MAC-844

"Candy Cane" Ballast Car Conversion Kit

MAC Rail LLC.
Model Train Products & Services

Thank you purchasing our MAC-844 "Candy Cane" Ballast car conversion kit. This item is specifically designed to convert an Atlas Trainman Aluminum coal gondola into a modern-day ballast car that can be seeing moving around the North American rail network.

Based on our research of the prototype the HZGX 10000 thru 10399 series of cars are rebuilt from former Bethgon type steel hoppers previously found in coal service.

When we designed this kit, we looked at the various models on the market and found the Atlas car best suited for conversion that would yield consistent and obtainable results while also balancing time at the workbench. I hope you not only enjoy this build but also the unique "sweet" livery this car will bring to your railroad.

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STEP 1 – OPENING YOUR KIT

When opening your kit, you will find parts divided into different bags and also individually wrapped.

BAG 1 – Ballast door supports (4)

Ballast doors (4)

BAG 2 – Center slope sheet (1)

End slope sheets (2)

Middle angle troughs (2)

Side angle troughs (4)

BAG 3 – Solar panels (2)

Solar panel decals (2)

CENTER SILL PIECE (1)

RAILCAR WEIGHT (1)

RAILCAR DECALS (1)

The corrugated box is intended for re-use as a storage box for your completed model. The finished model with a different railcar profile will no longer fit back into the original factory packaging. The strip of foam in box can be cut to create a custom fit to your choosing. Additional foam padding can be added as necessary.

STEP 2 – RAILCAR DISASSEMBLY

Begin first by removing the one piece coal assembly load from inside the car.

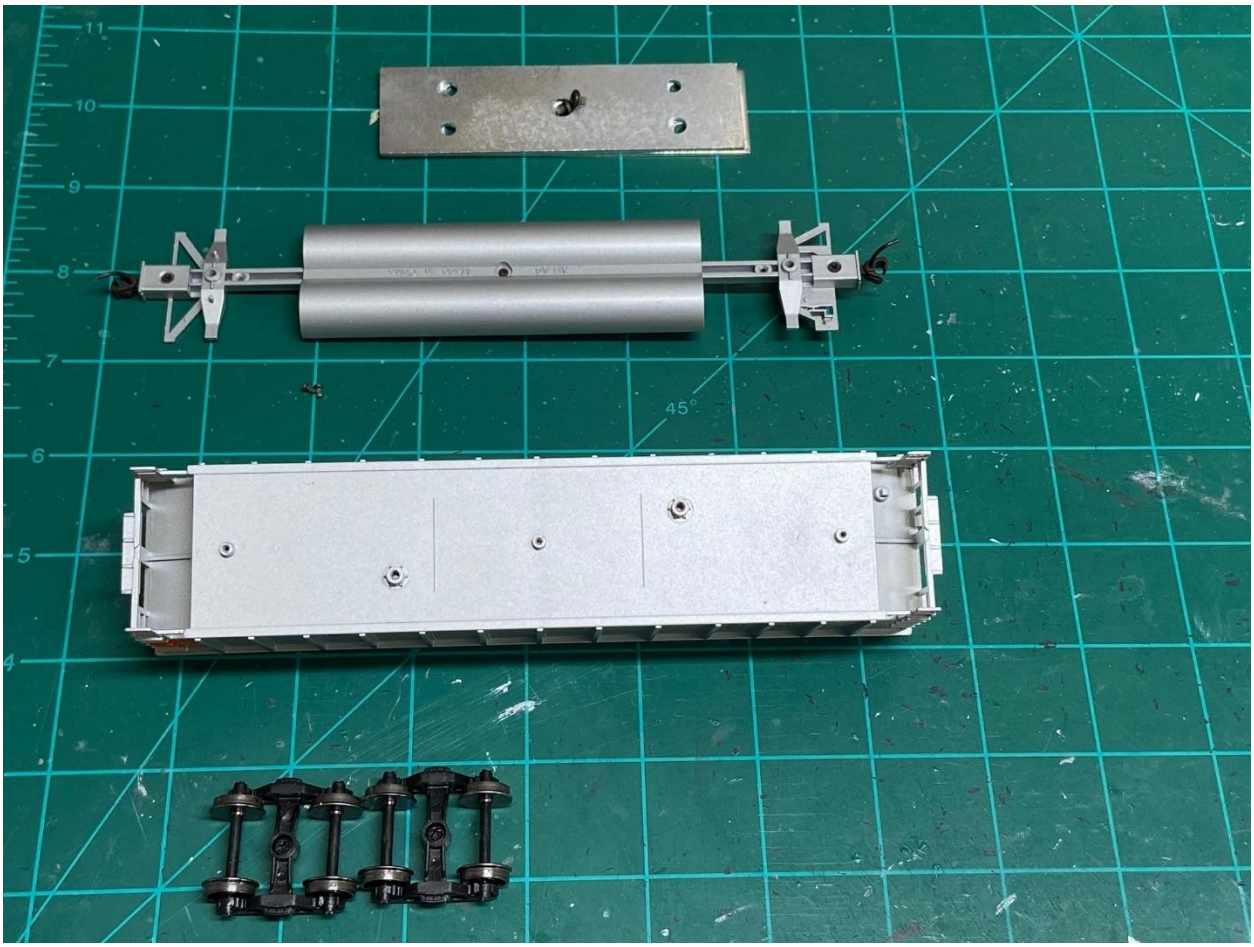
Continue by then turning the car upside down and removing the couplers, trucks, and frame.

TIP: Use a re-sealable type snack or sandwich bag to hold all of the small parts and screws.

Once trucks are removed continue by removing the trough and frame which are held in place by three small screws. Save these screws as they will be re-used.

After removal of frame, remove the railcar weight along with the two screws holding it in place.

The railcar weight and two screws with it will not be reused with this kit.

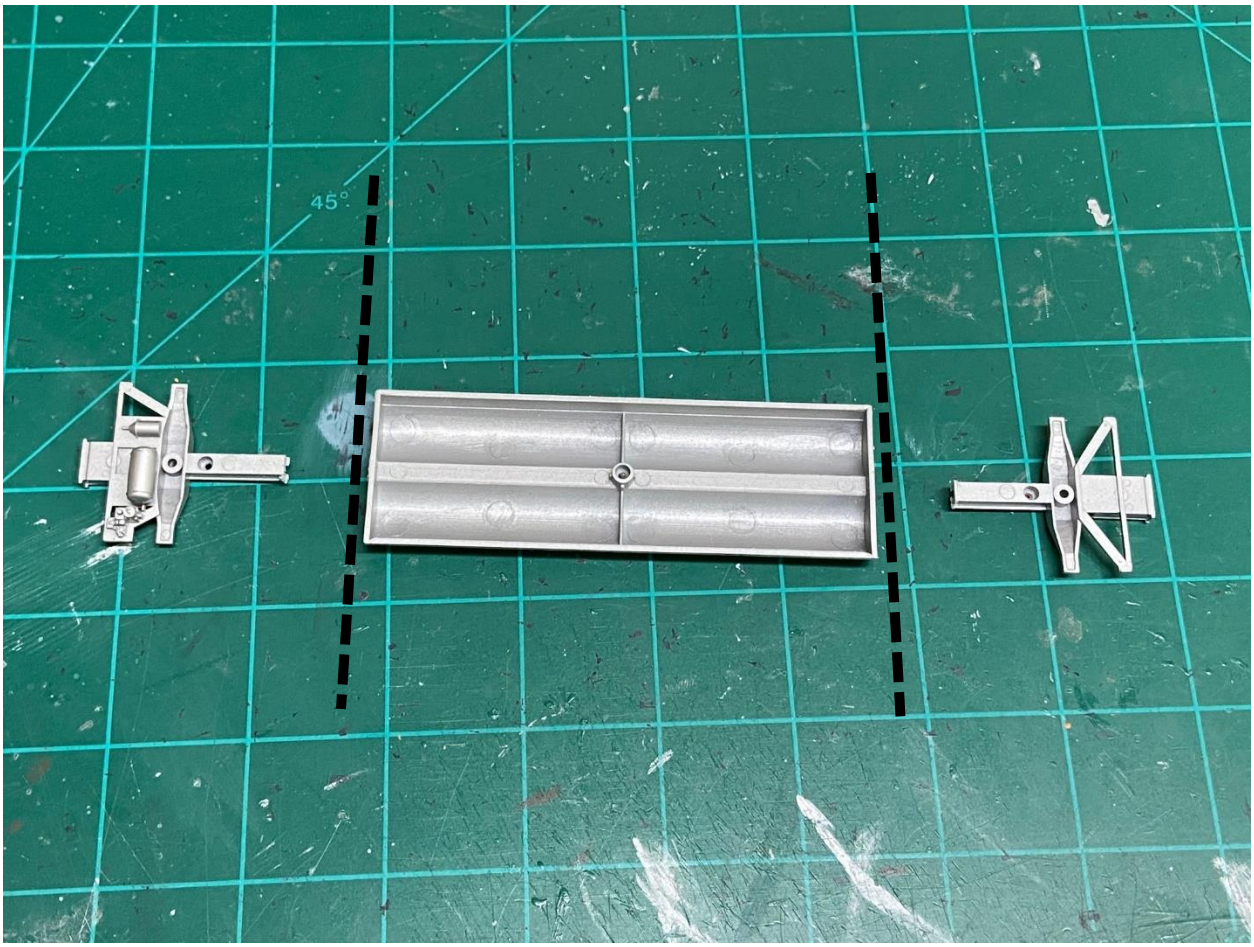


STEP 3 – FRAME MODIFICATION

Using a razor saw cut the center sill frame flush where it meets the trough on the railcar. You will want to ensure the cut is as straight as possible since you will be rejoining the ends with a new center sill from the kit.

- The trough piece can be discarded or added to your parts bin. Would love to hear what creative ideas folks have for this scrap piece…..?

- Set the two bolster pieces cut away from the trough aside, we will be using these again in step 5

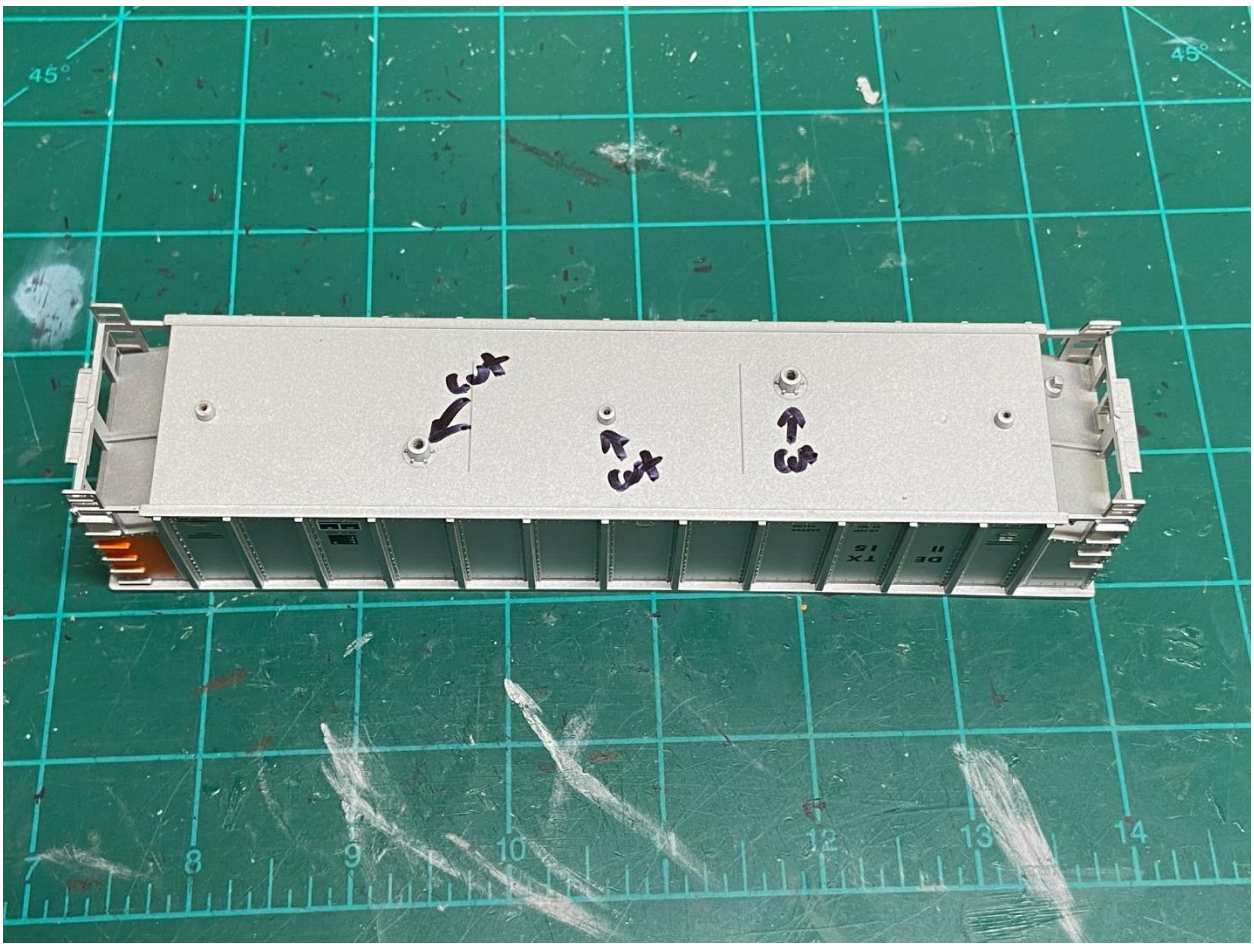


STEP 4A – UNDERBODY PREP (CUT)

Set your two end pieces that you just cut aside, we will come back to them soon.

Now we will focus on the underbody and light prep required before installation of new parts.

The three plastic nubs leftover on the underbody marked “Cut” in the photo need to be cut flush with the car body and sanded smooth.



STEP 4B – UNDERBODY PREP (SAND)

As you sand them down since they are molded for holding the screws they will disappear making any filling un-necessary. This area will receive new part additions, paint, and primer making these invisible. Long story, short they must be sanded flush for the parts to install properly.

STEP 5 – CENTER SILL INSTALL

Once the three underbody nubs are sanded smooth it is time to install the new center sill and re-install the end bolsters.

- The new center sill does require light sanding to clean off the support lines using a 250 grit wet/dry type sandpaper. Sanding wet will keep the resin dust down, if you decided to sand dry please ensure proper PPE (respirator) are used.
- The resin printed product sand extremely well (even better than styrene) so take it a few passes at a time, you do not want to over sand the part.

Before installing the center sill go ahead and sand the ends of the bolsters where we cut them.

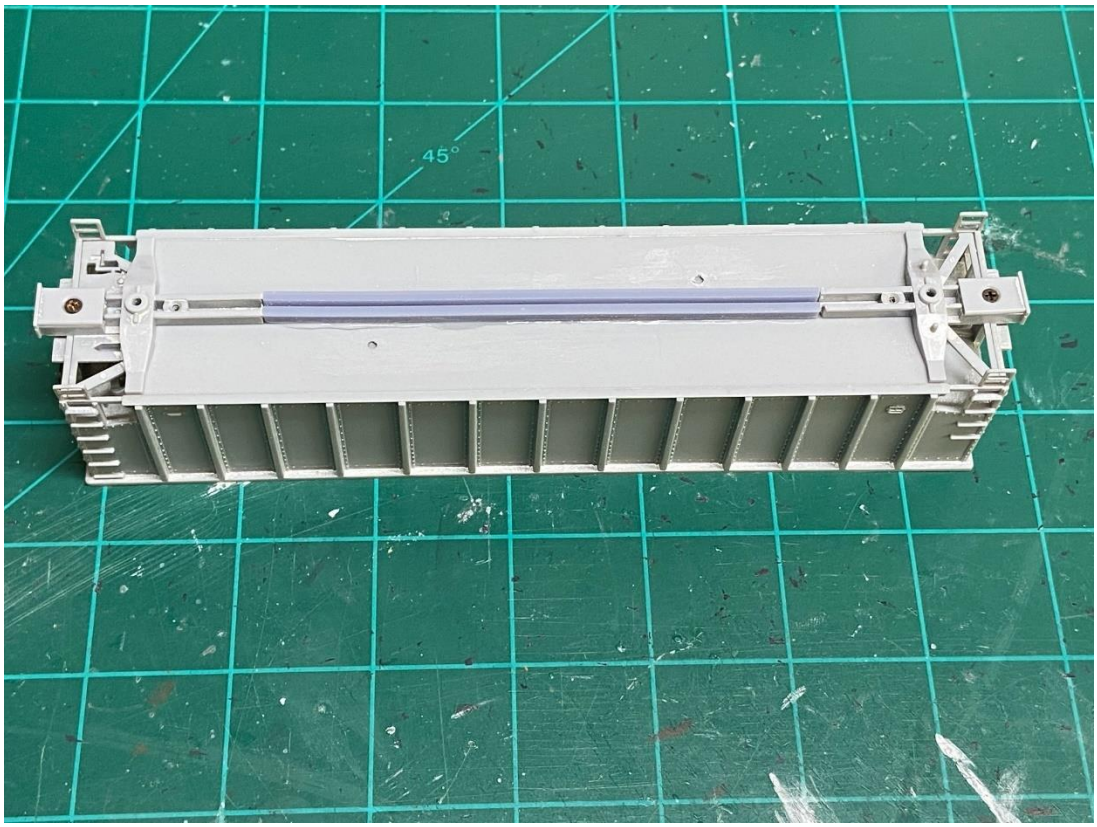
- With the razor saw and care the cut should be very close to straight and require light sanding

Dry kit the bolster pieces from step 3 back onto the car. They should seat perfectly as each has a nub that will hold a set screw when we re-install them.

Our new center sill piece is intentionally longer to allow for a customized fit just incase you cut either of the bolster further from the trough.

- Fitting from left to right use a pencil to mark where you will need to cut down the end of the new center sill. Measure twice cut once they say… Once cut sand the end.

Satisfied with the fit, apply CA to the back side of the center sill and install onto railcar.



STEP 6 – BALLAST DOOR SUPPORTS

With center sill now installed you can moved onto installing the four ballast door supports. These parts have a specific orientation with the thicker / taller support always being aligned with the (third) rib when counting in from the left and right.

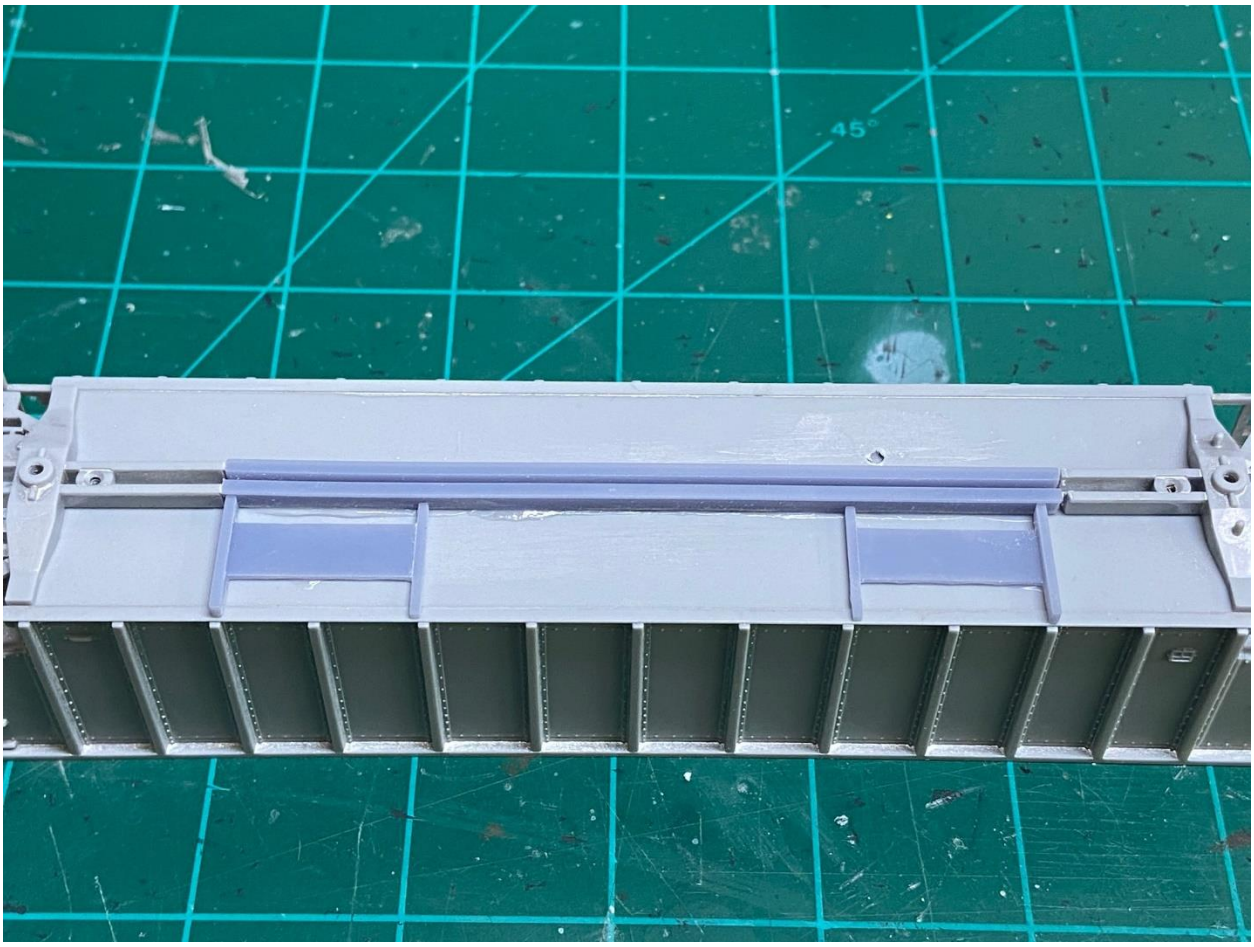
With the larger support in line with the third rib ensure the support meets up with the center sill.

TIP: Dry fit and sand the bottoms of all parts before gluing in place.

The ballast door support should cover up the seam of where the bolster and new center sills meet.

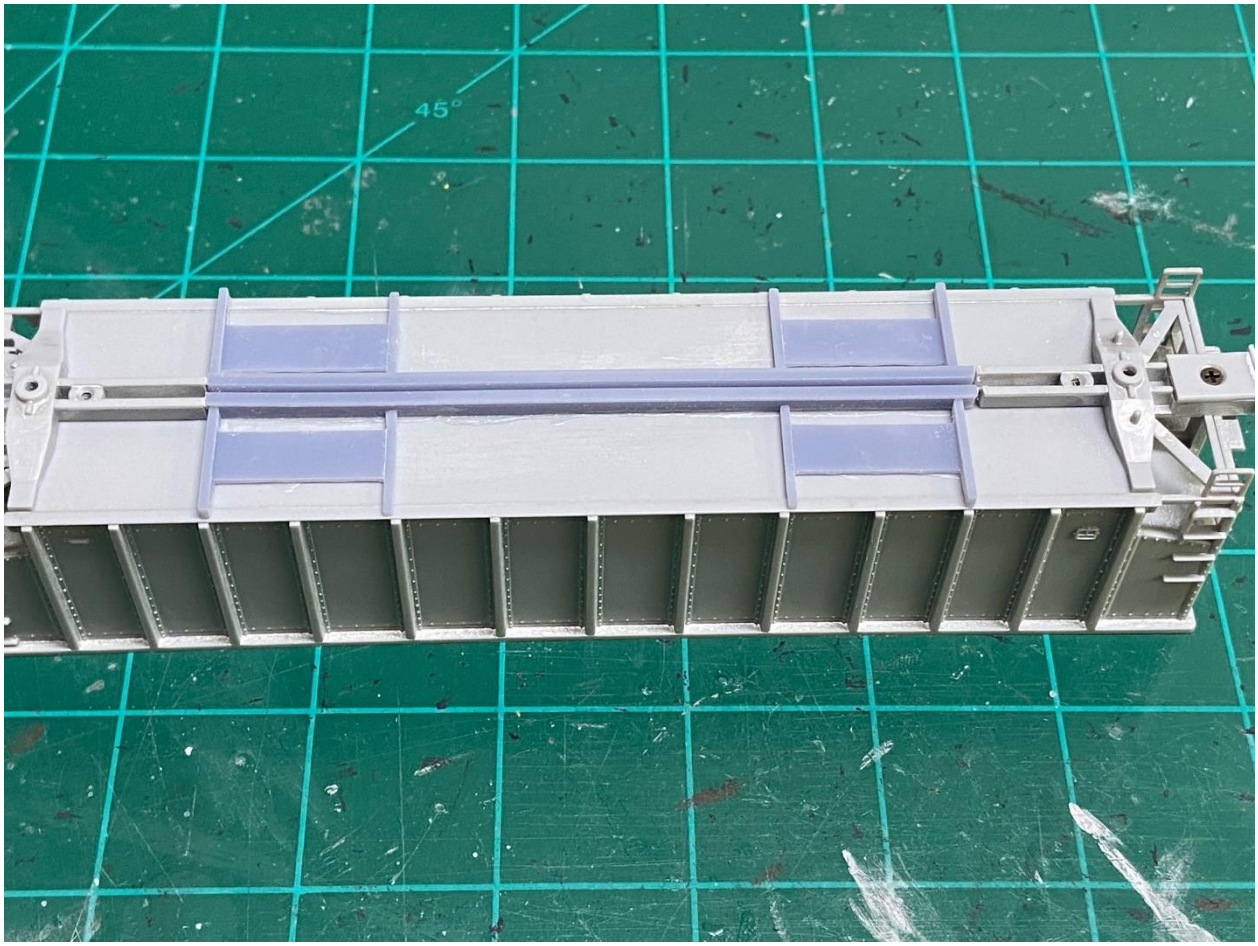
- In photo below (I used an extra bolster which was cut shorter that it should have been.)

Once satisfied with fit, add CA to the underside of part and install. Repeat for the other side.



PAUSE – CHECK YOUR WORK

Up to this point we had done some light but serious alternations to the railcar underbody. Before going on check your work to ensure all parts are in proper orientation. Using a gel or liquid type CA, you will have a very short window to re-adjust before the parts will setup.

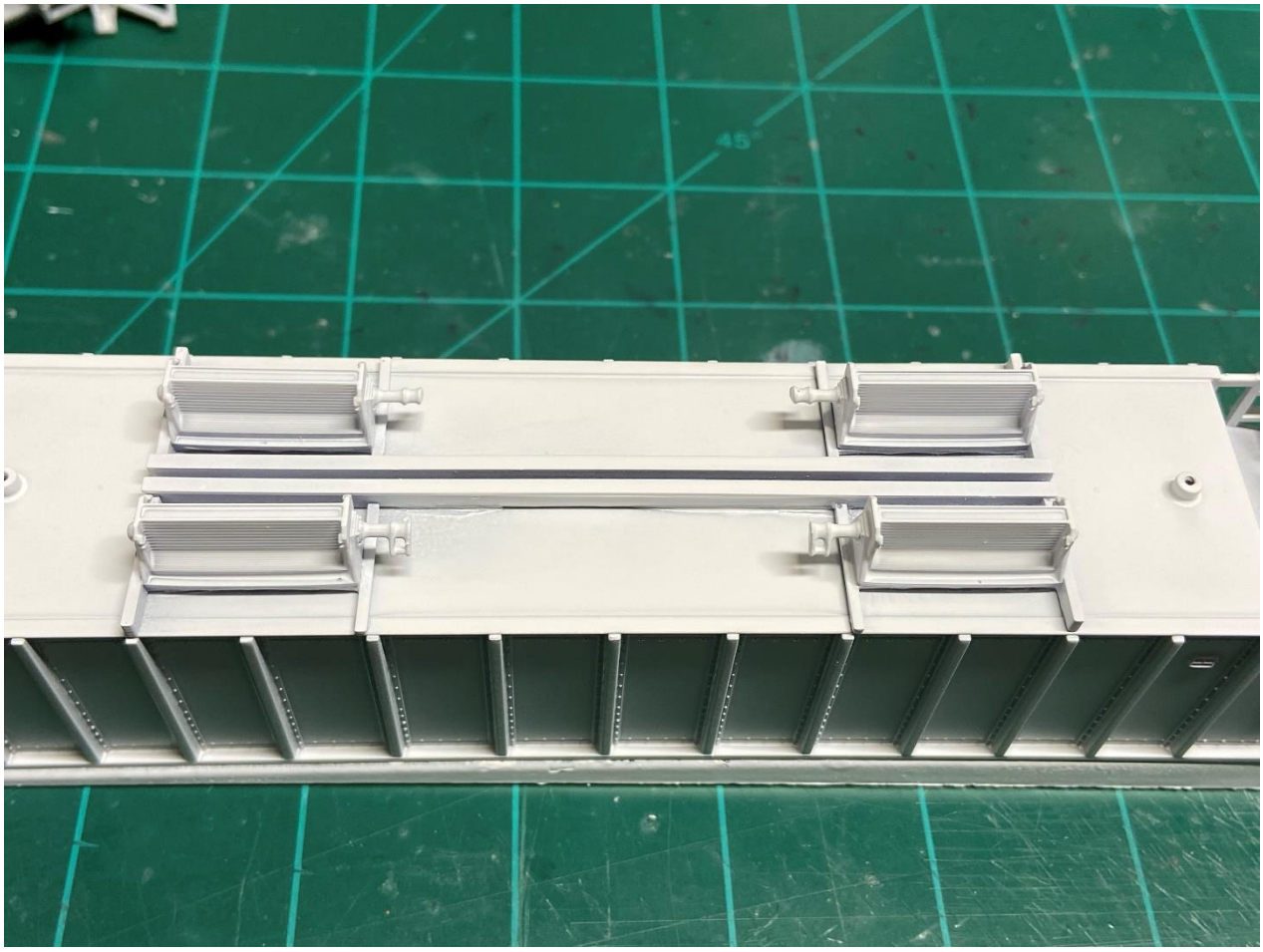


STEP 7 – ADDING BALLAST DOORS

In step 6 we installed the ballast door supports, now comes the doors that mount onto the platform.

Orientation of the doors is important. The door handles should always be pointing towards each other and the little square on the end of the handle should be pointed to the INSIDE…. I messed this up in my test install photo below.

The bottoms of the doors will need to be lightly sanded before installed. Test fit before gluing in place.

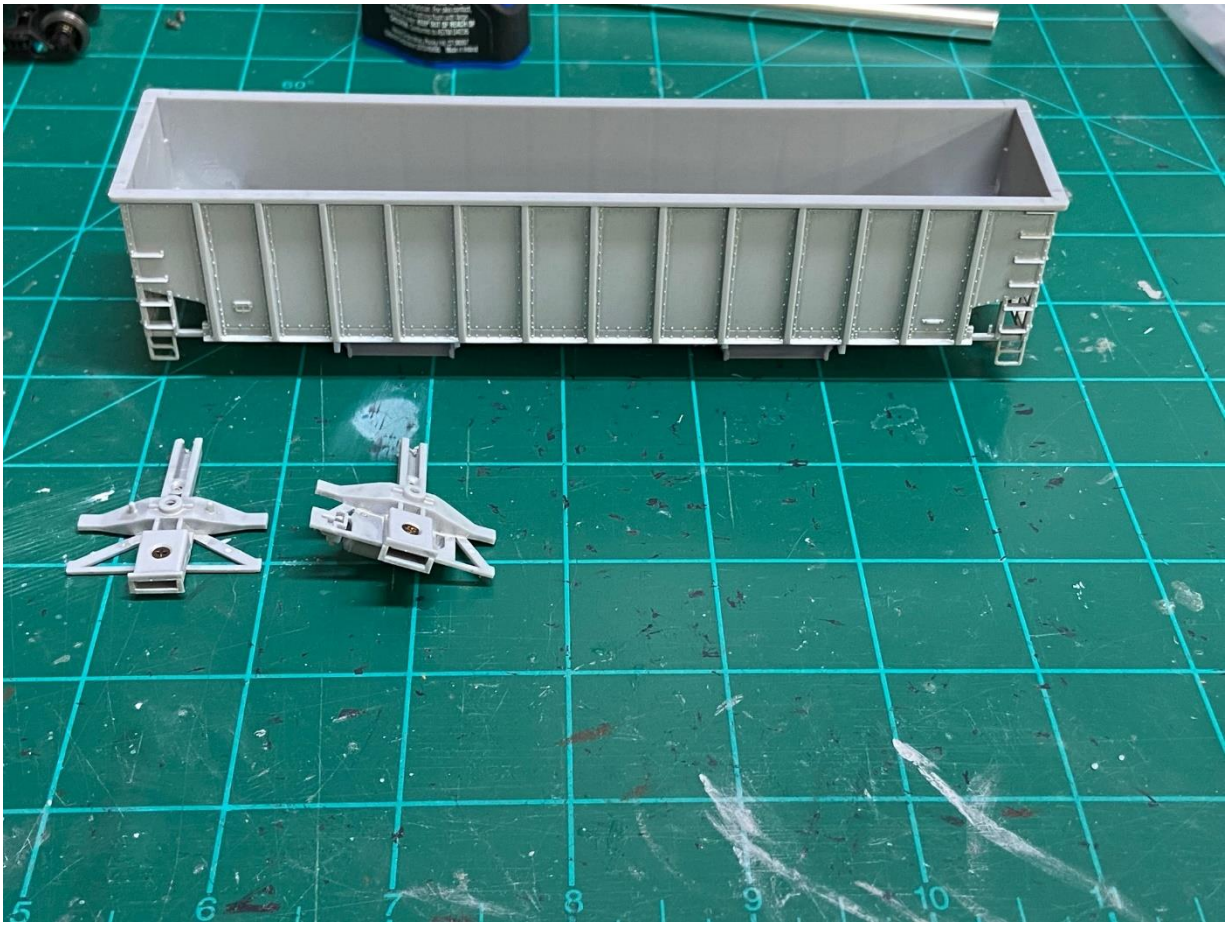


STEP 8 – TURN OVER AND WEIGHT….. AND WAIT

Once the glue sets up or you use a hardener to cure go ahead and turn car over so its resting on its ballast doors. If everything was installed correctly it should evenly rest of all four doors and not have any wobble.

With the car right side up – add your new custom weight to the inside of the car using your gluing method of choice for plastic / metal. Once we add slope sheet the weight will barely be visible

After weight installed give the car time for the glue to dry. Once dry go ahead and prime with your paint of choice. For this car I used Tamiya Fine White Primer. Let dry overnight before continuing on.



STEP 9 – PAINT

Before continuing on with the interior install, I prefer to paint the railcar fully as the interior will just be white. Your first color to paint will be white of your choice. For my models I used Rustoleum 3X white gloss but other brands can be used depending on your preference. Whichever way you choose, ensure paint compatibility.

After the entire car body is sprayed white let it dry based on brand recommendation. Now using your taping method and prototype pictures from rrpicturesarchives.net, tape off your model. The red covers the ends up to the third rib from each end (left and right). The inside of the car is taped off to prevent any red overspray. As you can see from the photo, I still had some great through that I will have to clean up. Let cars dry before continuing.

TIP: Remove both of the truck bolsters and paint using a BBQ skewer stick to hold them where the truck screw would go. Also don't forget to paint your solar panels red or aluminum.

Underbody Color

Looking at prototype photos the underbodies of these cars appear to be painted black. It is extremely hard to see as even when painted white like done as on my demo cars the undersides are covered in shadows. I choose to paint the underbody the same red/white scheme as on sides. Once weathered with grime-color paints and washed the underbody will be toned down. This is my observation and entirely up to you the modeler as to how you prefer to paint.

-MAC

STEP 10 – SLOPE SHEETS

With railcar completely painted and dry we can move onto the final “trim out” of this modern day model.

Open up Bag 2 with the white parts in it and lay them all out as such.

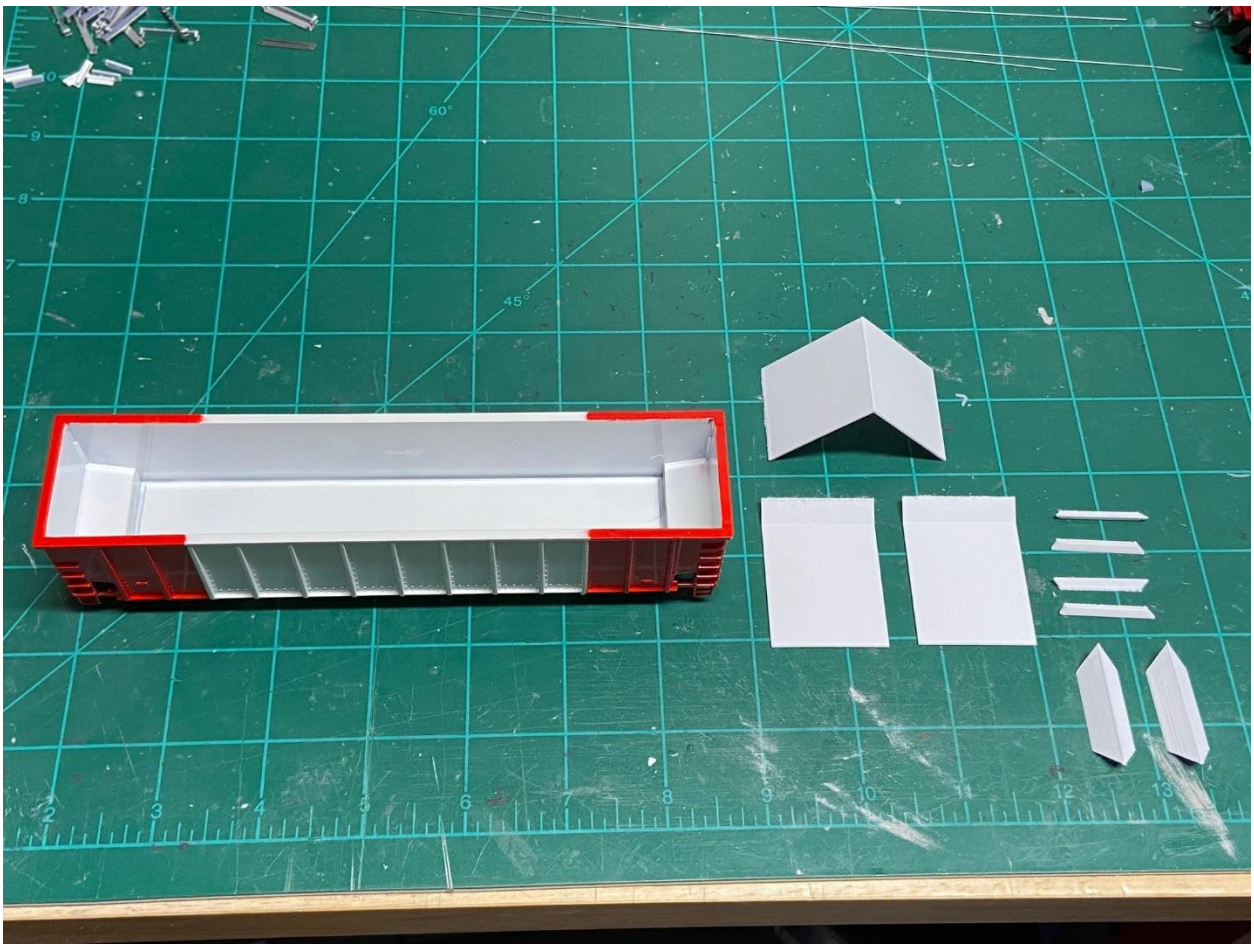
Part Identification (top to bottom)

Center slope sheet (1)

End slope sheets (2)

Side angle troughs (4)

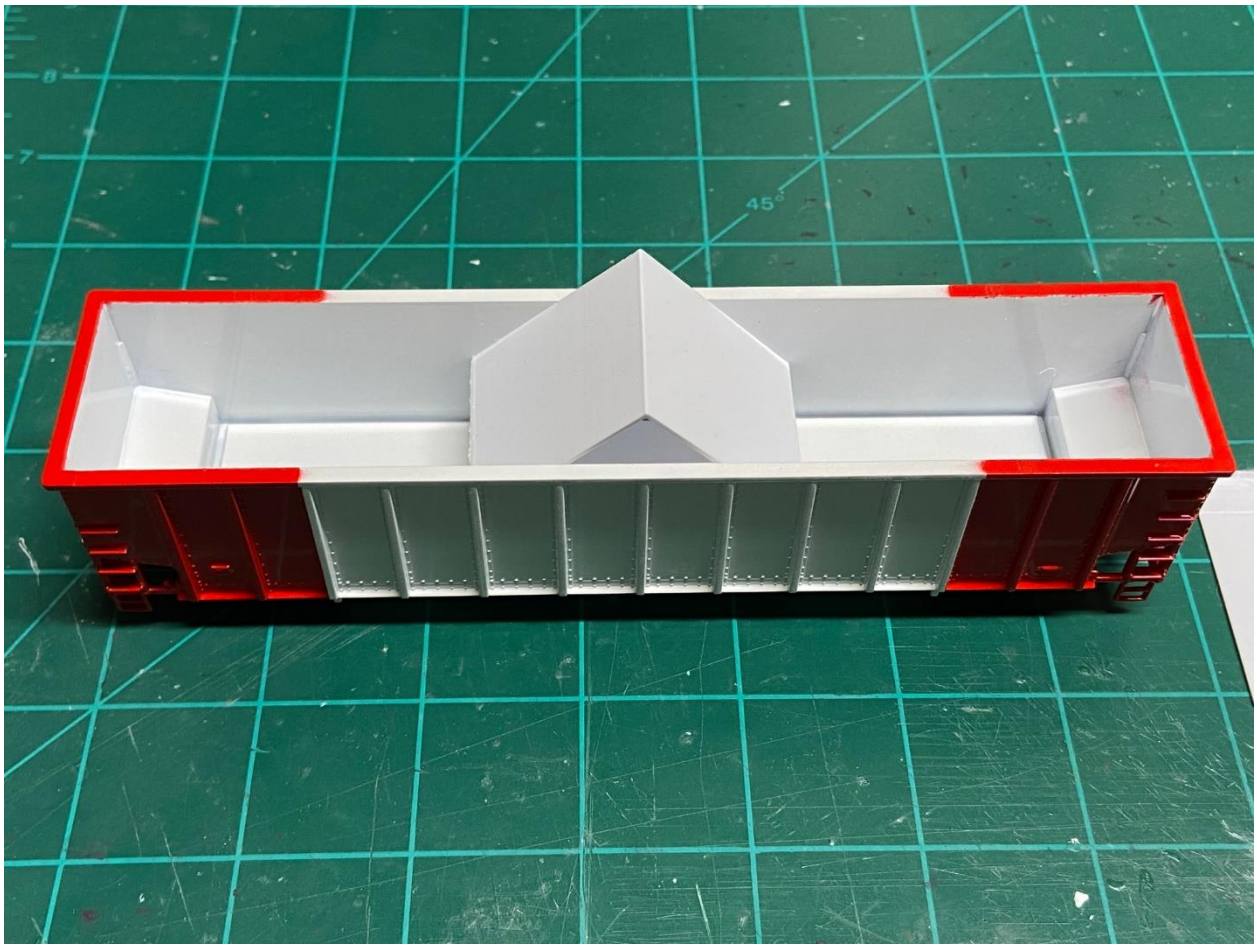
Middle angle troughs (2)



STEP 11 – CENTER SHEET INSTALL

Take the center slope sheet and align the apex with the middle rib on the car. Push the part straight down, it is designed as a press fit. You can secure the bottom with white glue or CA.

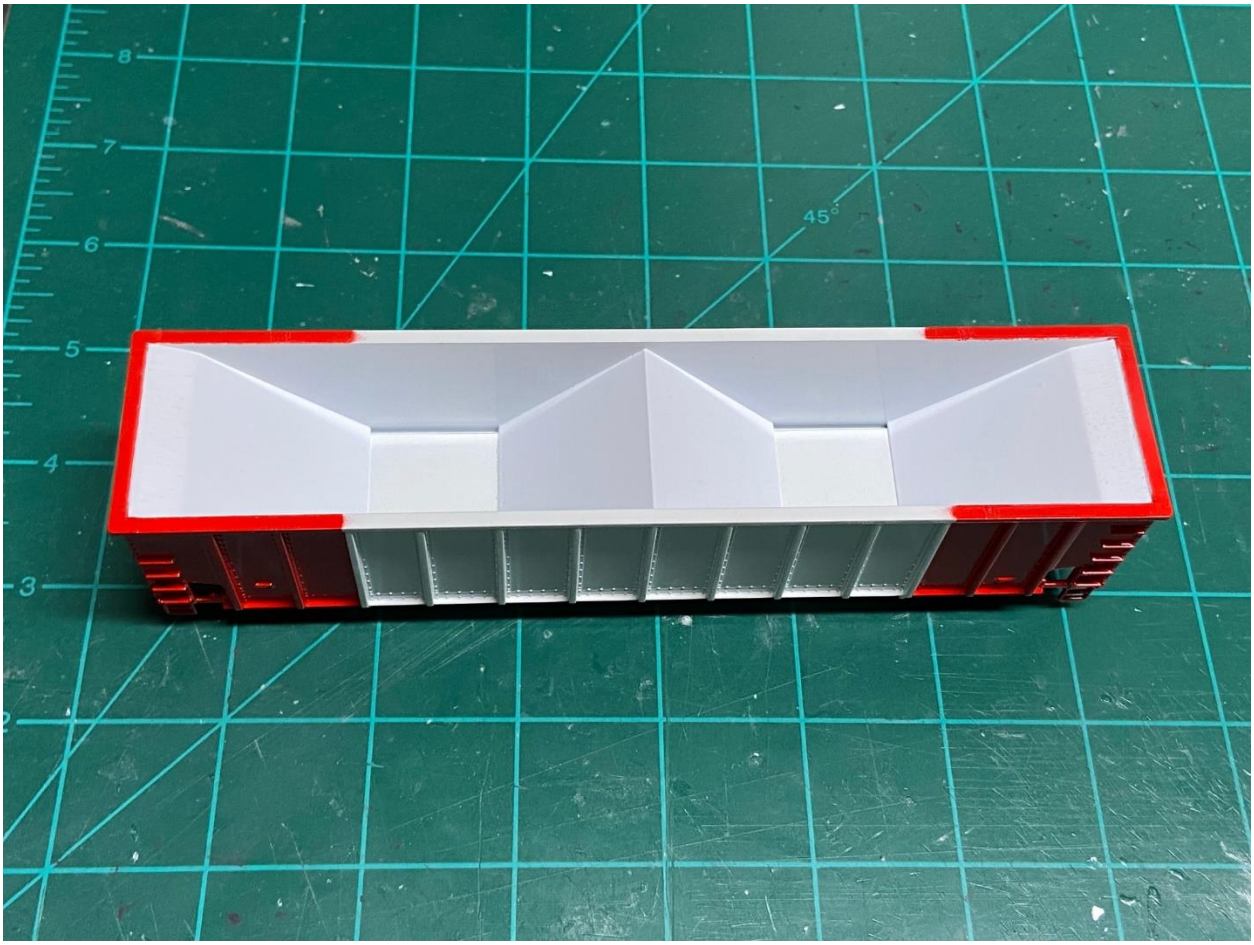
TIP: If you want to add more weight to your car beyond what is down there is room on the inside of the center slope sheet to glue it in. Once the center slope sheet is installed they will be invisible.



STEP 12 – END SHEET INSTALL

The end sheets are also designed to be a press fit install with a little bit of glue at the top and bottom to hold them in place. Please note the orientation of the end slop sheets (more of a shallow angle) versus what you would expect for a sloped interior. When test fitting ensure you have the sheet with the proper side up. When installed the top of the end slope sheet should be flush with car end.

> **TIP: The prototype does have grab irons on the end slope sheets that go into the railcar trough area. If you are wanting to add this detail, ensure you do before installing the end sheets. Refer to**



STEP 13 – TROUGH DETAILS

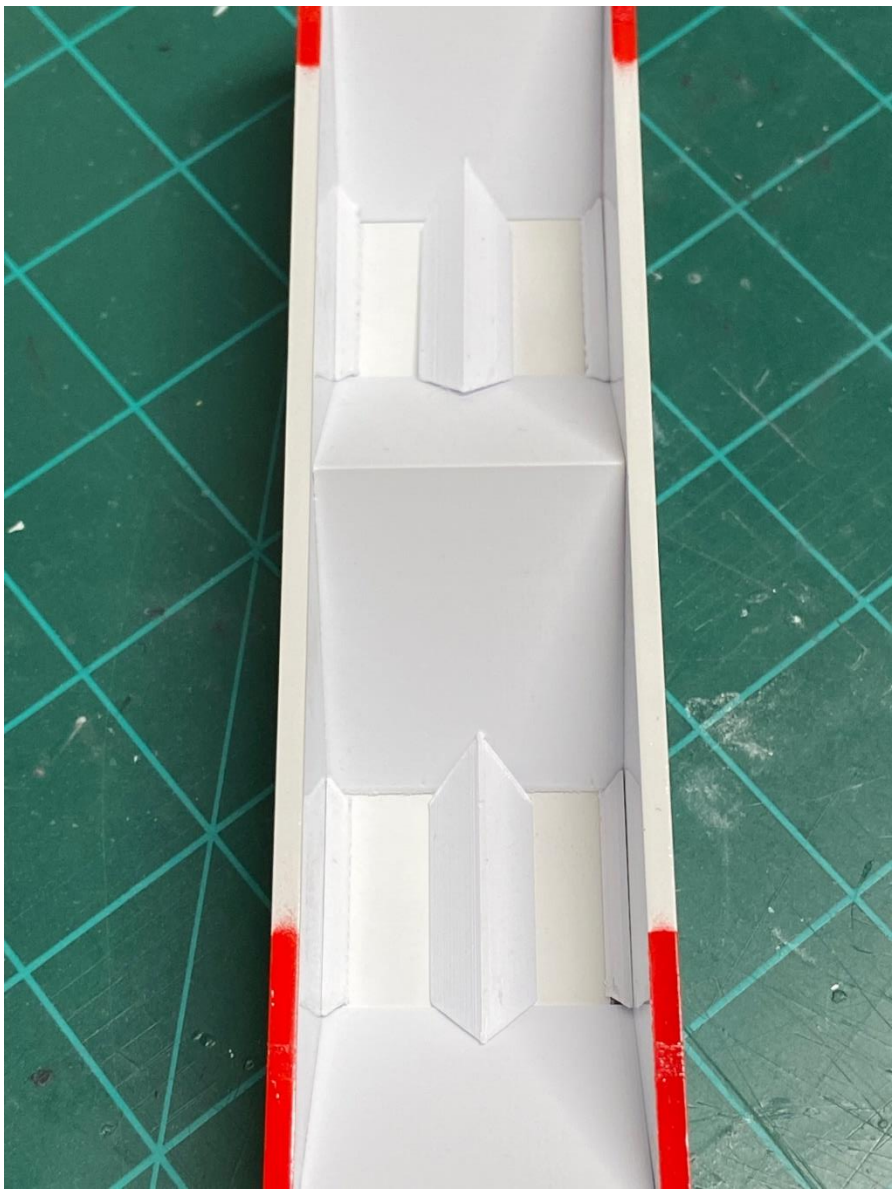
Once center and end slope sheets are installed, the trough details should simply rest into place.

Install the middle angle troughs. The bottom of these is flat so with a little glue they need to be centered down the middle of the car. The angled ends should match up with minimal gap between the end or center slope sheet.

- **Test fit before gluing in place**

Install the side angle through pieces. They have a 90 corner and angles like the middle piece.

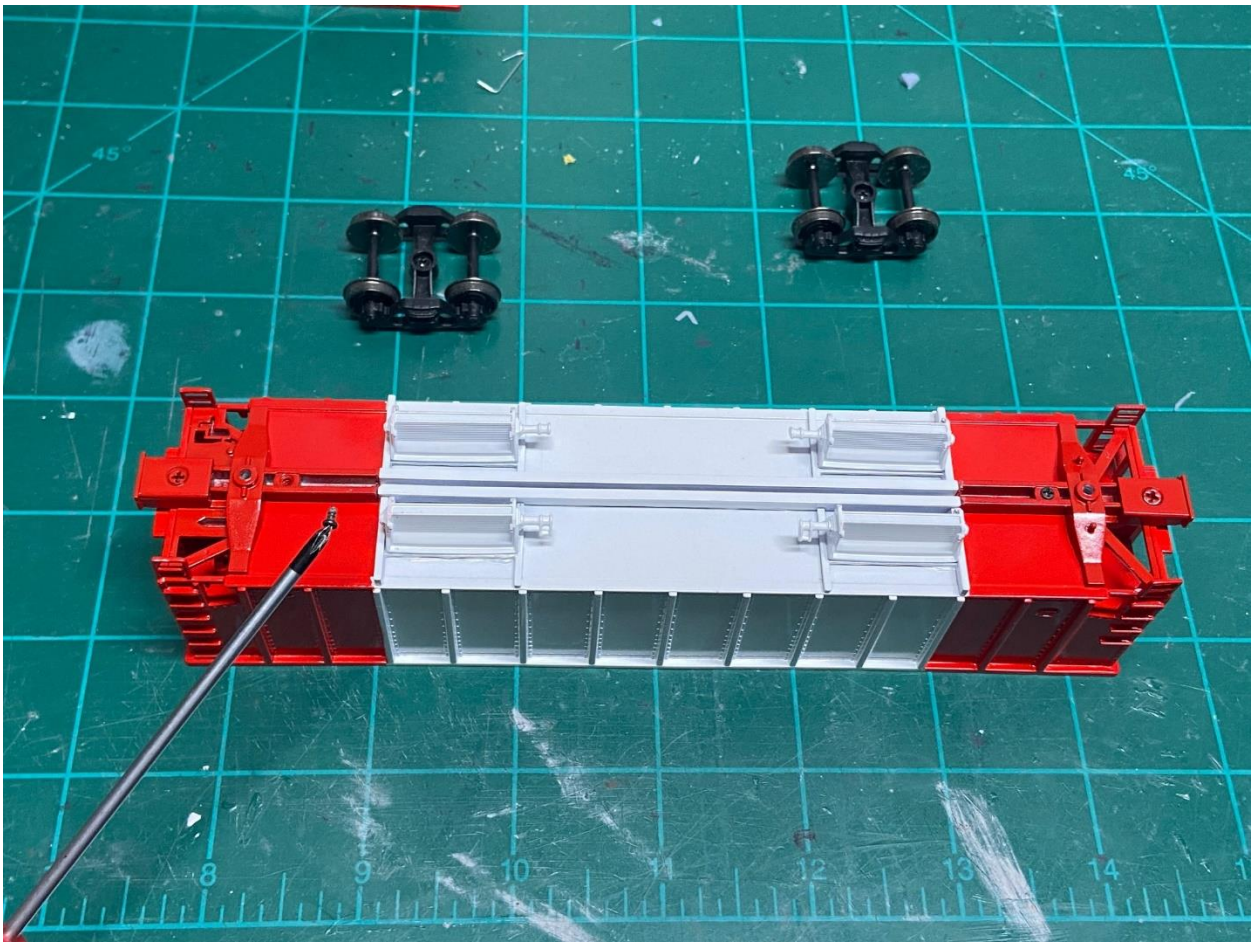
- **Test fit before gluing in place**



STEP 14 – INSTALL TRUCKS AND BOLSTER SCREWS

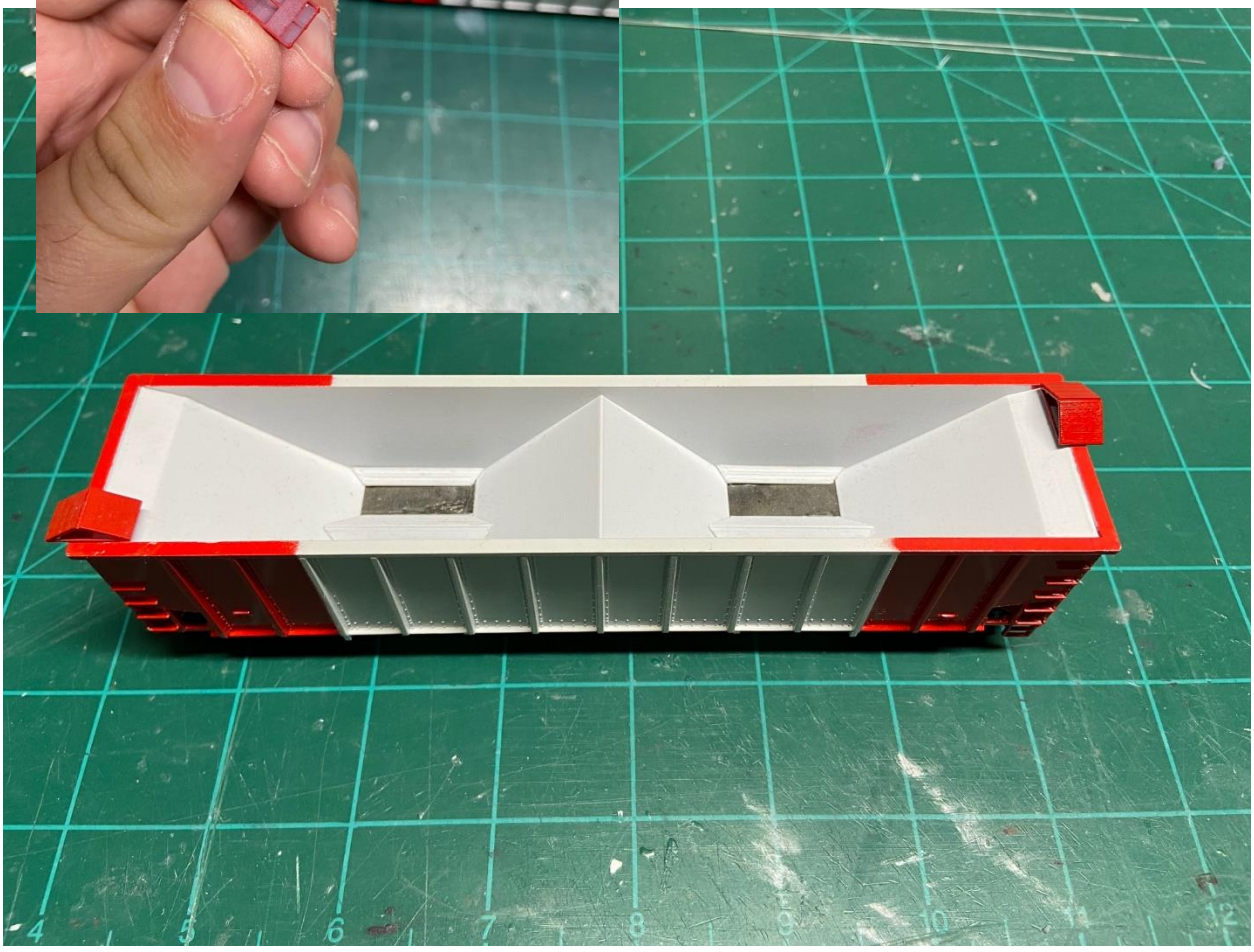
Once your interior is dry and before installing the solar panels which are exposed on top of the car, go ahead and turn the car over to install the bolster screws, couplers, and trucks. Remember where that re-sealable bag from step 2 is?

There will be one leftover tiny screw that was used in the middle of the original model. You will only re-install 2 (one at each end near the truck bolster).



STEP 15 – INSTALL SOLAR PANELS

Turn the car back over onto its trucks. This car is equipped with two “peak” type solar panel sets. One faces parallel with car and other is perpendicular. The underside of the panel has a rectangular area for attaching using your glue of choice. Some sanding on the bottom will required from the production process. These are very delicate pieces and should be installed at the end.



STEP 16 – DECALS

Depending on your intended model, now would be the time to glosscote the railcar and install decals of your choosing. This kit comes with the entire data set that is found on the prototype HZGX cars. While photos are provided below, refer to prototype photos for placement.

The rivet decals are from left to right on the car, these can be used or use as reference to mark and install resin made rivets that are on the market. Decals are custom made by Circus City, please follow all their recommendations for best results.

My first demo model paint crazed during the dull coat process. Photos for placement reference.