Instructions: Pullman-Standard PS-1
40' "Mini-Hy" Cube Box Car Kit

Tangent Part Number: 18000-01

12/2016

Thank you for purchasing the Tangent Scale Models Pullman-Standard PS-1 "Mini-Hy" Cube Box Car Kit! A few quick notes before starting:

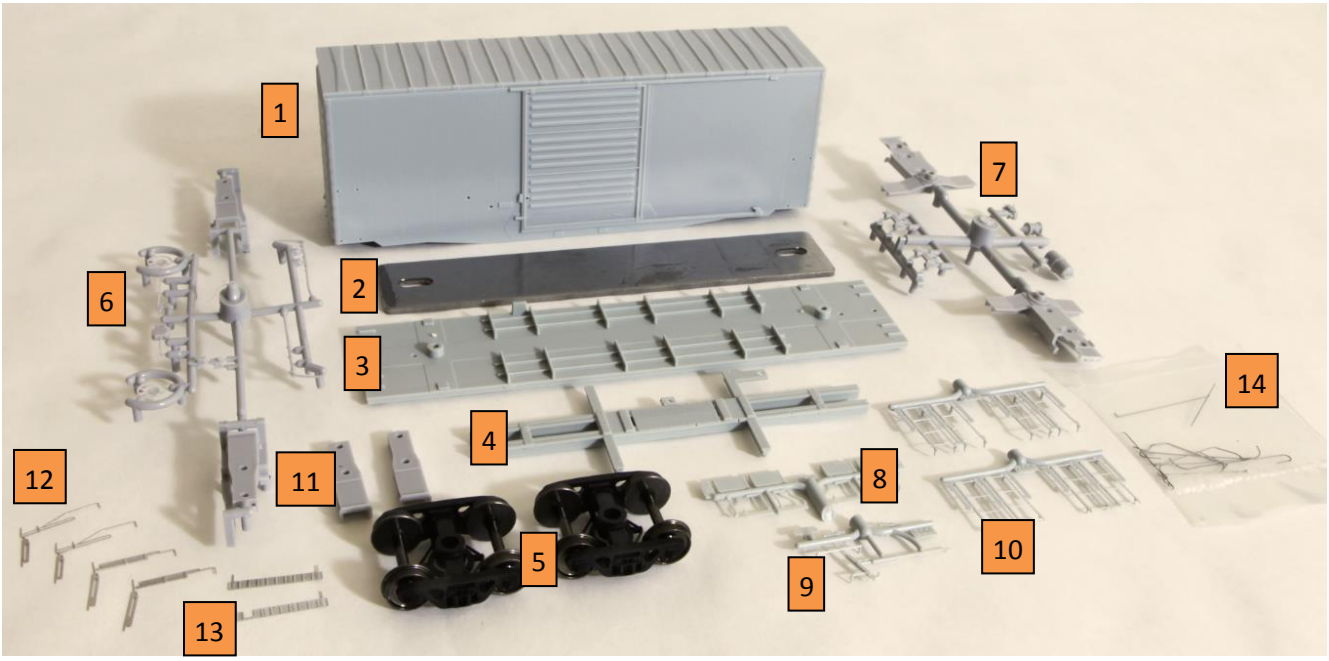
- **Instructions have many large images:** Because some model builders are visually oriented, while others prefer written instructions, we have included *both* text and photos within these instructions. As you can see, many of the images are rather large, to aid in your model building.
- **There are 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. 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 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
- **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!


HO Scale Wheelsets
TSM-120
12-Pack 33"
.088" Semi-Scale
All-Metal
Precision Wheelsets
TANGENT
SCALE MODELS
Unparalleled scale replicas for discriminating railroad modelers


HO Scale Wheelsets
100-Pack 33" Semi-Scale
All-Metal
Precision Wheelsets

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 some EXTRA parts that will not be needed for your assembly; we have included all parts to build any era of kit.



(Large) Standalone parts included:

- Part 1 – Box Car Body
- Part 2 – Car Weight
- Part 3 – Box Car Floor
- Part 4 – Car Center Sill
- Part 5 – Barber S-2 70-ton trucks with wheels

Plastic Parts included:

- #6 Sprue contains "standard weldment" draft gear "bottoms", brakewheels, brake housing, retainer valve, air hoses
- #7 Sprue contains bolsters with draft gear "tops", brake appliances, and bottom brake "frames"
- #8 Sprue contains tack boards, stirrup steps, and door levers
- #9 Sprue contains the brake levers and brake fulcrum
- #10 Sprue contains the side and end ladder parts
- #11 Sprue contains the "large weldment" draft gear "bottoms"

Metal Parts included:

- #12 Grouping contains 4 etched coupler lift bar parts (2 of 2 different types)
- #13 Grouping contains the end of car crossover platforms

- #14 Bag contains all of the wire parts

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

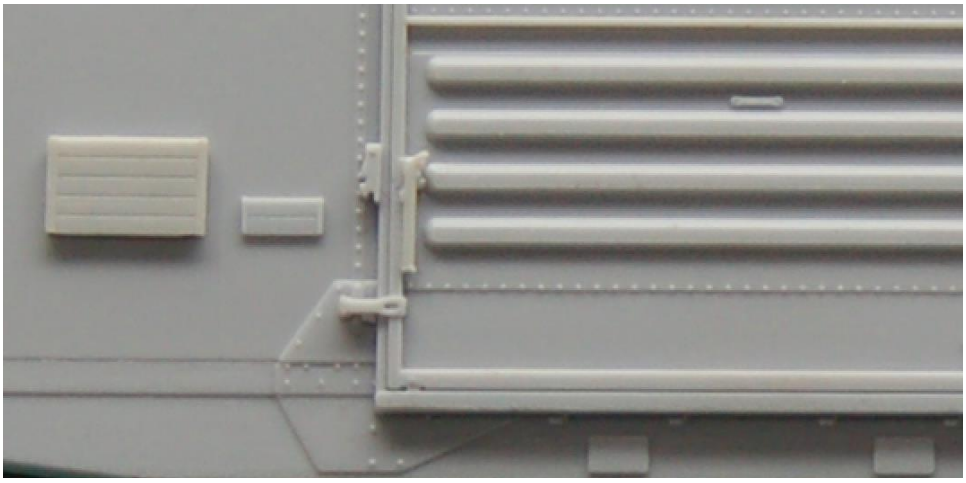
- **This kit is NOT recommended for children aged 14 and under.**
- **Small parts:** there are many very small parts included in this kit. The assembly sequence requires you to have access to multiple parts at a time, so we recommend a clean and open work surface so that you can keep all of the parts in the open and accessible. Let's get started!
- **Kit variations:** Like all Tangent Scale Models freight cars, this kit includes some extra parts in the box, which allows you to "customize" your model to mimic Pullman-Standard's original part selections. We bring these choices to your attention during the instructions of this kit during steps 24 and 27.

PS-1 40' "Mini-Hy" Cube Box Car Body Assembly:

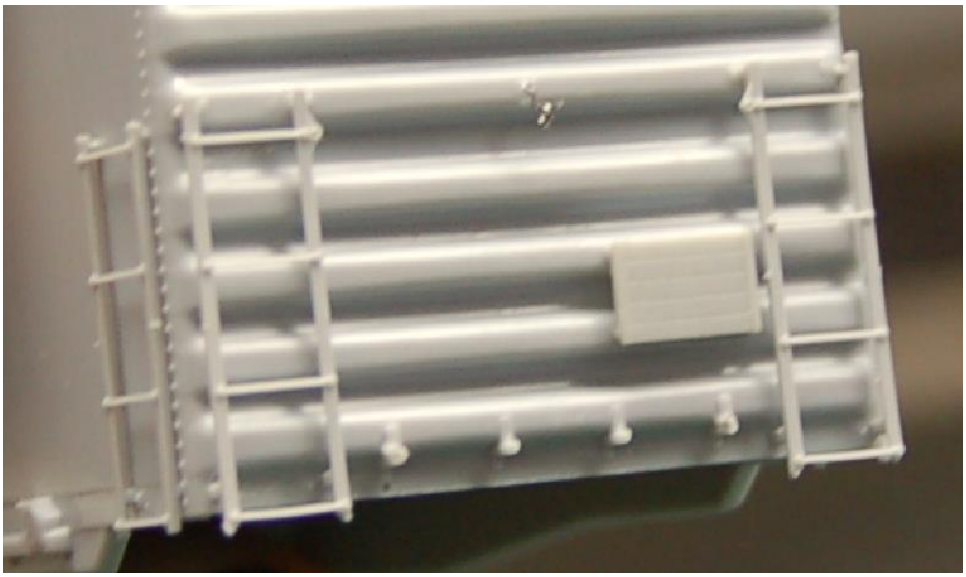
1. **Install the side tackboards.** There are 2 different tack board parts, one pair for the sides and one pair for the ends. The end tackboards are designated by a small tab marked END on the sprue; save those for a future step. The side tackboards are noted in the green rectangle below.

Glue the end tackboard parts to the end of the car. There are mounting holes just to the left of the doors on each side of the car. Position and glue in place.

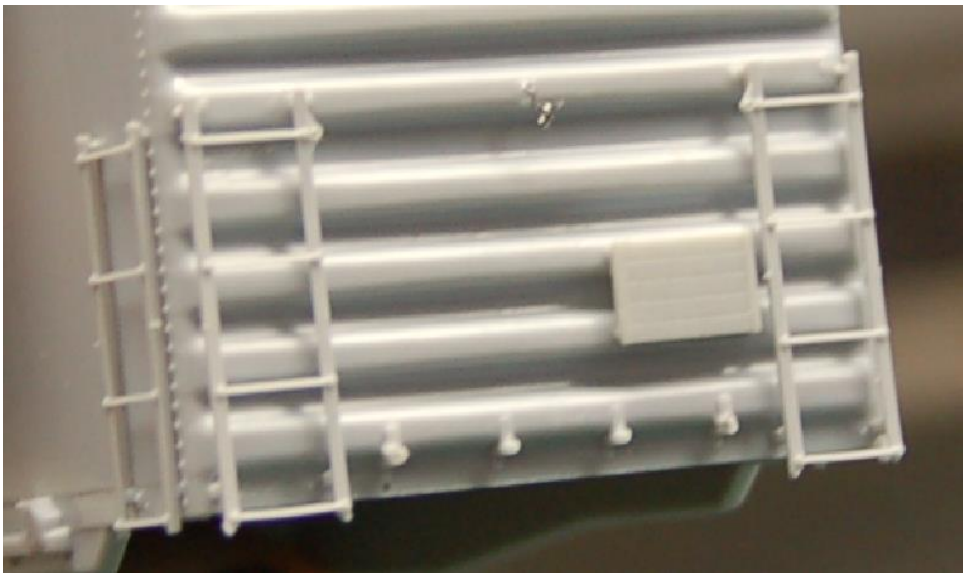
2. **Install the door levers.** Just below the tackboards on the sprue are the door levers. These go on the left hand side of the doors. Mount them so that they are pointing straight down and glue in place.



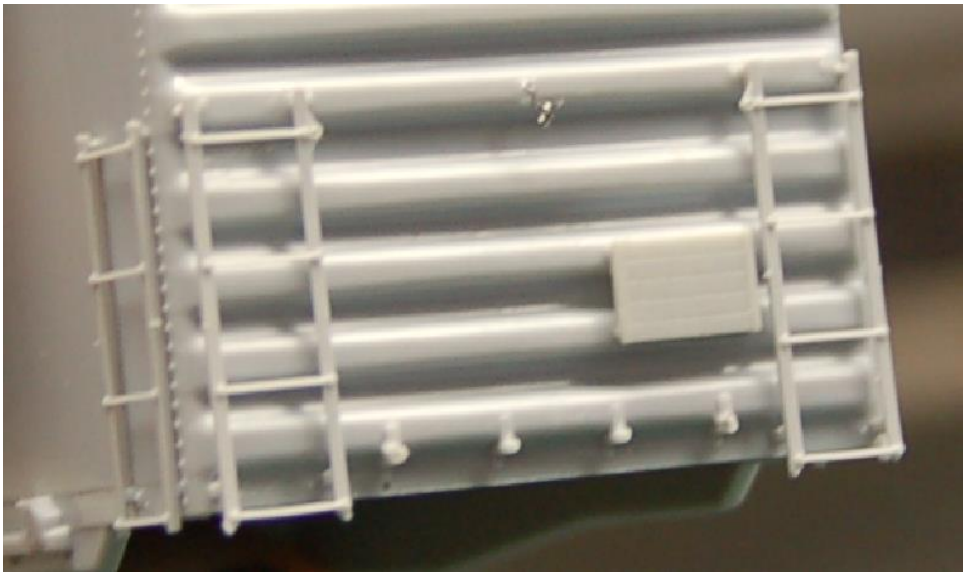
3. **Install the side ladders.** There are 4 pairs of ladders. The side ladders are marked "1002" on the sprues, and they are slightly different from the end ladders so pay attention when selecting these parts. De-sprue them very carefully with sprue nippers as they are delicate and can be damaged easily. The mounting pins on the ladders are flush on one end and slightly inboard on the other. The side that has the pins flush go on the top. Glue on the corners of both sides.



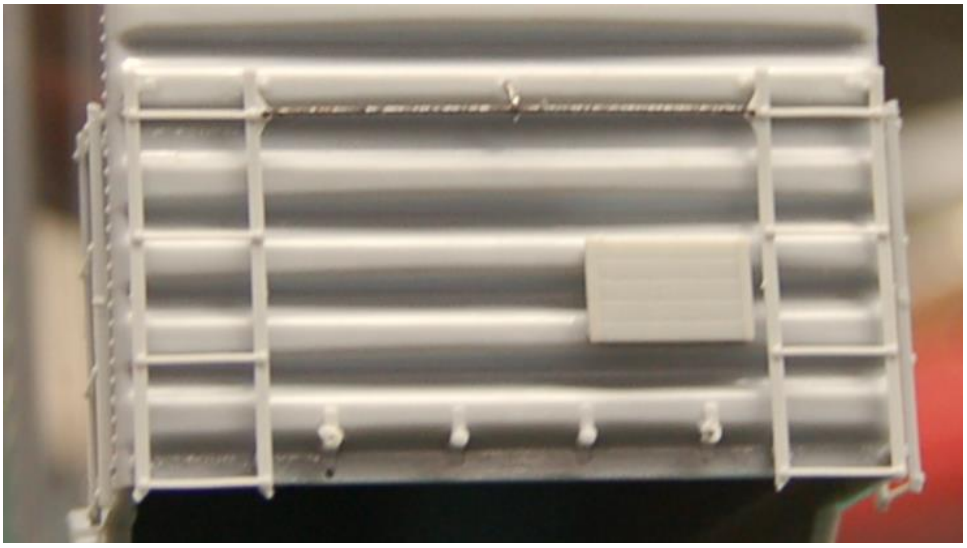
4. **Install the end ladders.** The end ladders have a small protrusion on one stile of each with a small hole for the end handrail. Install with the hole on top and toward the center of the car (there is a left and a right ladder) and glue in place.



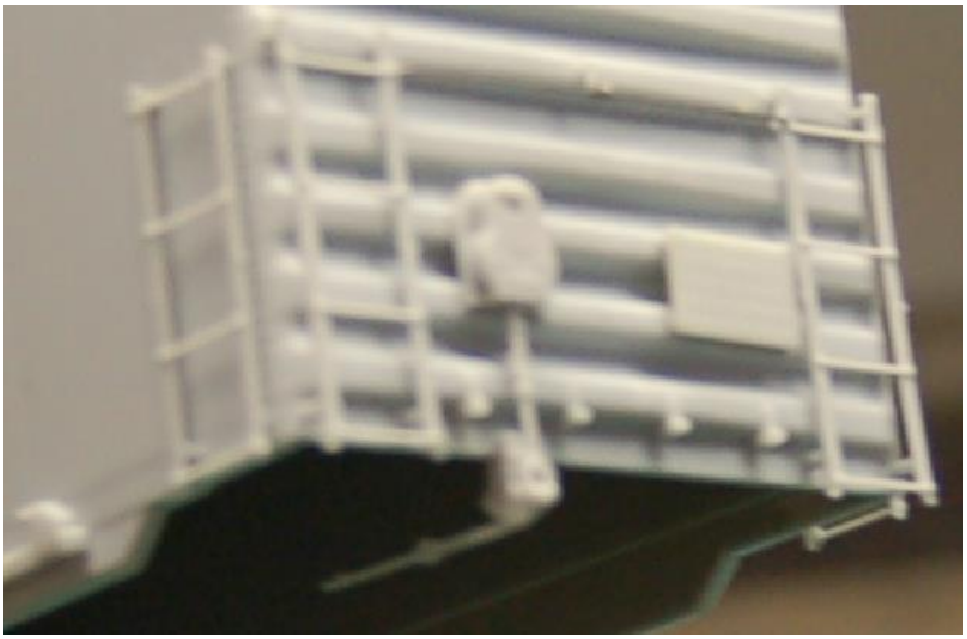
5. **Install the end tack boards.** Locate the end tack boards (the sprue has a tab labeled END next to them). There are mounting holes next to the ladders on the right hand side. Glue in place.

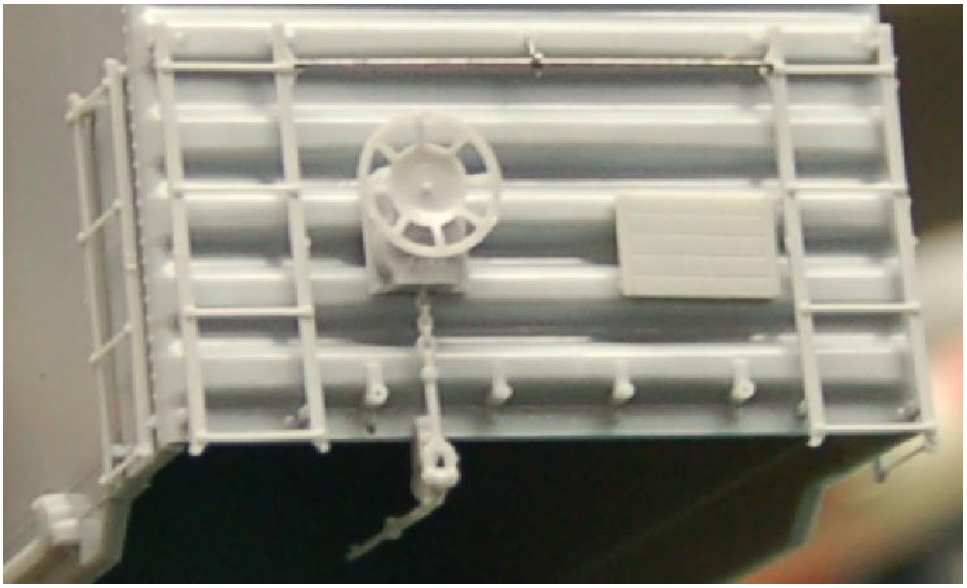


6. **Install the wire eyebolt and the end handrails.** Get the end handrails from the wire parts bag, along with the two eyebolts. Start by gluing the eyebolts in place in the locating holes on the ends of body with CA, orienting them so that the bend in the eyebolt has it pointing down toward the bottom of the car. Carefully fish the end of the handrail through the eyebolt and insert the ends of the wire into the holes in the top corners of the ladder stiles. Secure with CA.

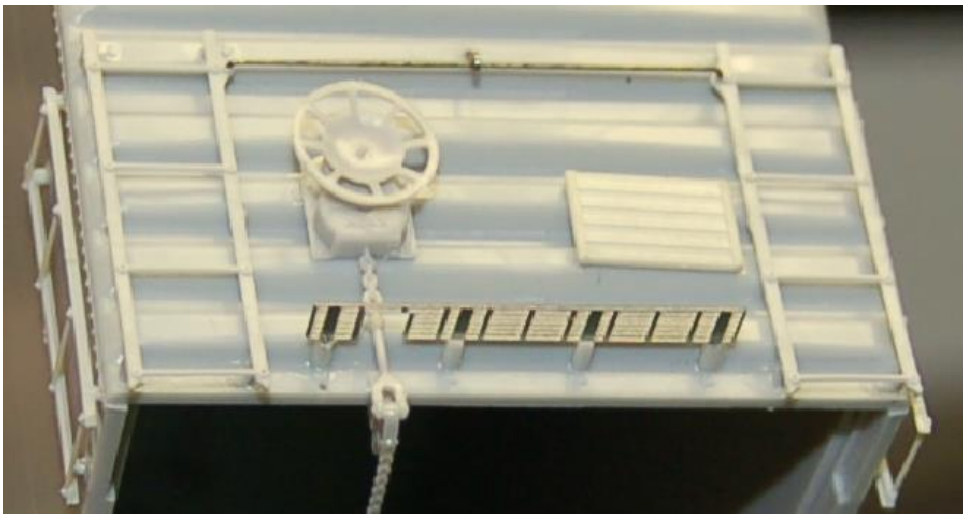


7. **Install the brake parts.** The B (brakewheel) end of the car has extra mounting holes for the brake gear. Very carefully de-sprue the brakewheel housing and chain casting and glue in place. Again, very carefully de-sprue the fulcrum and chain assembly and glue in place on the end of the car aligning it with the chain from the brakewheel housing. Glue the brakewheel into the brakewheel housing.



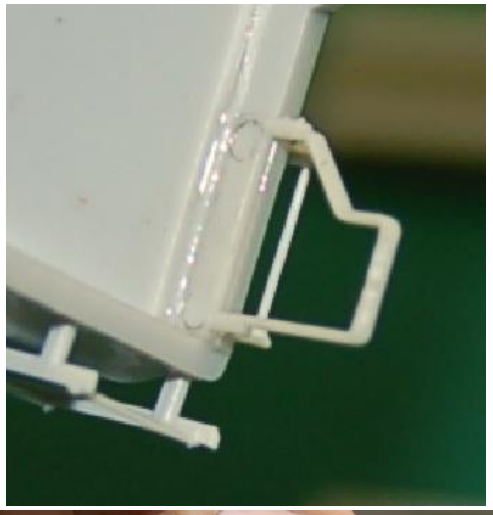


8. **Install the two crossover platforms.** Locate the two crossover platforms. The one for the B end has a small notch in it to allow the brake chain to pass through. The holes may need to be opened up with a #79 drill bit to ensure a good fit. Secure both parts with CA.



9. **Install the stirrup steps.** The last step in the body assembly is the four stirrups. They fit into notches inside the side sills of the carbody. If you look at the stirrup you will notice that the mounting tabs are slightly offset.

Mount so that the offset part of the tab goes under the side sill. After installing the stirrups be careful not to set the carbody upright as these parts are very delicate and they will break very easily.

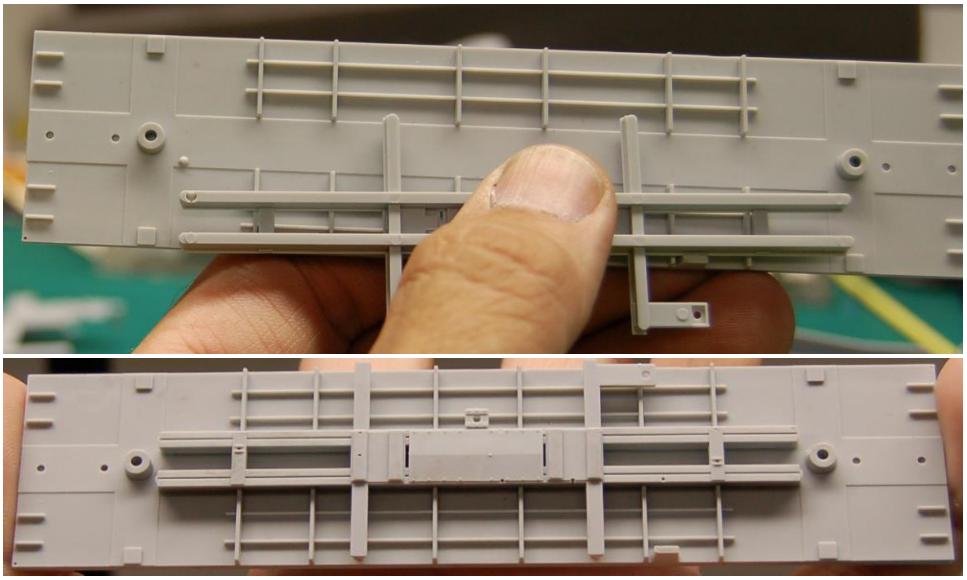


This completes assembly of the carbody.

PS-1 40' "Mini-Hy" Cube Box Car Underframe Assembly:

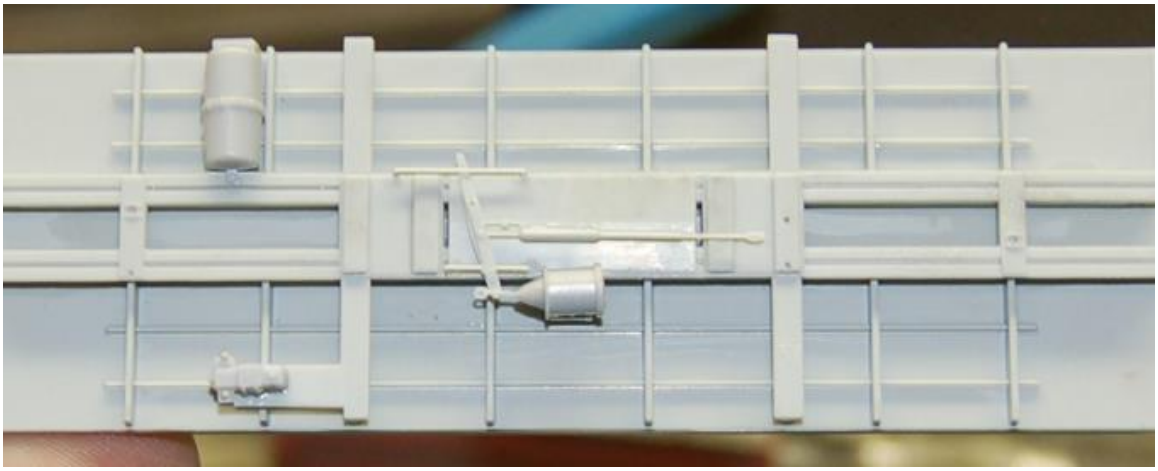
10. **Install the weight into the underframe.** Glue the weight into the recess of the floor. You can use CA, contact cement, canopy glue, or any other glue of choice.

11. **Install the center sill.** The center sill is keyed with the floor. If you look at the floor you will notice a small nub next to one of the truck kingpins, and the center sill has a small hole on one end that fits over it. Position sill and glue in place.

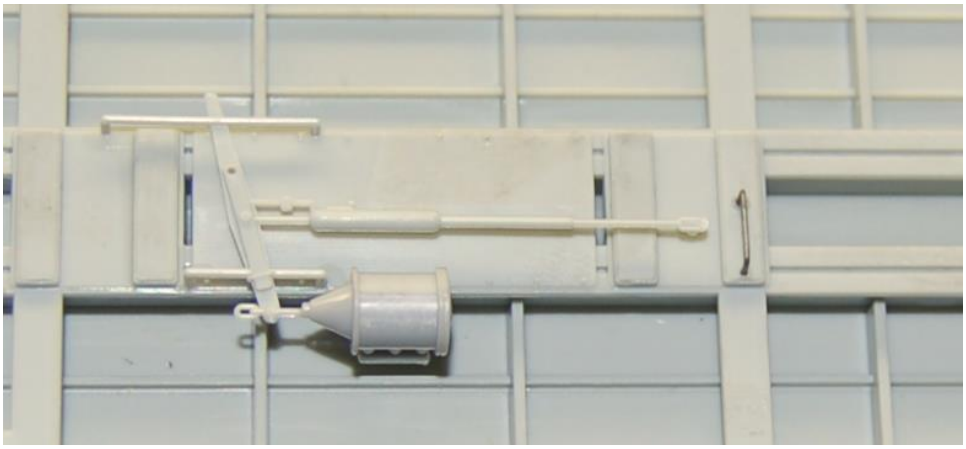


12. **Install the fulcrum/lever assembly.** Glue this part into the center sill using the holes in the center sill as a guide for placement.

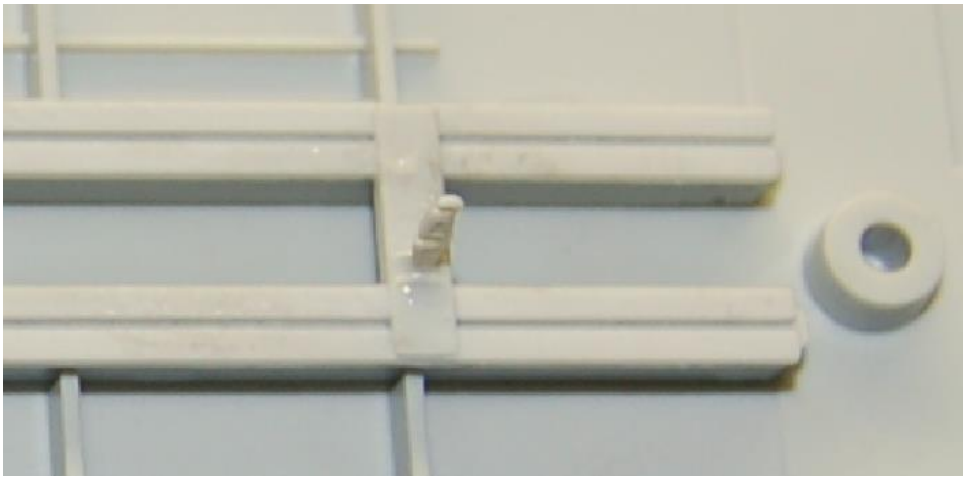
13. **Install the underbody brake appliances.** Locate the reservoir, AB valve, and cylinder and open the holes with a #79 drill. Position the parts as shown in the photo making sure the holes in the AB valve are facing toward the center sill of the car. Shorten the rod behind the chain on the lever assembly so that it fits flush with the end of the cylinder.

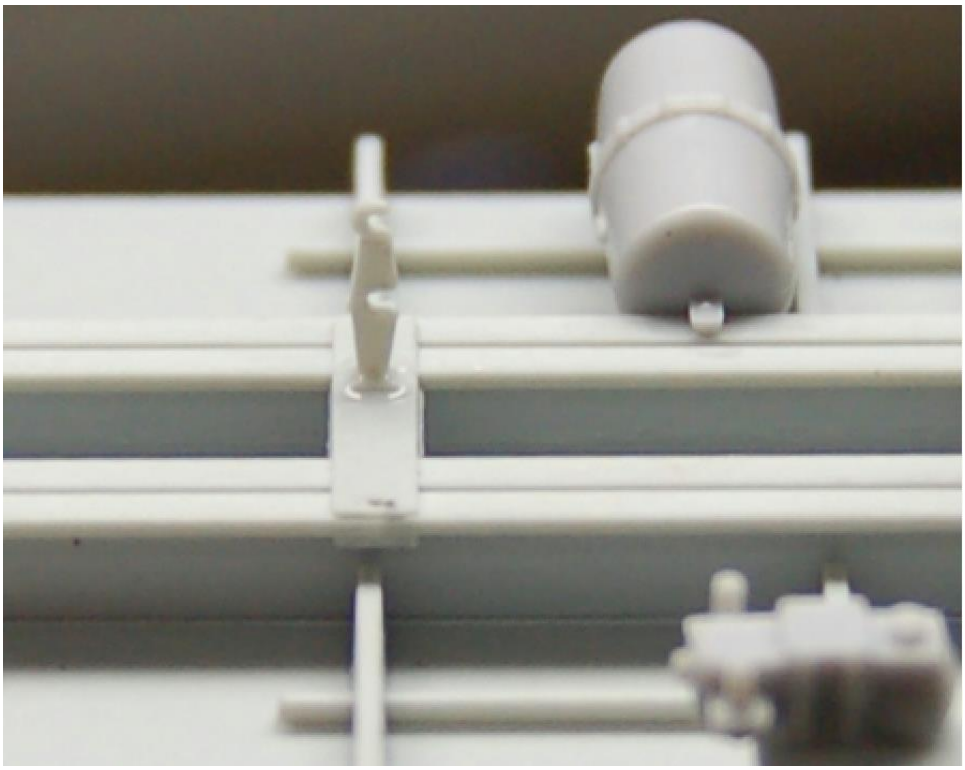


14. **Install the wire guide into the center sill.** Install the wire guide (looks like a grab iron) into the holes in the center sill on the A end of the car.

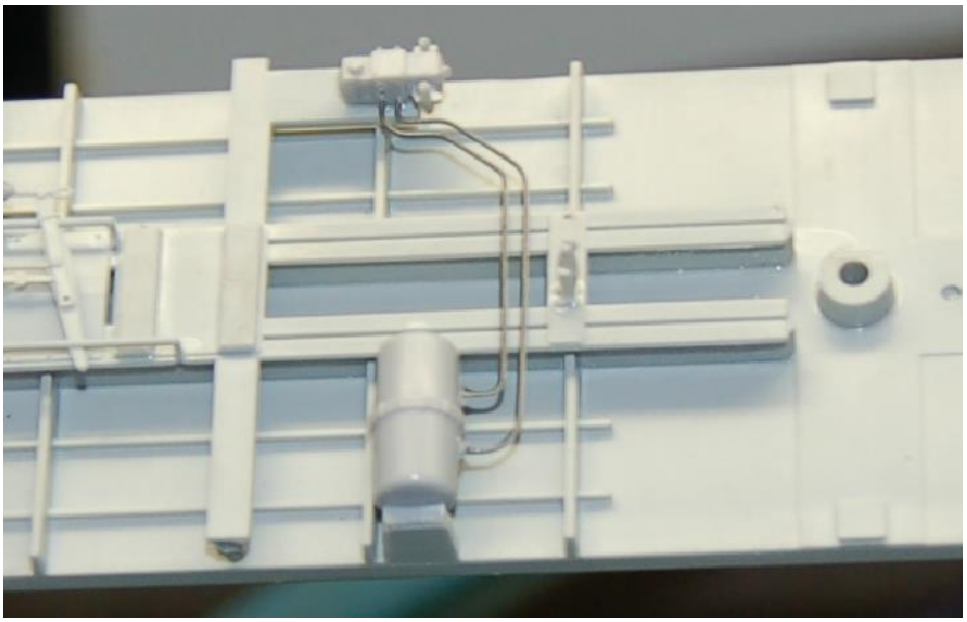


15. **Install the slack adjusters.** Install the two small plastic slack adjusters into the small holes by each bolster, orienting them so that the slot faces the center of the car.



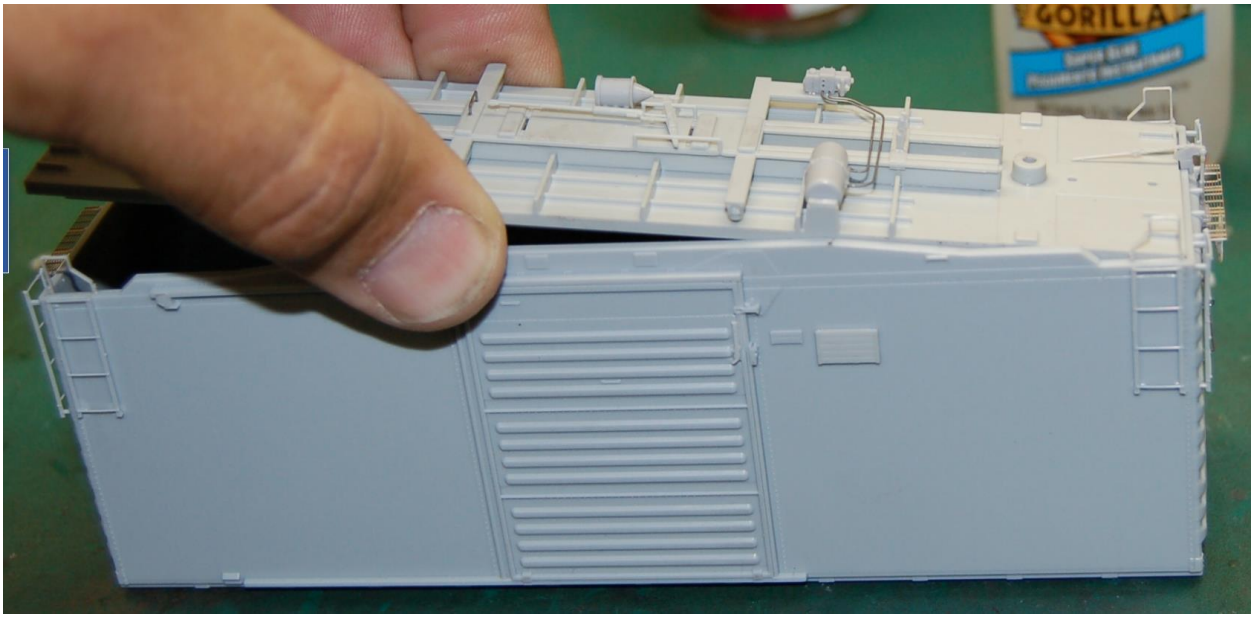


16. **Attach the brake piping from the reservoir to the AB Valve.** Insert the wires from the reservoir to the AB valve into the two bottom holes. Secure the wires on the reservoir with CA but not the AB valve just yet.

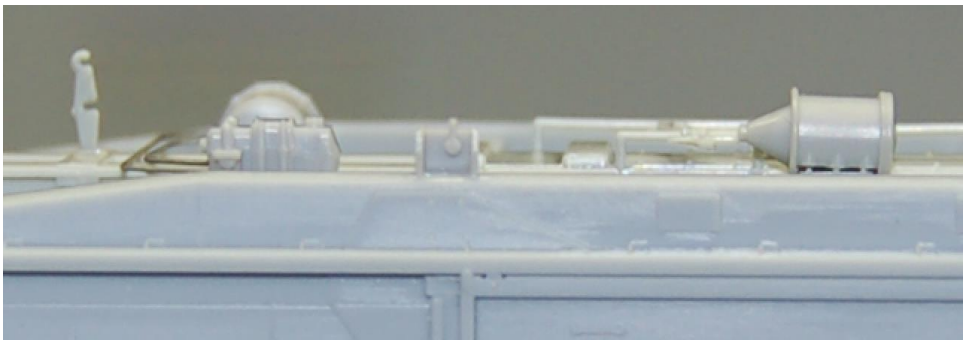


17. **Install the floor into the carbody.** Be very careful when doing this so you do not damage the stirrups. Insert the floor under the chain/fulcrum and slowly slide it forward until it

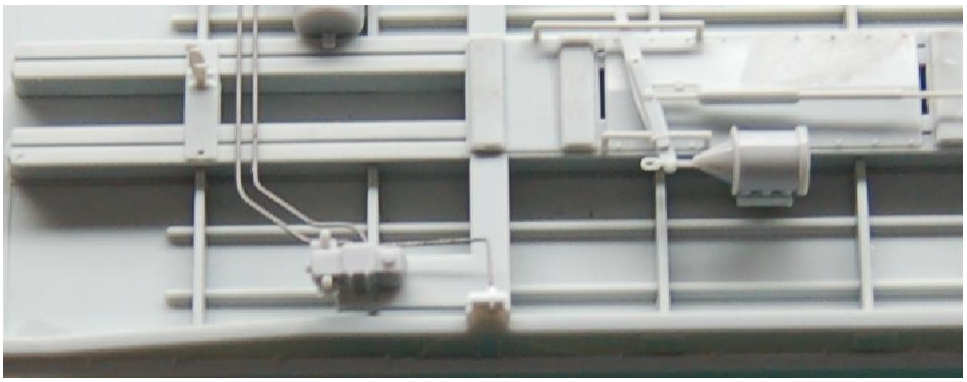
contacts the end, then gently push it down into place, again being very careful not to damage the stirrups.



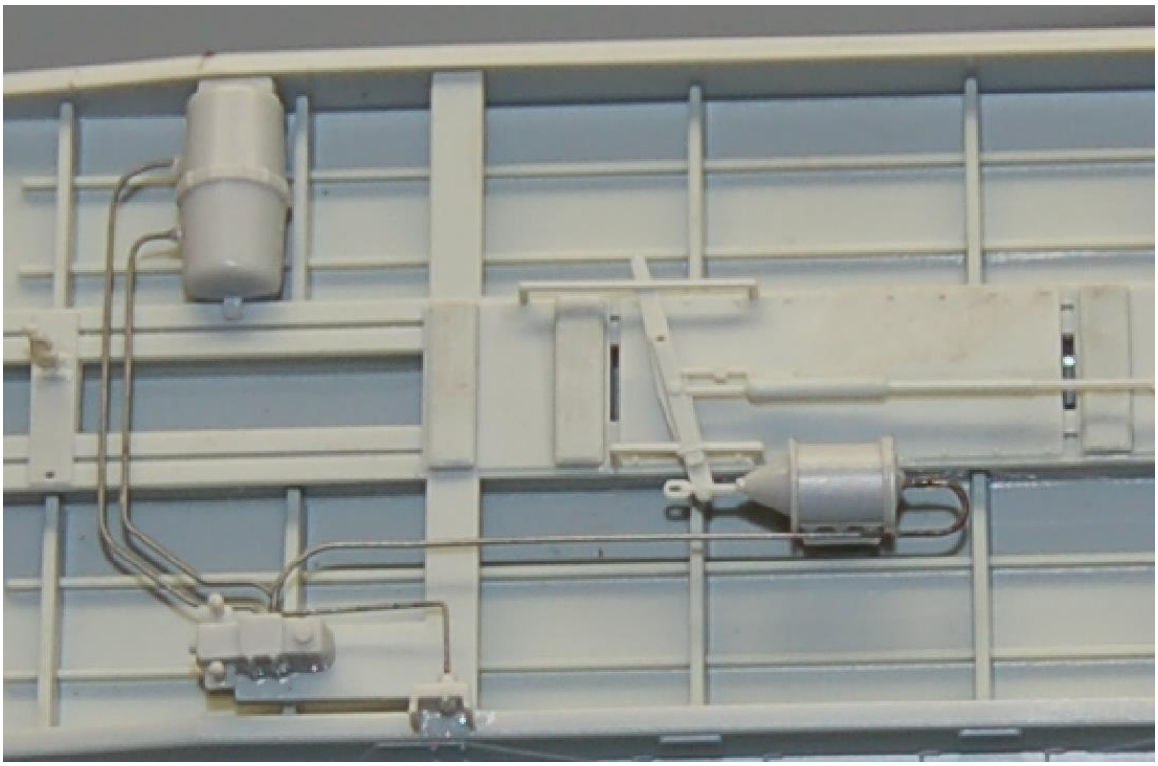
18. **Install the retainer release valve.** This plastic part should be attached in line with the cross member closest to the AB valve and glues to the underside of the side sill. You may need to shorten the mounting tab slightly so that it fits flush.



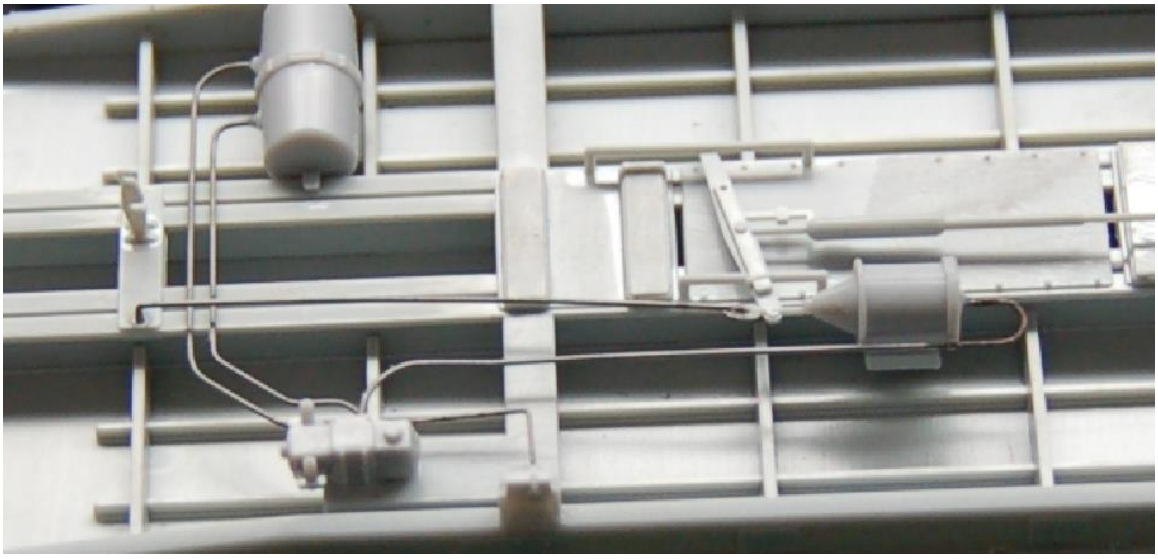
19. **Install the retainer air line.** After the glue has set, locate the "C" shaped wire and install it from the bracket to the center hole of the AB valve. The longer leg of the wire goes into the bracket and the shorter goes into the AB. Secure with CA at the bracket but not the AB valve.



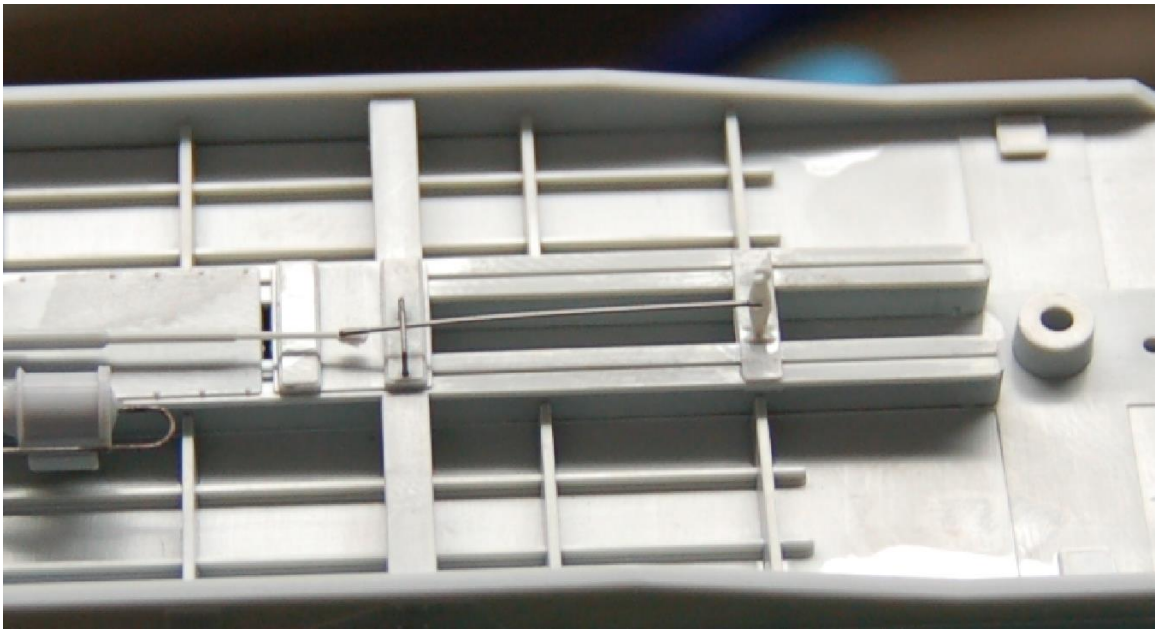
20. **Install the air line from the brake cylinder to the AB valve.** Insert the wire from the brake cylinder to the AB valve and secure with CA at both the cylinder and the AB valve, also securing all other wires at this time.



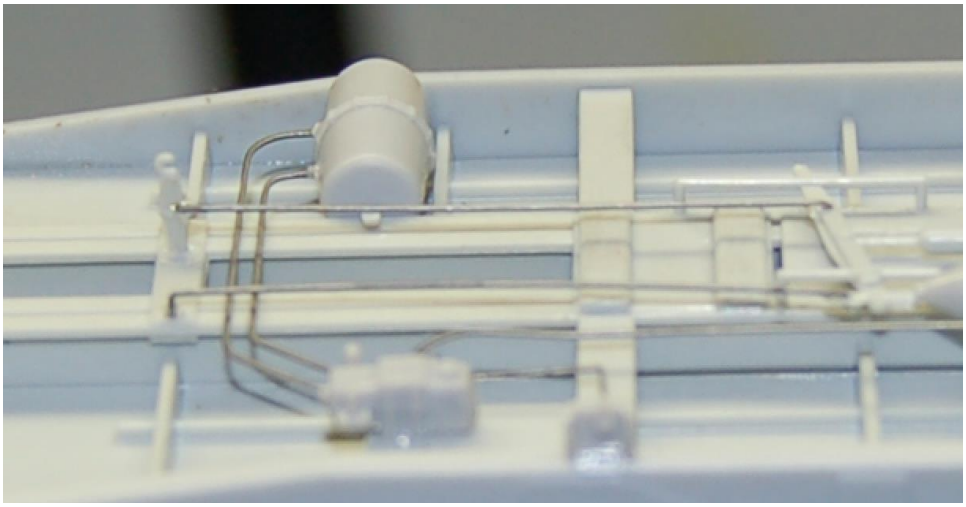
21. **Attach the release wire.** One of the wire parts has bends on both ends, with one leg being slightly longer than the other. This part goes from the chain from the cylinder to a hole in the center sill, with the longer end going into the sill. Secure with CA.



22. **Attach one of the brake lever wires.** The short wire with no bends in it goes from the end of the slack adjuster to the slot in the brake lever. Position and secure with CA.



23. **Attach the other brake lever wire.** The wire with one bend goes from the fulcrum to the slot in the other brake lever. Secure with CA.

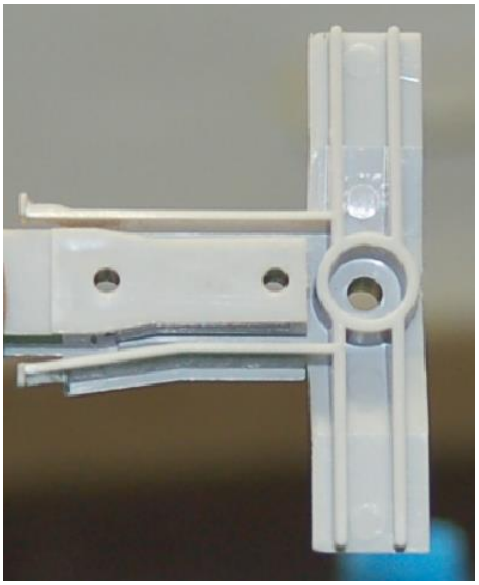


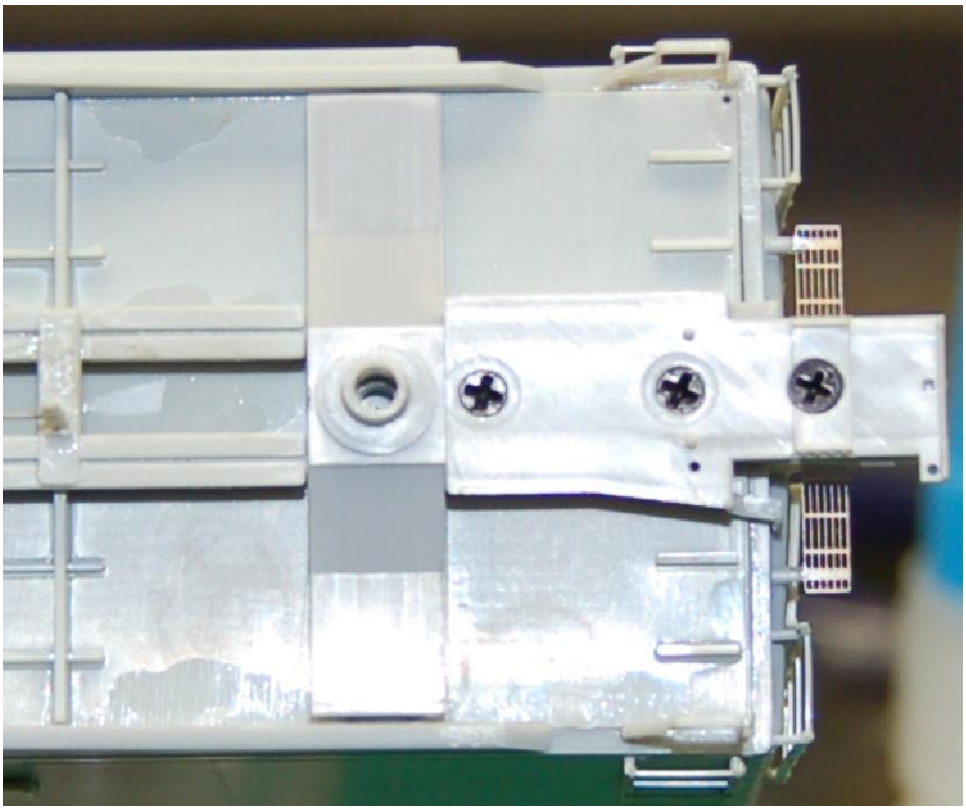
24. **Select the correct draft gear part for your prototype.** At this point, we recommend looking at photos to determine the correct draft gear weldment type for your prototype. This is the "standard weldment" version found on the NP, IC, and MILW cars:

This is the "large weldment" version found on the CBQ and DRGW cars:

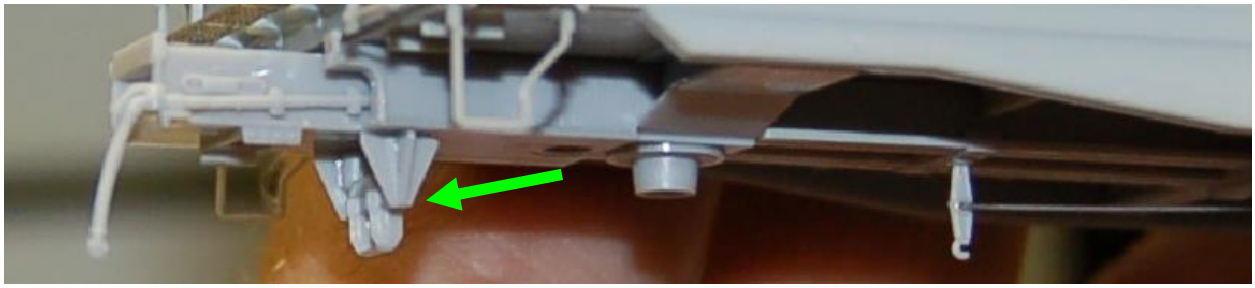
Both of these versions are included in this kit's selection of plastic parts.

25. **Build the bolster / draft gear assembly.** Please read this whole paragraph before executing this step. Referring to the photos, put the bolster and the draft gear assembly together and install them into the floor. We do NOT recommend gluing these parts, but instead use the three screws provided. The two long screws go into the two holes closest to the center of car, while the small screw goes toward the coupler. By following these steps, you can install the couplers after painting, while providing easy access to replace the coupler if necessary.

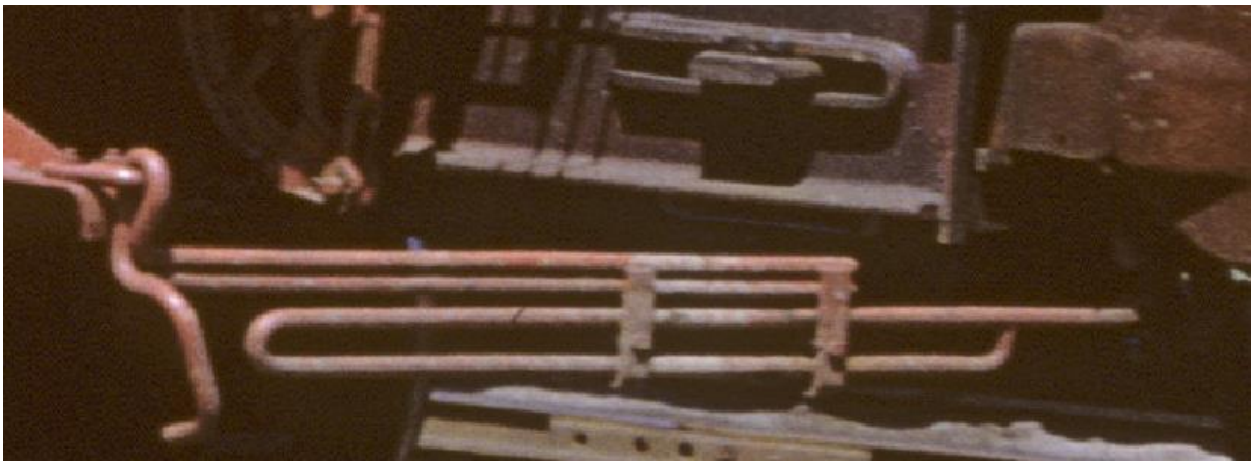




26. **Install the bottom brake "frames".** Glue the bottom brake frames in place on the bolster assembly using the pins to position them correctly. We recommend using "CA" type glue for this part, so in case you need to remove the part for coupler maintenance it can be "snapped" off and reglued after repairs. Don't blame us, this is where Pullman applied the part!

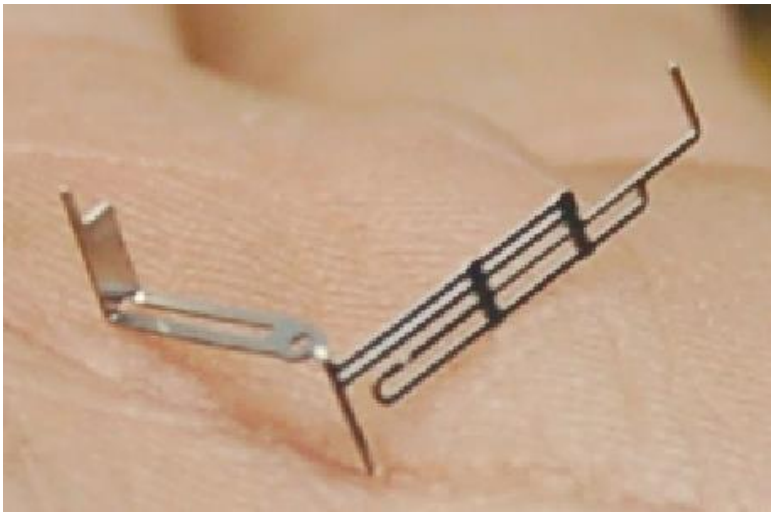


27. **Select the correct coupler lift bars.** This Tangent kit provides you with two different coupler lift bar parts to choose from. Choose which you will use based on your prototype. This is the version applied to the cars built for Illinois Central:

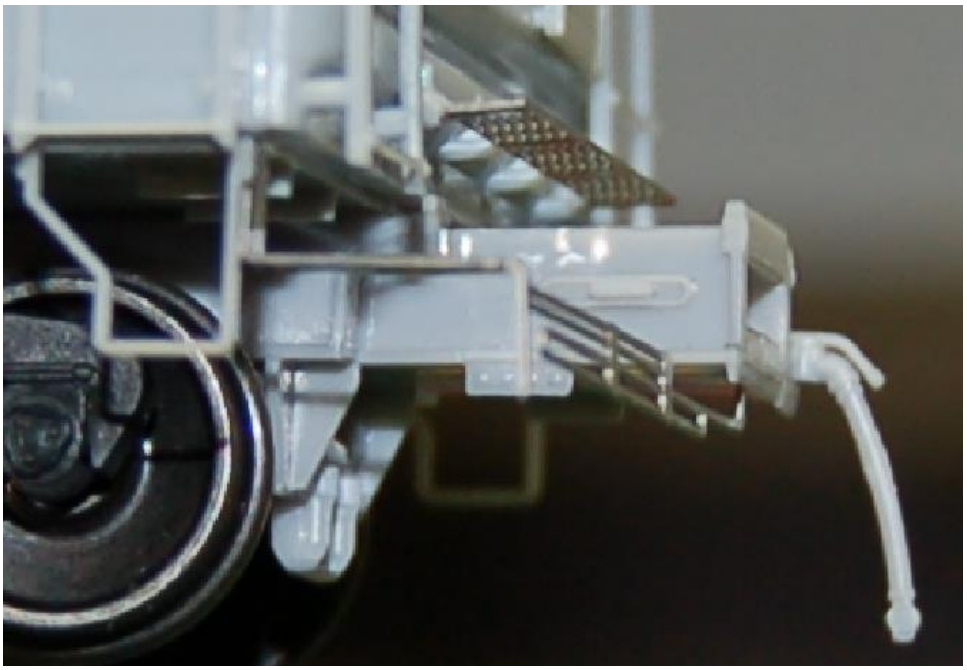


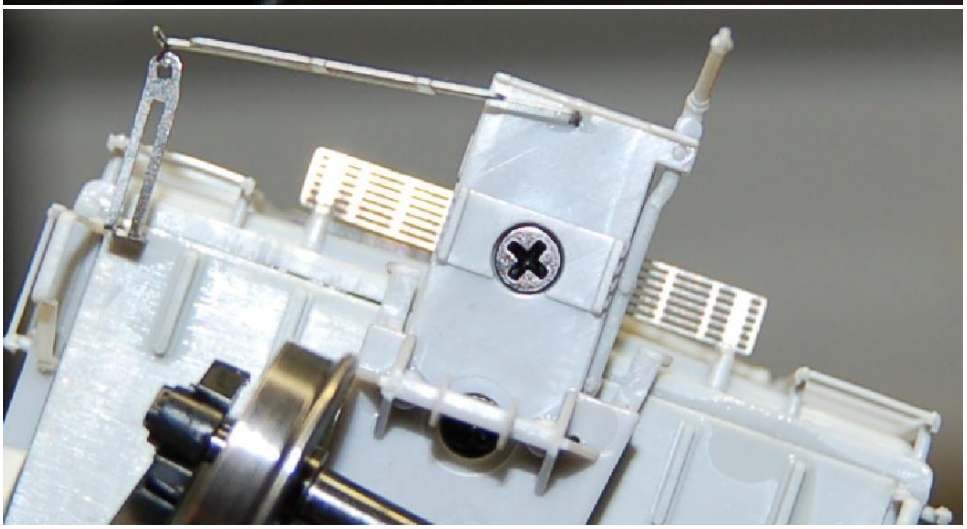
This is the version found applied to the cars built for the other railroads.

28. **Install the coupler lift bars.** Using the photo as a guide, make the bends in the metal lever part as shown.



Glue the part with CA into the mounting hole in the corner of the floor making sure that the bracket is at a 90 degree angle from the carbody. Tack the other end into the hole on the underside of the coupler box (you don't want this to be permanent just yet as you will need to take it apart to add couplers after painting. After that is done you can glue it permanently).





29. **Install the air hoses.** Glue the air hoses to the coupler boxes, inserting the small pin on the air hose into the small tab of the coupler box.

This completes the assembly steps for our 40' PS-1 "Mini-Hy" kit. After final paint, decaling, and weathering, install 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.


Burlington
HYDRAULIC
CUSHIONING
Burlington
Route
CB&Q
19828


NO RUNNING BOARD
EXCESS HEIGHT CAR
BN 281451
BN281451


D&RGW
67421
CUSH UND ZO IN.
NO. 24 BRAKE BEAM
SPRG 21 IN TRAVEL
IW WROT STEEL WHEELS
AXLE 10-11-67


BRAKE BEAM
SPRINGS SID 3
I-W WRT. STL. WHLS
RAISED WHL. SEAT AXLE
SAFETY FIRST
PS-1
KEEP OFF RD STEP