# Instructions: PS-2CD 4000 Model Kit

*Revised 7/2008*

**Plastic Parts included:**

- Body shell
- Parts Sprue #1 – "Roof , trainline, gravity outlet gates, and centersill/endsill pieces"
- Parts Sprue #2 – "Underframe bolster components"
- Parts Sprue #3 – "End frames"
- Parts Sprue #4 – "Brake Details and Stirrup Steps"
- Parts Sprue #5 – "Roof Hatches"
- Parts Sprue #6 – "Underframe Details & Brake Wheel"

**Etched metal parts included:**

- Etched metal roofwalk (taped to the inside top of kit box)
- Etched metal brake wheel step (in wire parts baggie)

**Wire Parts included:**

- All grab irons (in wire parts baggie)
- Coupler cut levers and eye bolts (in wire parts baggie)

**Screws included:**

- 2 screws for trucks (small head) (in wire parts baggie)
- 2 screws for couplers (large head – recessed into box to "disappear") (in wire parts baggie)

**Other parts included:**

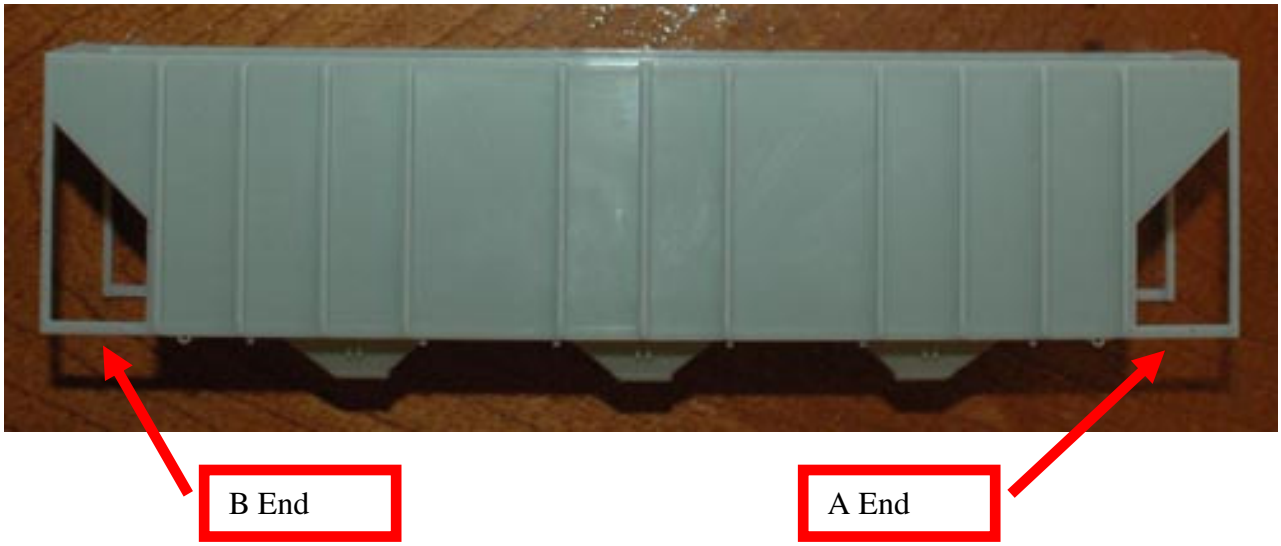
- A complete set of trucks and wheels (in wire parts baggie)

**Tools needed:**

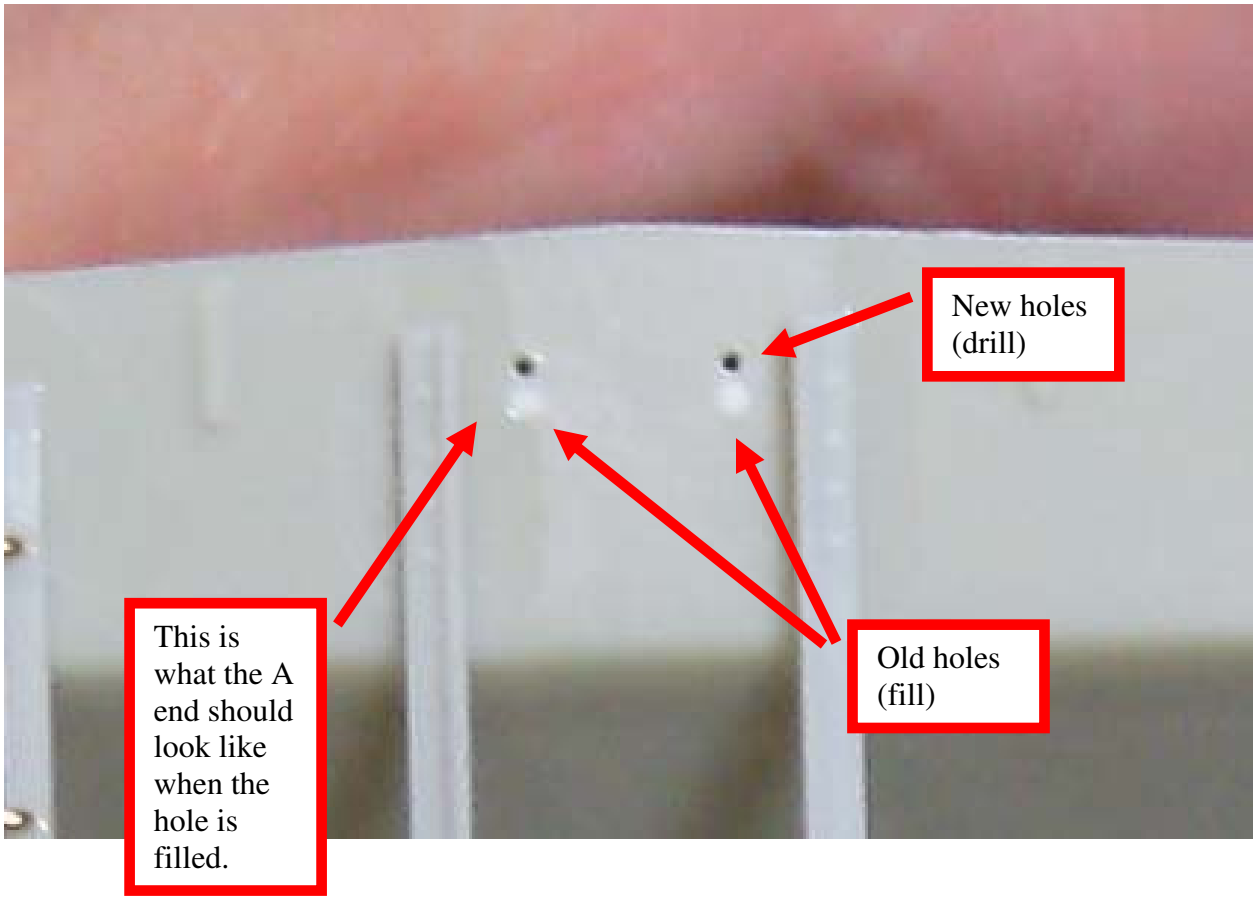
- Screwdriver
- Styrene cement
- CA-type cement
- Hobby knives - #11 and #17 are ideal
- 600 Grit Sand Paper or sanding stick
- Sprue nippers are recommended to speed things up!
- #51, #66, #76, #77, #78 drill bits and pin vise

1. **Cleanup:** Turn car over onto the roof, and with a chisel blade knife remove the sprue scrap from the bottom center of the center bay. Keep the 2 parallel mounting "circles" intact – these note which way the outlet gates face in a later step.

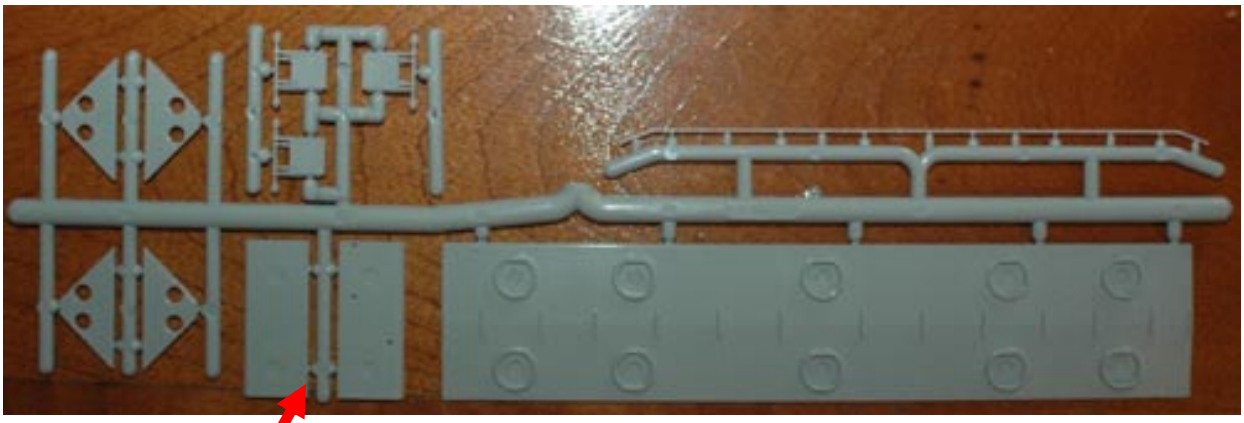
2. **Recognize the A and B ends of the Car:** It is now time to understand where the B-end should be on the model. The B end is where all of the brake appliances will go. Turn the carbody right side up with the brake line hanging clips facing you (these are the small tabs that run along one side of the car, underneath the sidesill). The B end of the car will be to the LEFT. The A end will be to the RIGHT. The only difference between the two ends at this point is the extra hole to cement plastic parts into on the B end.



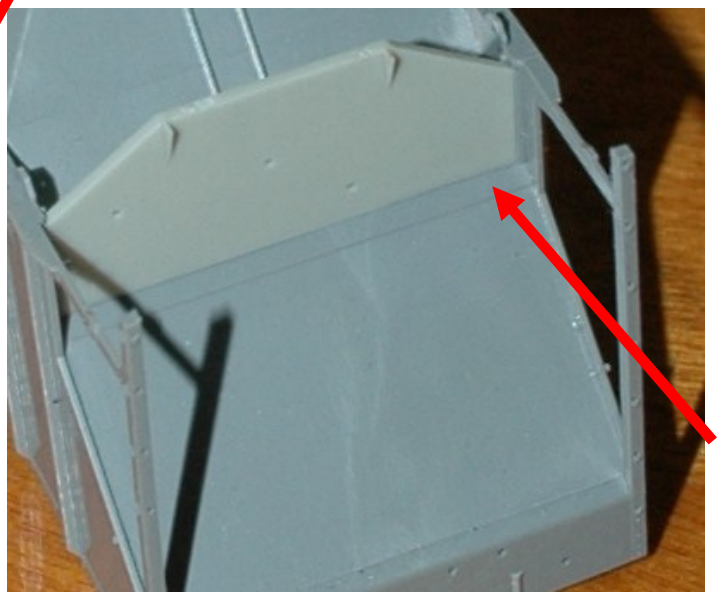

3. **Fill running board support holes on A and B ends.** Due to a molding error, the running board support holes were molded too low. Clean the hole out with a #76 Drill bit, plug the hole with .020 styrene rod, glue a small piece of the rod in the hole with styrene cement. Let the rod stick out of the hole slightly. Once dry, use sprue nippers to cut the excess rod flush with the end of the car. Use 600 grit paper to clean up. Using a #77 Drill bit, drill new holes directly above the old holes. (See Photo)


New holes
(drill)
This is
what the A
end should
look like
when the
hole is
filled.
Old holes
(fill)

4. **Attach slope sheet:** Remove the slope sheet pieces from the parts sprue pictured below. Note that one slope sheet part has 3 holes in it; this is for the model's B end, or where the brake appliances will go. Note there is a "recess" where the vertical parts of the end slope sheets sit. The front part of the channel needs to line up with the slope sheet part you are adding. In other words, the slope sheet part is not long enough side to side, and the channel part in the car is the remaining width for the part. Repeat the process at the "A" end with the remaining part.

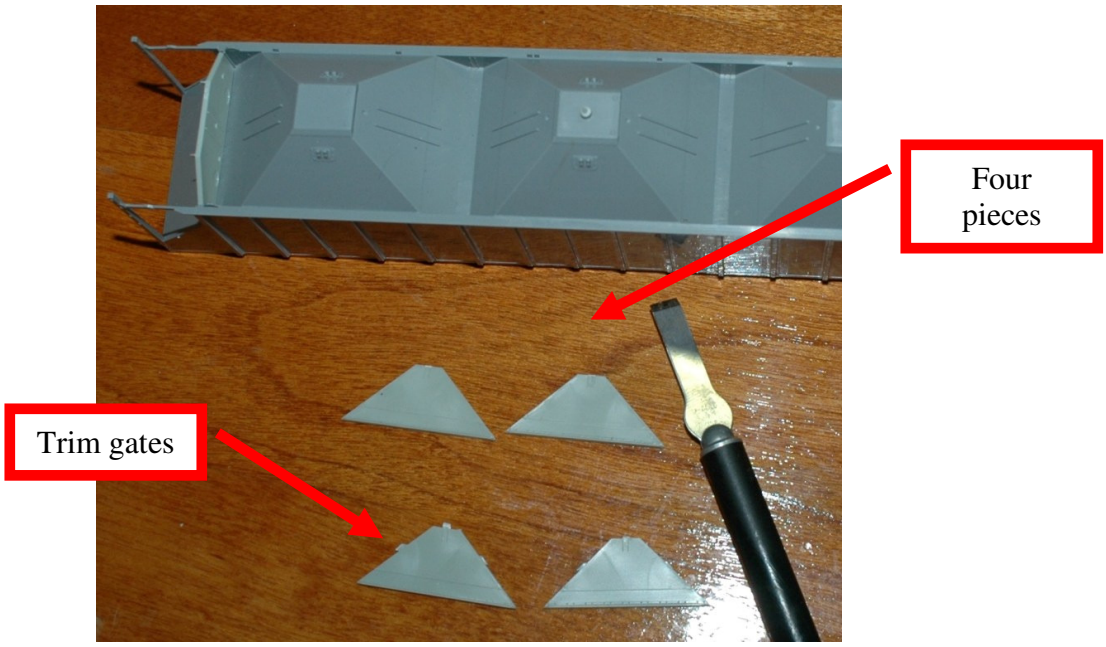


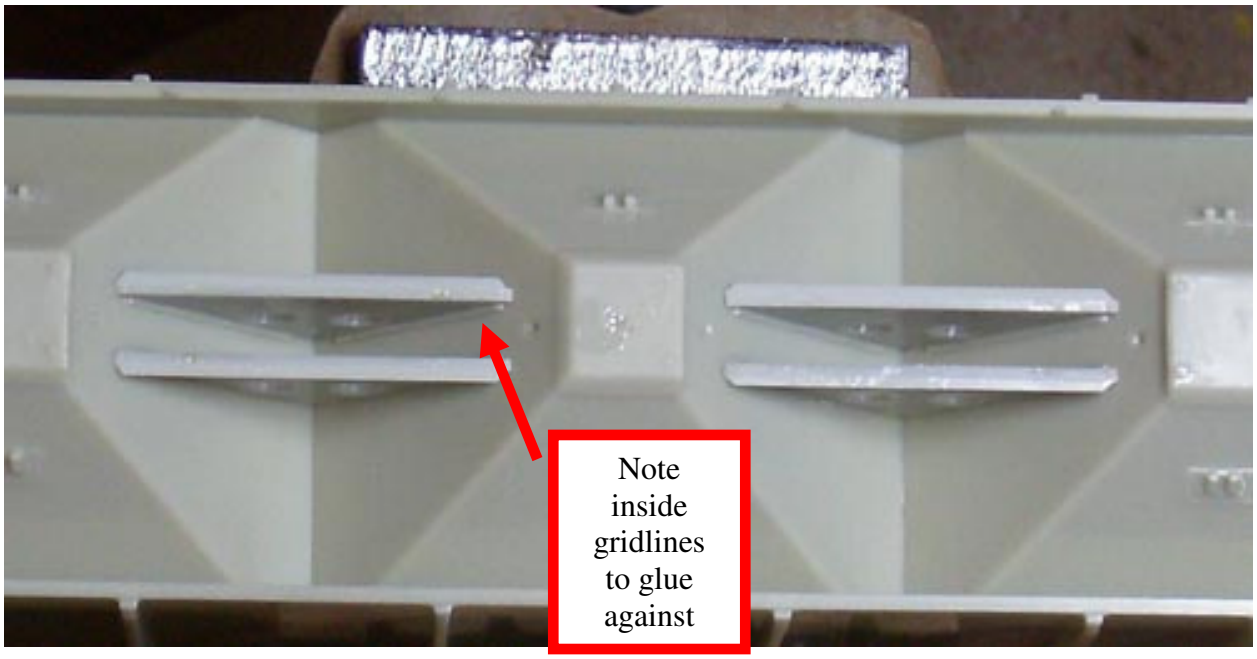
Slope sheet pieces



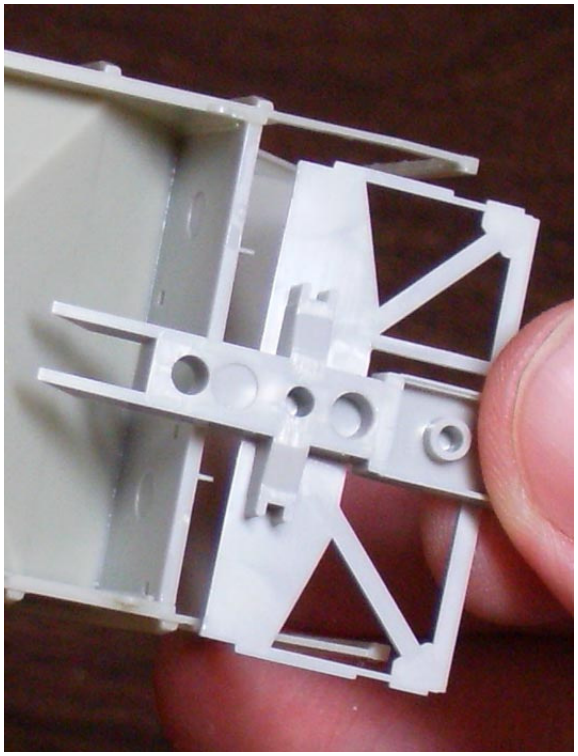
Slope sheet sits in body

5. **Attach centersill between the three bays:** With the car on its roof, cut the four large triangular centersill pieces from the Underframe part sprue. After cleaning up the gates, cement to the underside of the car with the raised guides on the inside used as a place to cement to. Make sure that the "L" part of the bottom of the car faces out. Repeat this process for the same parts between the other two bays.

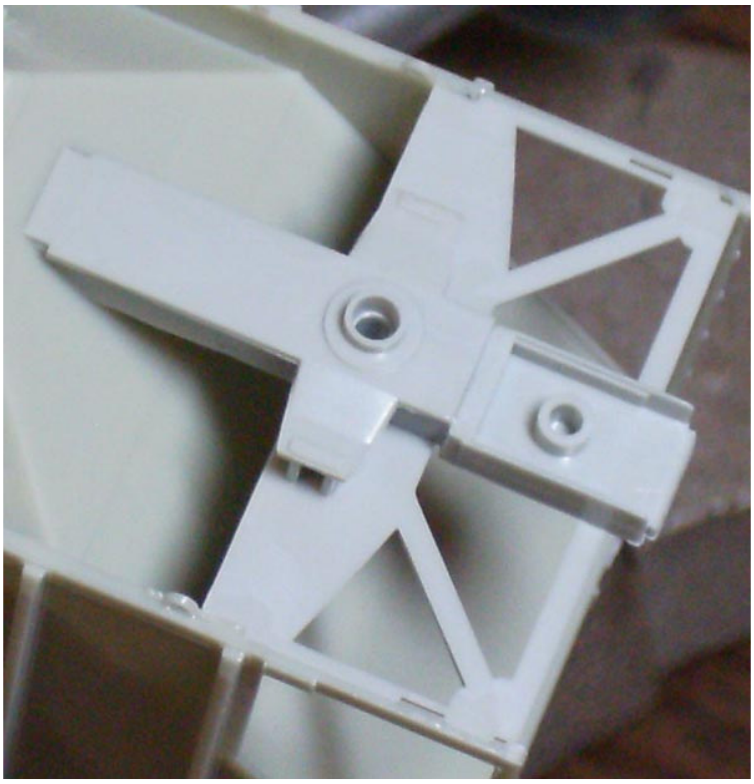


6. **Attach coupler bolster pieces:** Degate and clean up the coupler end bolster pieces from the Underframe parts sprue (see photo below). After making sure to test fit the parts first, mount the A end part on the A end; the A end part has NO small holes in it for mounting the brake appliances. Then, mount the B end part in place. For each of these, the flat bolster sheet needs to mount flush with the bottom of the sidesill of the body mold. The entire piece should be parallel to the carbody, with the angled end butting up against the slope of the bay. Cement as appropriate. The corners of the part should meet up with the bottom of the body sell corner posts. As the part dries, **make sure it remains parallel to the carbody.** This is important, so the end frames (attached later), fit correctly.



7. **Attach bolster plates:** Degate and clean the two bolster plate parts. These need to be cleaned especially well on the sides because this signature part is visible above the trucks of the car. The parts should be mounted so the hole for the truck screw lines up with the hole in the coupler bolster, from step 7 above. Note the small ridge in the plastic that helps to locate this part on the car. The long tab "points" toward the sloped bay.

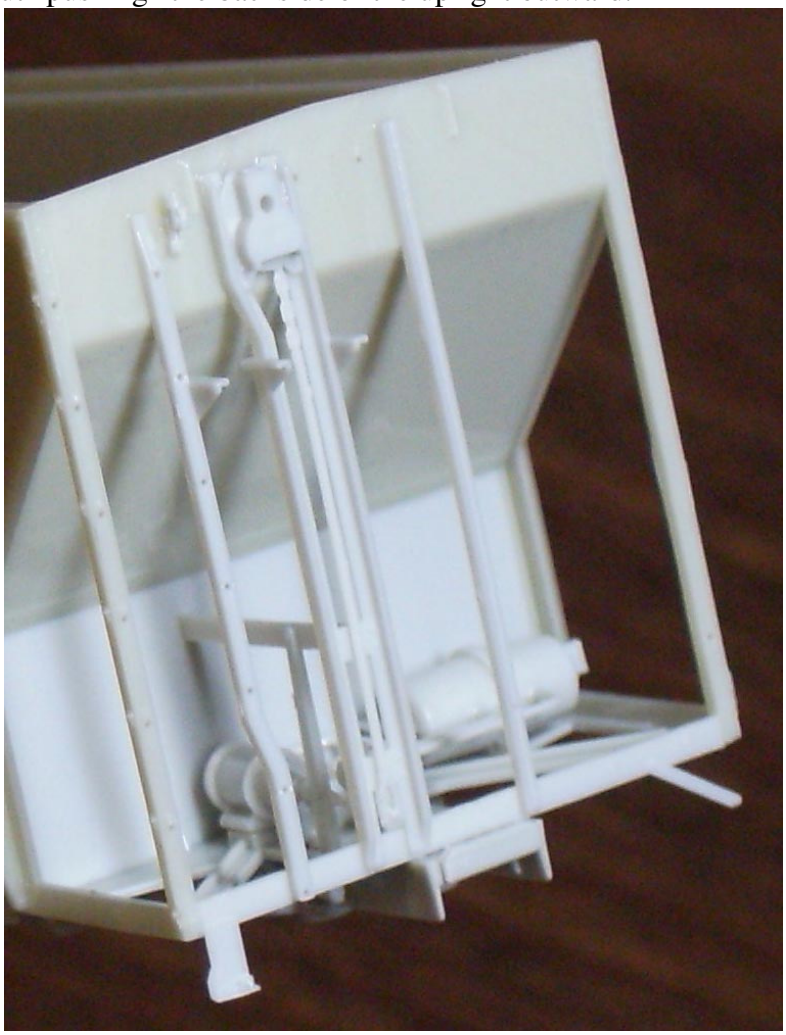


8. **Attach the air reservoir assembly to the B end slope sheet:** Note that there are two holes for the air reservoir part to mount into on the slope sheet part added earlier. Also note the hole on top of the stem over the draft gear for the mounting of the AB Valve. Glue the assembly in place.

9. **Attach the brake cylinder/fulcrum/clevis/horizontal support piece to the coupler underframe and slope sheet:** Degate and clean the brake cylinder/fulcrum/clevis/horizontal support piece, located on the "Brake Details and Stirrup Steps" part sprue. Note that there are two holes underneath the brake cylinder part; these mount in the two holes on top of the bolster. Note that the lower rod should hang below the bolster. Also, the long L-shaped piece at top cements to the end sheet now, and touches the back of the B end upright later (step 11 below).

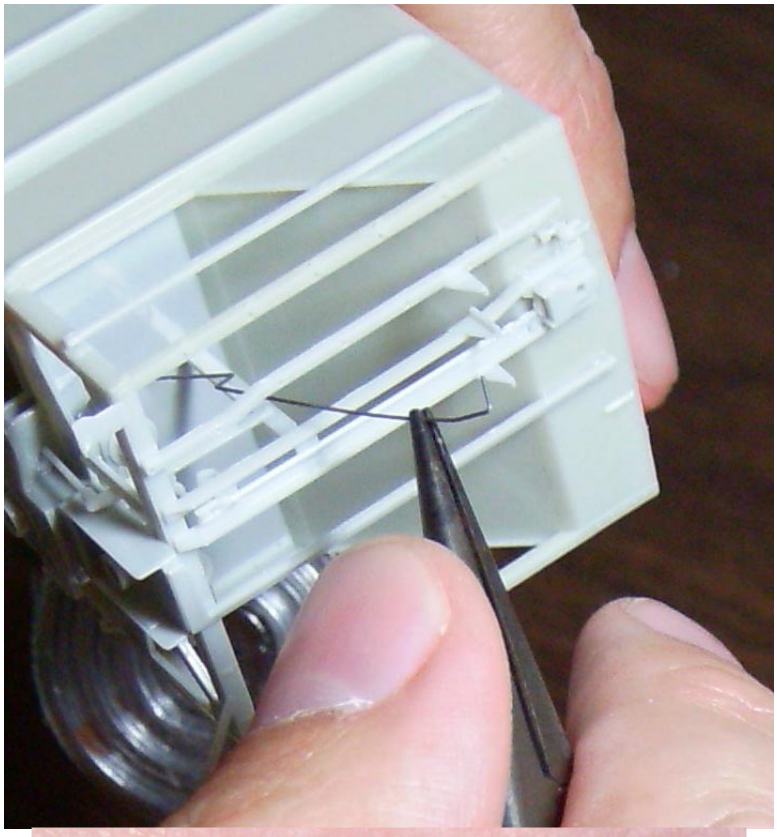
10. **Attach the A end uprights:** Using sprue nippers, carefully degate and clean the A end uprights found on the "End frames" sprue. Cut the tops of the end uprights square using sprue nippers. Test fit on A end, and then cement so that the uprights fit into the holes at the top and directly between the end uprights molded into the body. It should also sit right on top of the coupler box in the center. (See photo in step 11 of B end upright installation for guidance).

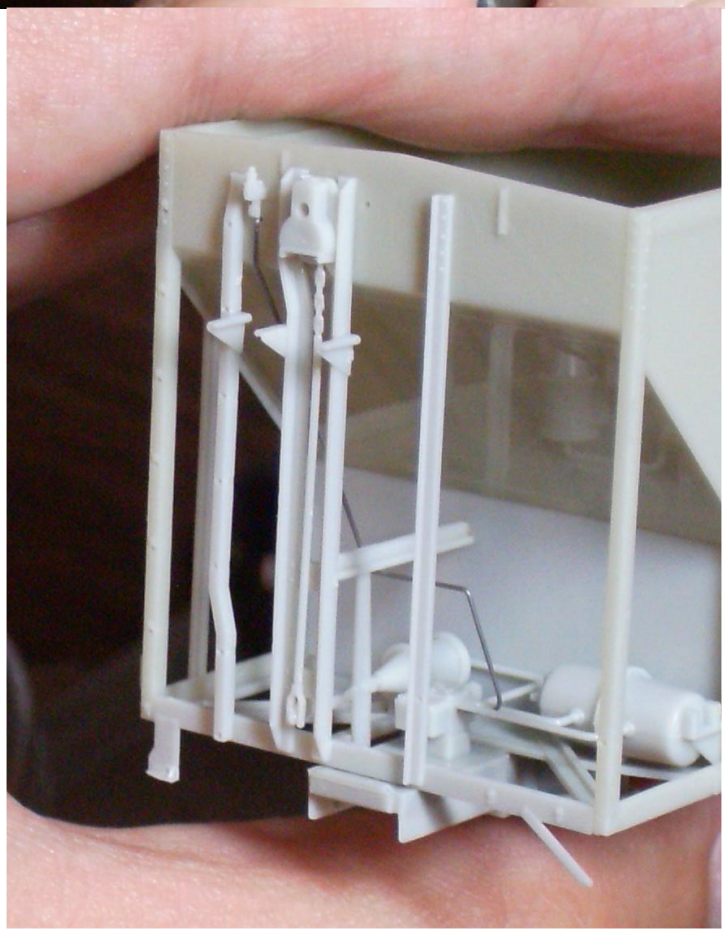
11. **Attach the B end uprights:** Repeat the process highlighted above, this time on the B end. Note that the clevis fits between the uprights and the horizontal member cements to the backside of the upright. Some slight trimming of the clevis have be required so it sits against the backside with out "pushing" the backside of the upright outward.



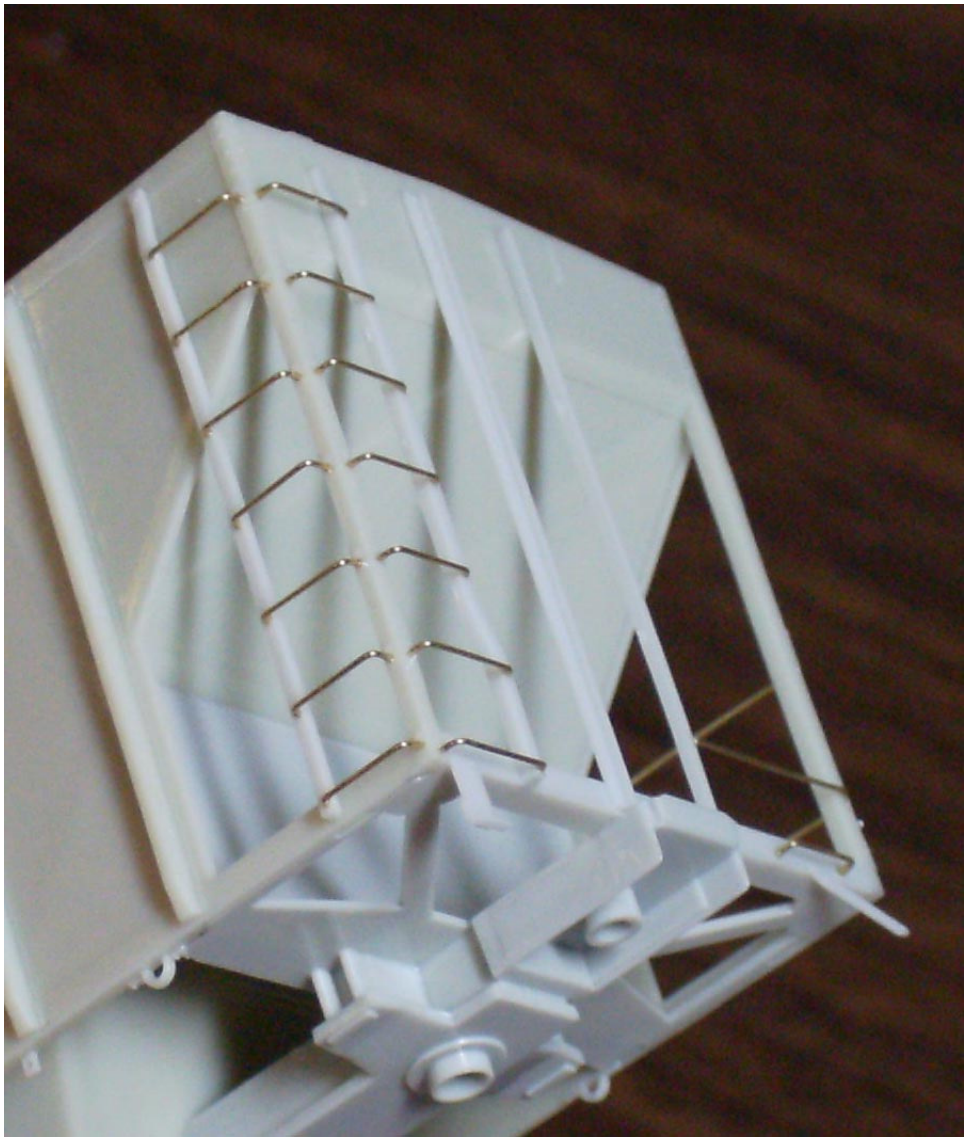
12. **Attach the brakewheel housing:** Degate the brakewheel housing from "End frames" sprue. Attach to the B end, on top of the mounting plate that has the two holes in it. Slide the part into position so that the bottom U shaped part slips over the clevis part (above).

13. **Attach the Retainer Valve and pipe:** Degate the retainer valve. This very small piece is located on the "Brake Details and Stirrup Steps" sprue. Insert it into the hole just to the left of the brakewheel housing. Once dry, drill a #78 hole just below the part, into the end of the car. Insert one end of the Retainer Valve Pipe (from the wire parts baggie) into this hole. Thread the Retainer valve pipe through the end cage and **under** the horizontal support piece, so that the other end of the wire is butting up against the AB valve, between the two plastic airlines from the air reservoir. (Consult the photo for detail)





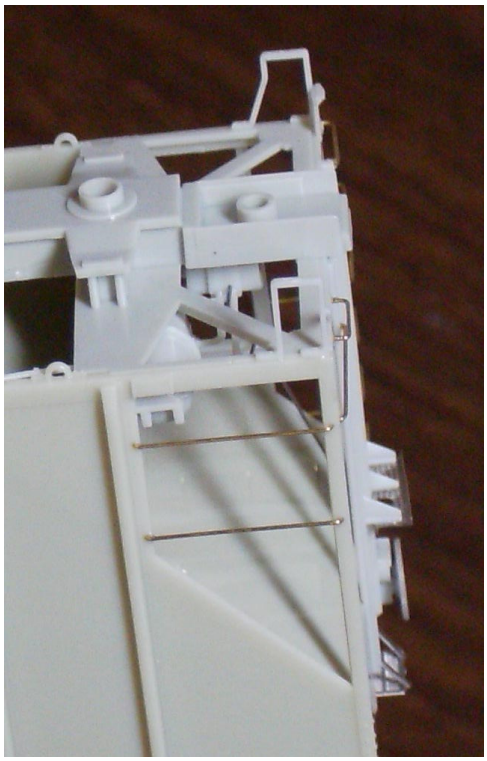
14. **Attach the side ladders:** Degate the 2 side ladders that are needed for the car, located on the “End frames“ sprue.



15. **Attach the Brake Line:** Using sprue nippers, degate and clean the brake line. This part is located on the roof part sprue. Glue the line's pegs into the body.

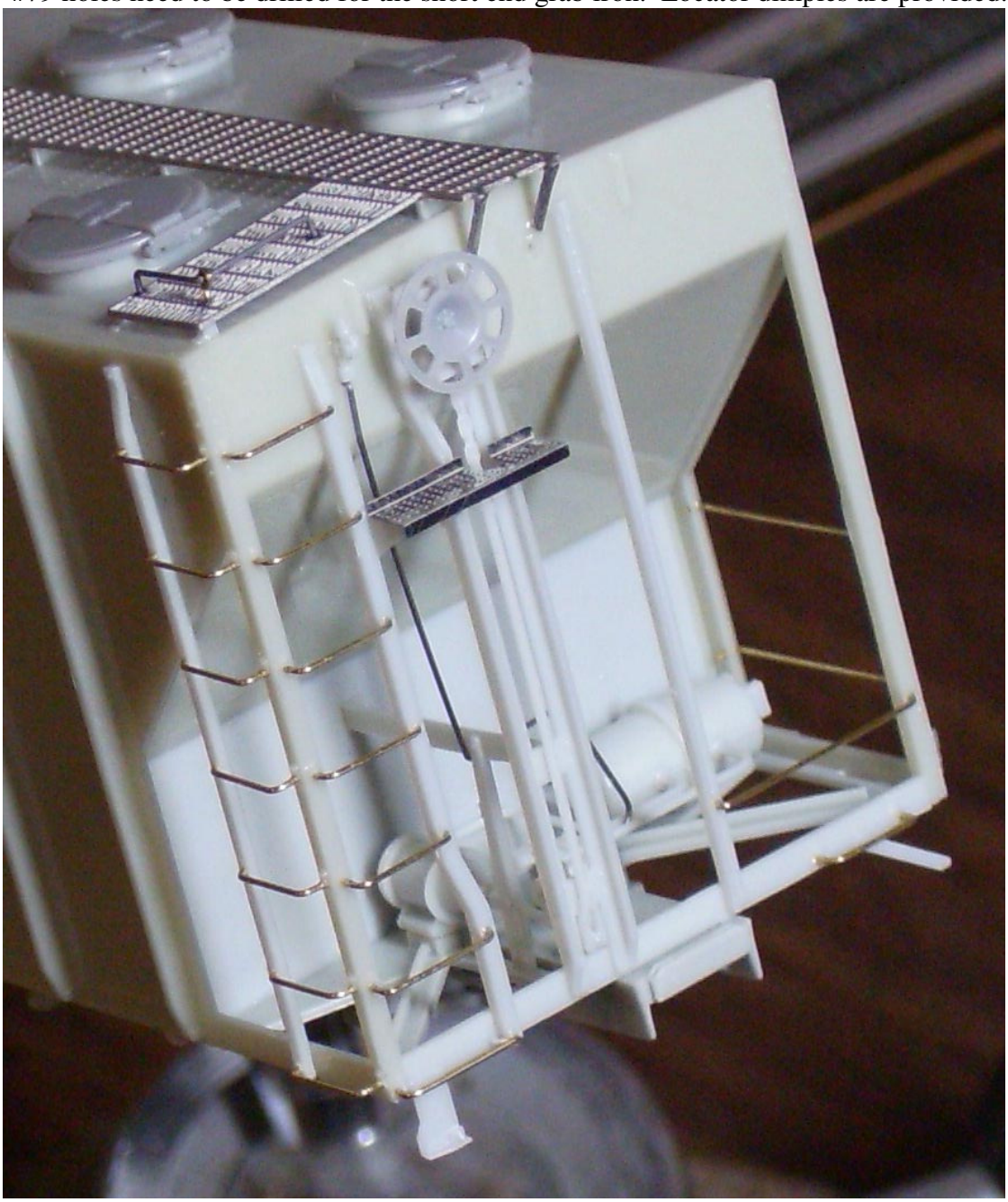
16. **Identify grab irons.** There are a number of different grab irons supplied in the wire parts baggie. Successful identification of these parts is important for proper assembly: (24) Side and End Grabirons. (4) Wide End Grabirons. (2) Short End Grabirons, (2) Long End Grabirons, and (4) Long Side Grabirons. It helps if you can lay out and separate these parts for easy identification and use in the following steps. Note that all grabirons will need to be trimmed for proper depth.

17. **Attach wire grabirons to sides:** Using the supplied grabiron parts, apply 7 grabirons to each of the side ladder assemblies. On the other end, apply 2 Long Side Grab Irons.



18. **Attach wire grabirons to the ends:** Using supplied parts, install 5 of the "Side and End Grabirons" between the leftmost end ladder upright and the corner posts. For the bottom two positions, you will need to use 2 of the "Wide End Grabirons," (see photo in step 19).

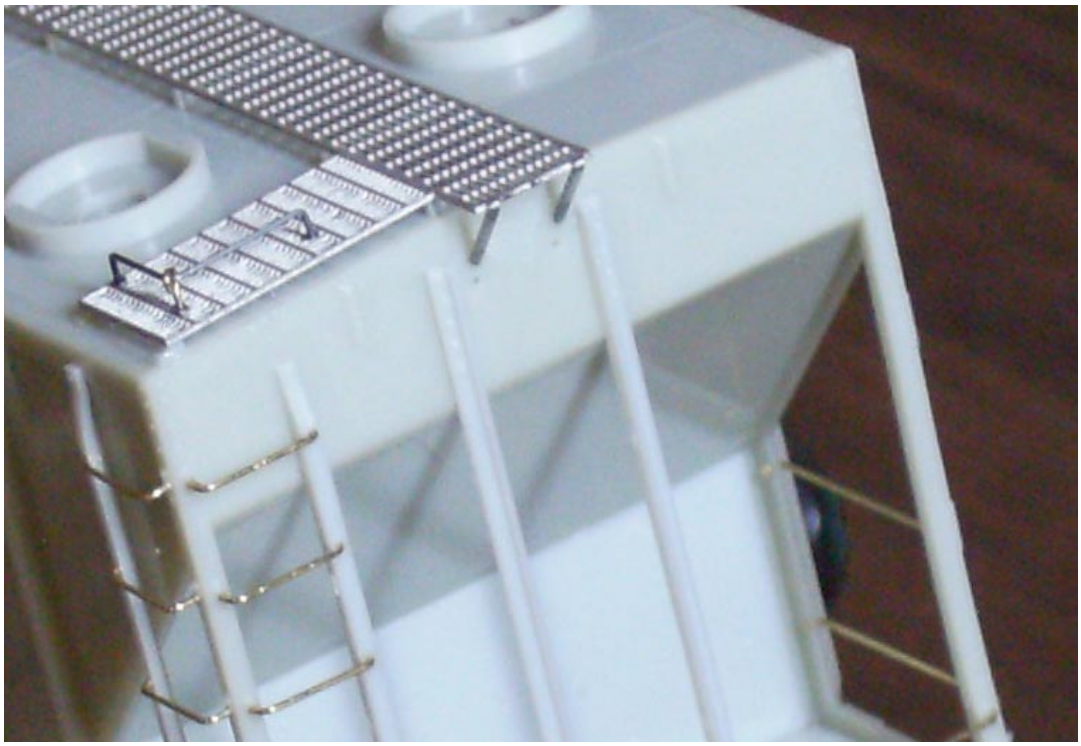
19. **Attach remaining end grabirons to the ends:** Apply one each of the "Long End Grabiron" and the "Short End Grabiron" as shown on the right side of the end. Note that #79 holes need to be drilled for the short end grab iron. Locator dimples are provided.



20. **Attach weights:** Add weight to the inside bays of the car for optimum operation. We recommend adding between 2.75 and 3.25 ounces.

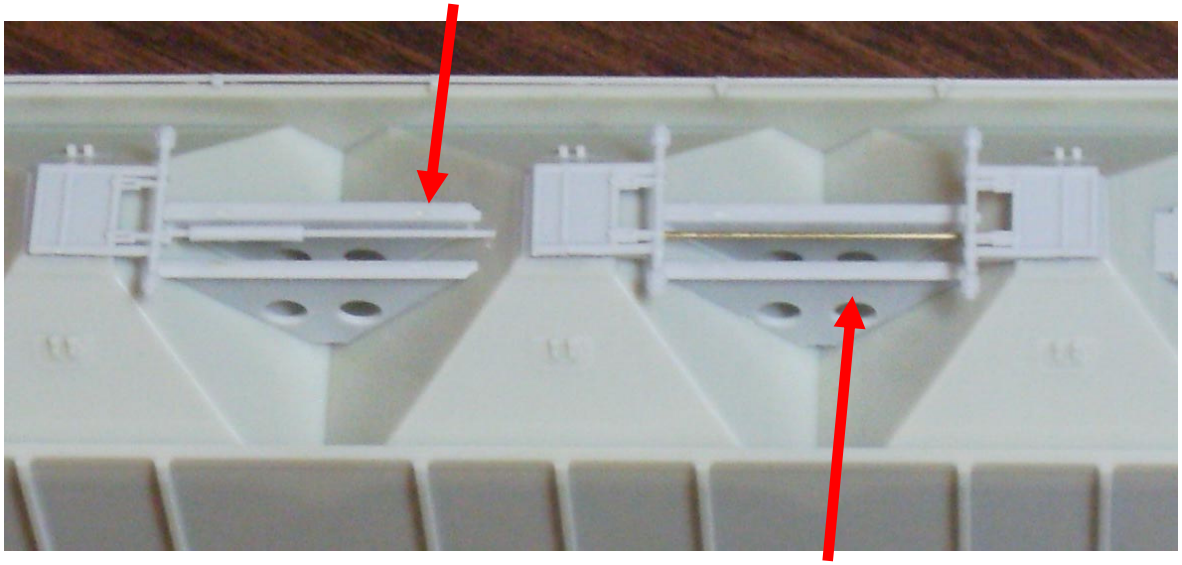
21. **Attach the Roof:** Glue the roof onto the car.

22. **Attach the Roofwalk:** Attach the Tangent-supplied etched metal roofwalk to the top of the car. We recommend using Cyan-poxy for this application (available from www.mrhobby.com), while other modelers prefer thinned Barge Cement (used for gluing shoe leather). Normal CA-type glue is not resistant to temperature changes. Note that side extensions of the roofwalk need to be bent about 30 degrees where the side part protrudes from the main body and angles to the roof. Also, prior to attaching the roofwalk, the roofwalk end supports must be bent so that they fit into the new end holes in the body (the new holes drilled in step #3).



23. **Attach grab irons to the Roofwalk:** Attach the supplied bent corner grabirons and small eyebolts to the holes in the roofwalk. See photo from above step #22.

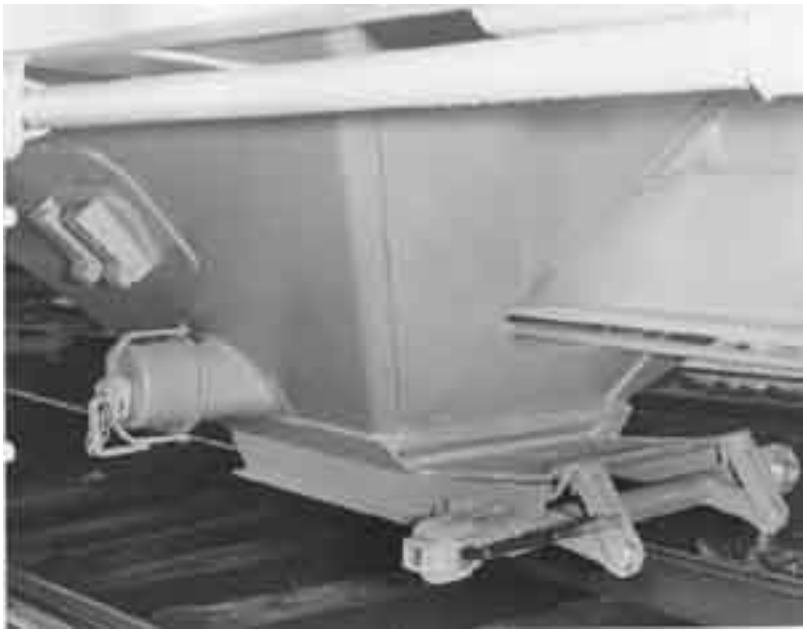
24. **Attach the underframe brake adjuster:** Degate and cleanup the brake adjuster part found in the small brake parts part sprue. This part is easy to break, so please be careful! It mounts between the bays on the B end of the car, with the thicker plastic part toward the B end. It is equally easy to break once mounted on the car, so watch how you hold the car!



25. **Create the other end of the Underframe brake adjuster:** Using the supplied part of .020" brass, fit between the 2 bays at the A end of the car. See photo from above step #24.

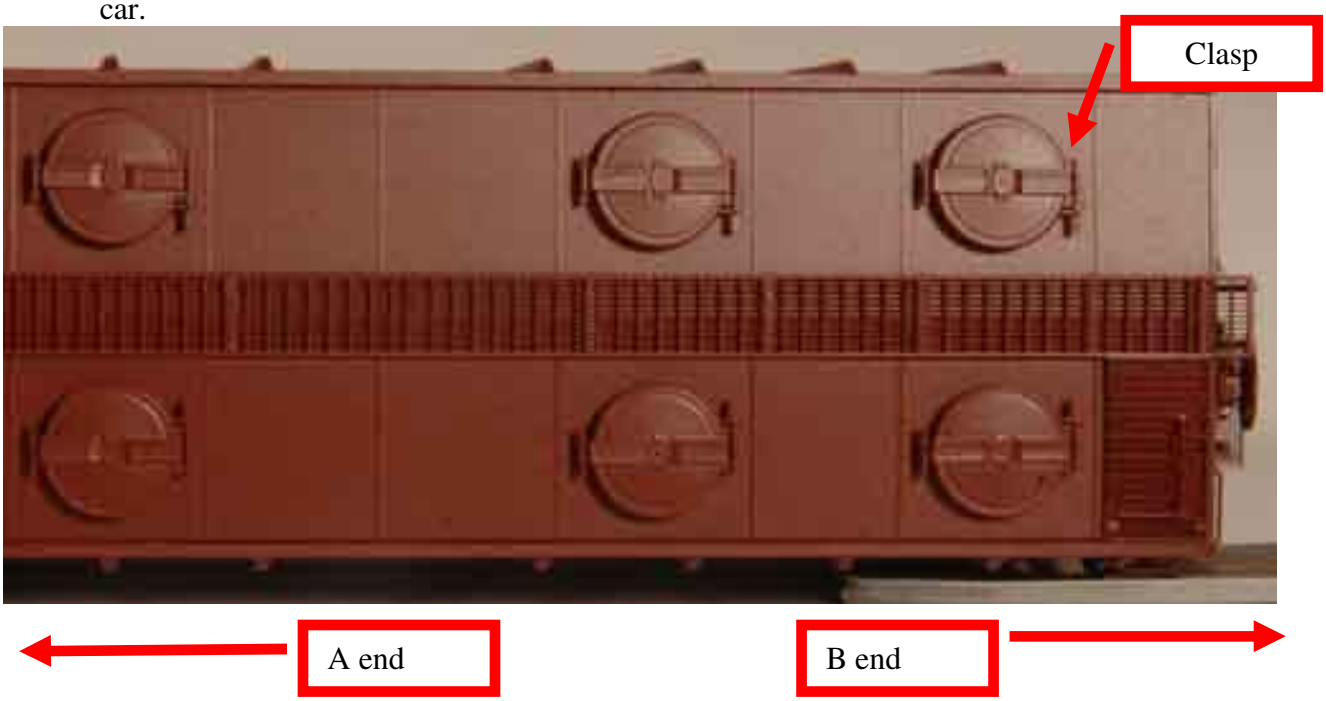
26. **Attach the Brake Step and Brakewheel:** Carefully degate and cleanup the brakewheel. Glue it into the brakewheel housing on the B end of the car. Inspect the etched metal brake step from the parts bag. Orientate the rounded opening on this part to the back right. Using needle-nose pliers, bend the back edge UP and the front edge DOWN (see photo in Step 19). Glue this piece to the 3 horizontal supports below the brakewheel using CA.

27. **Attach the outlet gates:** Carefully degate and cleanup the three outlet gates. Glue these to the bottom of the hopper bays, using the circular pins referenced in instruction number 1 for guidance. If your prototype requires them, drill #66 (.033") holes on the side of the bays above the outlet gates (horizontally centered under the shaker brackets) and insert the pneumatic outlets (see photo below). The six pneumatic outlets are located on the "Underframe Details & Brake Wheel" sprue. See photo in step 24.



28. **Attach the Stirrup Steps:** Carefully degate the corner steps and attach them to the underside of the car. Note: When degating the steps, leave the plastic tabs where the step will insert into slots on the underside of the car., but remove the plastic **between** the two tabs. The slots on the underside of the car may need to be cleaned out slightly with an X-acto blade if glue has clogged them up when attaching the bolster pieces in step #6.

29. **Attach the roof hatch parts:** Degate and cleanup the roof hatches. Glue to the top of the car matching up the holes provided (so that it mounts in the proper direction), per the photo below. This matches most roadnames, although a few had clasps facing the B end of the car.



The left 4 hatches out of view of this image should face the opposite way of the above (mount 180 degrees from the above).

30. **Air hoses** – Glue the air hoses to the 2 holes located on the side of the coupler boxes.

31. **Couplers** – Insert couplers and attach using the included flathead type screw. The screw head should fit inside the recess of the plastic part.

32. **Pin lifters** – Insert a larger eyebolt into the plate on the lower left side of the end to hold the pin lifter bracket. Trim & glue the other end to underside of the coupler box.

33. **Trucks** - The kit comes with trucks and metal wheels. If you find that the truck screw does not tighten completely to the truck and bolster, remove the screw. Use a #51 drill bit to carefully deepen the hole *just a turn or two of the bit.* Please be careful here; any more will cause the bit to go through the bolster plastic and come out as an unsightly hole at the base of the vertical slope sheet. Attach the truck and screw again, and carefully tighten the screw appropriately. *An alternate option if you do not have a pin vise: cut the end of the screw off with wire cutters.

We hope you enjoyed building this kit! Please feel free to let us know of any needed corrections or improvements.

Thank you!

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