



Instructions: General American 1917-Design 8000 Gallon Radial Course Tank Car Kit

Tangent Part Number: 19000-01

1/2017

Thank you for purchasing the Tangent Scale Models General American 1917-Design 8000 Gallon Radial Course Tank 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. More content is another advantage of a "digital download" compared to a printed instruction sheet.
- **Modeling from computer screen is ideal:** If possible we recommend modeling from your computer monitor, ipad, or laptop. 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
- **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 of our trucks – and those from other brands!



Parts to be supplied by the modeler:

- Couplers. The coupler boxes for this Tangent Scale Models replica are designed for Kadee “whisker” shank couplers - #158.

Tools needed/recommended:

- Liquid styrene cement for plastic to plastic bonds (Tamiya green bottle, Testors Liquid Styrene Cement are two example products)
- CA-type cement or cyanpoxy – for wire to plastic joins (sold in hobby shops, or in hardware store as “super glue” under various brands in the small squeeze tubes) – best applied with a piece of scrap wire
- Hobby knives - #11 and #17 are ideal
- Small Phillips head screwdrivers
- Tweezers

PREAMBLE – THINGS YOU SHOULD KNOW BEFORE STARTING

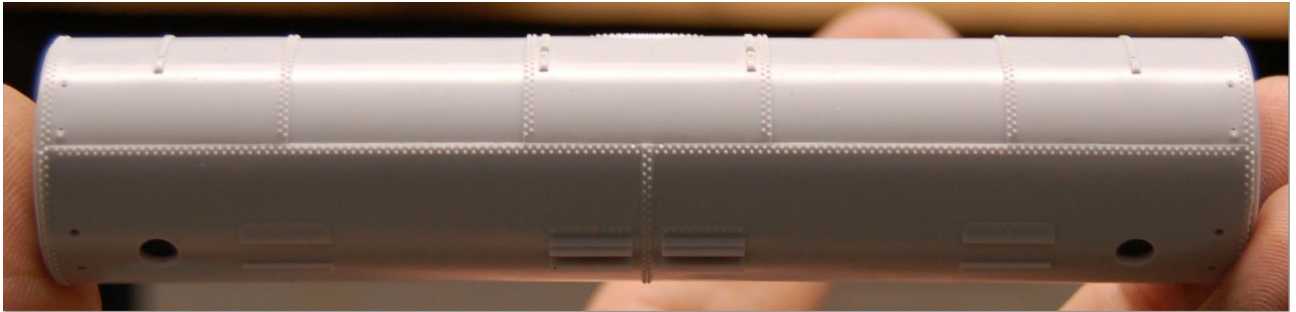
- **This kit is NOT recommended for children aged 14 and under.**
- **Small parts:** There are many very small parts included in this kit. The assembly sequence requires you to have access to multiple parts at a time, so we recommend a clean and open work surface so that you can keep all of the parts in the open and accessible. Let's get started!
- **Use a modeling cradle:** To minimize frustration in building this kit, we recommend utilizing a foam modeling cradle to rest the car in as you build. This cradle is especially important with tank car builds like this one due to the model's high center of gravity – in the tank – while you need to work on the frame with the car turned over. There are many such examples of these: one that your hobby shop might carry or could easily get: <https://www.walthers.com/foam-cradle-locomotive-and-or-rolling-stock-work-holder>
- **Kit variations:** Like all Tangent Scale Models freight cars, this kit includes a few extra parts in the box, which allows you to “customize” your model. This model includes parts necessary to build a tank car with a K-brake system (technically this system was outlawed from interchange operations in 1953, FYI). At some point we will offer brake part sprues that include AB brakes, so check our website under “View and Buy Models” and select “Parts”.
- **Assembly Sequence:** Before you begin this kit, we want to explain the assembly sequence. With most of our kits, the assembly sequence is usually set up in two phases- an underframe and a carbody. You can do either one first, but they are two separate phases of construction. With this kit however, you will be toggling back and forth between both due to the way the parts interlock with each other. Keep this in mind as you proceed.

General American 1917-Design 8000 Gallon Radial Course Tank Car Kit Instructions:

1. **Install the weight into the tank bottom.** Begin by locating the weight and the tank bottom, which is the "lower" half of the tank that does not have the "hole" for the dome. Insert the weight into the tank and screw in place with the two pan head screws.



2. **Install the tank bottom into the tank top.** Locate the upper half of the tank and insert the lower half into it and glue in place.

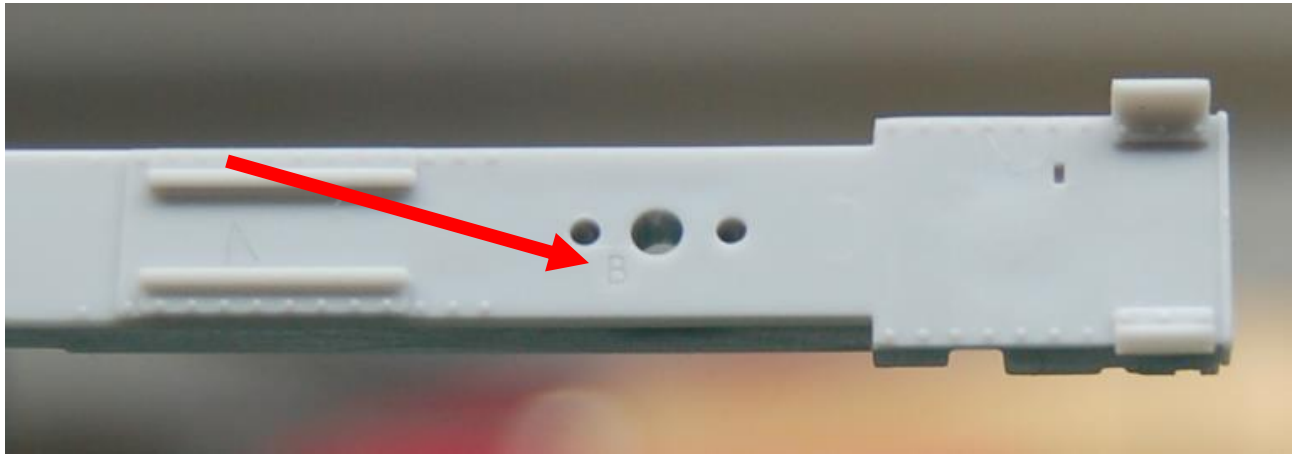


3. **Install the two tank saddles.** Locate the two tank saddles. They are keyed so they can only fit one way into the tank bottom. Clean off the molding pins and glue in place.

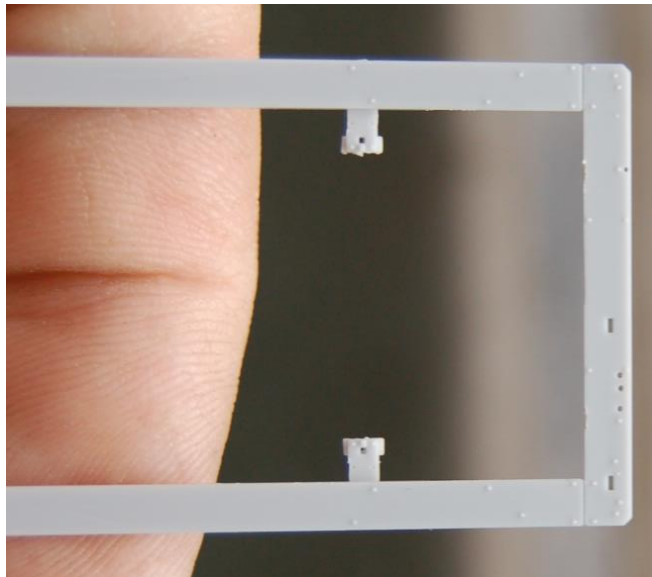


Put the tank aside temporarily.

4. **Attach the walkway to the center sill.** Locate the center sill and walkway castings. The center sill has a small letter B on one end to indicate the B (brakewheel) end of the car.



The walkway has additional holes cast in it for the brakewheel details. The walkway also has locating pins that fit into holes in the center sill.



Glue the walkway to the center sill and put the assembly aside to dry. As seen in the photo, it is best to lay some weight on the centersill part.

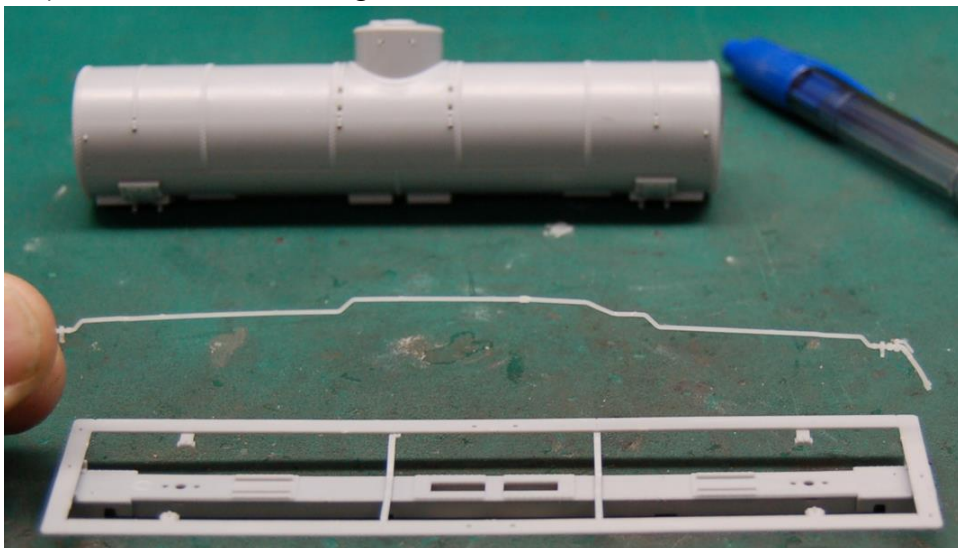




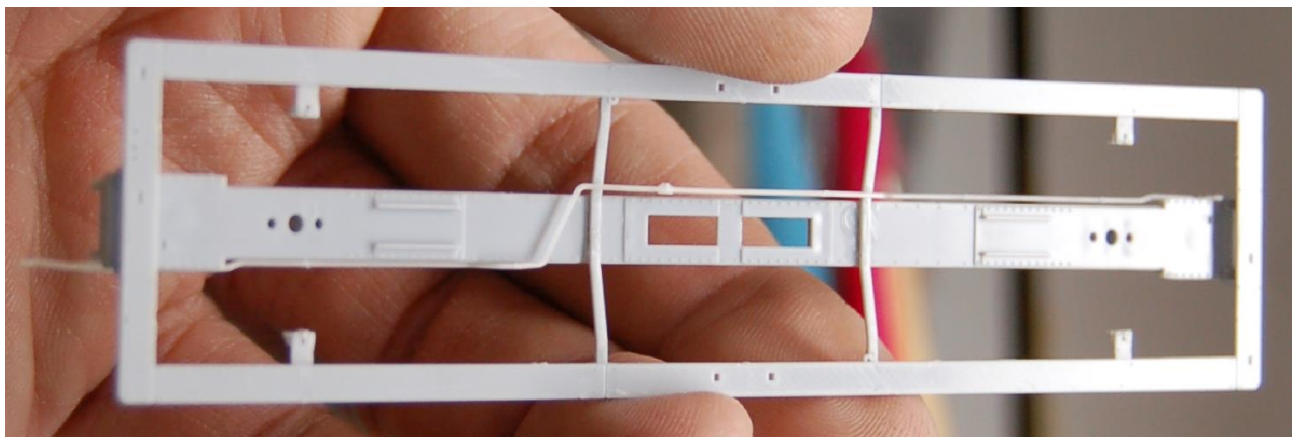
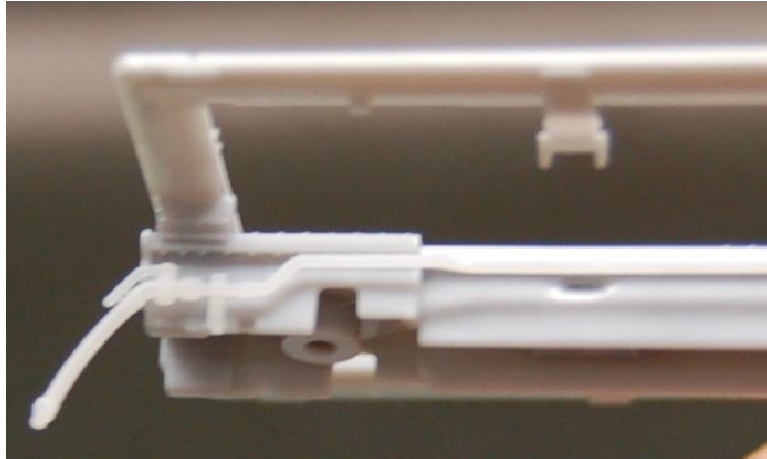
5. **Install the dome into the tank body.** Returning to the tank, install the dome into the top of the tank. The dome has a small notch that fits over a tab in the opening of the tank body. Glue in place.



6. **Install the train line to the underframe.** Very carefully de-sprue the train line. You will notice a small casting in it that the cylinder will connect to in a future step. Orient the train line so that the casting is closer to the B end of the car. With the center sill/walkway assembly face up (as if the car were on the rails) position the train line so that the air hoses are next to the coupler pockets with it crossing over the center sill.



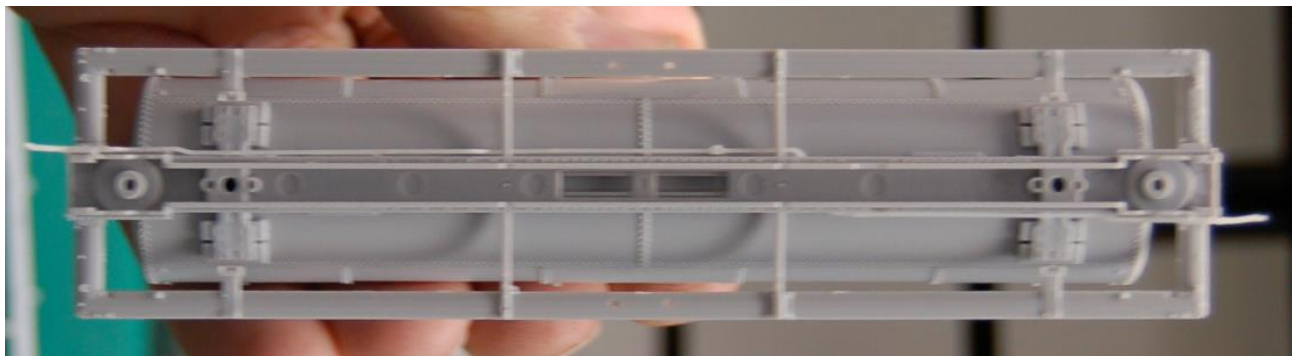
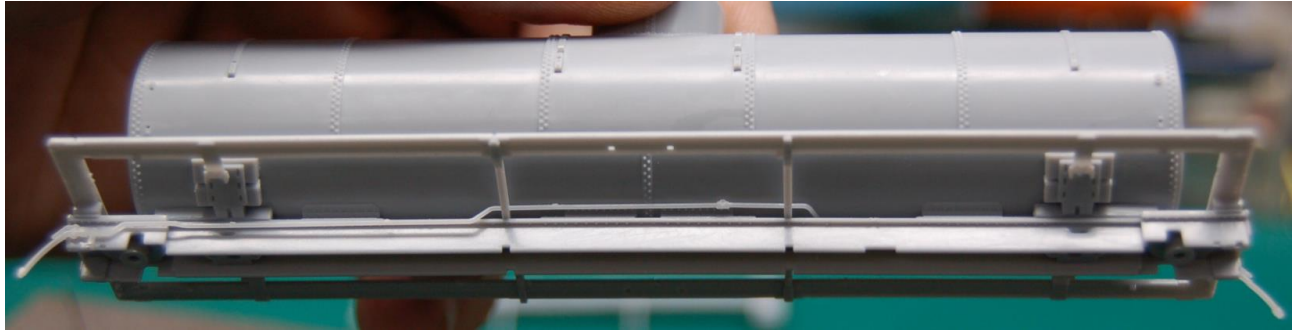
You will notice small notches in the coupler pockets, two on each one. The tab on the air hoses fits into the notch closest to the end of the pocket. Glue in place and let sit for a few minutes so that the train line will not move while handling the underframe assembly.



7. **Install the underframe/walkway to the tank body.** When the train line has dried enough, begin the step of installing the underframe/walkway to the tank body. There are pins on the tank saddles that fit into holes on the center sill, and the tank body also has tabs that fit into slots in the sill as well.

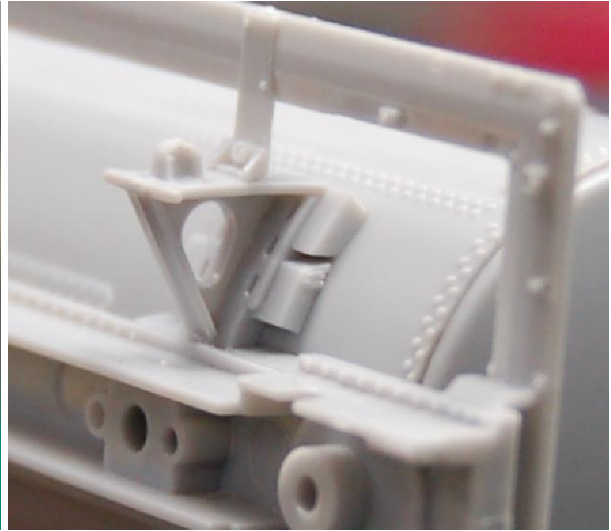
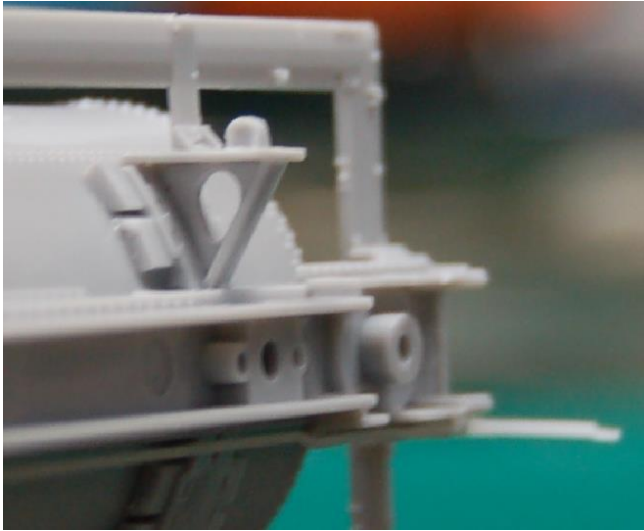


You can glue the frame assembly either way to the body as the B end is defined by the underframe. The underframe may have a slight bow in it due to the molding process, so when you glue the two together, make sure that the center sill is straight and all contact points are touching (if they aren't, you will see a gap where there should not be one). You may need to hold the two assemblies together for several seconds to ensure they are bonded together, or a quick drying CA could be used as well.

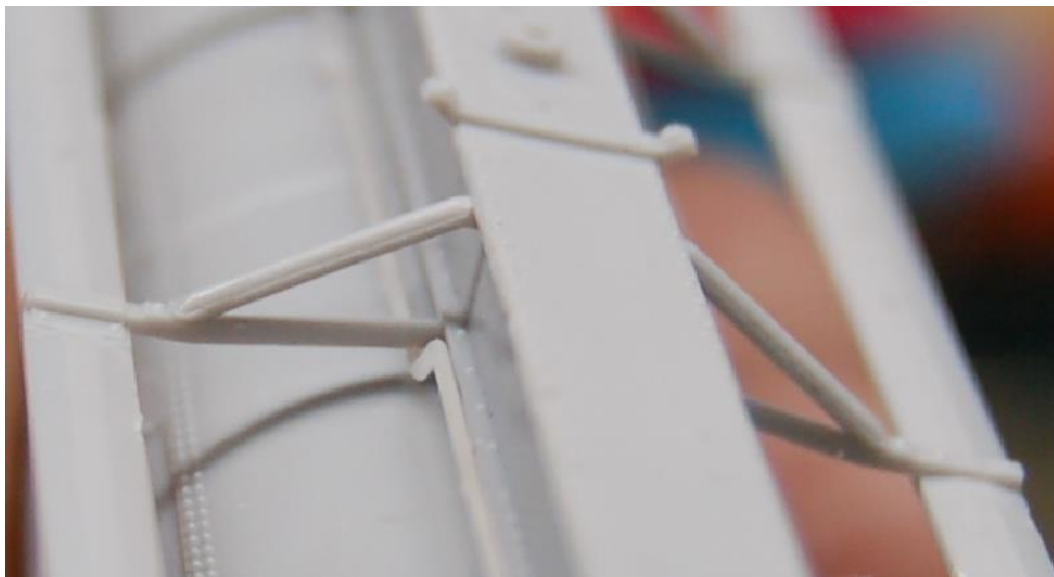
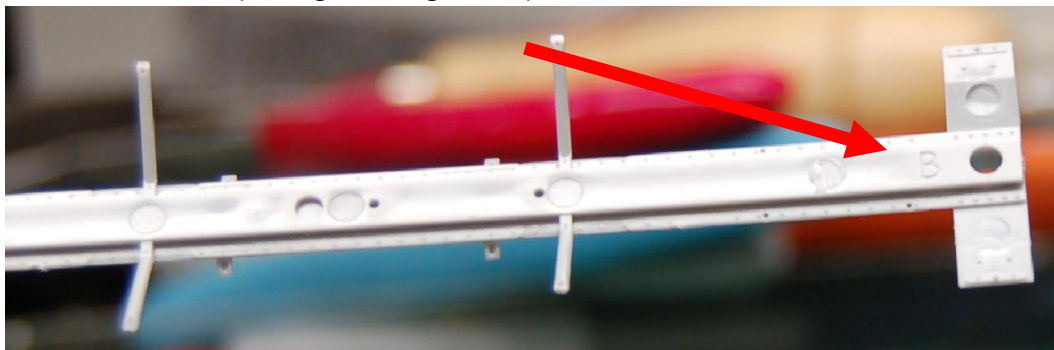


From this point forward, be very careful not to set the car down upright on your work surface as the air hoses are very delicate and they will break off. We recommend using the foam modeling cradle described in the preamble above because it will minimize breakage issues as you build.

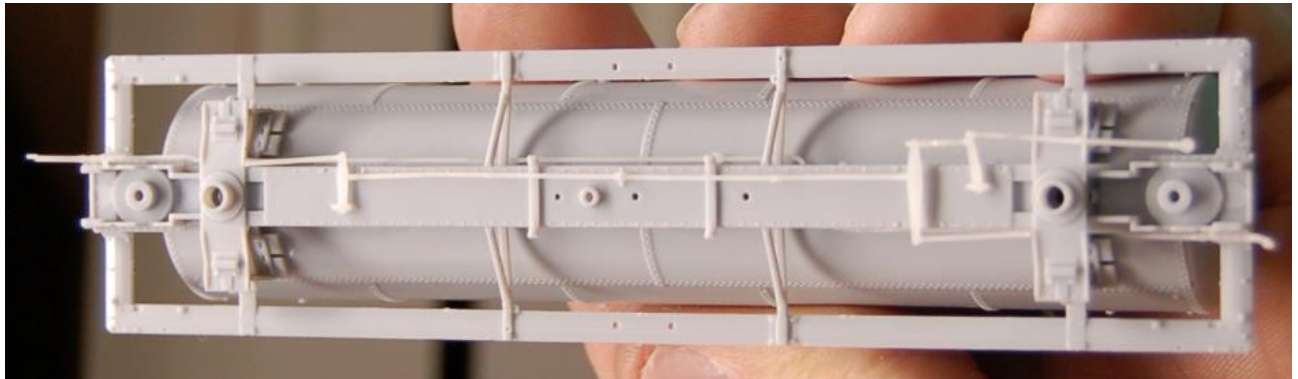
8. **Attach the tank bolster parts.** There are four tank bolsters that attach to the tank saddles. These are the triangular castings with the small poling pocket ("nub") on the outer face. There are small tabs on the top and bottom of the brace that fit into slots on the saddle, and the top ones may need to be trimmed back a bit to ensure a proper fit. When the brace is in place you do not want to see a gap at the top edge where it connects to the saddle. Test fit and trim as needed, then glue in place. Also make sure that the channel on the walkway fits all the way down on top of the tab on the brace, and secure with glue.



9. **Install the underframe bottom.** The underframe bottom cover has a letter B on the underside. Orient so that the side that is marked goes toward the B end of the car and glue in place. You will also notice that the four struts have a small pin on them. These fit into holes on the walkway. Align and glue in place.



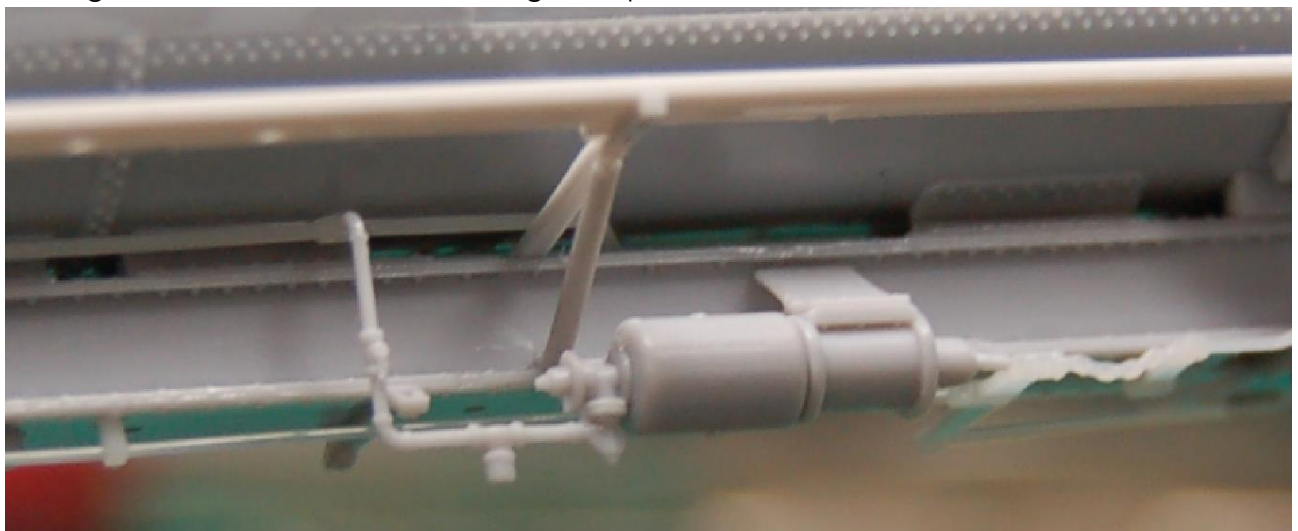
10. **Install the brake rigging.** Very carefully de-sprue the brake rigging assembly. This part will attach to the underside of the underframe bottom piece, which includes locating holes for positioning. Orient and glue in place.



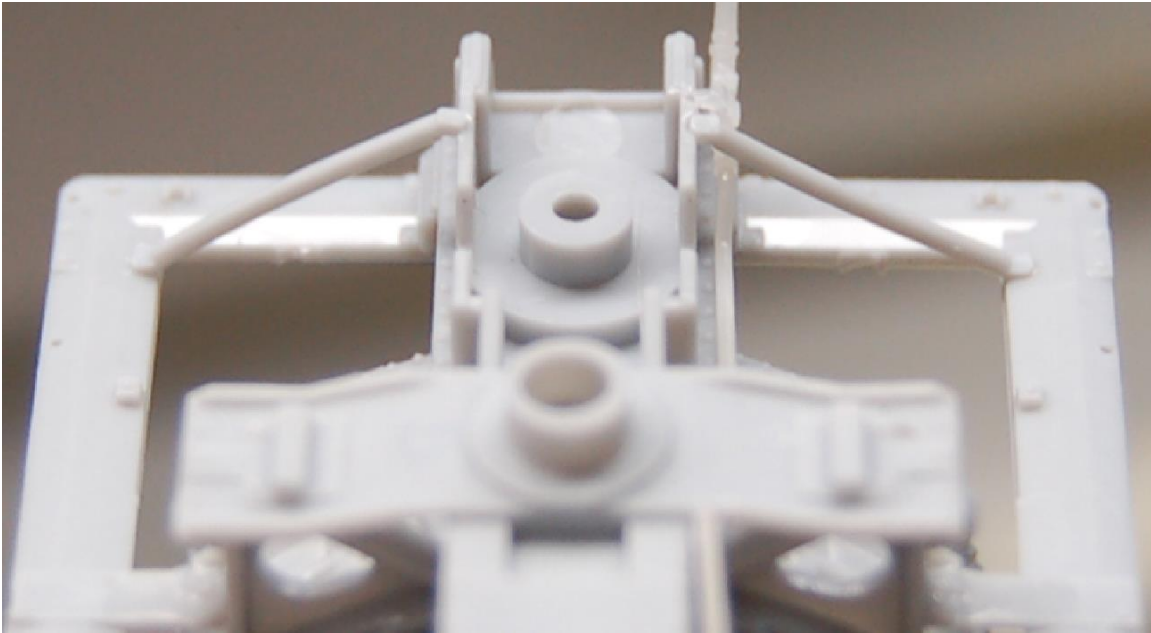
11. **Install the K-brake cylinder/reservoir assembly.** This part should be installed into a small slot in the center sill.



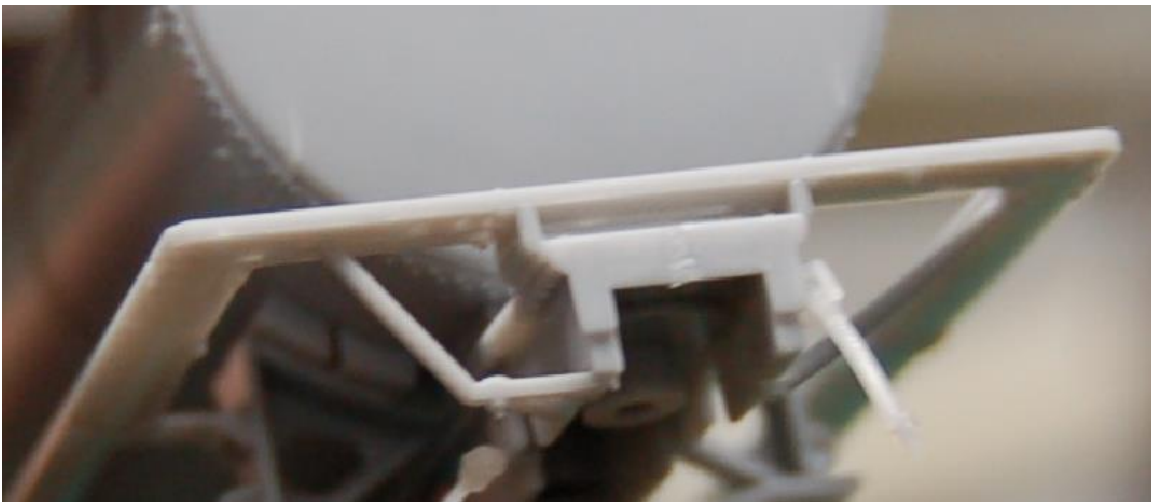
If you look at the mounting tab there may be a bit of flash that needs to be removed to allow a proper fit to the underframe. Remove any flash present and install to the underframe, making sure that top part of mounting bracket is pressed all the way onto the underframe. The pipe that comes out of the back of the reservoir connects to the small casting in the train line. Position and glue in place.



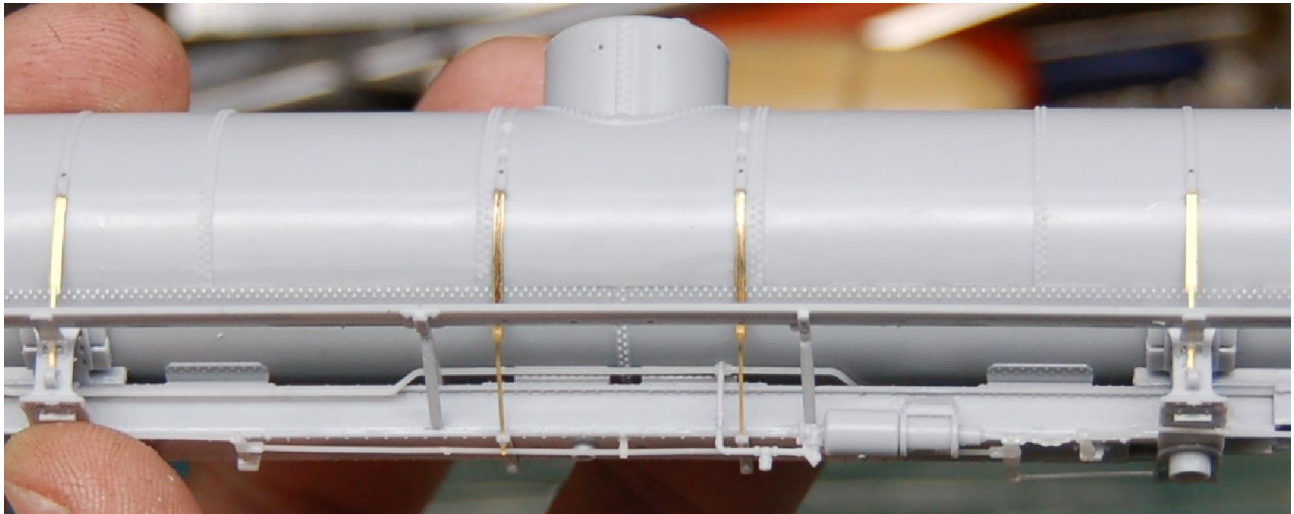
12. **Install the walkway bracing at the ends of the car.** There are three diagonal braces for the ends of the car. Two go on the A end and one on the B. The kit provides two different sizes, and we will be using the shorter of the two. With the car upside down, you will see a small notch in the underside of the walkway, and one remaining on the coupler pocket. The brace goes into these two notches and needs to be positioned so that the ends of the brace fit flush inside the notches.



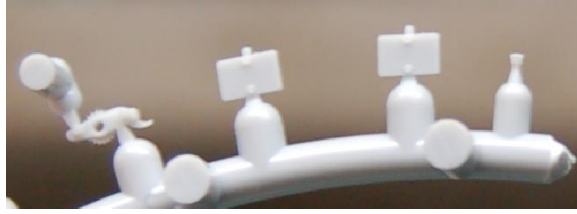
Turning to the B end, you will only install one brace that will go on the right side as you look down at the bottom of the car (see photo below). Glue in place. There is a small Y shaped bracket that goes on the other side of the coupler pocket on the B end. Orient it so that the side with two legs goes into the tabs in the coupler pocket and the single leg goes under the walkway. Glue in place.



13. **Install the tank straps.** There are two different lengths of tank straps. The longer of the two go in the center locations, and the shorter go to the outer. Separate them from the fret and bend a 90 degree angle at the break provided at the top of the strap (the strap looks like it is two pieces-a band and a tail. The bend goes away from side where they are connected). Open the holes where the tail goes with a #79 drill to ease with the installation. Starting with the center straps, put a small bit of CA in the hole on the tank, and also at the junction of the vertical and horizontal rivet lines to secure the strap to the body. Feed the tail through the hole in the walkway, and insert the strap into the tank. When done, put a small drop of CA on the tail to secure. Repeat with the three other long straps. The short straps may need a bit of the tail trimmed off to ensure a proper fit. Test fit and remove any excess material, then put a small bit of CA into the holes in the tank and insert the strap making sure to push it all the way to the top of the hole so there is not a gap between the molded strap and the brass one.

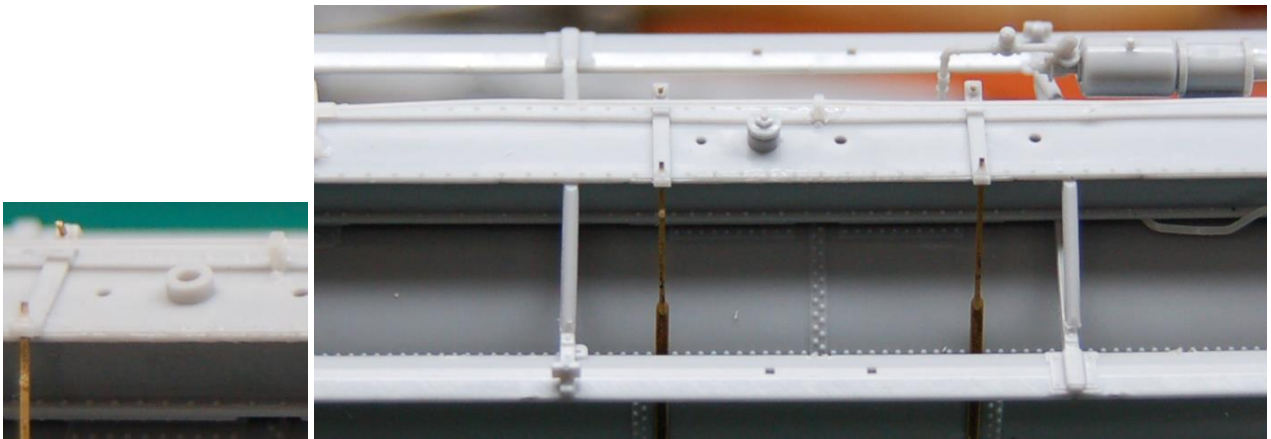


14. **Install the tack boards.** There are two different sizes of tack boards.

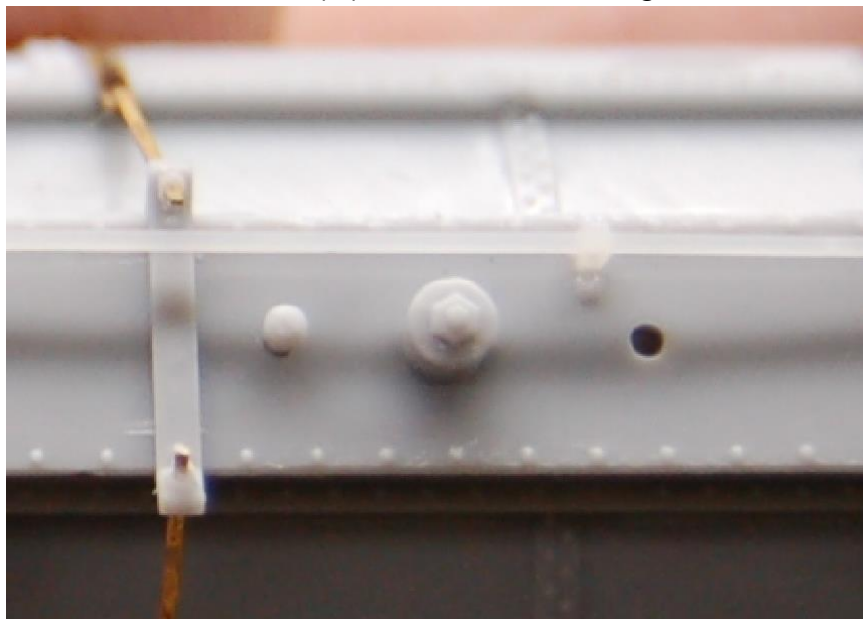


Refer to photos of your prototype and choose which you will use. They are glued into holes located on the underside of the walkway on each side of the car. The holes are in the right hand center strut as you look at the side of the car.

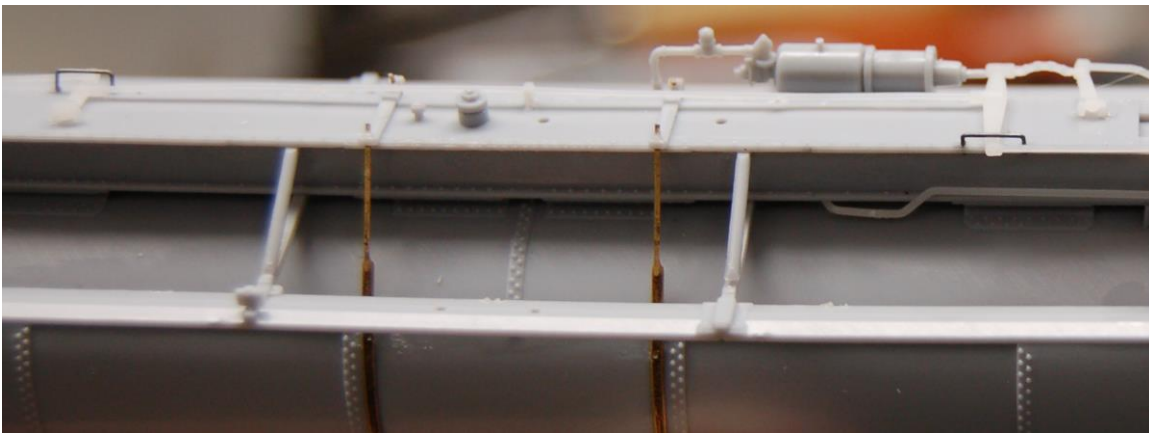
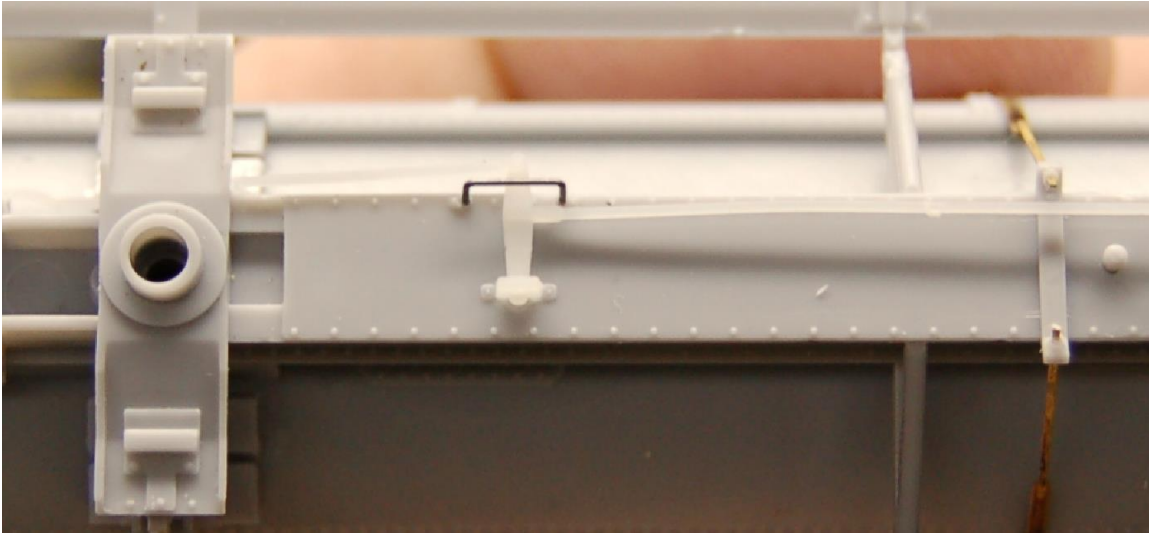
15. **Install the bottom outlet.** Install the bottom outlet into the location in the middle of center sill.



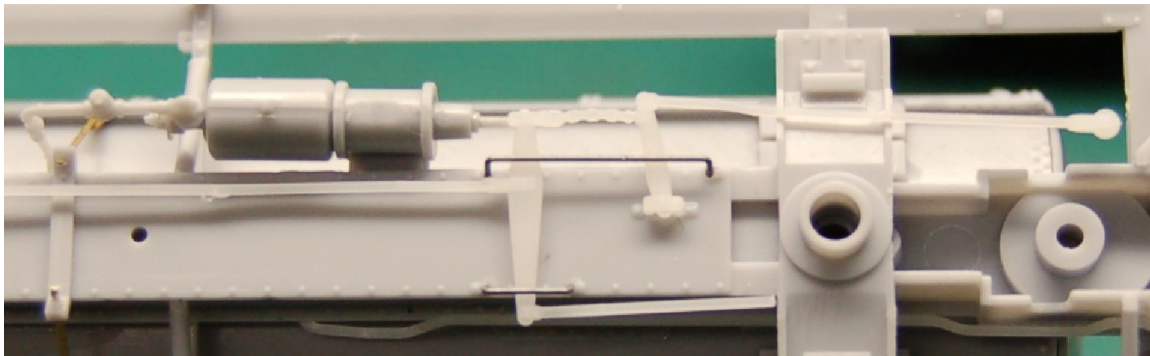
16. **Install the small drain plug.** With the car upside down and the B end to your right, install the small drain plug into the small hole to the left of the drain plug (the two holes to the right of the bottom outlet are for AB brake equipment and can be ignored in this configuration.)



17. **Install the brake hangar parts.** Open up the wire parts bag and locate the two smallest grab irons. These will be used for the brake hangers. Orient them so that the bend faces outward and insert them into the holes that straddle the brake levers on each end of the brake rigging assembly.



18. **Install the fulcrum grab iron.** Locate the long straight grab iron and install it as shown in the photo.



19. **Install the end grab irons.** There are four straight grabirons. These go on the underside of the end sills, two on each end. CA in place.



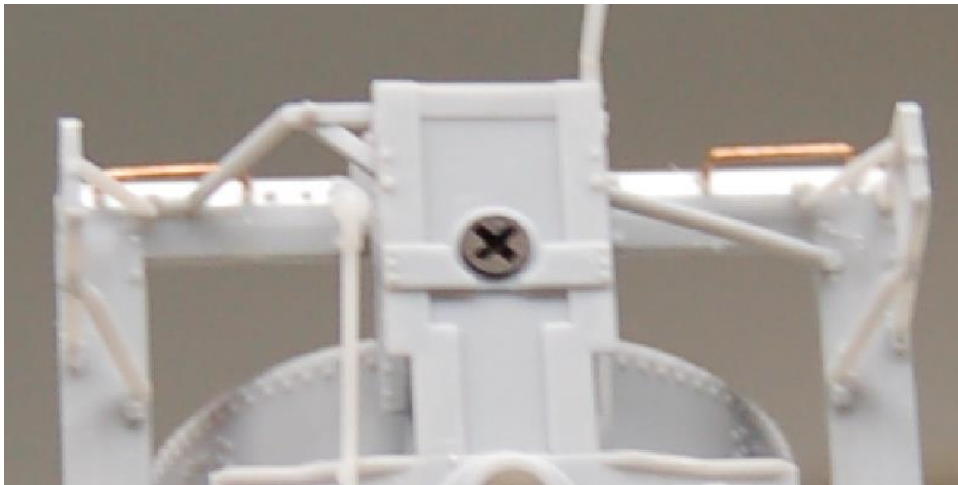
20. **Install the corner steps.** Locate the four corner steps and remove all mold pins and flash. There are left and right steps so you need to pay attention as to which one goes where. They have two brackets - one is straight and one angles away from the step. The one that angles goes toward the center of the car. Position the step so that the brackets fit up snugly against the castings in the underside of the walkway and the holes in the legs are aligned with the holes in the bottom of the walkway. Use glue sparingly and secure in place. You want to go easy on the glue so the holes in the step legs don't get closed up. If they do you will need to reopen them with a #79 drill prior to installing the grabs in the next step.



21. **Install the grabirons that go above the corner steps.** When the steps are dry, locate and install the four grabirons that go above the steps – on the sides of the walkway.



22. **Install the coupler box covers.** Using the two small screws, install the coupler box covers. We advise you do not add couplers at this time, but wait to install the couplers until after the paint and weathering steps are complete to avoid getting the couplers sticky from paint.

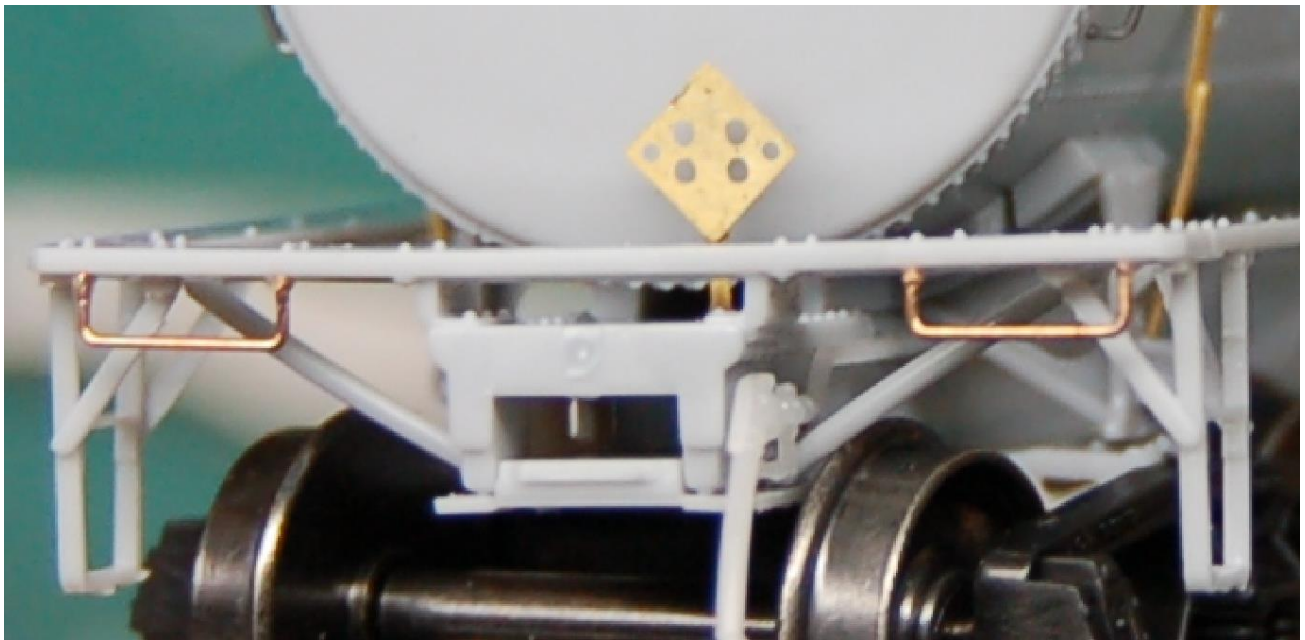
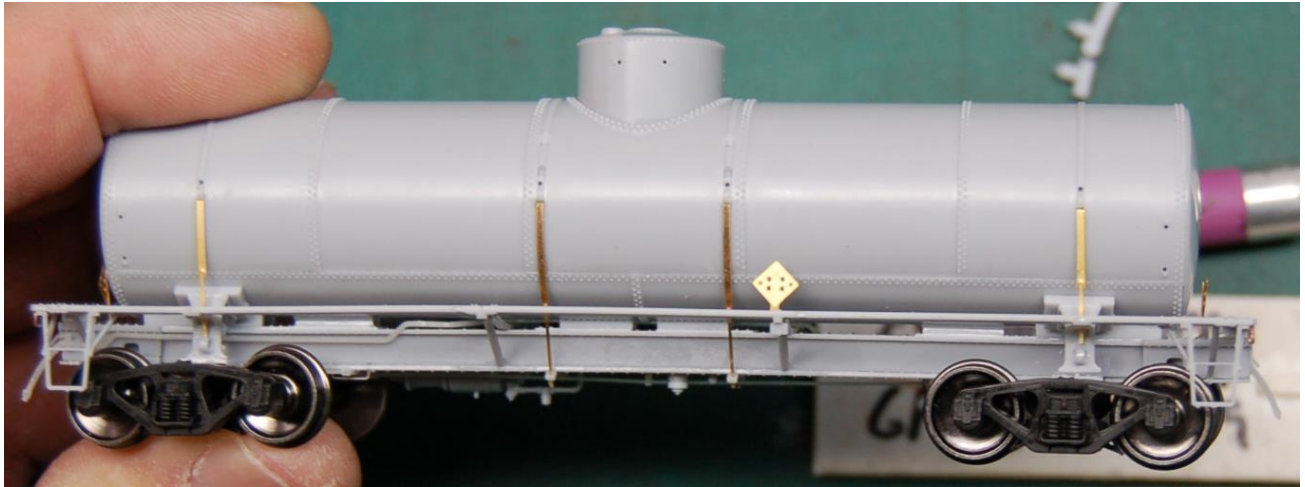


23. **Install the Cardwell draft springs.** If your selected prototype has Cardwell draft springs, insert these into the hole provided on the side of the coupler box. These were removed from cars beginning in the 1940s, so consult your prototype photos!



24. **Install the trucks.** Using the large screws provided, install the trucks at this time to protect the steps and air hoses from being damaged.

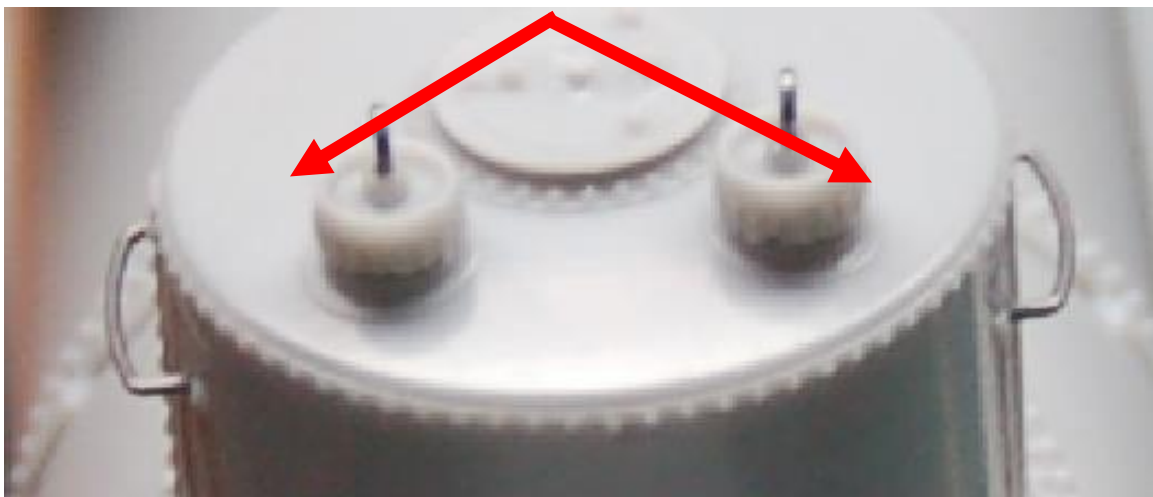
25. **Install the safety placards.** There are two different safety placards, long and short stem. The short stem version should be installed on the sides, while the long stem should be installed on the ends. There is a small hole located just inboard of the side walkway to the right of center. Insert the placards into the holes and secure with CA. The end placards fit into slots on top of the coupler boxes again just inboard of the end walkway. Insert and secure with CA.



26. **Install the corner tank grab irons.** The four corner tank grab irons are the ones that are straight with angled legs. Orient them so that the legs angle downward and install in the four corners of the tank.



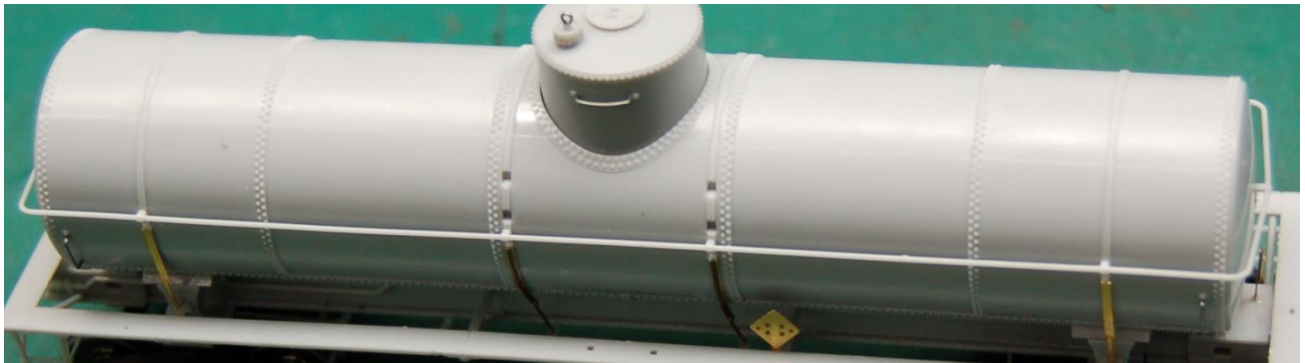
27. **Install the dome grab irons.** The dome grab irons are the metal grab irons that have a straight leg with a slight curve in them. One goes on each side of the dome. Secure with CA.



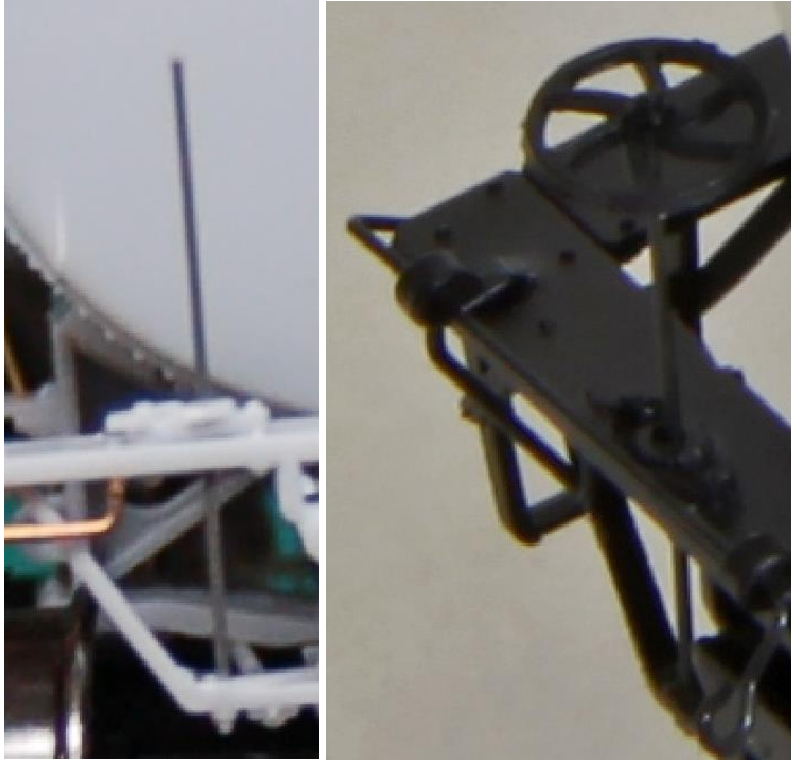
28. **Install the dome lid, vents, and eye bolts.** This round circular lid part is keyed to fit onto the tank dome. There is a little play in it so make sure it is centered over the opening and glue in place. On the same fret as the tack boards is a very small casting. This goes into the center hole of the dome lid. Very carefully remove it from the fret and glue into the hole in the lid. Install the two vent caps and add the eye bolts in each with CA.



29. **Install the tank railing.** De-sprue the rectangular tank rail. Place it over the top of the tank and insert one of the end posts into the hole in the end of the tank and tack in place. Then working your way around the tank, insert the posts into the corresponding holes around the tank. When all are inserted, go around and glue each one.



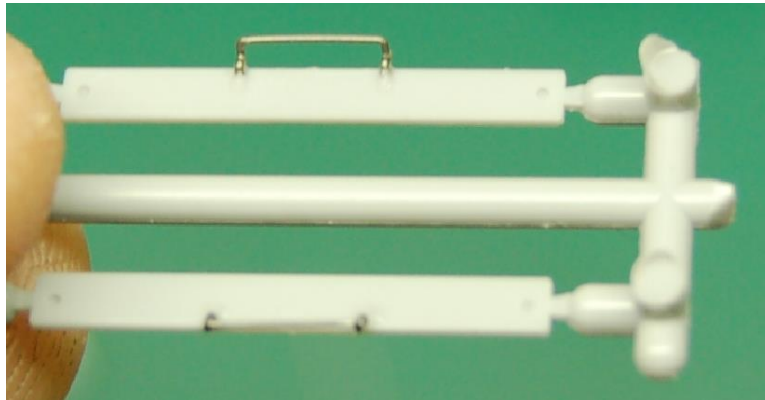
30. **Install the brake ratchet, stem, and brakewheel.** Install the brake ratchet part into the two small holes on the end walkway with the S shaped lever toward the outside of the car. From the wire parts find the short straight wire and insert it into the hole of the ratchet and into the hole in the bracket below the walkway. Secure with CA. Glue the brakewheel to the top of the wire.



31. **Install the cut lever brackets and cut levers.** There are two brackets per end, and they fit into small slots on top of the end walkways. CA the bracket that is located at the corner of the walkway. Fish the other one onto the cut lever making sure the orientation is correct for installing on the car. Fish the cut lever through the corner bracket and position the other bracket and secure in place with CA. This step may take a bit of maneuvering and patience, so try not to rush it.



32. **Install the last two grab irons into the underside of the tank platform steps.** These grab irons have a double bend in the legs; CA them in place.



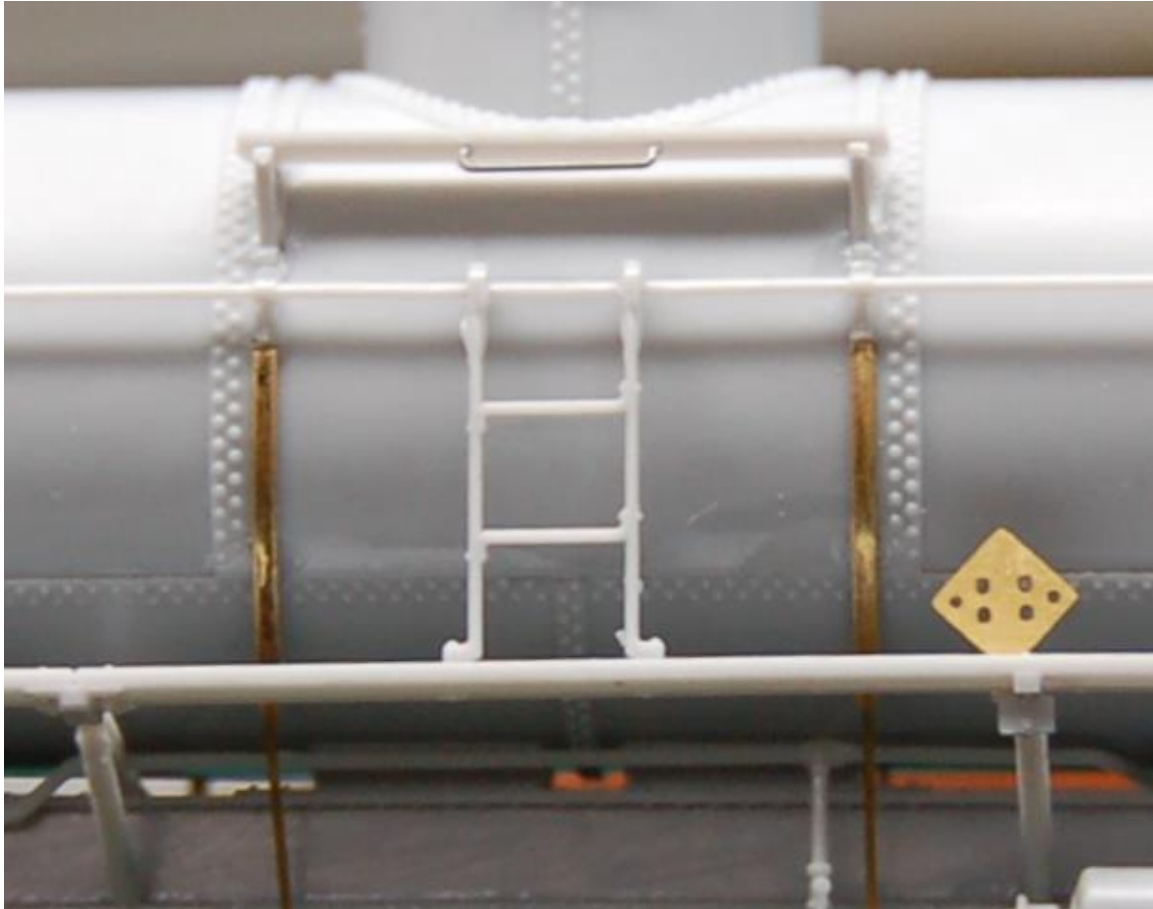
33. **Install the platform brackets.** De-sprue the platform brackets. There are extras provided as these parts are quite fragile. Install them so that the small nub is facing up.



34. **Install the platform step.** While the glue is still setting on the brackets, install the platform. This will allow a little bit of adjusting if necessary to get the pins on the brackets aligned with the holes in the platforms. Glue in place.



35. **Install the tank side ladders.** Remove the mold pins and any flash from the ladders. They are very fragile so be careful! Hook the ladder over the tank rail and insert the legs into the holes in the top of the walkway and glue in place. From this point onward, the tank should be handled by the trucks/wheels, or the tank.



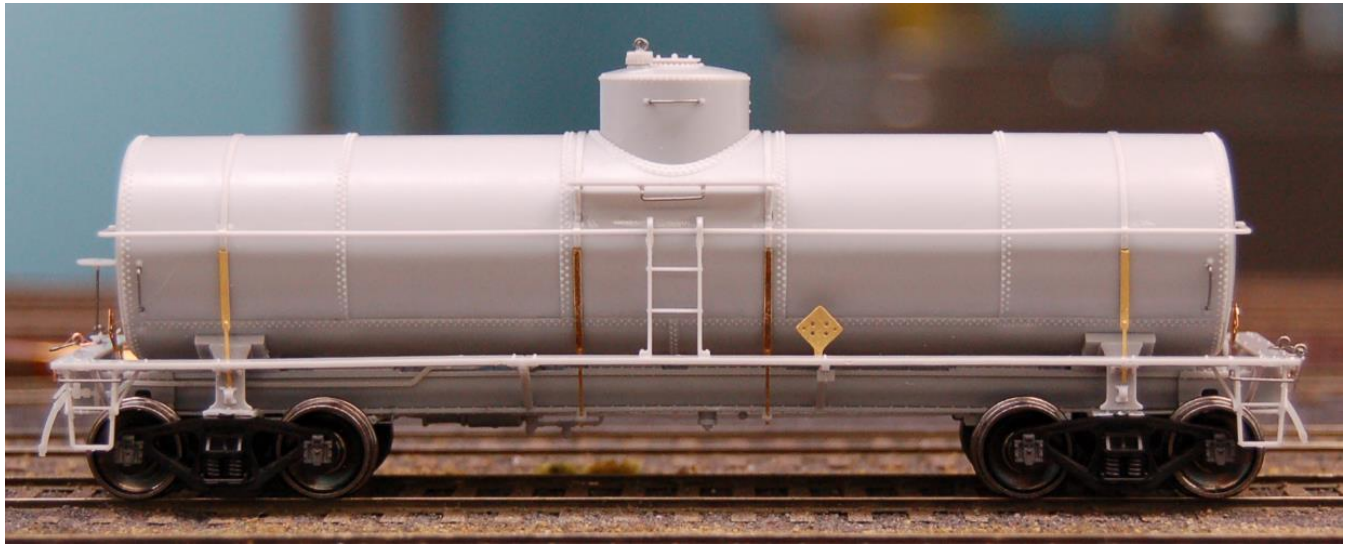
This completes the assembly steps for our General American 1917-Design 8000 Gallon Radial Course Tank Car Kit. You will have some extra plastic parts leftover after you are completed with these instructions. They are for your scrap box. Enjoy!

Now it is time to apply the finishing colors to your masterpiece! After final paint, decaling, and weathering, reinstall the trucks and couplers. Also, don't forget to submit photos of your completed model to Tangent Scale Models so we can display your work under the "Share" tab on our website!

Additional photos can be found on the following pages.

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