



Instructions: Gunderson Brothers 50' 6089cf High Cube Double Plug Box Car Kit

Tangent Part Numbers: 29000-01

7/2022



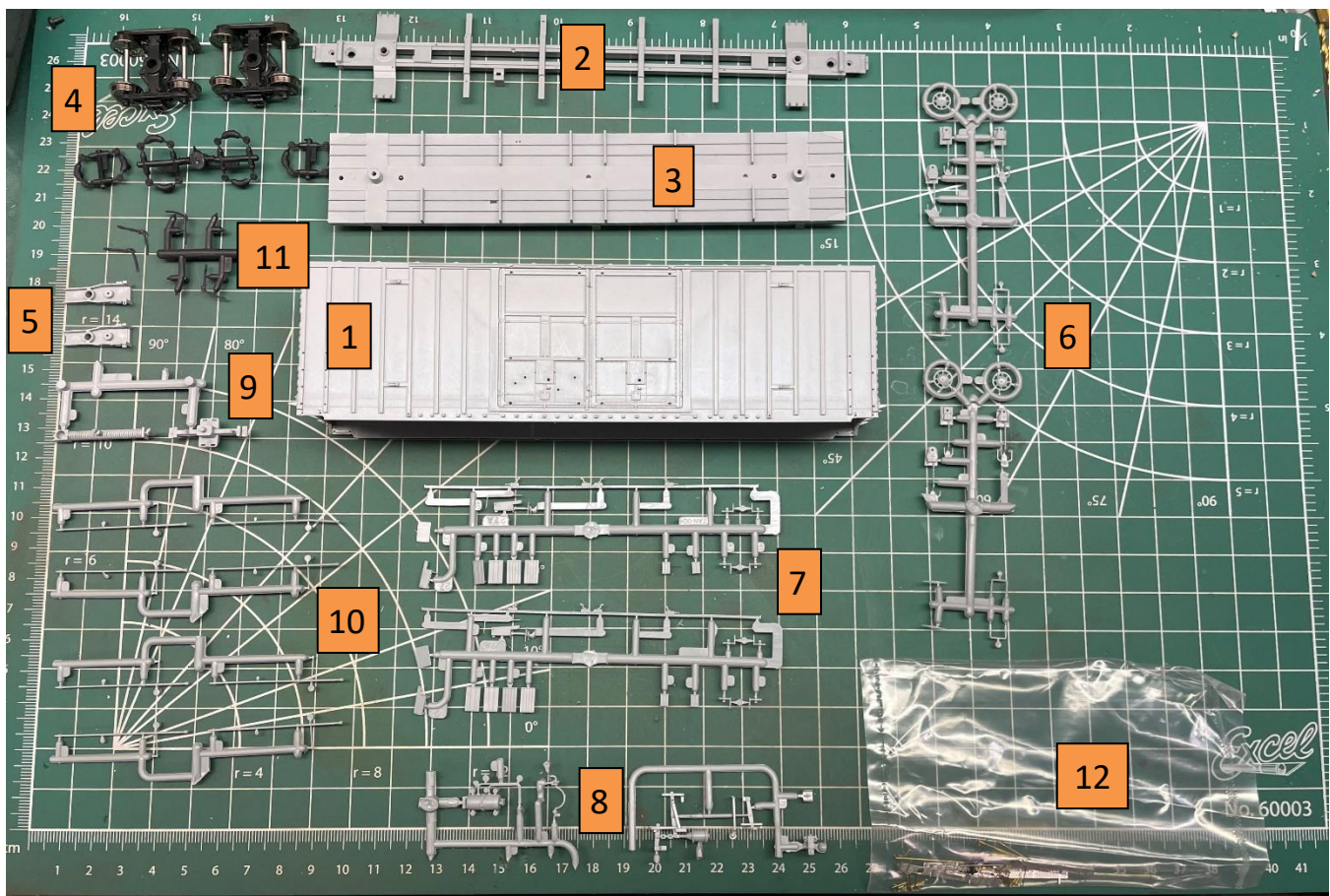
Thank you for purchasing the Tangent Scale Models Gunderson Brothers 50' 6089cf High Cube Double Plug Box Car Kit! A few quick notes before starting:

- **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 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 of our trucks – and those from other brands!



Overview of this kit's contents:



Standalone parts included:

- Part 1 – Boxcar Body
- Part 2 – Underframe
- Part 3 – Boxcar Floor with Car Weight Attached
- Part 4 – Trucks and Bearing Caps (2 types of trucks included in kit, 1 type shown)
- Part 5 – Coupler Boxes

Part sprues included:

- Sprue #6 contains door locks, stirrups, brake wheels (2 types) and brake housings (3 Types)
- Sprue #7 contains bottom door tracks, tack boards and cut lever mounts
- Sprue #8 contains underframe brake parts including retainer valve and air tank
- Sprue #9 contains Hydro-Frame parts
- Sprue #10 contains door rods

Rubber parts included:

- Part 11 – Air Hoses

Parts bags included:

- Bag #12 contains all wire and etched metal parts

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
- 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

- **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 several bags open at a time, so we recommend a clean and open work surface so that you can keep all of the parts in the open and accessible. Let's get started!
- **Kit variations:** When you ordered this kit, there are several different prototype-based configurations to choose from. Research your prototype to determine which trucks, tack boards, brake housing and brake wheel is appropriate. If you want to change the configuration of your kit, you can order all of our parts at www.tangentscalemodels.com.

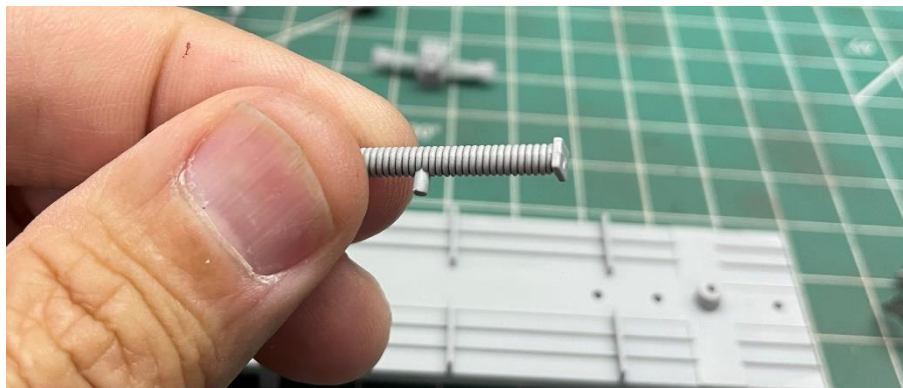
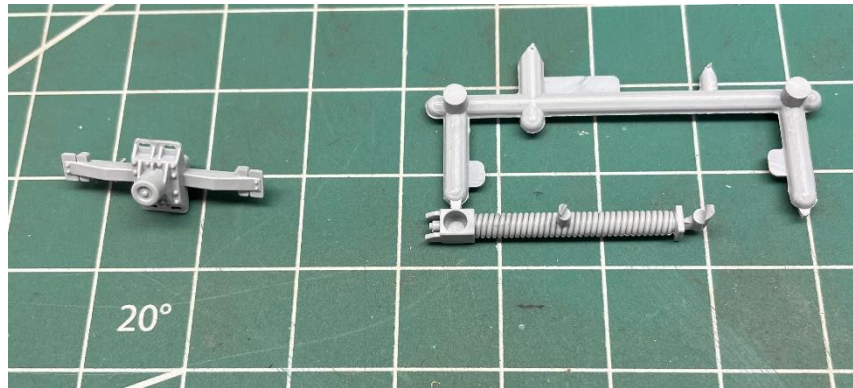
Box Car Construction Overview:

1. Kit Configuration: These instructions will demonstrate the assembly of a Southern Pacific 1969 delivery car that has had the body mounted brakes and prototype appropriate brake housing and wheel.
2. There is no set assembly sequence when building this kit. There are basically three “sub-assemblies” to construct: the body, the underframe, and the roof. The order in which you assemble each one is entirely up to you, but we recommend building the kit in the order described here. Now, let's get started!

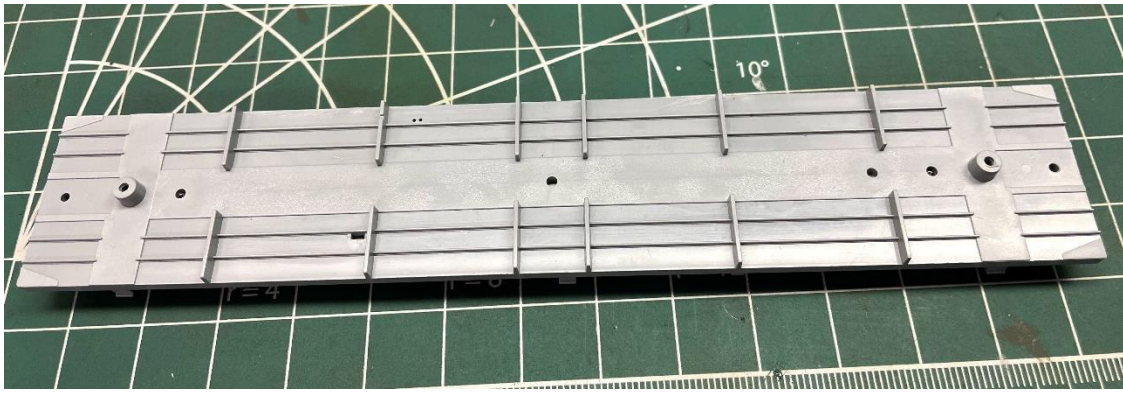
3. This kit is very similar to our previous releases in that you can begin construction with either the underframe or the car body. Our only recommendation is that you complete whichever sub assembly you start with before moving on to the other.

Underframe Assembly:

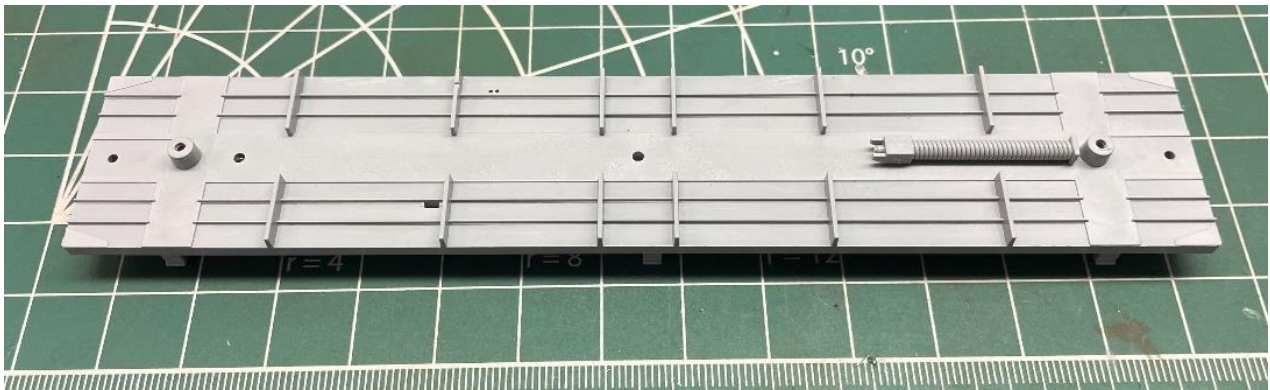
1. **Prep the cushioning components.** They are both on the same sprue, so remove both and clean up any flash and mold release pins.



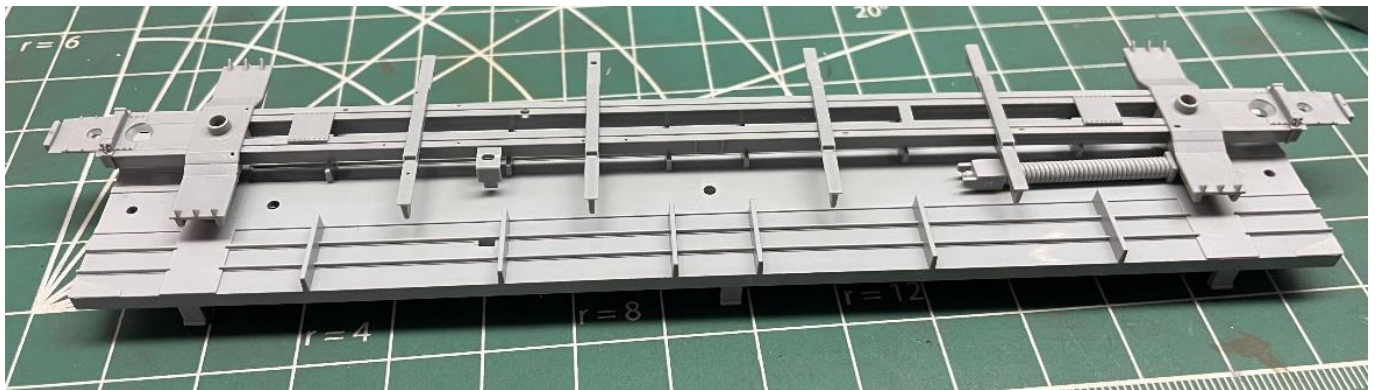
2. **Install the cushioning components.** The floor (which should have the weight already installed) is keyed for the underframe. Looking at the floor, you will see one side that has two holes by the bolster and one that has three.



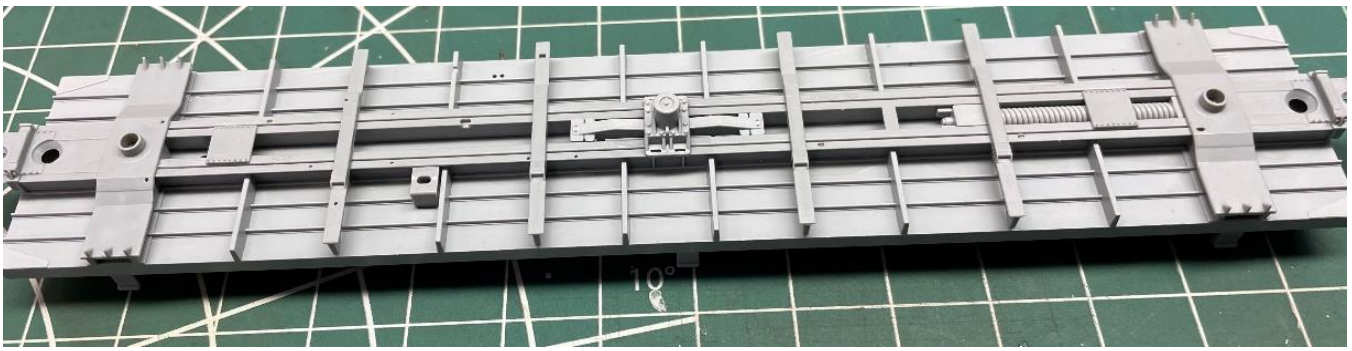
3. The large spring goes on the side of the floor with three holes with the flat end of the spring facing the bolster kingpin. Put the spring in place using the pin to locate but do not glue as you need to allow it to float so the underframe can be positioned properly.



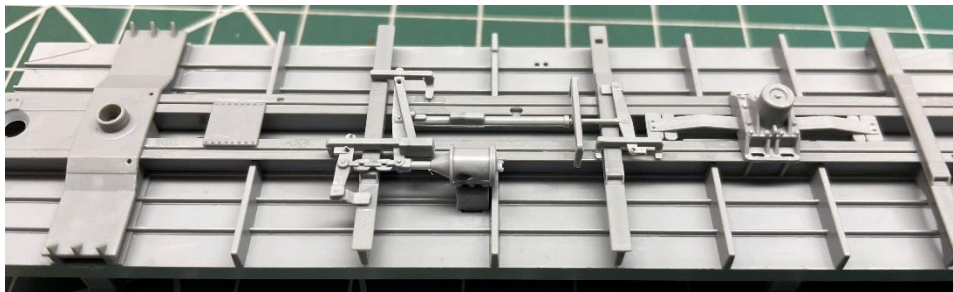
4. **Install the Underframe.** The underframe is also keyed so it will only fit one way. There is a small tab on the cylinder bracket that fits into a slot on the floor. Position the underframe over the spring and glue in place (this will also secure the spring). At this time you should also remove the two small washers that fit over the bolster kingpins and put them off to the side so they do not fall off and get lost.



5. **Install the Cushion Device.** Now glue the Keystone device into the center sill using the pin on the back of the casting as a positioning guide.



6. **Install the Brake Assembly:** Remove all flash and mold release pins from the cylinder/slack adjuster/dead lever casting. When complete it should look like it does in the first photo. The underframe has holes that pins on the casting fit into and the cylinder has a tab that fits into a slot on top of the cylinder pad. Position the casting and glue in place.

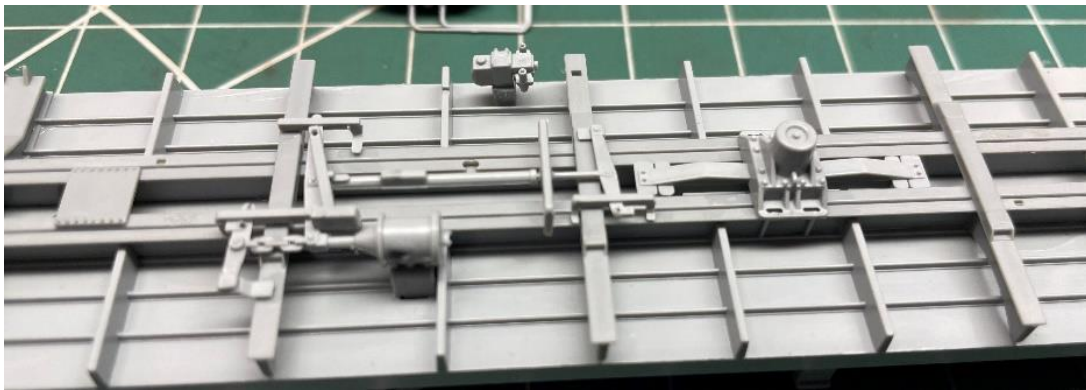


7. **Install reservoir and AB valve.** Remove the reservoir and AB valve castings from the sprue and remove all flash and mold release pins. The reservoir assembly should look like the photo when cleaned.

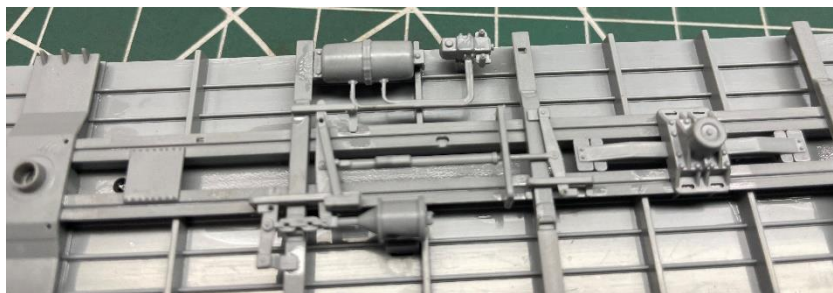


8. Glue the AB valve in the two small holes in the floor opposite the cylinder with the side of the casting with the two “posts” facing the center of the car (refer to photo)

*you may choose to use CA to secure the AB valve and reservoir in the next step. The AB valve will have other parts attached to it and the reservoir has one side that is attached from underneath so they need to be secure before proceeding



9. The reservoir has a tab on one side that fits underneath one of the floor cross members and the other side has a tab that fits in a slot on the one next to it. The “pipes” butt up against the AB valve. Use the photo to show the proper positioning of the assembly and secure the reservoir but do not attach the pipes to the AB valve as there are other components that will attach there as well. Allow all these assemblies to cure before proceeding.

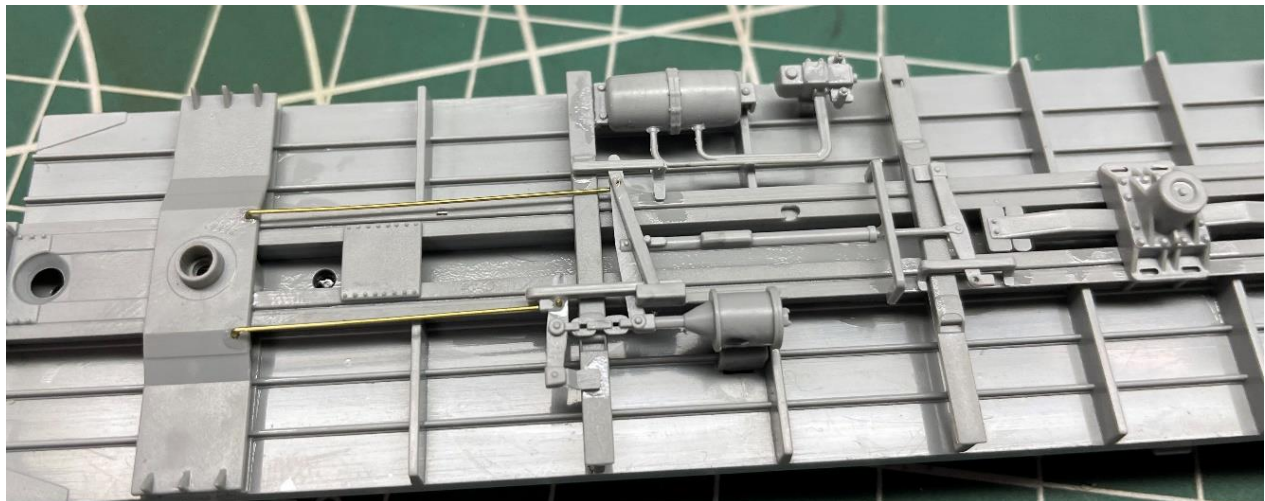


10. **Locate the brake assembly wire and etched parts.** Open the wire parts bag and empty the contents on your work surface. Locate the three long straight pieces with opposing 90 degree bends at the ends and set them aside. Next, locate the irregularly shaped wire and set it aside. There is also a short wire with a 90 degree bend on one side and an

irregular bend on the other. Set it aside. Lastly, there are three grey C shaped pieces that we need for the underframe so locate them and set aside as well. You can either put the remaining wire parts back in the bag or set them aside as they will be used at a later time. Just don't lose any of them!

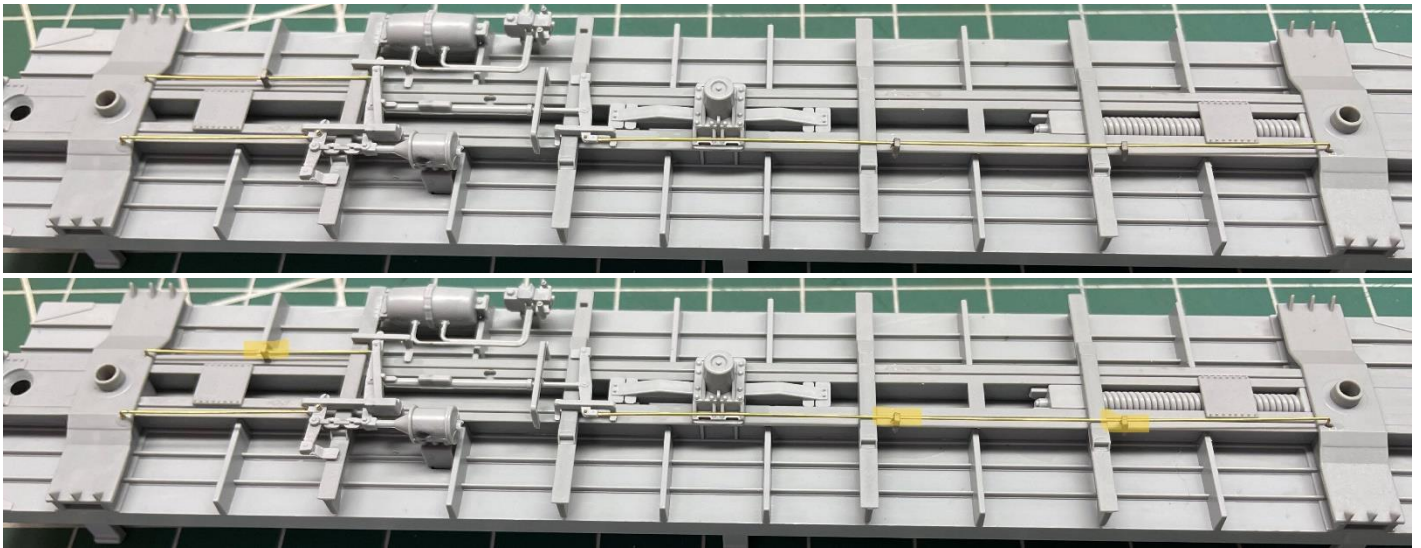


11. **Install the brake rods.** Of the three long straight wires the shortest one goes from the lever closest to the B end (where the cylinder points) to a small hole in the bolster. As stated earlier the wire has opposing bends with one of the legs slightly shorter than the other. The shorter leg goes into the hole in the lever by the cylinder. It is fed from underneath and when inserted you will need to hold it in place while you position the other end into the hole by the bolster. The second longest one goes into the hole in the lever next to the reservoir and into the hole on the other side of the bolster. The shorter leg goes into the lever and it may need to be trimmed just a bit to allow it to be fed from underneath like the other wire was. Use the same technique with holding the end in the lever and positioning the other end in the bolster, then glue in place. The longest wire goes from the rear lever into a slot in the other bolster. Put into position and secure with CA.

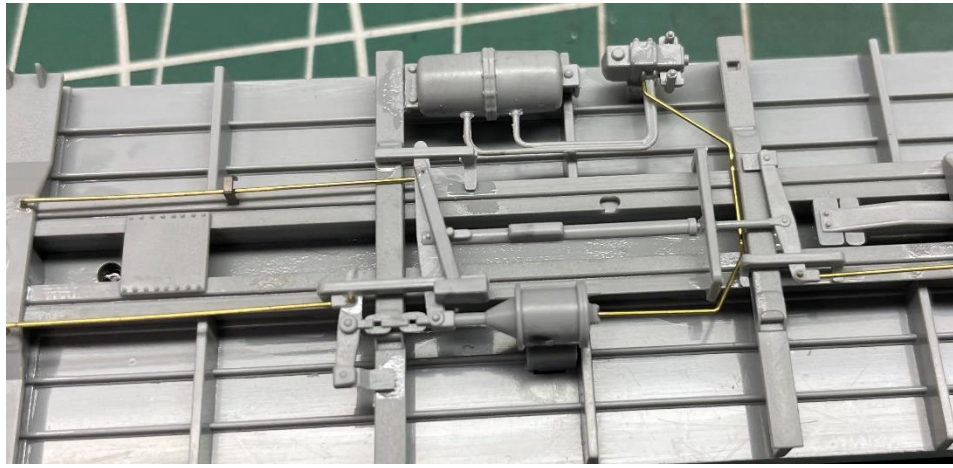




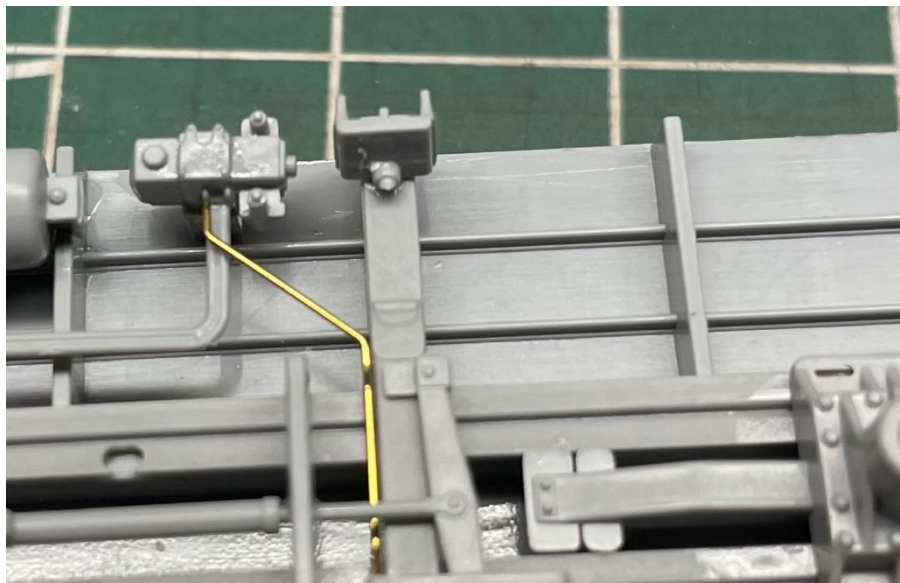
12. **Install Brake Rod supports.** The center sill has small slots for the three grey C shaped components. They have one leg that is slightly longer than the other. The longer leg goes into the slot on the center sill. Position so that they are cradling the wires of the brake system and secure with CA.



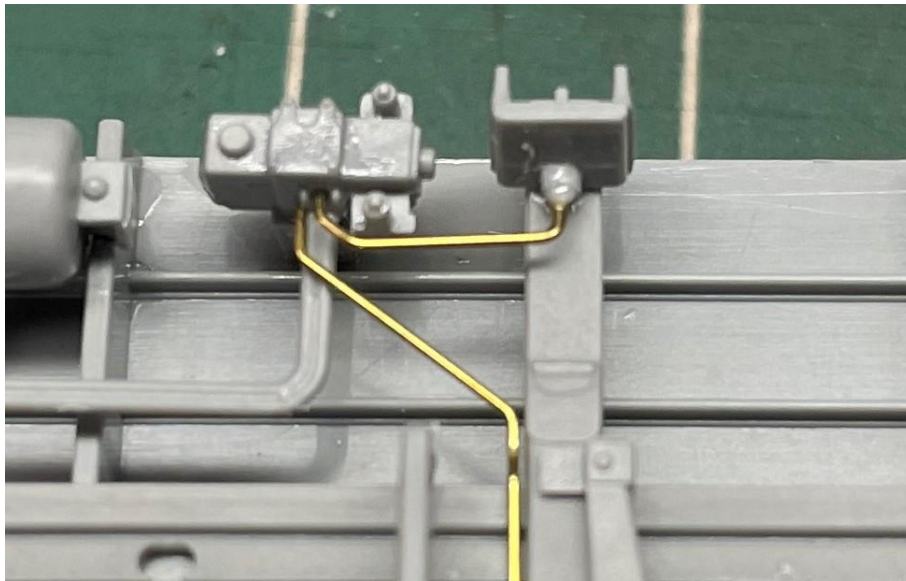
13. **Install air line.** The irregular shaped wire goes from the back of the cylinder to the AB valve. It needs to be fed under the slack adjuster and inserted into a hole in the rear of the cylinder. Refer to the photo to aid in positioning and when in place secure the end in the cylinder with CA but not the end at the AB valve as the dirt collector pipe still needs to be attached.



14. **Install the retainer valve/bracket.** The retainer valve goes into a slot in the cross member next to the AB valve with the valve lever facing out. Glue in place.



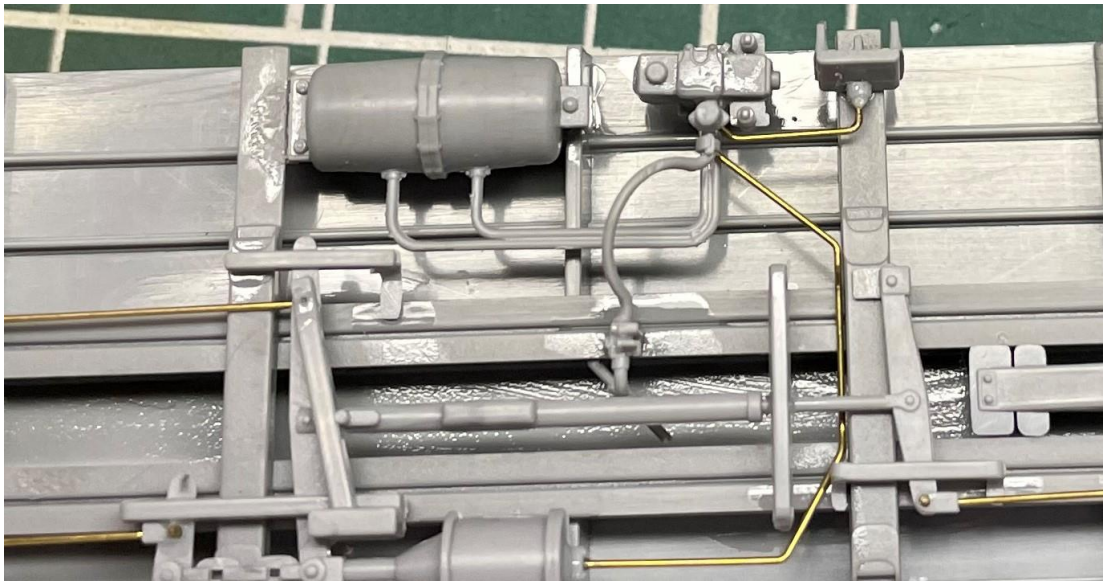
15. **Install air line.** The remaining wire that was set aside goes from the hole in the back of the retainer valve bracket to the AB valve. The side of the wire with the straight bend goes into the retainer valve. Position and secure the straight side of the wire with CA but not the side at the AB valve.



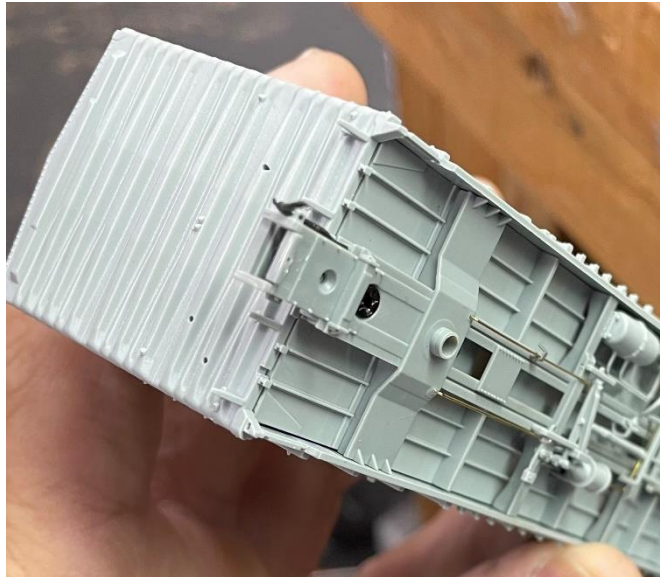
16. **Attach Dirt Collector.** De-sprue the dirt collector pipe so it looks like the photo when complete.



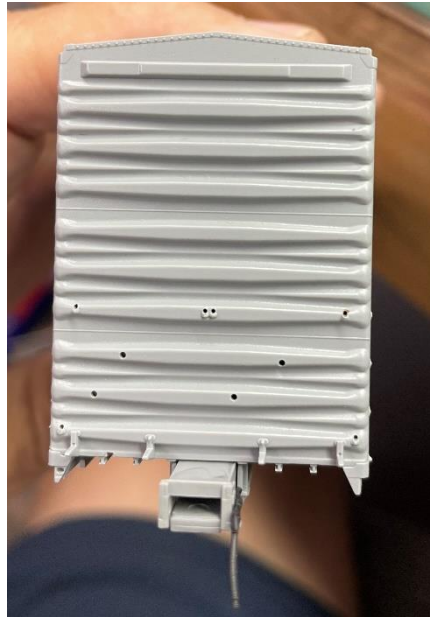
17. The small, angled part of the casting fits in the center sill opening and the small pin at the base of the casting fits into a slot in the sill. Use a small amount of plastic cement at the slot in the center sill to allow the dirt collector pipe to be tacked in place while getting it into its final position. When satisfied use a small drop of CA to attach all the components to the AB valve and more plastic cement to secure the casting at the center sill.



18. **Install coupler box and brake hoses.** Locate the 4 small flat head screws from the wire parts bag as well as the coupler pockets. The larger of the two screws anchor the pocket to the center sill and the other secures the cover. Slide the coupler pocket into the center sill and secure with the larger screw. You can install the smaller screw now or wait until couplers are installed, it is your choice. You do not want to use any glue on the coupler pockets as they need to be removeable, and we also recommend not installing the couplers until all paint and weathering is complete to ensure that the couplers operate properly.



19. The air hoses have a small pin just behind the angle cock that fits into a hole on the side of the coupler pocket. It may need to be opened up a bit for the pin to fit. If needed, use a #79 drill to do so. Position the hose and secure it with CA being careful not to glue the coupler pocket together.



This completes the underframe assembly. You can install it in the body now or wait until the body detailing is finished. Either way, you will not need to glue it in place as it is a very snug fit. The B end of the body has two sets of diagonal holes in it-this is the side that the cylinder points to. Position the underframe with the cylinder pointing toward the end with the two sets of holes and gently push the underframe until it fits flush with the ends of the carbody (it should snap in place).

Side Body Assembly:

20. **Install the wire grab irons to the car sides.** Begin the body detailing by returning to the wire parts bag. Three different types of grab iron are left over. There are 16 longer parts that are used for the car sides, four at each corner. The shorter ones are for the crossover platforms. Of the shorter ones there are two different types-one with longer legs and one

with shorter legs. The ones with longer legs are used for the Morton type (the one that has the lip on the front and the round holes) and the other four will be used on the Apex version (the one with the slots and no lip). Whichever you use (based on your prototype) you will end up with leftover parts so don't be alarmed!

21. Insert the long grab irons into the holes on the corners of the car sides (4 in each corner) and secure with CA.



22. **Add the lower door tracks.** The door detailing is the same on both sides of the car. Remove the lower door tracks from the sprues and very carefully clean off all flash. Be very careful when de-spruing this part as it is very delicate. Also, clean off any flash on the mounting brackets that run along the bottom of the side sill. There are pins on the ends of the tracks that fit into the two outer brackets. Put the tracks into position and glue in place.



23. **Add tack boards.** On the left door there is a small and large tack board. Choose the appropriate tack boards for your prototype. Glue in place.



24. **Add the door rods and door handles.** Each door also has a left and right rod assembly. Remove all rods from the sprues and clean all flash and mold release pins. Again, these parts are very delicate so be careful when de-spruing. Position each one and glue in place. Remove the door openers from the sprues and insert them into the holes in the doors and position them so they are vertical and rest in the slot in the small post below them.



End Body Assembly:

The detailing on the A and B end is the same except for the brake gear and the cut lever bracket is different.

25. **Install car end tack boards.** Install a large tack board on each end of the car (on the B end it goes in the holes to the right).



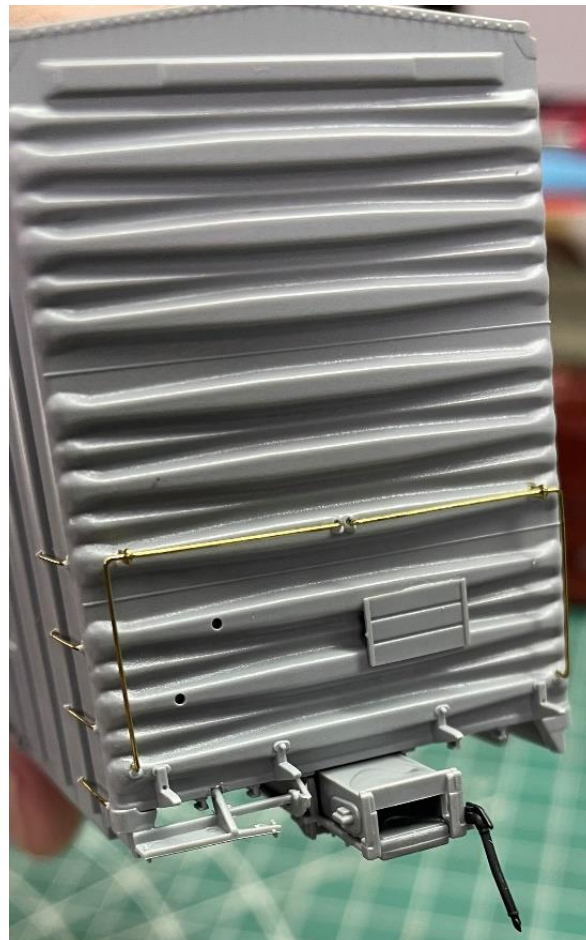
26. **Install Eyebolts.** From the wire parts bag locate the four small eyelets and glue them into the holes at the outer ends of the fourth rib from the bottom of the car.



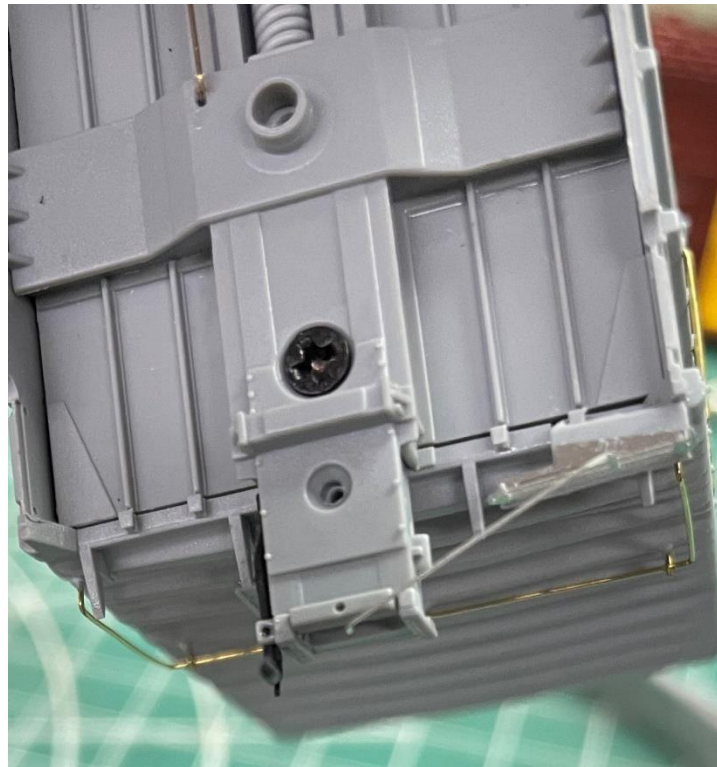
27. **Install grab irons.** There are 4 large L shaped wires. They each have a long and short leg so there is a left and right, and the longer leg is the horizontal. Insert the appropriate wire into the eyelet and insert the ends into the holes. You may need to adjust the eyelets up or down to get the legs of the wires to sit properly. When satisfied with their placement secure all with CA.



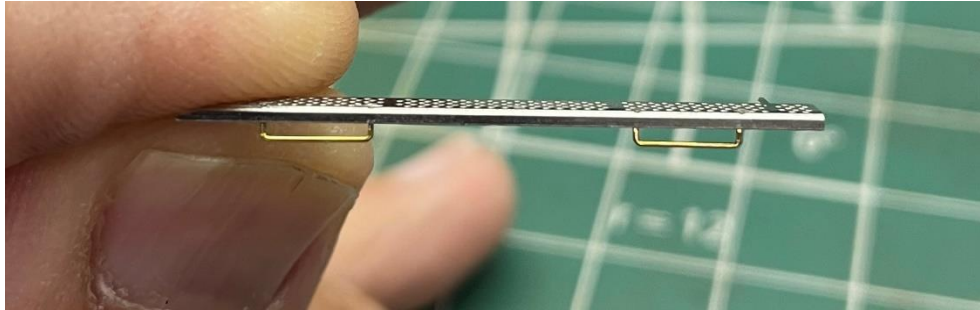
28. **Install coupler cut lever brackets.** The cut lever brackets are slightly different in that the one for the B end has an additional piece with the fulcrum. They fit into a hole in the corner post and a notch in the end sill. Use the appropriate one for each end of the car and glue in place. These parts need to be securely in place before the next step so either use CA or let the plastic cement cure before proceeding.



29. **Install cut levers.** The cut levers have two small holes in them that fit over tabs on the bottom of the cut lever brackets. You need to position the part of the cut lever that goes under the coupler pocket out of the way to make it easier to install. We suggest bending the arm outward until the bracket is in the proper position and secure, then bend it back so that the pin fits into the hole on the bottom of the coupler pocket. Secure everything with CA.



30. **Install end grabs on the crossover platforms.** There are two styles of crossover platform, Morton and Apex. Choose which is appropriate for your car. There are two grab irons that go on each one. The ones with the longer legs go into the Morton crossover (round holes and lip as explained earlier). Lay the part on your work surface with the bottom facing up and insert the grab iron until it bottoms out on the work surface (flush with the top of the platform). Secure with CA.



31. **Install the crossover platforms, brake housing and wheel.** There are mounting holes on the car ends above the outer brackets that support the platform. These holes may need to be opened slightly (with a #79 drill) and the mounting pins may need to be shortened to allow the platform to seat properly. Test fit the platforms and when satisfied secure with CA.
32. On the B end of the car choose the appropriate brake wheel housing for your prototype. Feed the lower end of the chain through the hole in the platform. The end of the chain has a notch that fits over the fulcrum rod. Insert the brake wheel housing into the holes in the car end and glue both ends in place.
33. Add the appropriate brake wheel and glue.



34. **Install Stirrups.** Add the four stirrups and glue in place. Be very careful when de-spruing this part as it is very delicate.



FINISHING UP:

35. **Paint the car.** Refer to prototype photos for the exact car color. And don't forget: if you added couplers already, mask them off so they will not get "sticky" from the paint.
36. **Install couplers and trucks with screws provided.** When all painting is complete, add couplers if necessary. The couplers needed are Kadee Whisker type. Remember to add the small washers that you set aside at the beginning of the construction process before adding the trucks to ensure the car rides at the correct height.

This concludes the assembly of your kit.

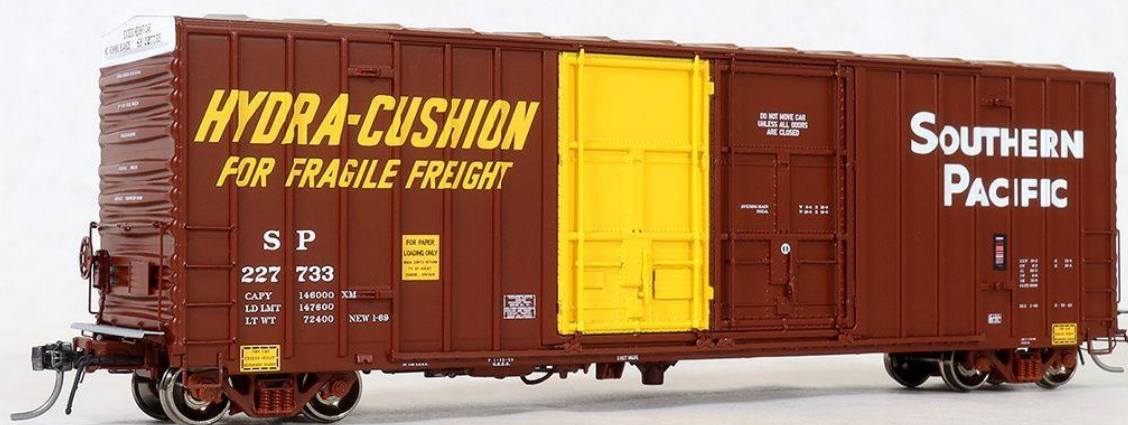
Thank you again for buying this car from Tangent Scale Models. Your hard-earned dollars allow us to continue to bring you more models in the future.

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More images of finished cars are below and on the following pages.







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