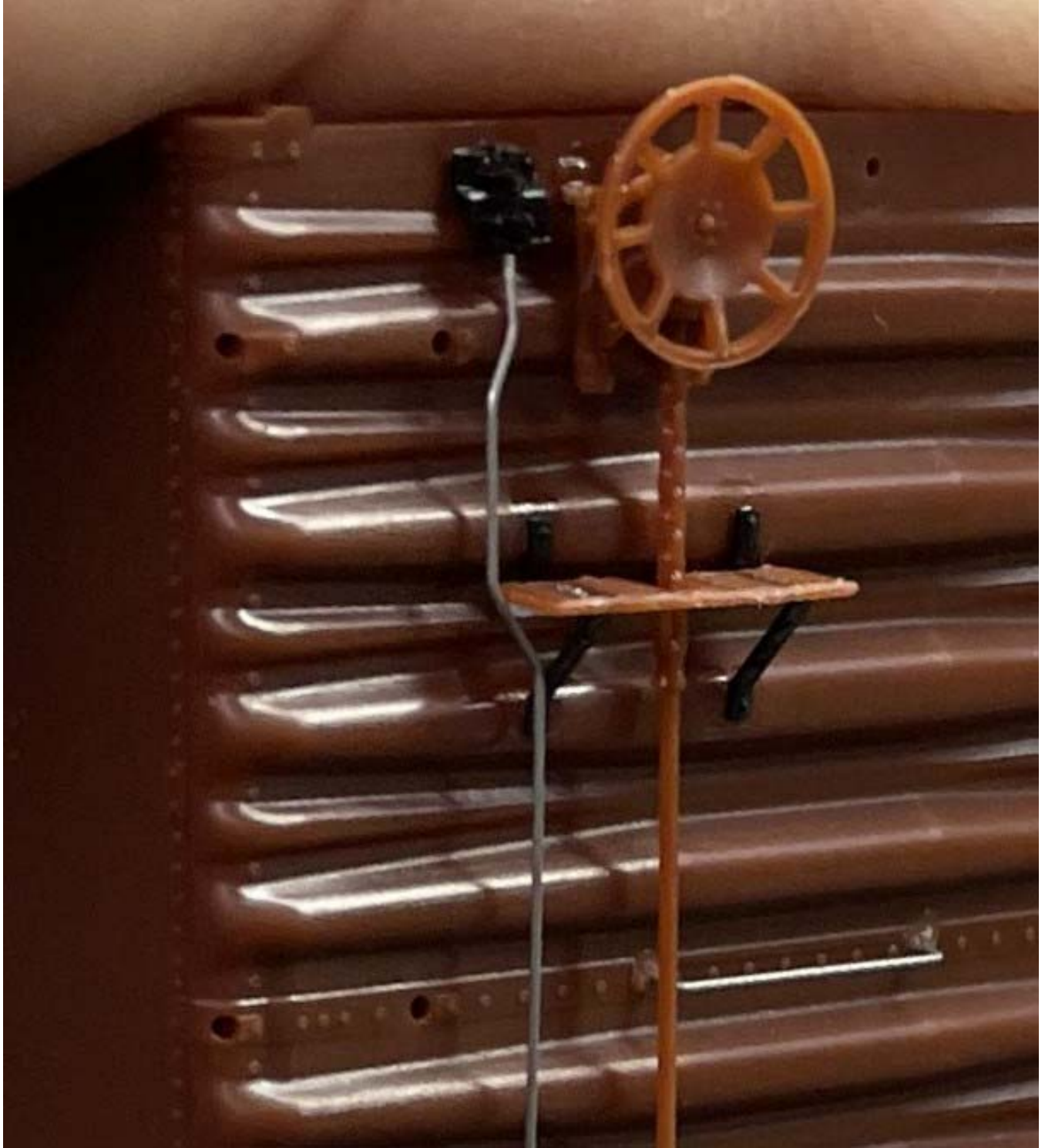


6. **Locate and Install Brake Platform Supports:** Locate the brake platform supports. Carefully remove them from the sprue and install in holes below the housing.

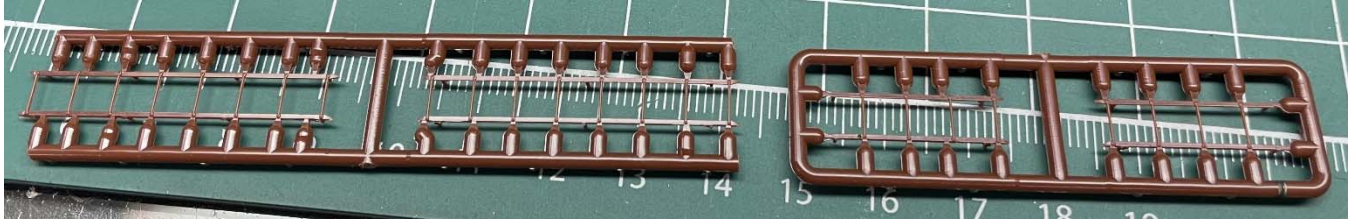


7. **Install Cross Member Caps:** The brake platform we will use is designated 05 on the sprue. You will notice it has small grooves on one side that fit on top of the support brackets. Set in position and glue in place.

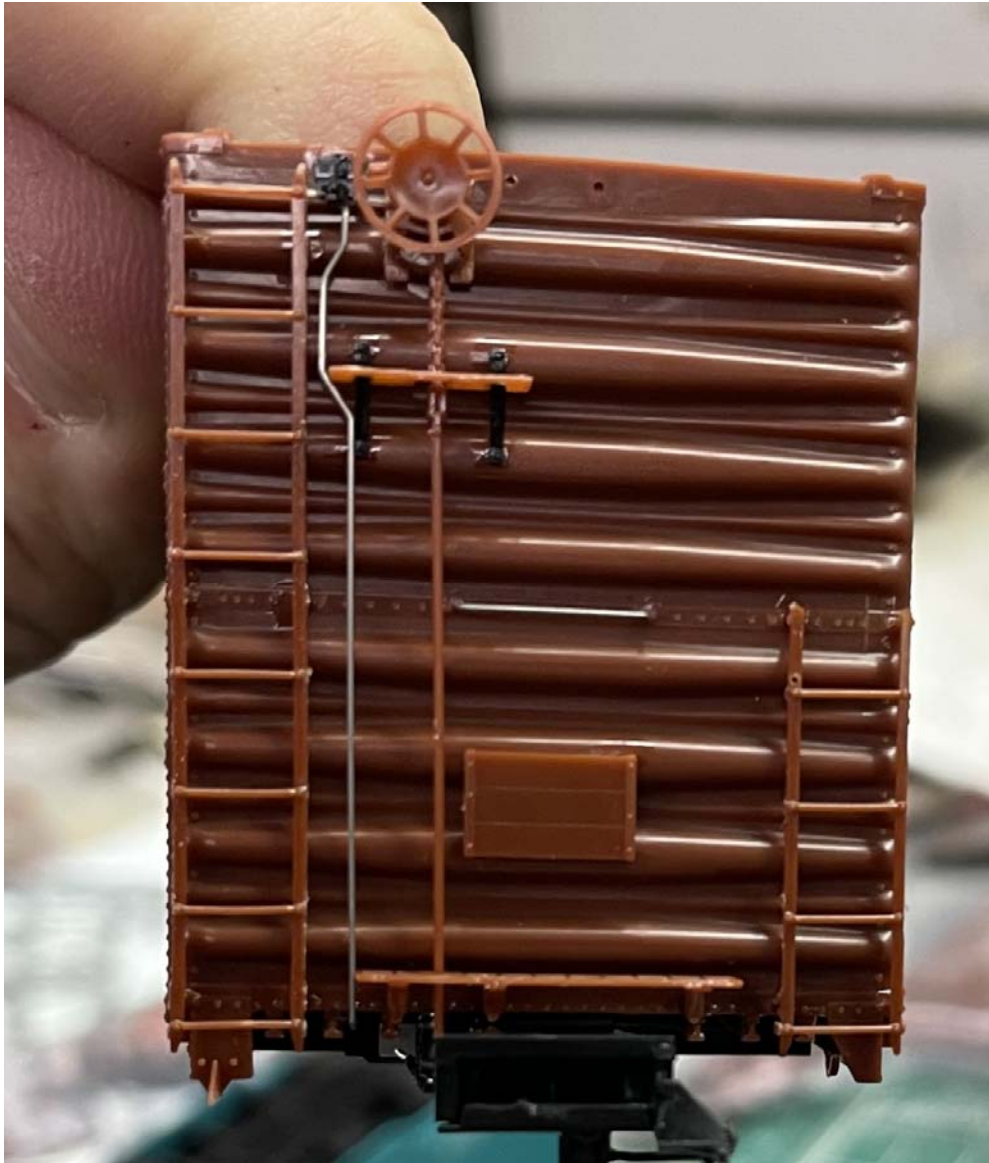




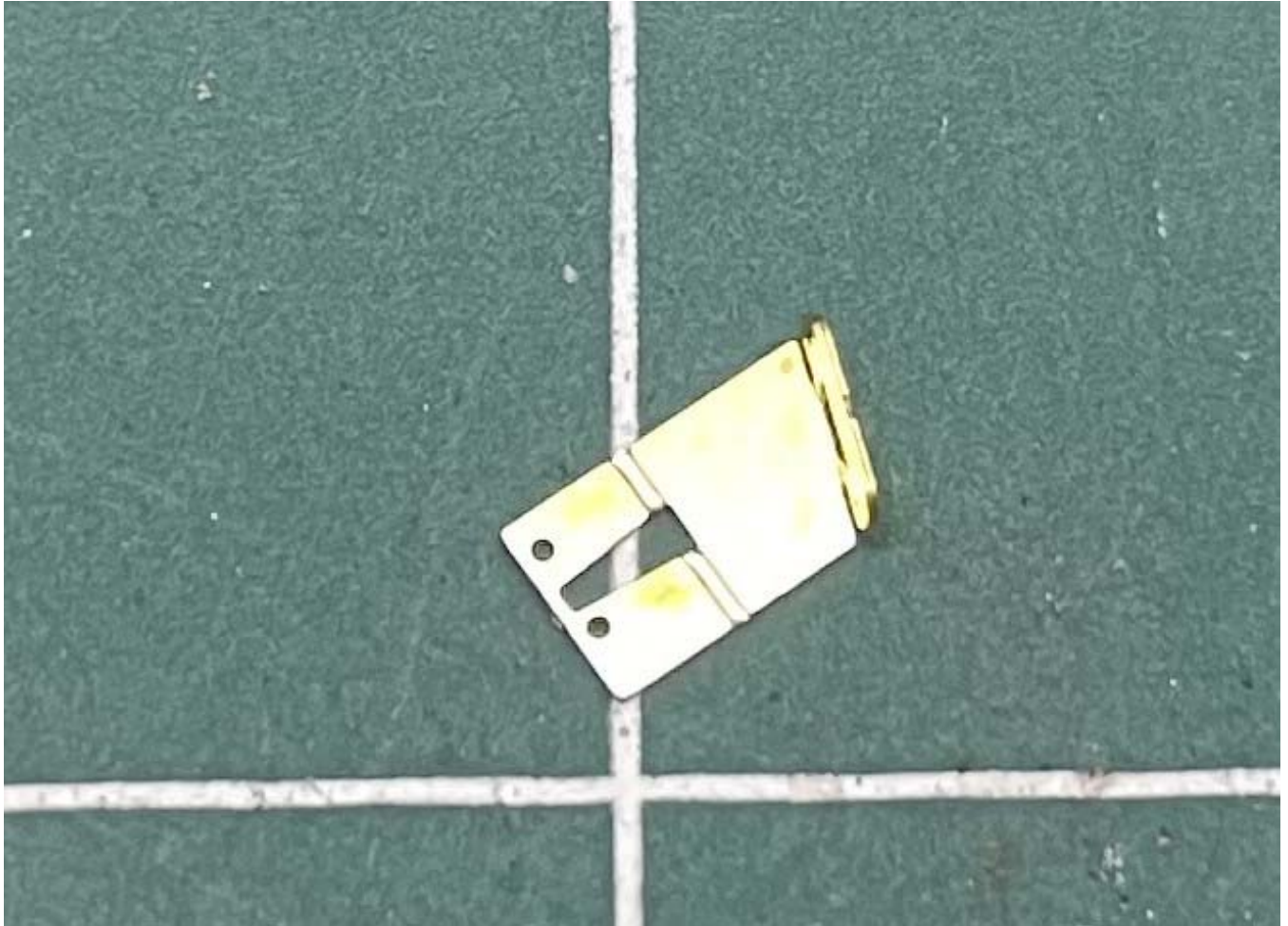
8. **Locate and Install End Ladders:** There is a full ladder and a half ladder that go on the ends. For the full ladder you will find several options in the parts bag. The full end ladders use three sets of mounting pins (the side ladders use four).



Carefully remove the ladder from the sprue and install on the left side of the car end. For the half ladder you will notice that there are some that have the stiles that extend beyond the top rung. These will go on the right side of the car end.



9. **Locate and Install Cut Lever Bracket:** From the wire parts bag locate the cut lever bracket. It is a brass etching that has a slot and a bend break. At the break, make a 90 degree bend as shown in the photo.

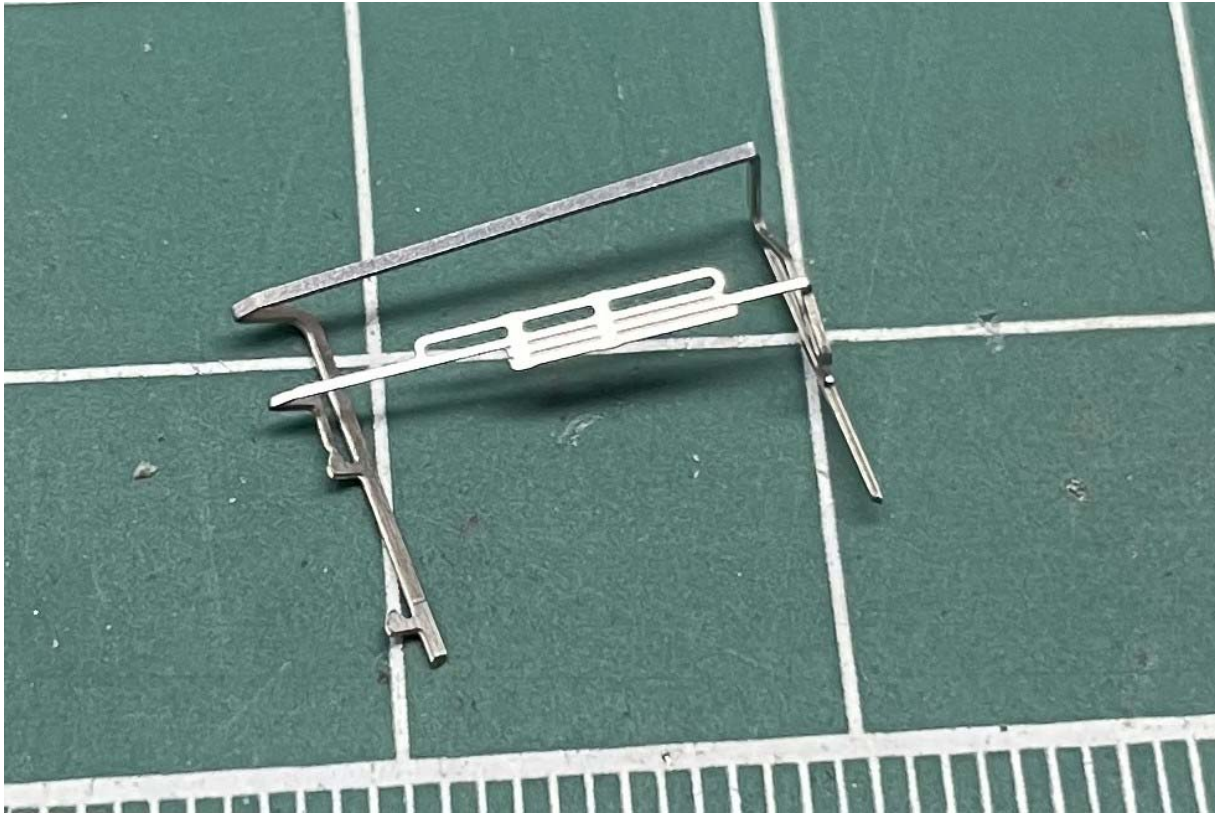




Install at the corner of the end by sliding the slot over the tab so that the flat part sits flush against the end of the car. Secure with CA.



10. **Locate and Install Cut Lever:** There are two different cut levers included. See the photo for the appropriate style for this build.



Feed the handle through the loop in the bracket and insert the other end into the hole at the edge of the coupler box cover (you may need to bend the end slightly to get it to fit properly). Tack the end at the cover with CA but leave the handle end loose to allow the installation of couplers.



This Completes the B-End Detailing

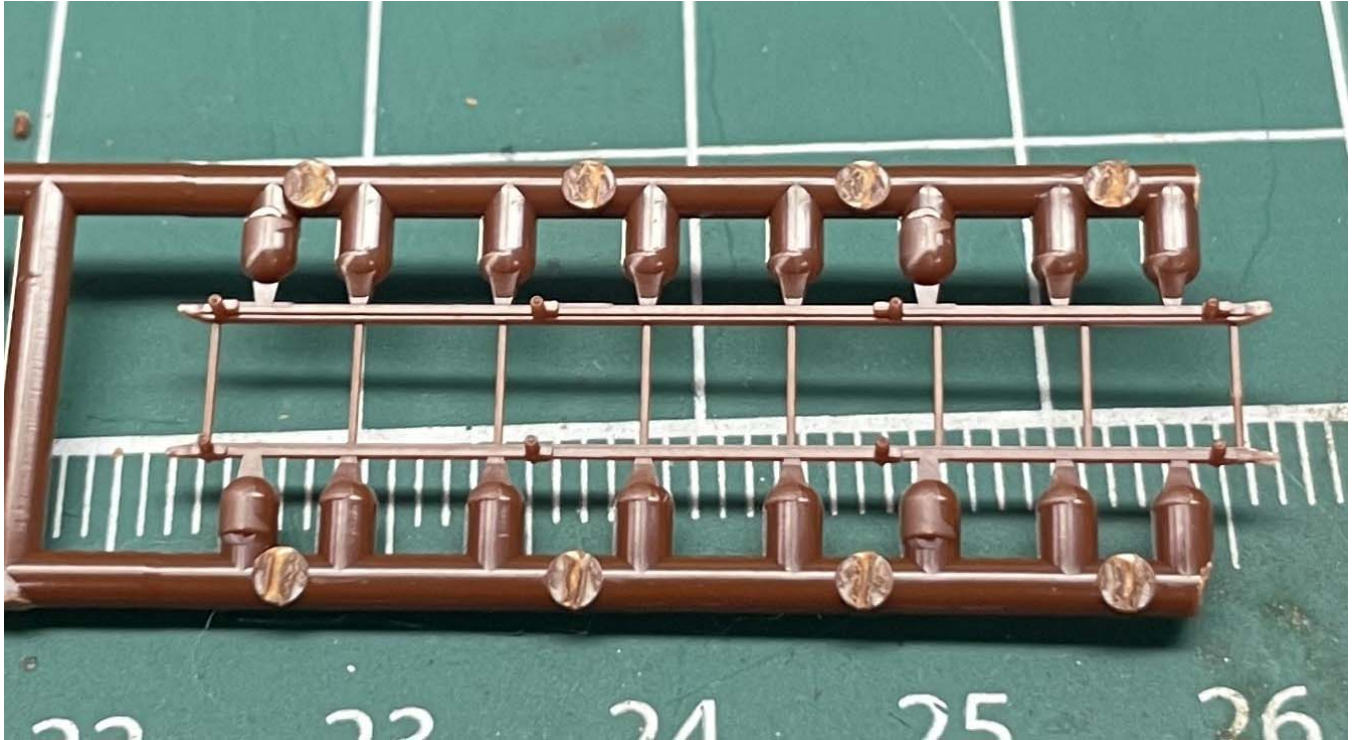
A-End Assembly Instructions:

Detailing the A end is the same except for the brake and retainer equipment. The lower crossover platform also does not have an opening for the brake staff (designated as part 01 on the sprue).



Side Assembly Instructions:

11. **Identify and Install Tall Side Ladders:** For the side ladders you will need to modify the full length ladders slightly. There are no mounting holes for the upper two pairs of supports so you will need to remove the mounting pins from them but leave the pad so the ladder sits the proper distance off the car side.

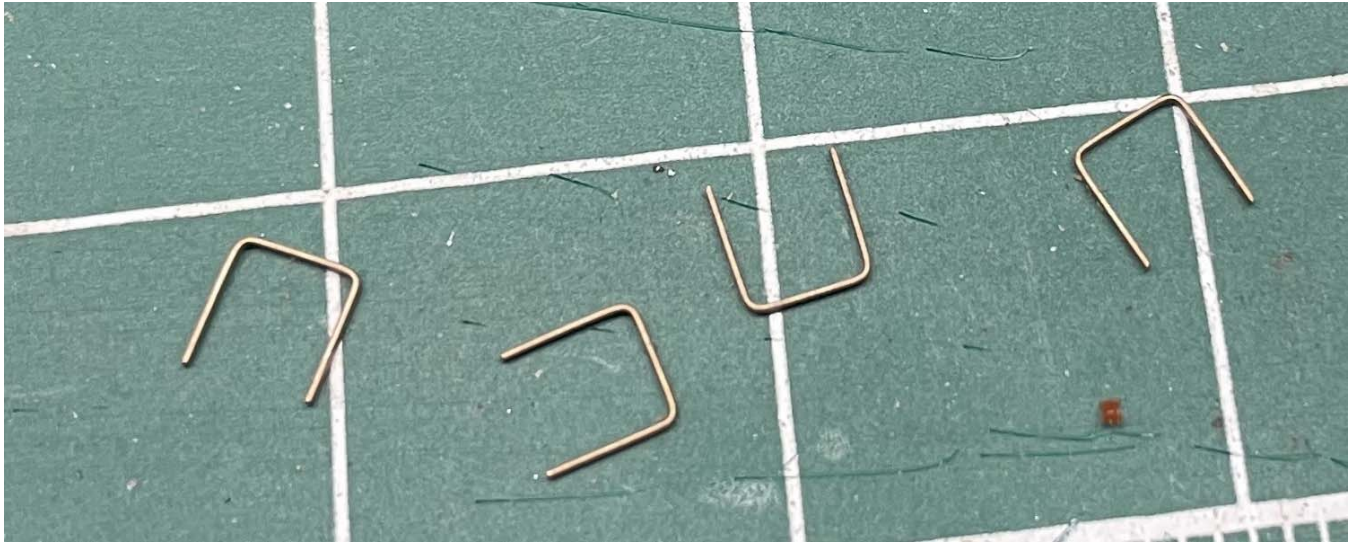


The half ladders on the left side of the body differ from the end ladders in that the stiles do not extend beyond the top rung. There are also different versions of these that use different mounting pins (different spacing). Find the proper version and install.

Put ladders in position and glue in place.



12. **Locate and Install Stirrups:** Locate the stirrups from the wire parts bag. These will fit in slots in the inside of the side sills.



Set in position and secure with CA.





13. **Locate and Install Trust Plates:** From the wire parts bag locate the small brass trust plate etchings.



These will be placed in the second panel from the right side of the car along the top chord (see photo). Secure with CA.



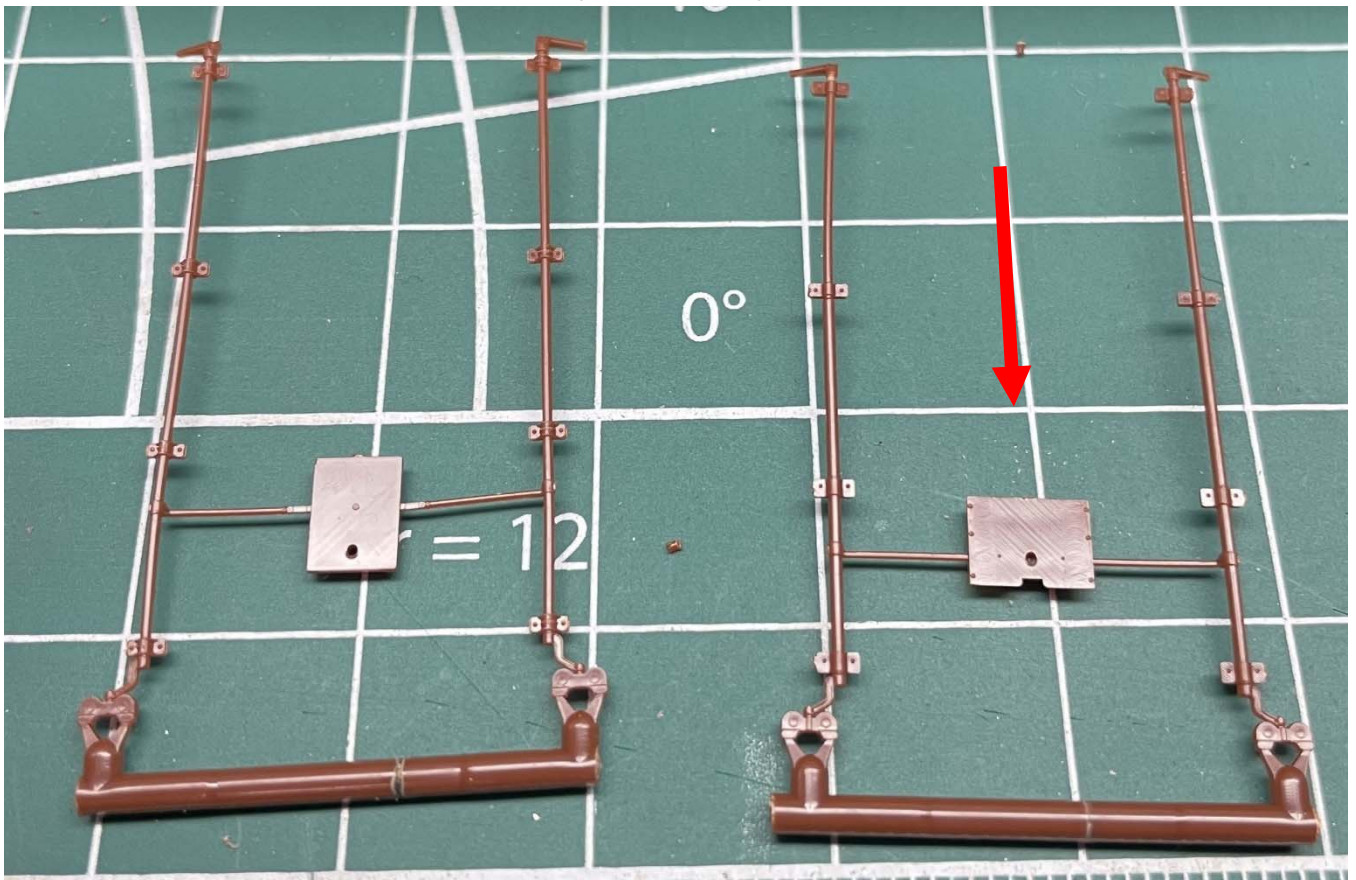
14. **Locate and Install Lower Door Tracks:** There are two different versions of lower door track. The version we need has the two support brackets spaced very close together in the middle (the mounting hole spacing only allows one version to be installed).



Remove from sprue and set in position. Glue in place.



15. **Locate and Install Door Details:** There are two different versions of door openers - one has the center plate longer vertically and the other is wider horizontally. We will use the ones that have the wider plates (see photo).



There are mounting pins that fit into holes in the car side. Set parts in position and glue in place.



16. **Install Tack Boards and Door lock Handles:** Remove the tack boards and door lock handles from the sprues. The tack boards have mounting pins on the back that will need to be removed in order for them to sit flat on the doors.



Referring to the photo, set them in position and glue in place. The door lock handles fit into holes in the plates on the doors. Position them vertically and glue in place.



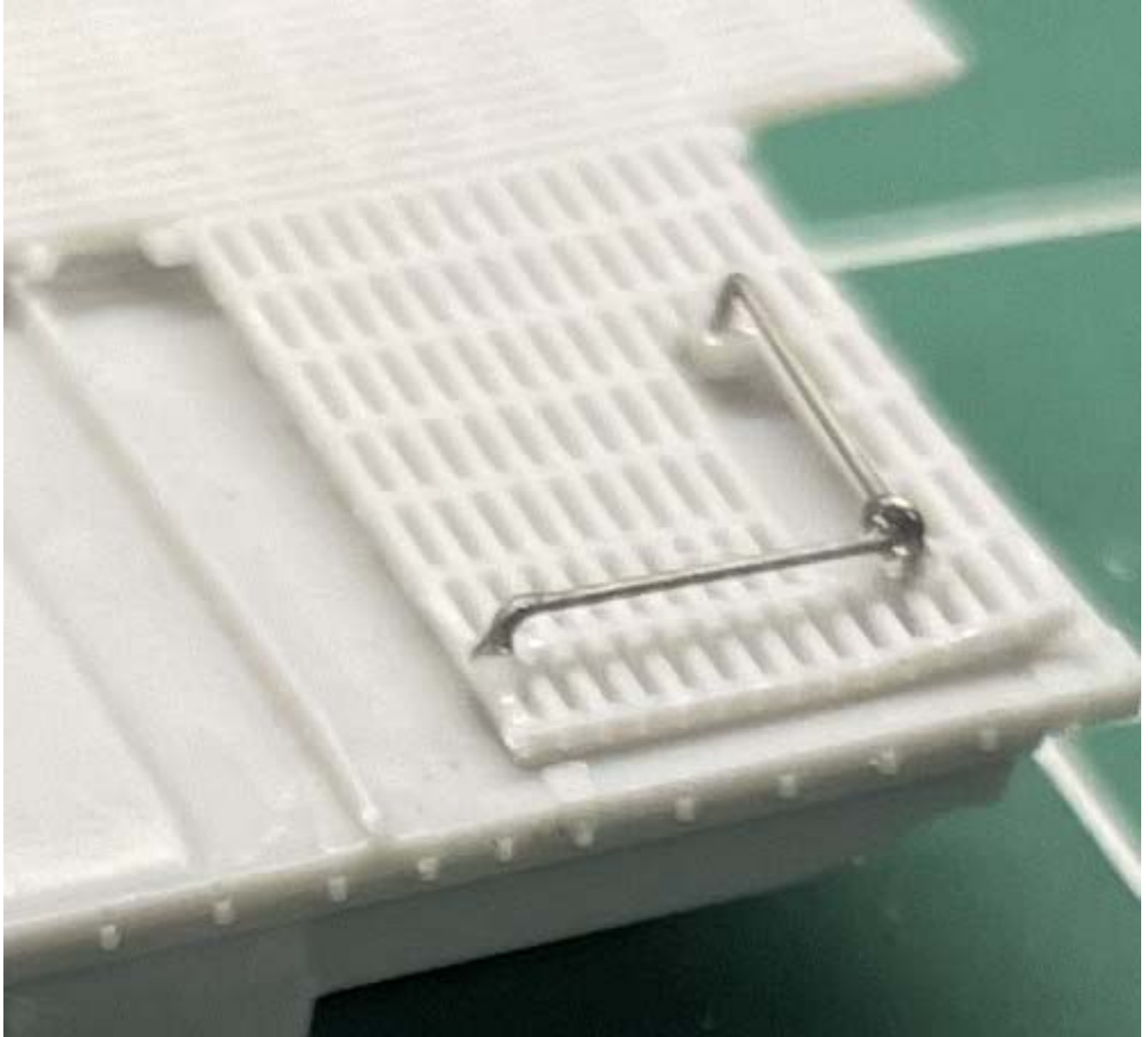
This Completes the Side Detailing

Roof Assembly Instructions:

17. **Locate and Install Running Board Corner Grabs:** Locate the running board corner grab irons and small eyelets from the wire parts bag.



The running board should already be installed in the roof. Open the mounting holes in the laterals to make it easier to install the parts. You can either drill the corner hole for the eyelet all the way through the roof to allow it to sit at the proper height or shorten the leg. Insert the eyelet into the corner hole and position it at a 45 degree angle to the corner and secure with CA making sure not to block the hole. Insert the corner grab through the eyelet and insert the ends into the holes in the lateral. Secure with CA.

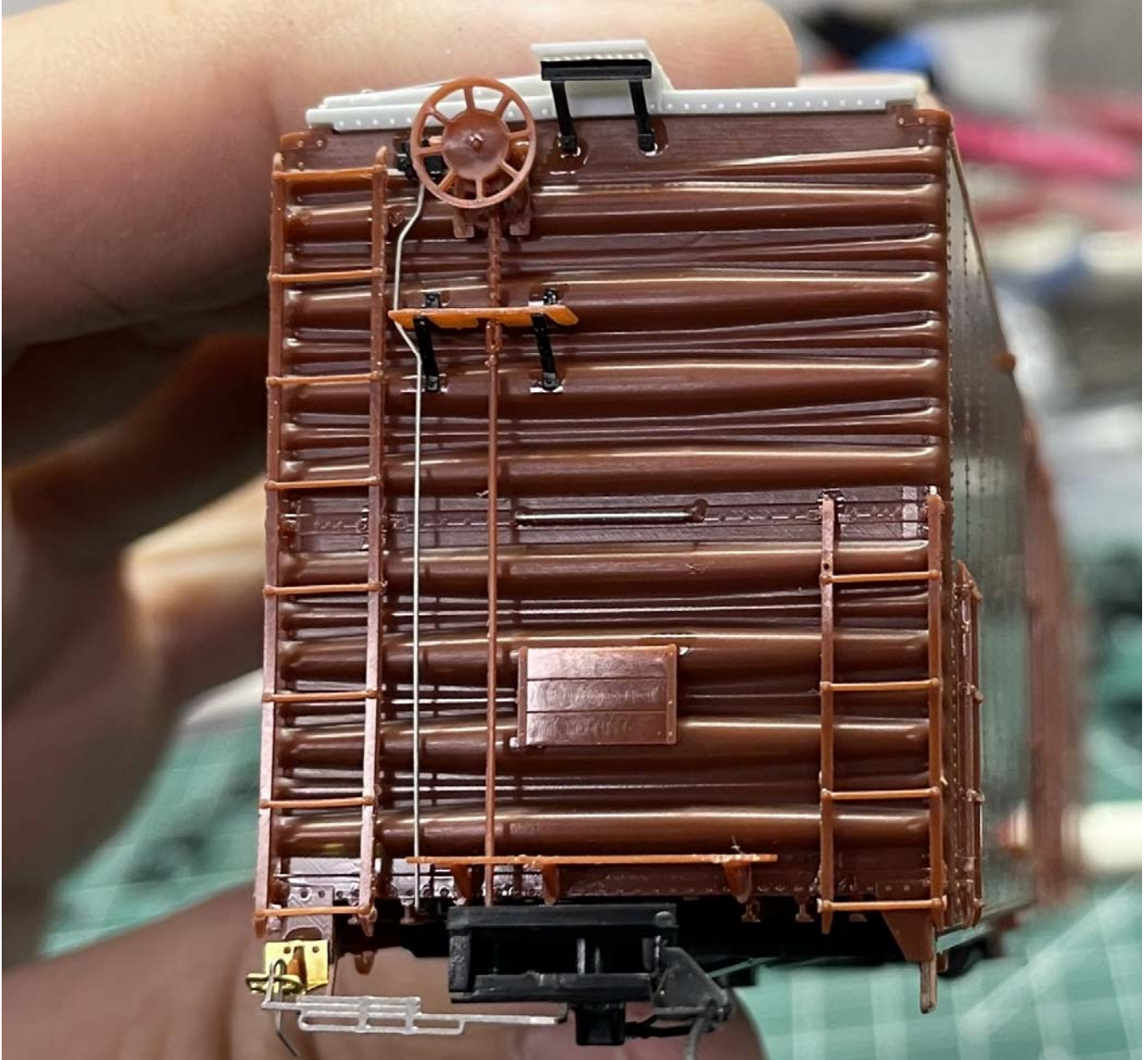


Final Assembly Instructions:

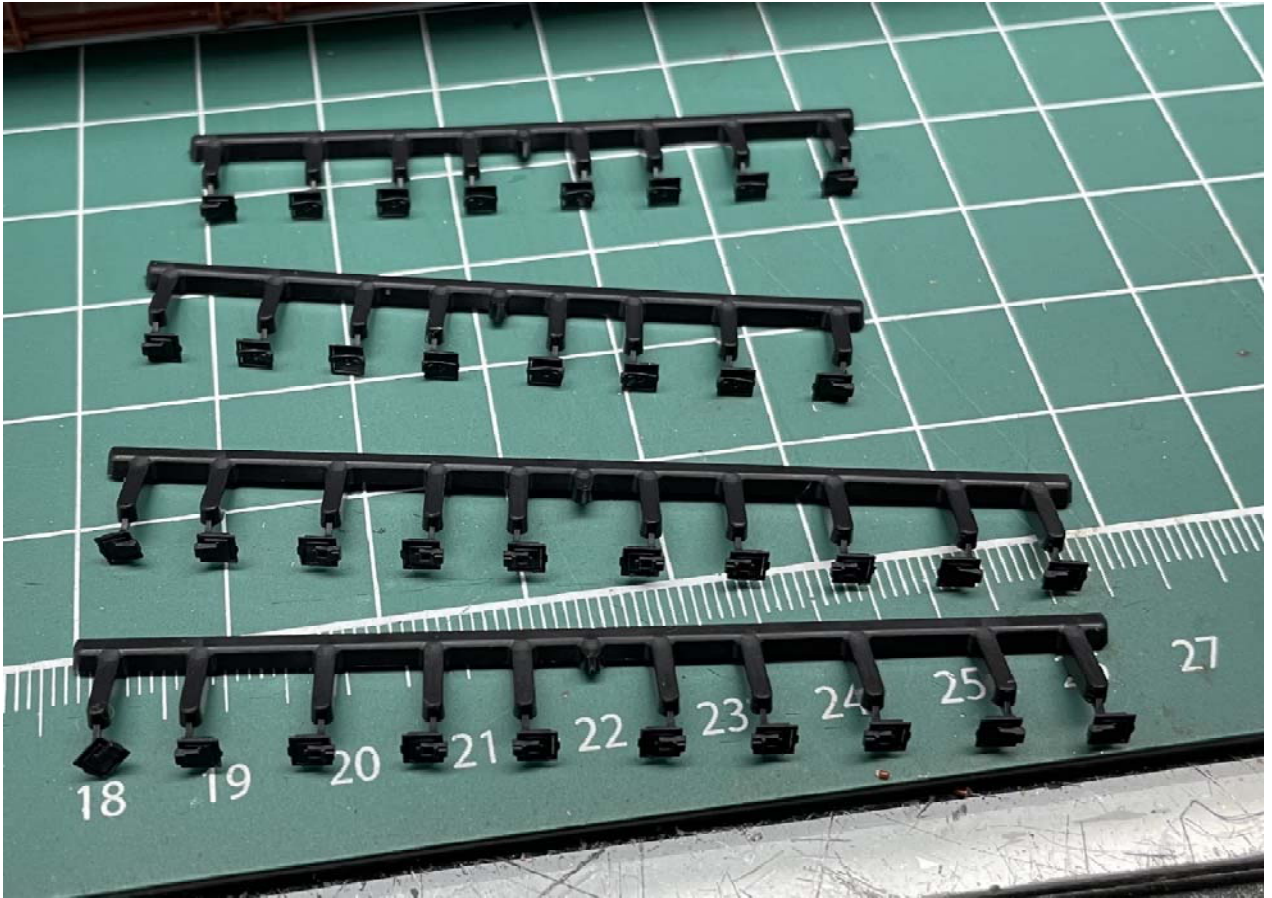
1. **Roof Installation:** You can install the roof at this point, or you can leave it loose to make it easier for painting, especially if the roof is a different color than the body- the choice is entirely up to you.
2. **Locate and Install Running Board End Supports:** Locate the running board end supports. Remove them from the sprue and clean any flash to ensure that the running board will sit flat.



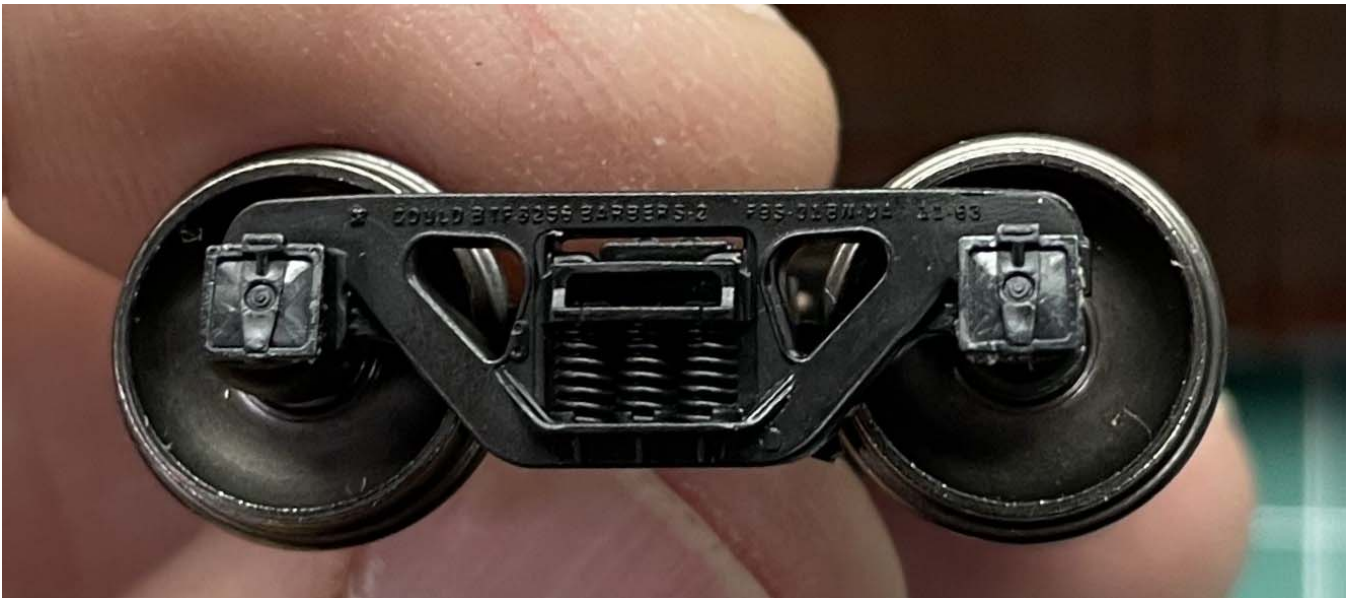
Insert the pins into the mounting holes in the end and position it so that it rests against the lower side of the running board. If you already installed the roof you can glue in place at both attachment points, but if the roof is still loose do not glue the support to the running board until final assembly.



3. **Choose and Install Trucks:** This version of the build uses trucks with plain bearings. There are several different versions of journal box covers.



Choose the version appropriate for your prototype and install on the trucks. They should be a pressure fit but you can use CA or canopy glue to secure them to make sure they do not fall off.



Install the brake shoe/cylinder by snapping the clips over the truck bolster.



This concludes the assembly of your kit.





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