



Instructions: GSC 60' Flatcar Kit – with or without bulkheads

Tangent Part Number: 11000-01 and 11000-02

5/2016

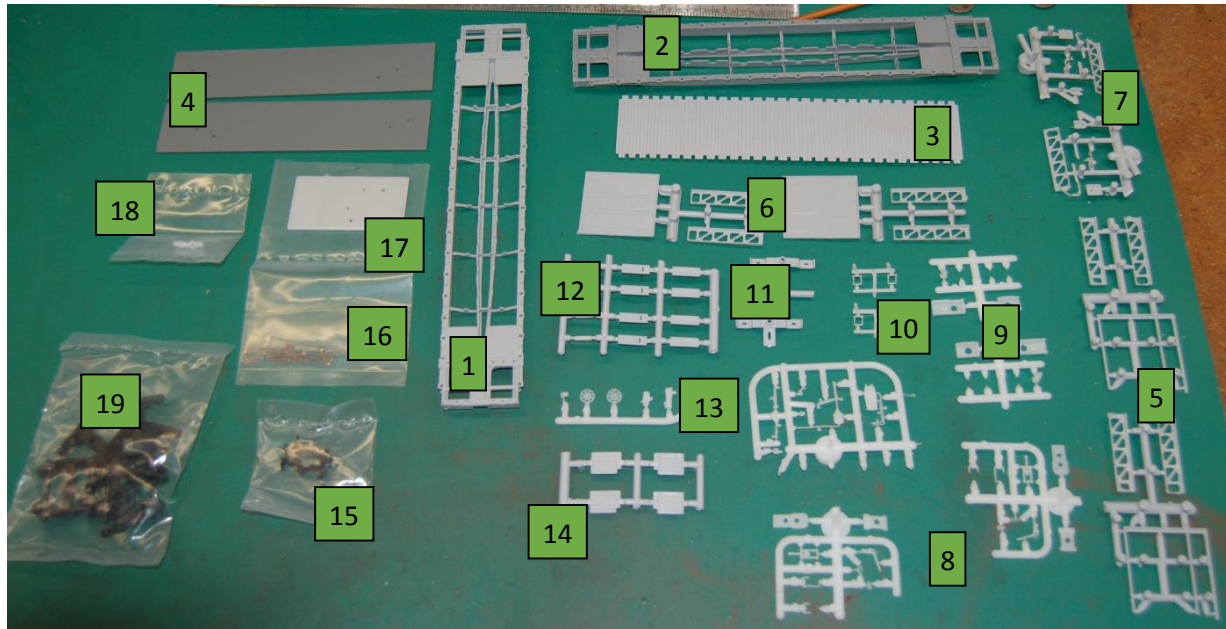
Thank you for purchasing the Tangent Scale Models GSC 60' Flatcar Kit! A few quick notes before starting:

- **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 computer screen is ideal:** If possible we recommend modeling from your monitor. You can then enlarge particular 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 we include a prototype photo on our website for each RTR scheme that Tangent releases. 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 of our trucks – and those from other brands!



Overview of this kit's contents:

Below you will find a photo with corresponding descriptions for each part in our kit. Please note that this kit includes many EXTRA parts that will not be needed for your assembly; we have included all parts to build any era of kit, with the exception of the body shell which is era specific.



Standalone parts included:

- Part 1 – Flatcar Body #1
- Part 2 – Flatcar Body #2
- Part 3 – Flatcar Deck
- Part 4 – Car Weights (2)

Part sprues included:

- #5 Sprues contains the bulkhead end frame parts with end supports (2)
- #6 Sprues contains the bulkhead face plate parts with end supports (2)
- #7 Sprues contains end supports and brakewheel housing and brakewheel housing backplate for bulkhead (2)
- #8 Sprues contains air hose, coupler box lids (cushion and non-cushion box), cushion draft gear spring apparatus (and unfilled stirrup step parts to be ignored) (2)
- #9 Sprues contains the coupler box parts (cushion and non-cushion box) (2)
- #10 Sprue contains the stirrup steps
- #11 Sprues contains the bolster part (2)
- #12 Sprue contains flatcar decking pieces
- #13 Sprue contains brakewheels and other brake parts
- #14 Sprue contains flatcar decking pieces

Parts bags included:

- #15 Bag contains the brake beams that apply to our 70-ton Barber S-2 trucks
- #16 Bag contains all wire and etched parts
- #17 Bag contains the smallest formed weight with holes in it for brake parts
- #18 Bag contains the pins that hold the truck screws and bolster in place
- #19 Bag contains 3 possible truck sideframe pairs, plus one set of CNC-machined wheelsets

Parts needed/recommended:

- Couplers. The coupler boxes for this car are designed for Kadee "whisker" short shank couplers - #153.

Tools needed/recommended:

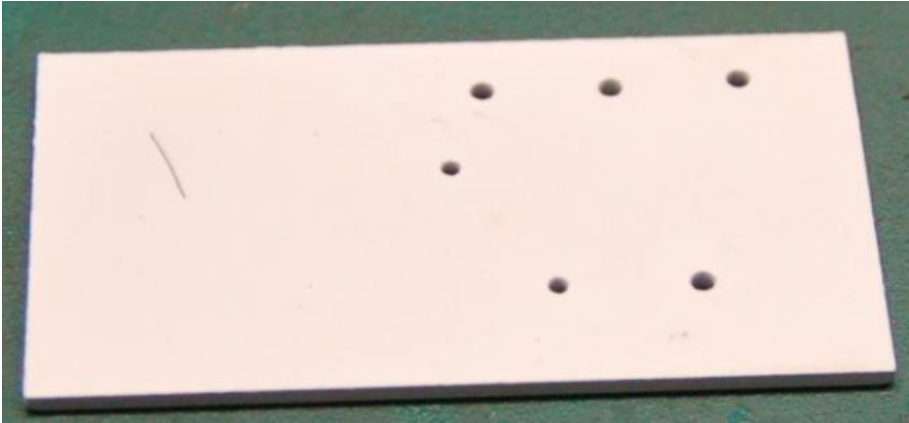
- Liquid styrene cement for plastic to plastic bonds (Tamiya green bottle, Testors Liquid Styrene Cement are two example products)
- CA-type cement or cyanopoxy – for wire to plastic joins (sold in hobby shops, or in hardware store as "super glue" under various brands in the small squeeze tubes) – best applied with a piece of scrap wire
- Hobby knives - #11 and #17 are ideal
- A #79 drill bit in a pin vise would be helpful but is not required
- Small Phillips head screwdrivers
- Tweezers

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. 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.
- **Kit variations:** You can build a bulkhead or a non-bulkhead version of this car with this kit. This instruction sheet will describe the process of building both the bulkhead and non-bulkhead versions of the car. The steps are pretty much exactly the same until the bulkhead is assembled and installed, other than the brakewheel and the end deck inserts. Let's get started!

Underframe Assembly:

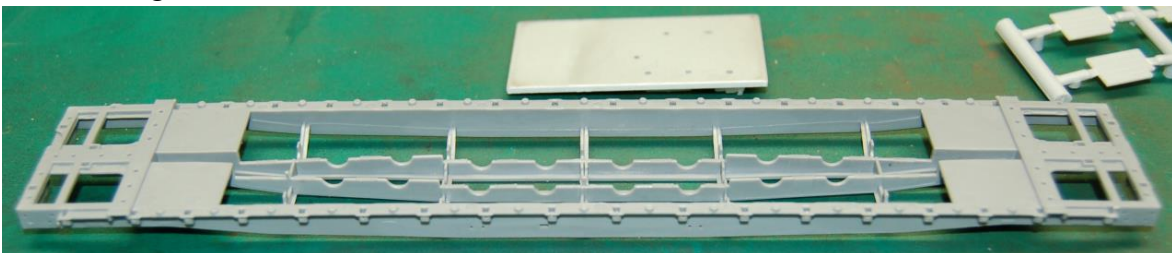
1. **Clean carbody flash.** The first step is to clean up any flash that is on the carbody. There are small holes in each of the stake pockets and they have a little flash that can be easily removed with a sharp hobby knife. After you remove all flash, you can begin assembly by either working on the underframe or the carbody.
2. **Locate the smallest of the three weights.** Starting with the smallest weight, you'll notice that the weight has holes.



The holes are used to position the brake gear as well as orient it into the underframe. With the weight on your work surface, position it so that the holes are toward the top right. Using CA, glue the triple valve in the top right most hole with the holes in the triple valve facing toward you. Next, install the cylinder assembly into the two large holes to the left of the triple valve and feed the air lines into the two bottom holes of the triple valve. Do not glue just yet. Lastly, install the cylinder assembly feeding the air line into the top most hole in the triple valve. You can now glue all three lines in place in the triple valve.

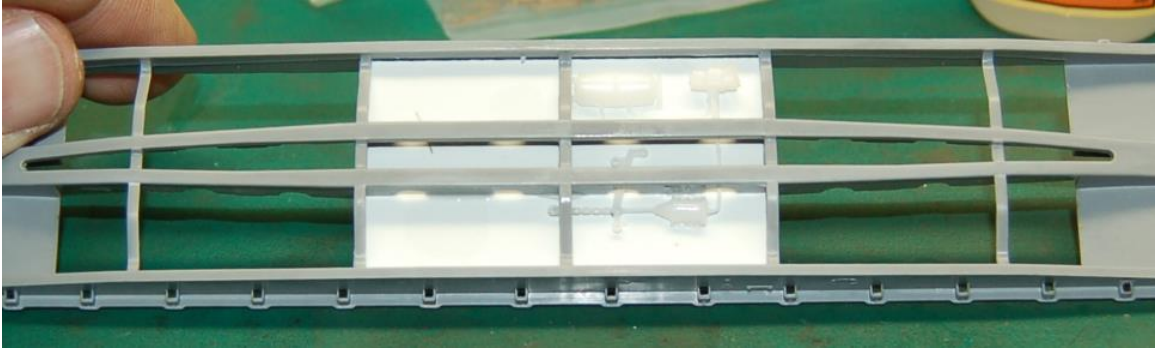


3. **Install the weight into the carbody.** Take the carbody and orient it with the B end of the car toward the left and the car right side up. The B end has two extra holes for the brake gear attachment.

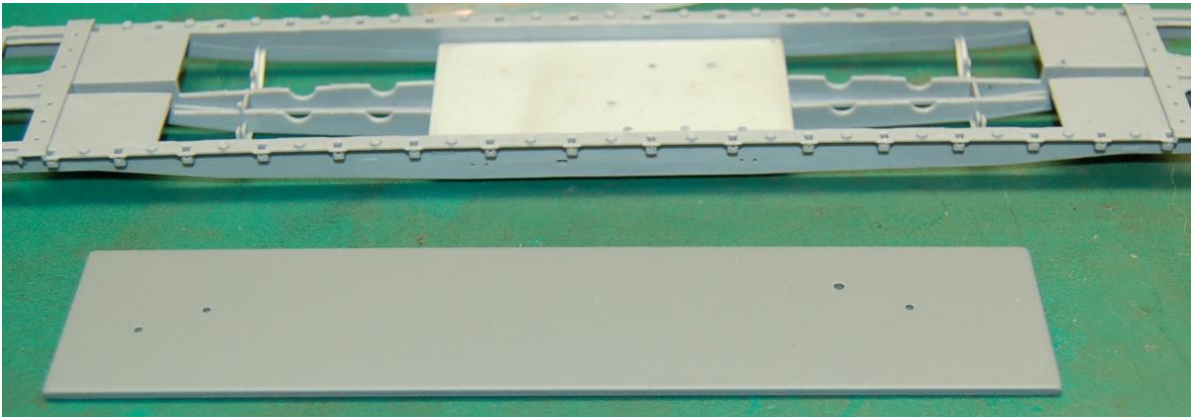


From this point forward, all orientation will be made assuming that the B end of the car is toward the left. Take the small weight and flip it over with the cylinder pointing toward the B end (left). There is a small locating pin in the center cavity of the

underframe that will index the weight into position. Install the weight securing it with CA.

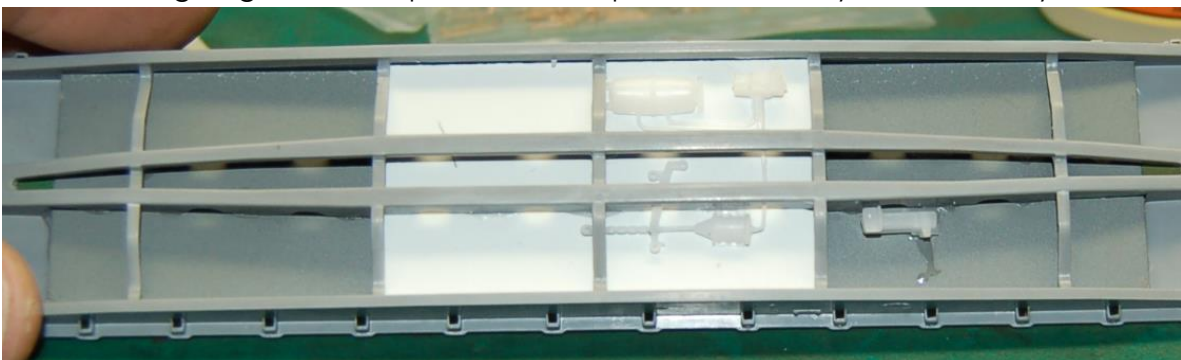


4. **Install the two larger weights.** Take one of the larger weights and orient it so that the larger hole is toward the right and top.



This will allow it to sit into the frame over the locating pins. Secure it in place with CA. Orient the last weight the same way and glue in place.

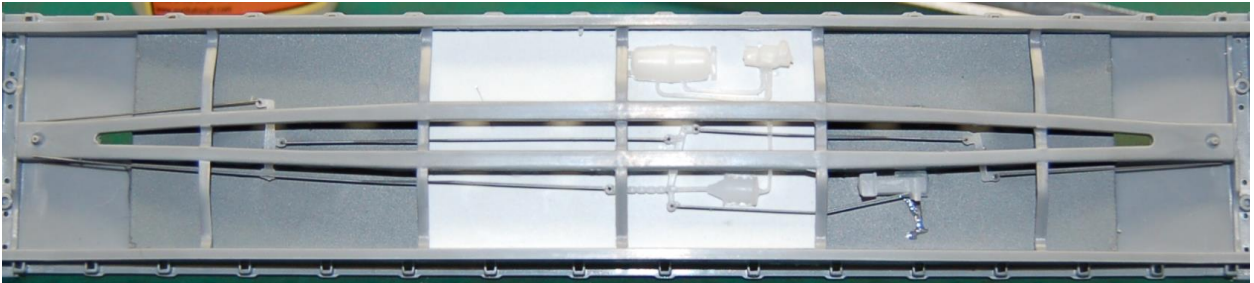
5. **Locate the brake levers.** There is a long one and a short one. The short one goes toward the A end of the car and the long one goes toward the B end. They are glued into mounting holes in the weights. Flip the car over and orient it so that the B end is toward the left. Shorten the mounting pins on the brake levers to ensure that they will fit flush with weight when installed. Glue in place. It takes a bit of maneuvering to get them in place, but be patient and they will fit in easily.



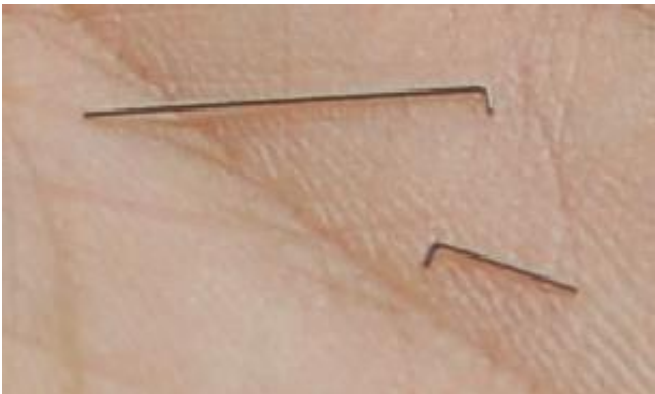


6. **Install the wire brake rigging.** Before installing the brake rigging, take a moment to open the holes in the brake levers with a #79 drill bit. This will make the installation of the wire parts a bit easier.

There are 6 long pieces of wire that are used for the brake rigging. Some have several bends in them, making it so that each one has a specific place that it will fit. Refer to the photos for installation. The wires need to be fed through the stringers and inserted into the holes in the brake levers.

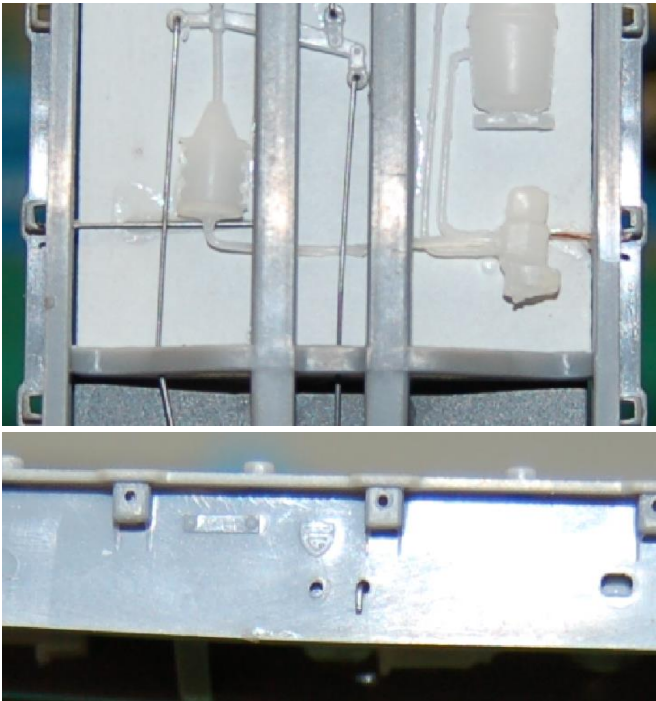


7. **Install the brake release levers.** There are two small L-shaped wires that are used for the brake release levers, one long and one short.



If you look at the side sill of the car, you will notice that on both sides there are two small holes. With the side of the car that has the triple valve facing you, insert the shorter of the two wires into the left hand hole. Secure it from the inside with CA.

Turn the car around and install the longer wire in the small right hand hole and secure from the inside with CA.



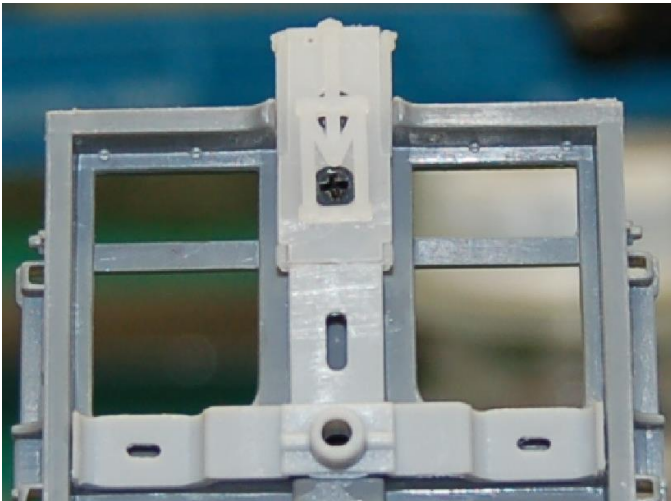
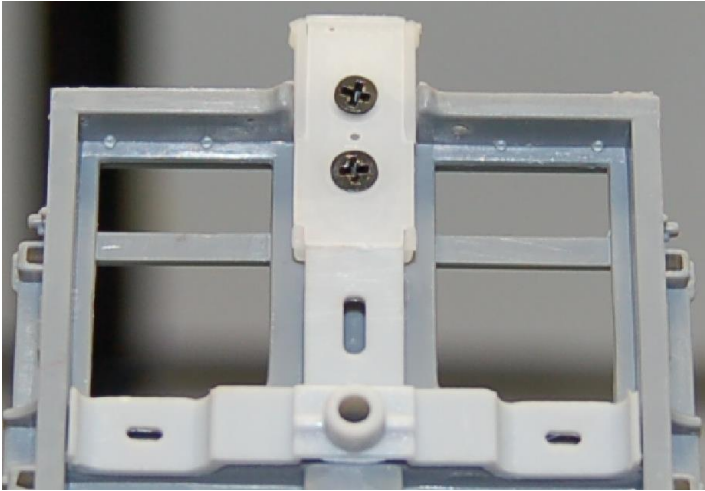
8. **Install the bolster parts.** Glue the bolster parts in place. This part is identical so it does not matter which end is which.



9. **Install the draft gear.** There are two different draft gears to choose from, cushioned and non-cushioned.

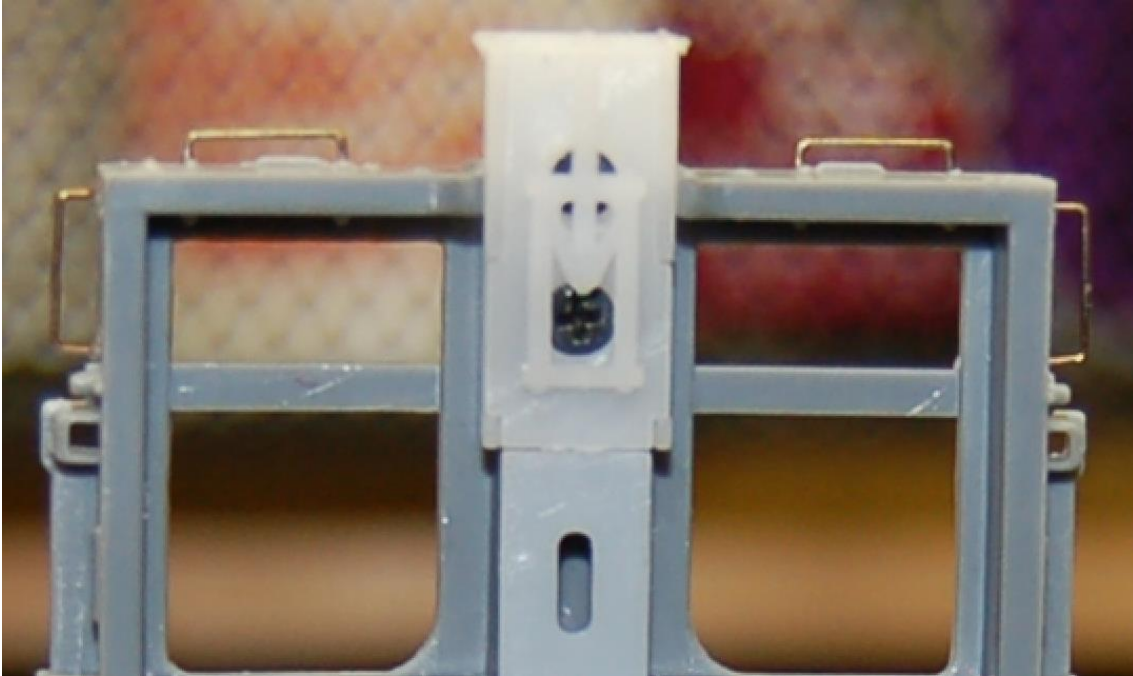


Refer to prototype photos to determine which you will install on the car. Install the box and cover using the screws provided, but do not install the couplers until after the car is painted. On the cushioned version (pictured below), there is a coupler spring that goes on the box cover. Orient it so that it is pointing toward the coupler, but do not glue in place to allow removal of the box lid to install the coupler after painting. Glue in place after couplers are installed. This completes the assembly of the underframe.

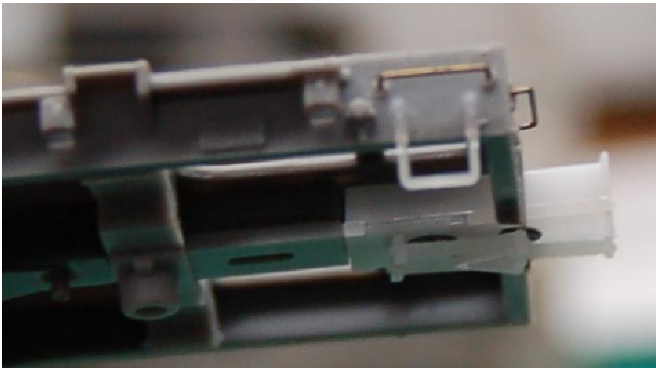


CARBODY ASSEMBLY

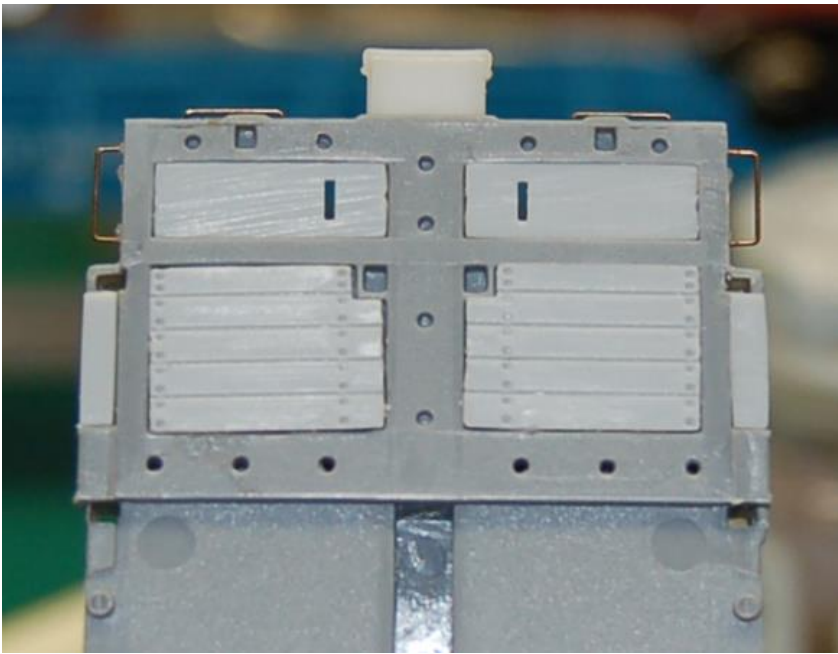
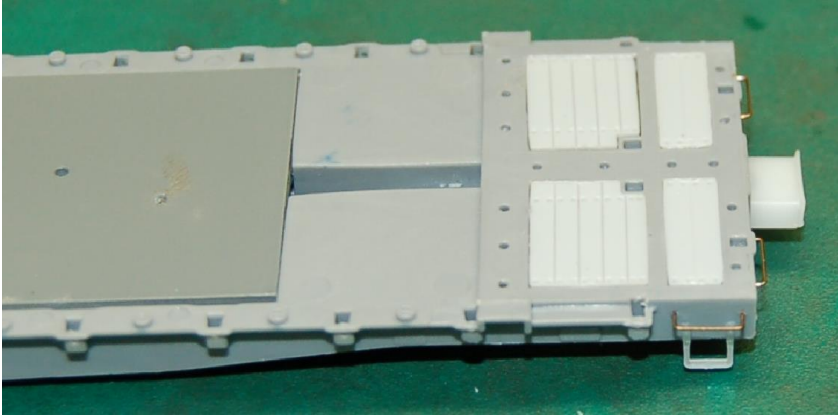
10. **Install the corner grab irons.** Locate the 8 small grabirons that will be located in the 4 corners of the car. Insert and glue in place with CA.



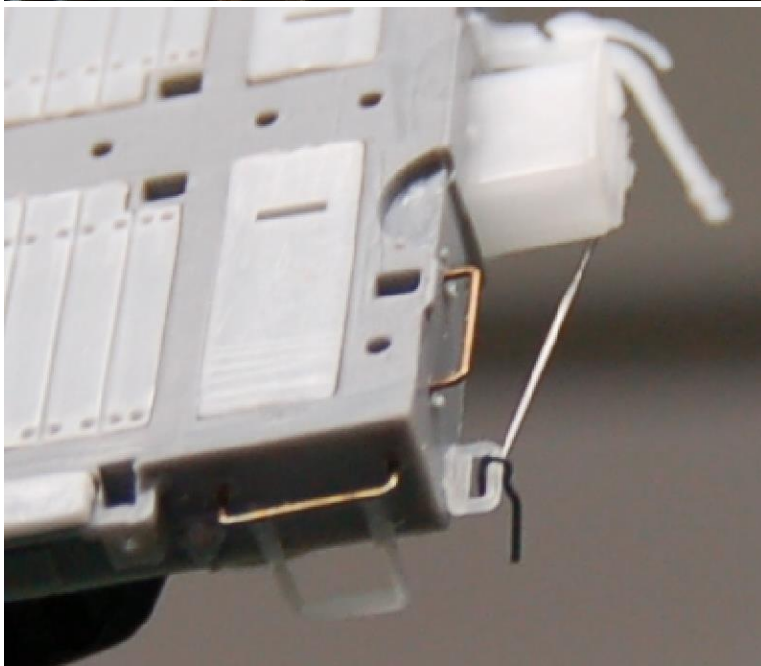
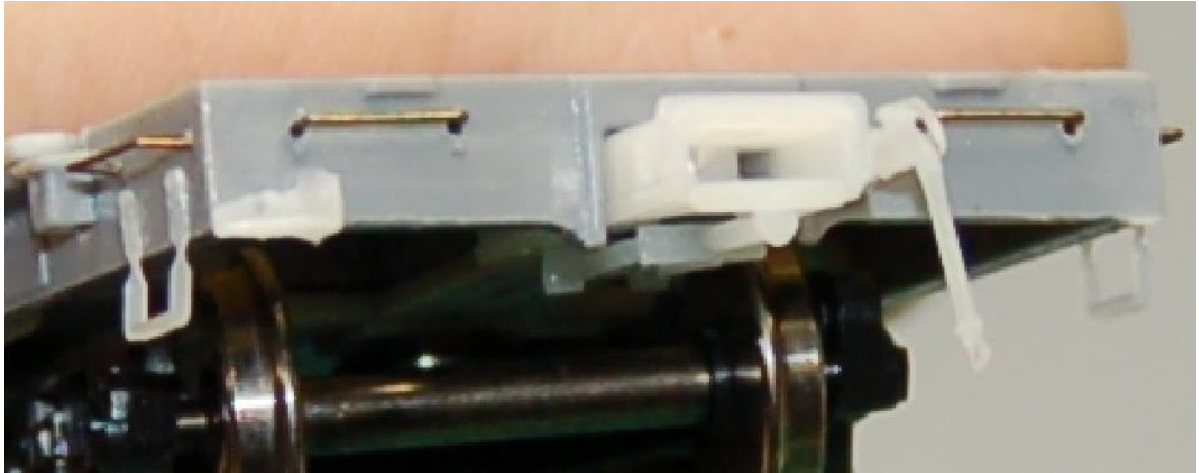
11. **Install the stirrup steps.** Next, remove the stirrups from the sprues very carefully as these are very fragile parts. Glue in place.

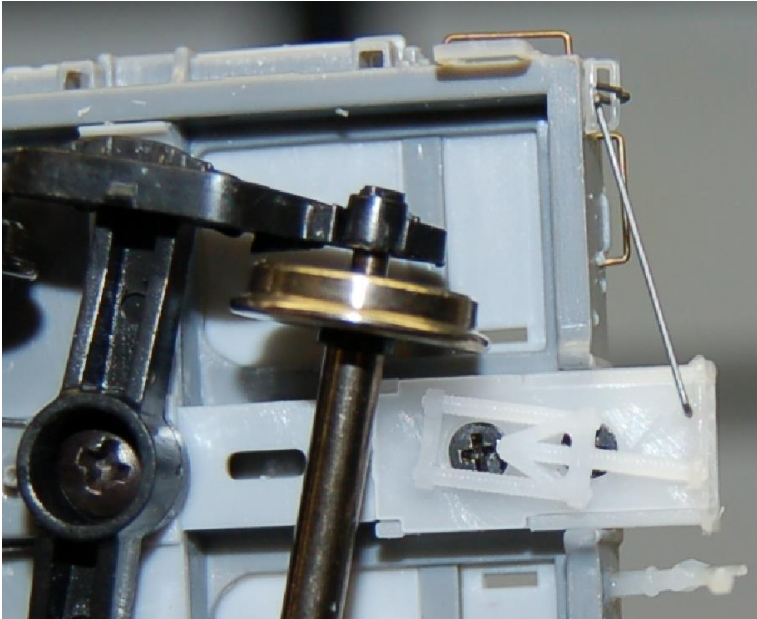


12. **Install the flat car decking.** You will notice that the deck consists of several pieces: the main deck, 4 small square inserts, and two small rectangular ones. There are also two small rectangular plates that get glued in the small recesses in the four corners of the car that are just inboard of the corner stake pockets. For the non-bulkhead version, you will use the wood versions of the small inserts. For the bulkhead version, use the steel version. Secure all deck pieces to the carbody using CA.

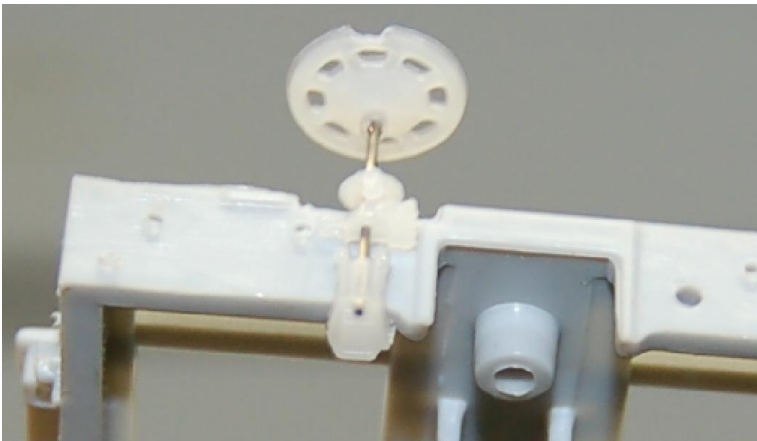


13. **Install the cut bar brackets and cut bar levers.** There are two versions of cut lever brackets and cut levers, one for the non-cushion version and one for the cushion version. Choose the one appropriate for your version and glue in place referring to the photos for orientation. Insert the version of cut lever appropriate for your car and tack in place since it needs to be removable for coupler installation after painting.

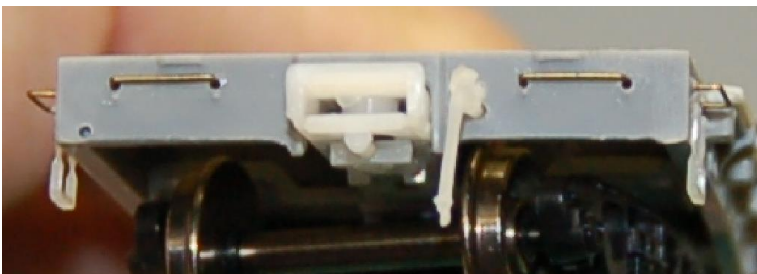




14. **If you are building the non-bulkhead version, install the brakewheel parts.** Refer to the photos for orientation of these parts and glue in place. The small round part will be fed over the brake staff after it is inserted into the parts glued to the carbody. When this is complete, glue the brakewheel in place.



15. **Install the air hoses.**

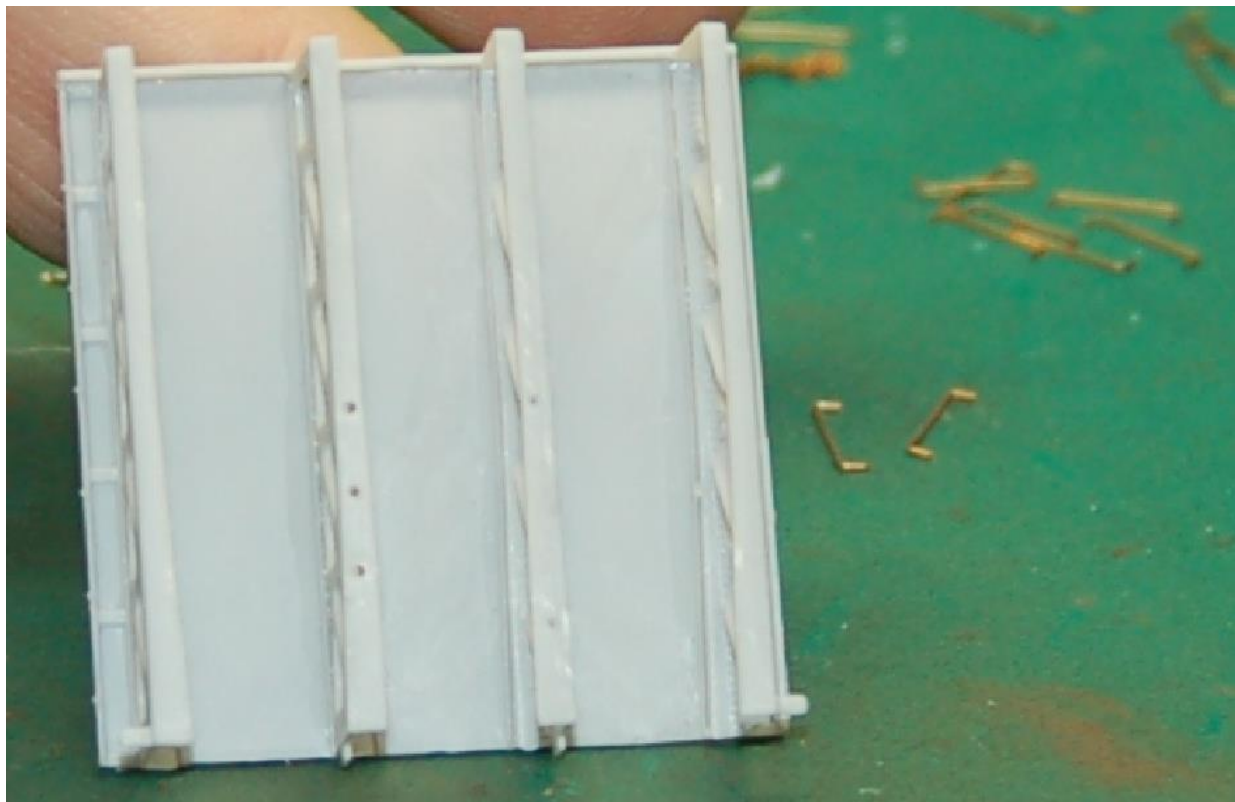


This completes the non-bulkhead version of the flatcar! Next steps: painting, decaling, weathering, and coupler installation.

BULKHEAD ASSEMBLY

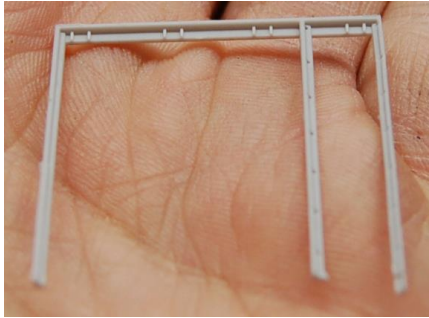
The bulkhead upright support parts have specific positions on each end of the car, so please pay close attention to which parts you place where.

16. **Locate the bulkhead face plate.** You will notice that on the back side it has locating ribs that are slightly tapered bottom to top to aid in positioning of the bulkhead supports. We will start with the B end bulkhead.
17. **Orientation of bulkhead parts.** To start with, the general layout of the supports are as follows; the two outermost supports have small tabs at the bottom that face outward toward the car sides. The second from the left has 3 locating holes for the brakewheel support plate. The third one has two locating holes for the grabirons.
18. **Glue the uprights to the face plate.** Locate all of these parts and glue in place on the bulkhead faceplate. When complete it should look like this.



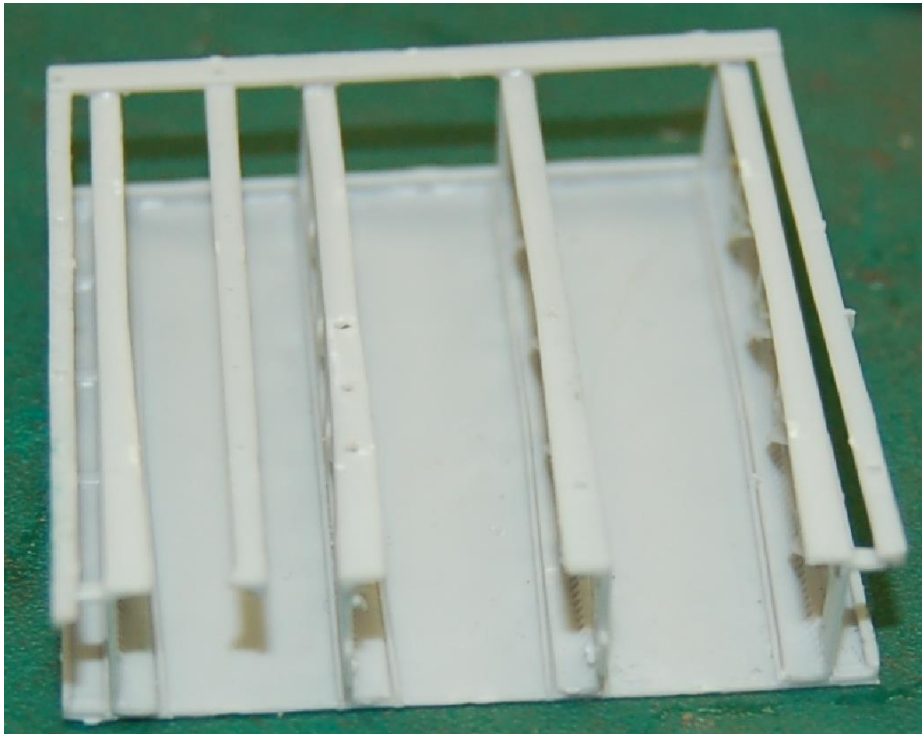
Make sure when these parts are secured that they are perpendicular to ensure everything will fit when assembled.

19. De-sprue and install the outer support frame.

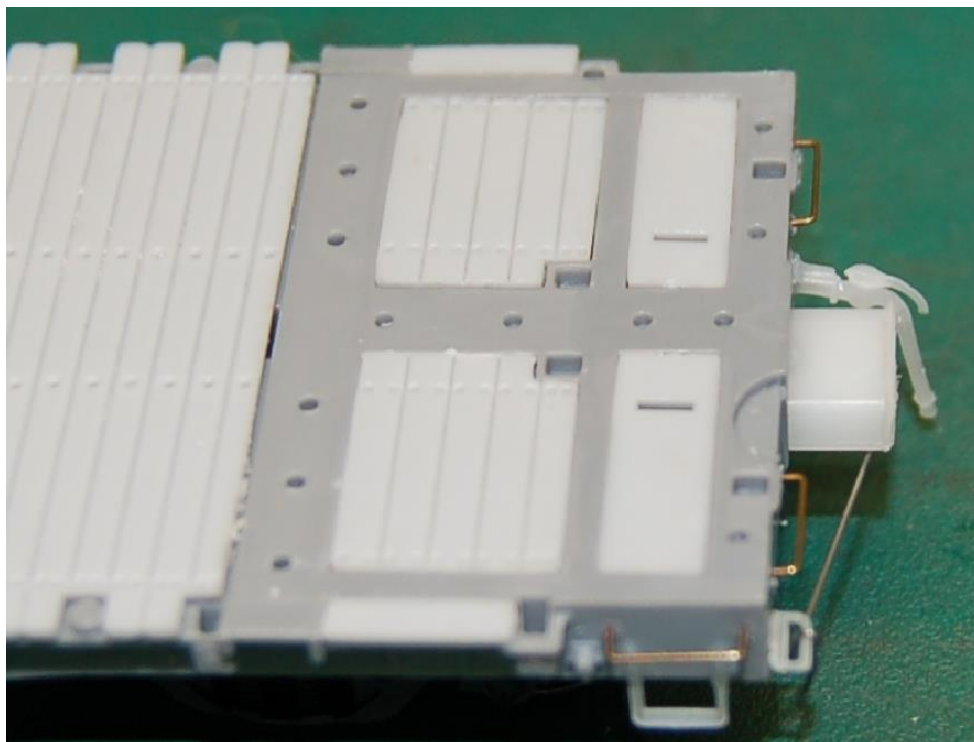
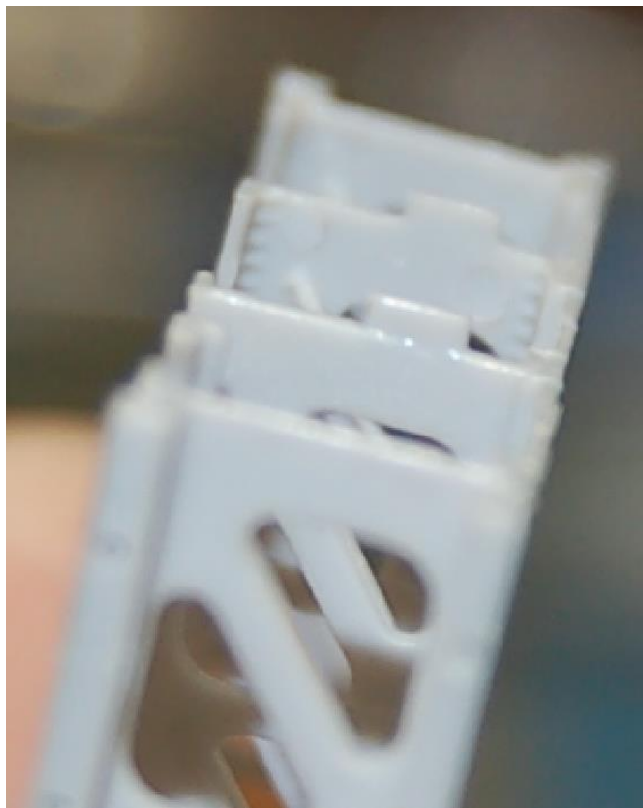


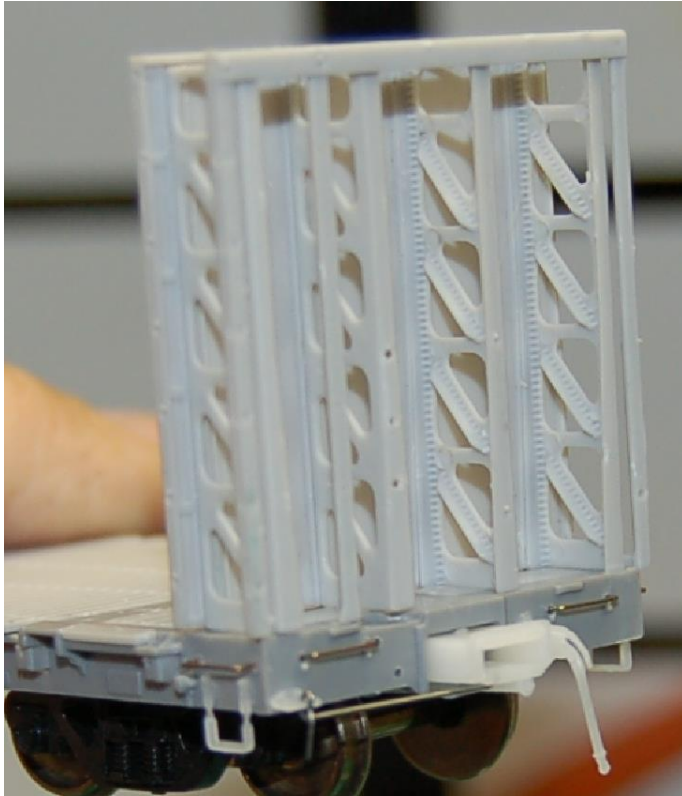
It has small slots at the top that aid in locating its position. Apply glue to the slots and glue to the vertical supports. You will position the bottom of the frame in the next step.

At the bottom corners of the support frame there are small tabs that will lay over the tabs on the vertical supports. Position and glue in place.

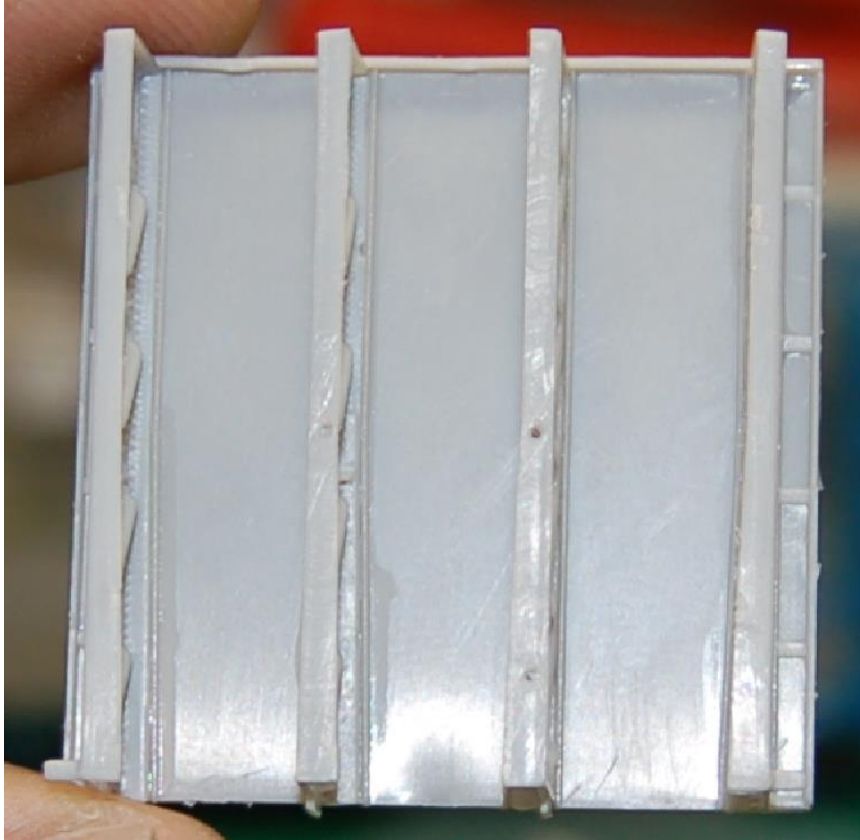


20. Glue the bulkhead assembly into place. Using the locating tabs of the bulkhead and the slots on the deck, glue the bulkhead assembly in place making sure it sits flush with the deck and the vertical supports are flush to the end sill.



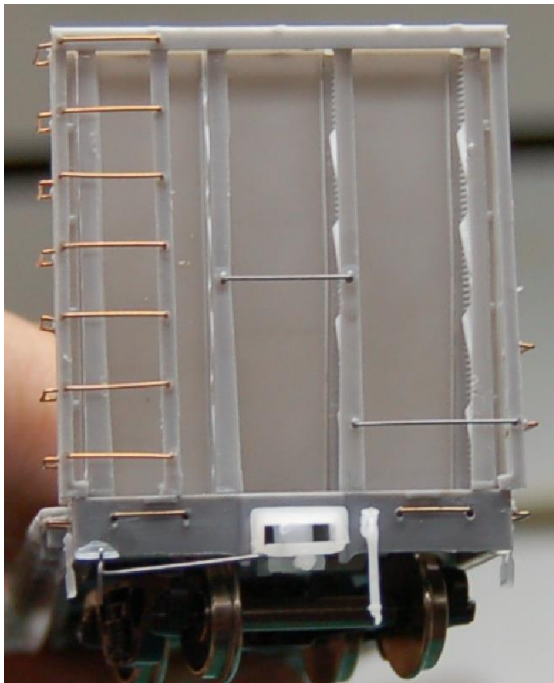
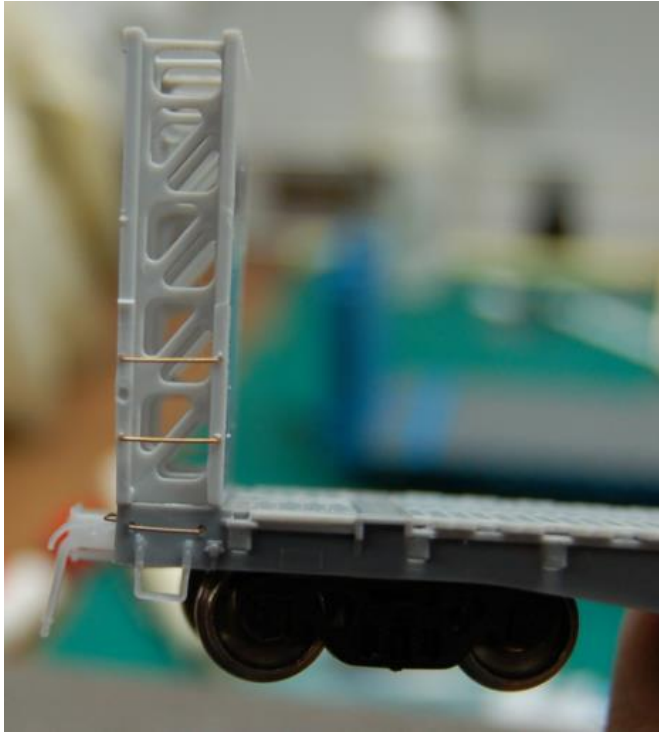


21. **Complete the A end bulkhead assembly.** The A end bulkhead assembly uses one different vertical support than the B end. The second one from the left only has one locating hole for a grab iron. So looking left to right you will have supports that have no holes, one hole, two holes and one hole. The outermost have tabs the same as the B end.

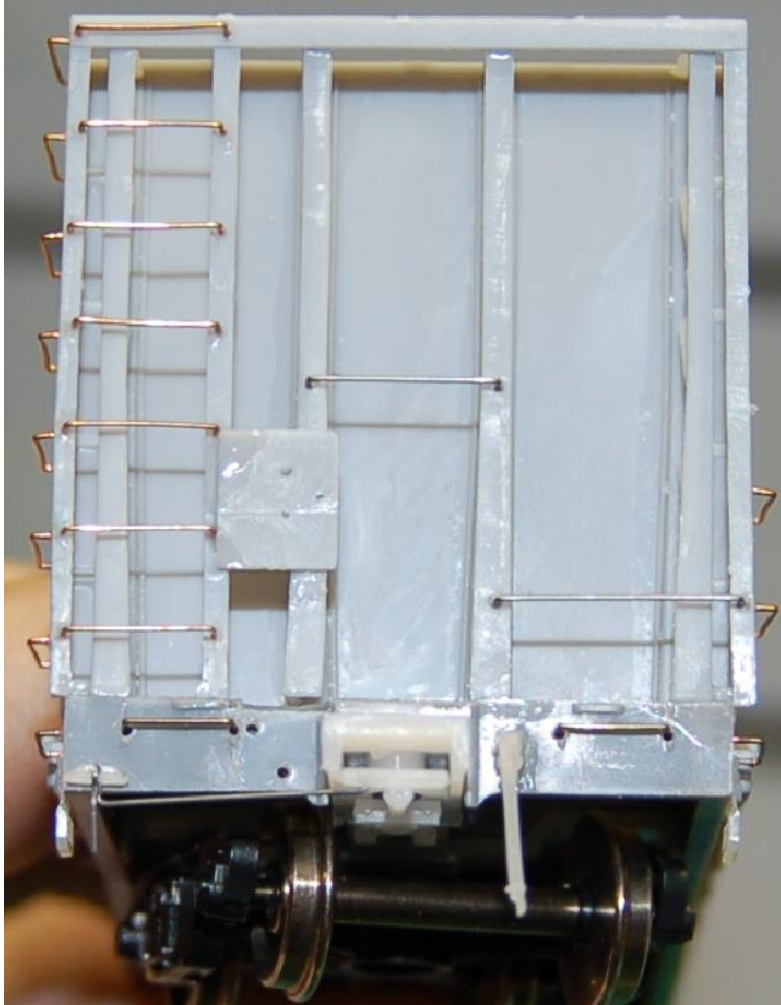


Glue in place, and install the outer frame and install on deck as you did on the other end of the car.

22. **Install the bulkhead grab irons.** There are two types of grab left over, and they are for the vertical ladders on the corners or for the outer frame of the bulkhead. They can only fit in one spot so it's fairly easy to figure out. Glue all grabirons in place with CA.



23. **Glue the brakewheel housing backplate** to the B end of the car.

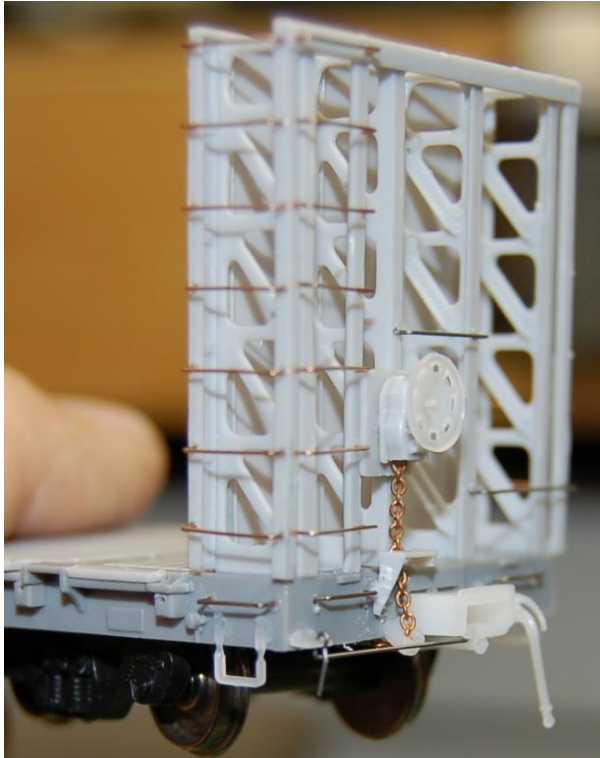


24. **Glue the chain to the brakewheel housing.** Locate the brakewheel housing and glue the end of the chain in the back cavity with CA.

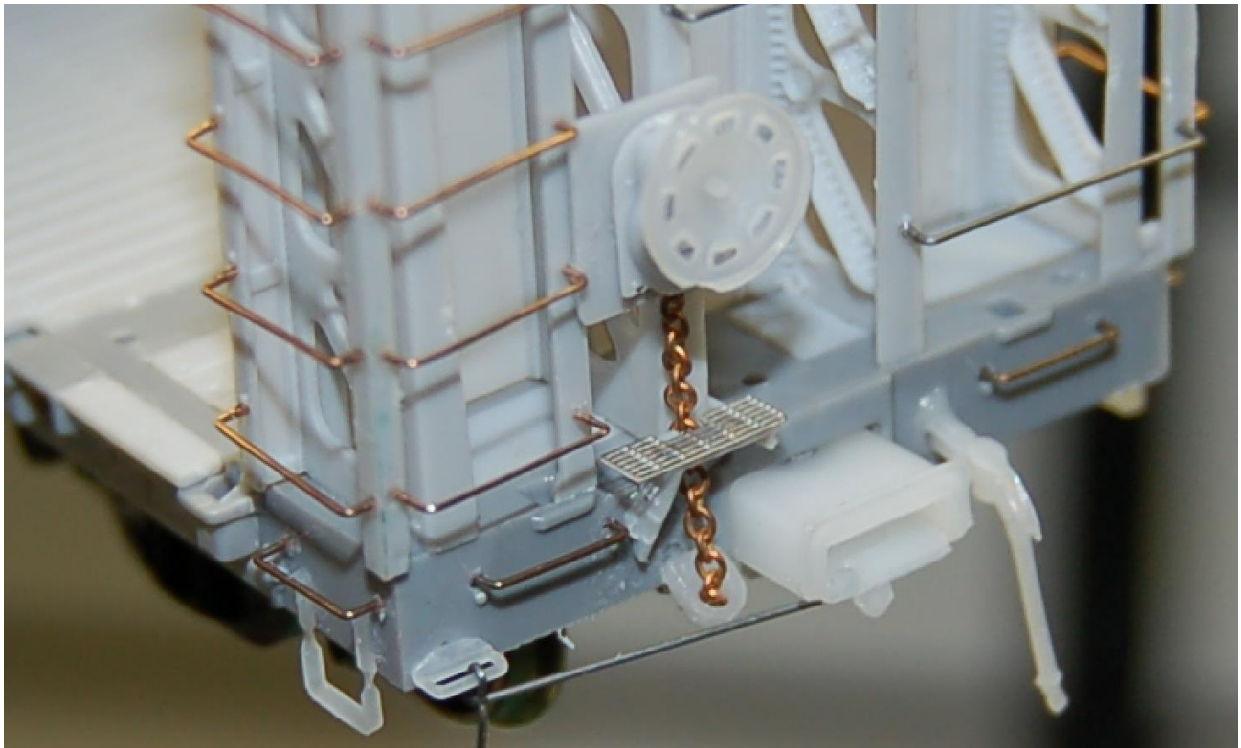


25. Mount the housing to the backplate (see photo below).

26. Install the brake platform support. Locate the brake platform support and position it as shown. Glue in place.



27. **Add the chain guide.** Position it so that it angles downward. You may need to enlarge the hole slightly to allow the chain to fit through.



Feed chain through the notch in the brake platform support and through the chain guide. Pull the excess chain length under the end sill and secure with CA.

30. **Glue the brake platform to the support** with CA.

31. **Glue the brakewheel in place.**

This concludes the construction phase for the bulkhead version of the GSC 60' Flat car.

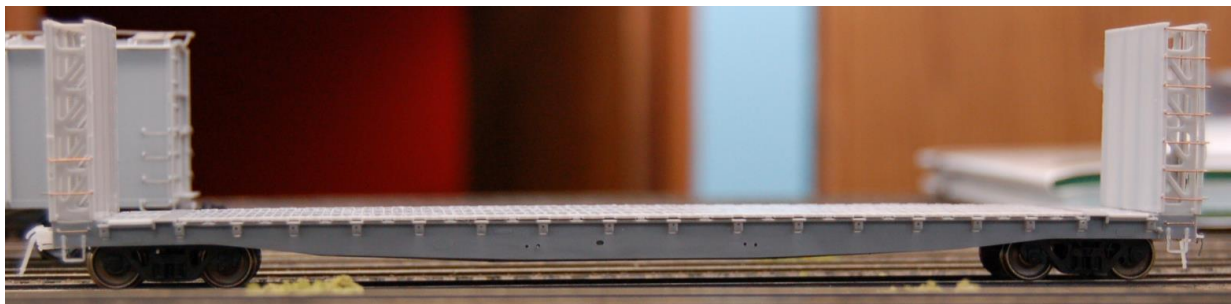
FINISHING UP:

1. **Paint the car.** Refer to prototype photos for the exact car color you need. And don't forget to mask the couplers so they will not get "sticky" from the paint.

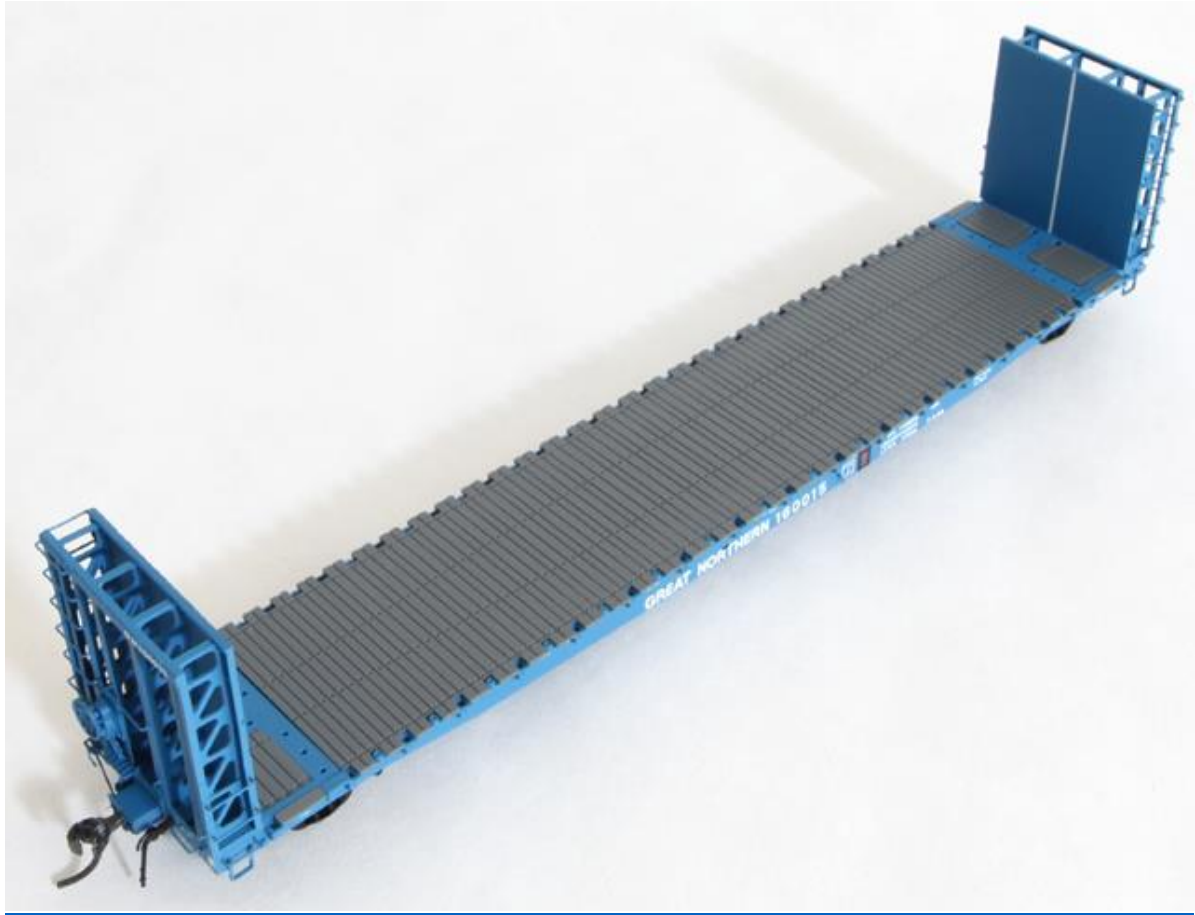
This concludes the assembly of your kit. We hope you have enjoyed building our GSC 60' Flat car kit, and we thank you for your support of Tangent Scale Models! Your hard-earned dollars allow us to continue to bring you more models in the future.

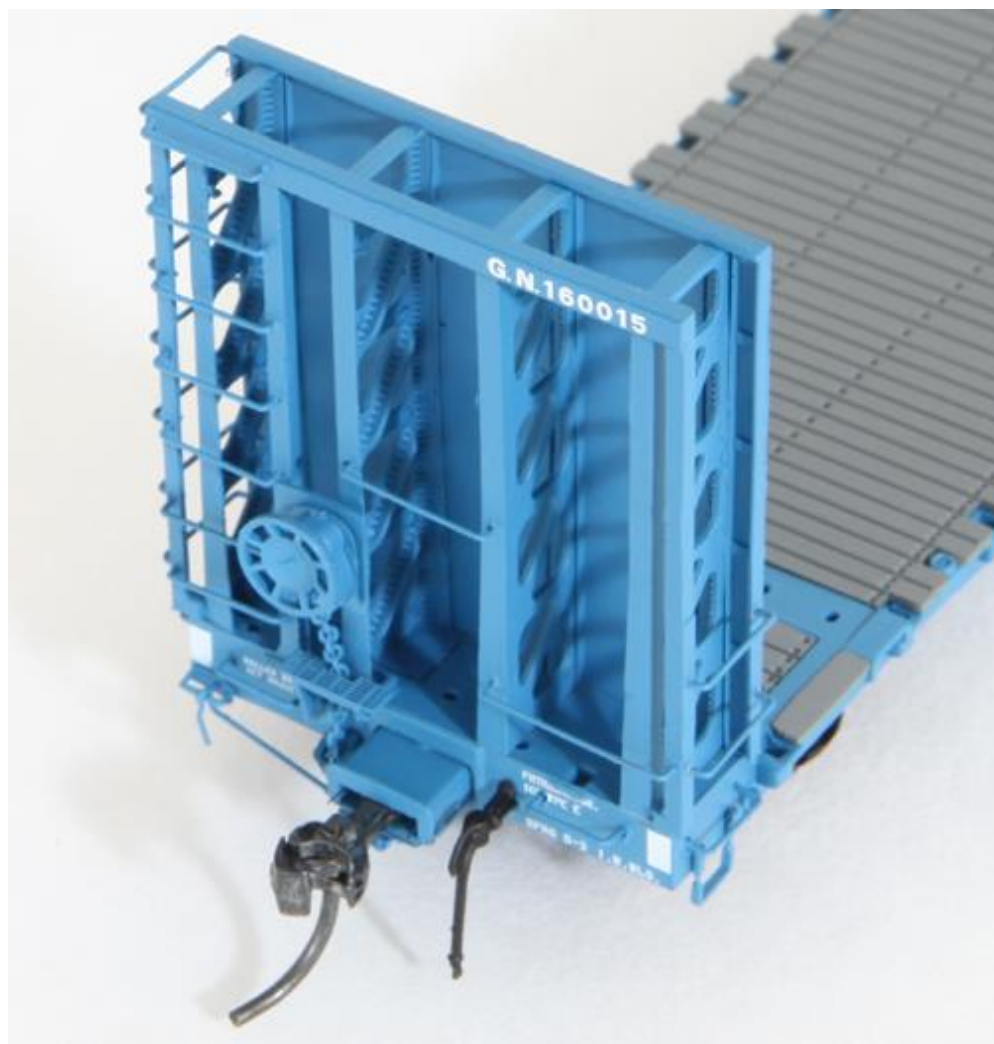
Want to share your creation with the world? Please feel free to upload an image of your customized Tangent model to: <http://tangentscalemodels.com/share/>

More images of finished cars are on the following pages.













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