Instructions for Building the RCW Western Pacific PFE 52001 Series

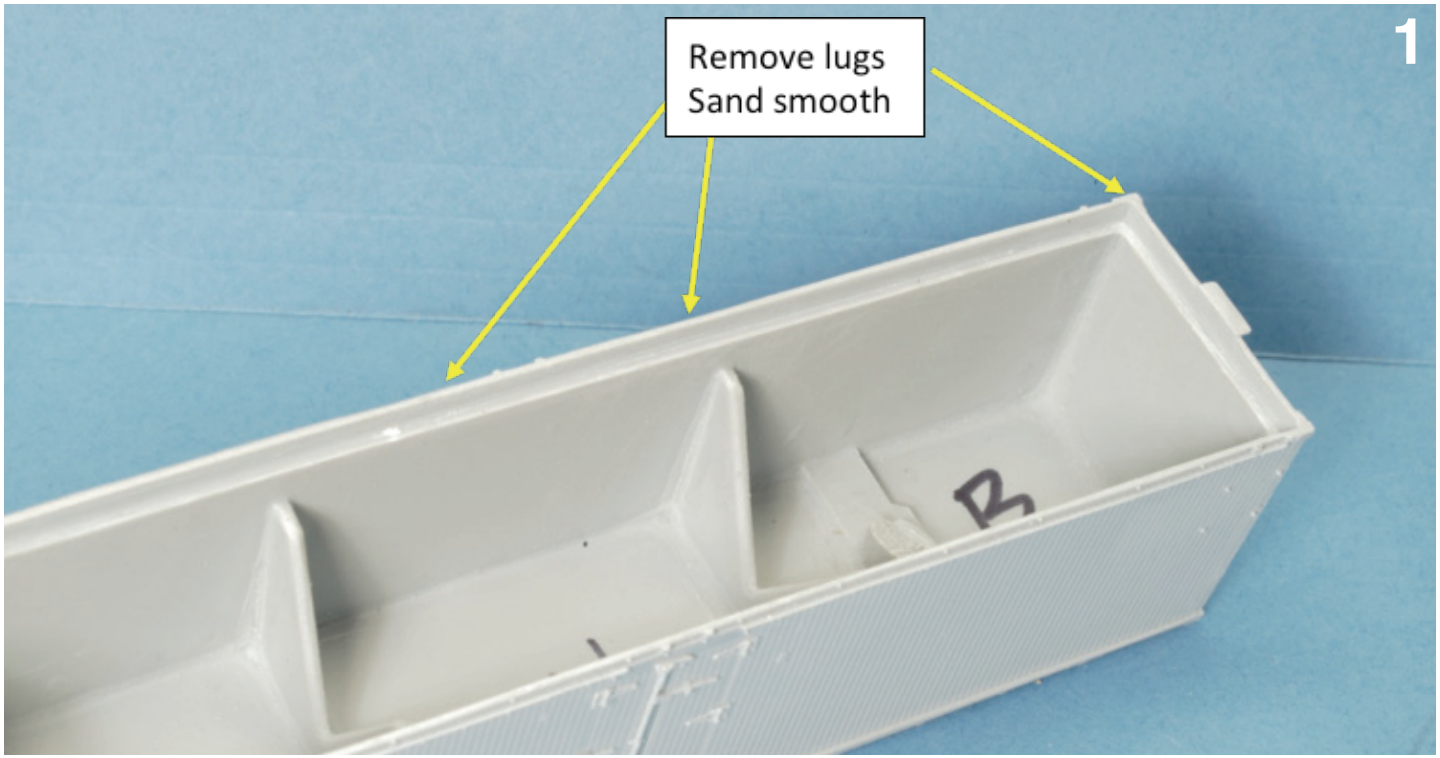
This kit makes into an HO scale Western Pacific PFE refrigerator car, similar to the PFE R-30-13, after it was reconditioned in 1938-39, and before the 1952 rebuild. Parts are metal, plastic and resin, and there are many included in the kit. Refer to the photos as you proceed through assembly.

Figure 1. Body casting

Step 1. Remove the casting lugs from the inside of the body and file/sand smooth. Clear the inside corners as well and make them square. Test-fit the underframe into the body casting, and reduce the edges of the frame as needed until the frame fits easily into the body. There is a "B" marking on the frame, so when satisfied with the fit, mark the inside of the body for the B end so the fit will always be the same.

If you wish to make the frame removable, glue blocks into the four corners to provide a receiver for corner screws. Drill holes with the frame in place, then tap for screws. 1.7 mm is a good size.

If you plan to model this car with the hatches open, consider opening



holes at the hatchways. The casting in the roof area is thick, so it takes some drilling and filing to open the four holes.

Set the body aside to begin work on the frame.

Figure 2. Underbody frame

Step 2. This part and some of its details are plastic moldings, so they can be attached with an adhesive suitable for plastic. If you are going to use the resin coupler boxes, remove the molded-on plastic parts from the ends of the frame. Remove the parts down to where the base is level with the end sill of the frame.

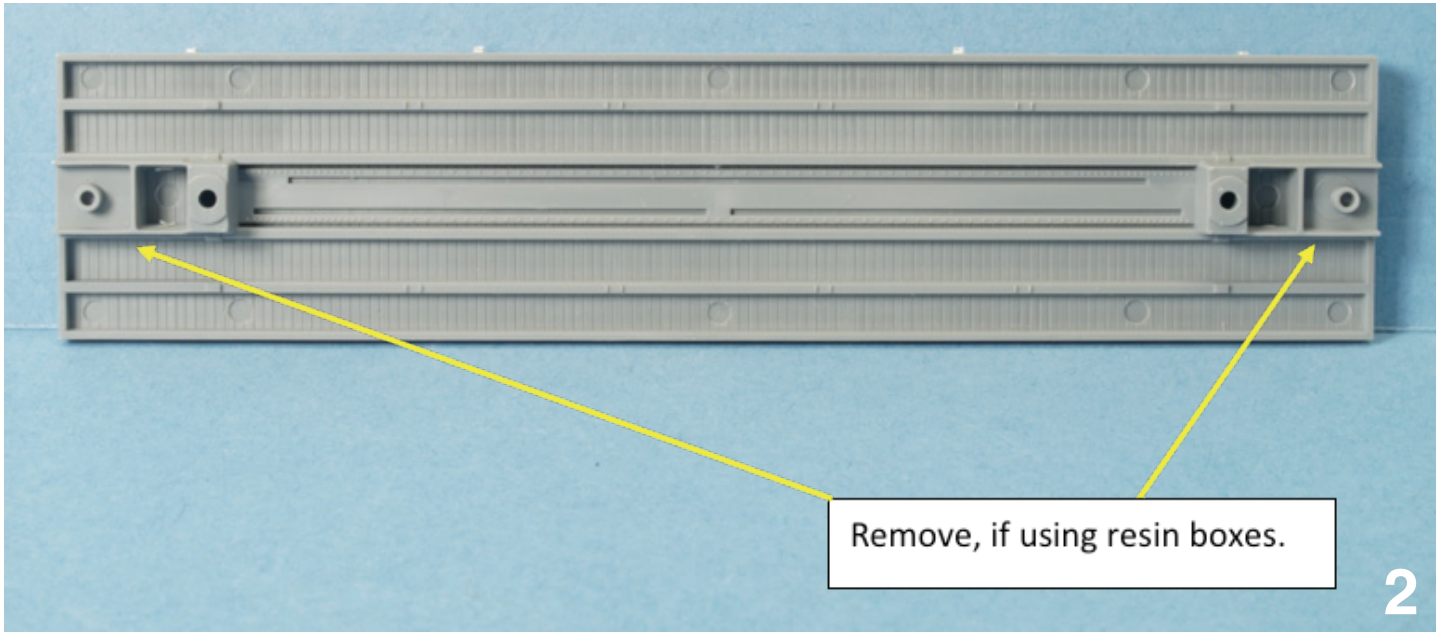


Figure 3. Top of frame

Step 3. Fill the truck screw holes: The plastic holding the truck screws is very thin on the bottom. It's a good idea to add an insert to hold those screws. The holes are tapered. Taper two short lengths of 0.100" x 0.188" styrene strip and glue into these holes. Drill and tap from the bottom of the frame for the screws you plan to use to hold the trucks. Weights will be added (note the hexagonal location) after the frame is painted.

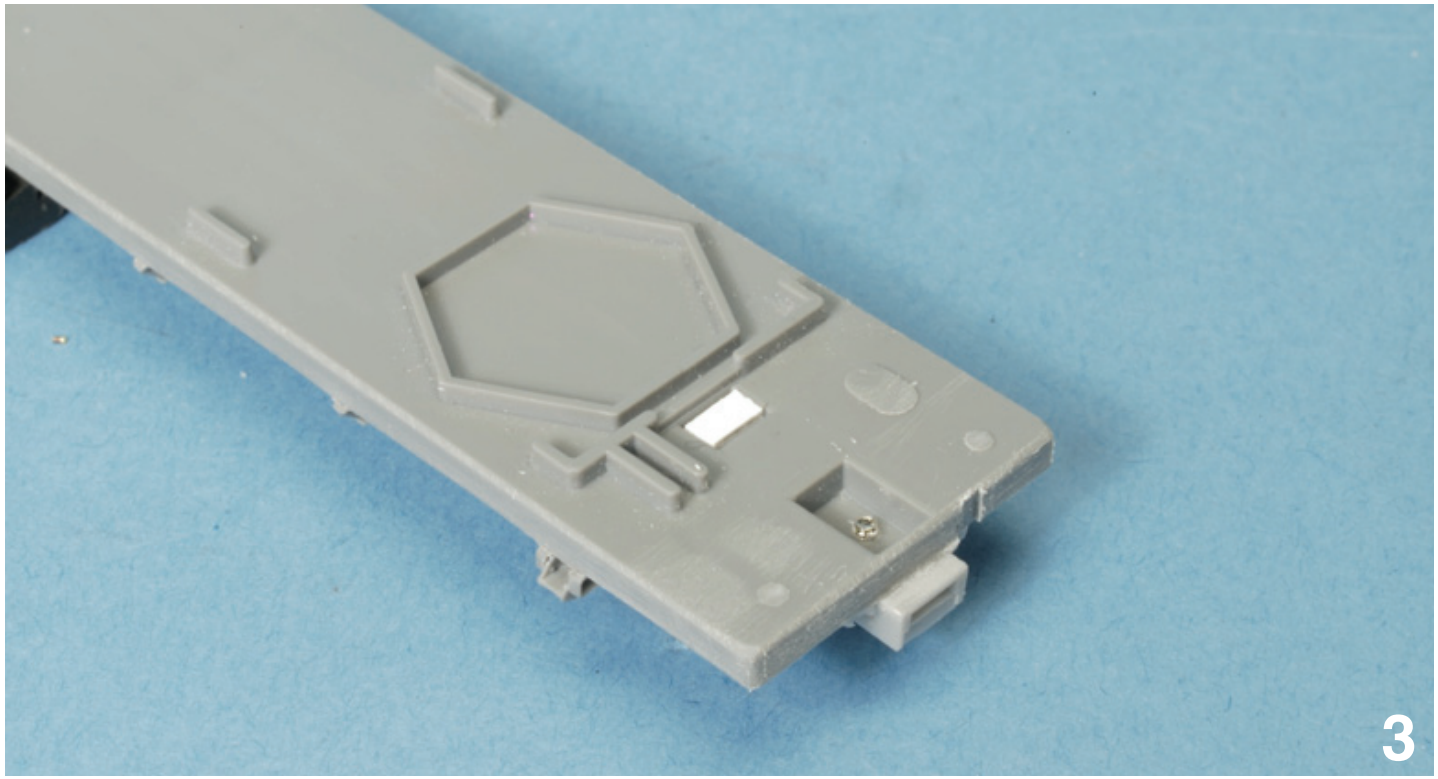
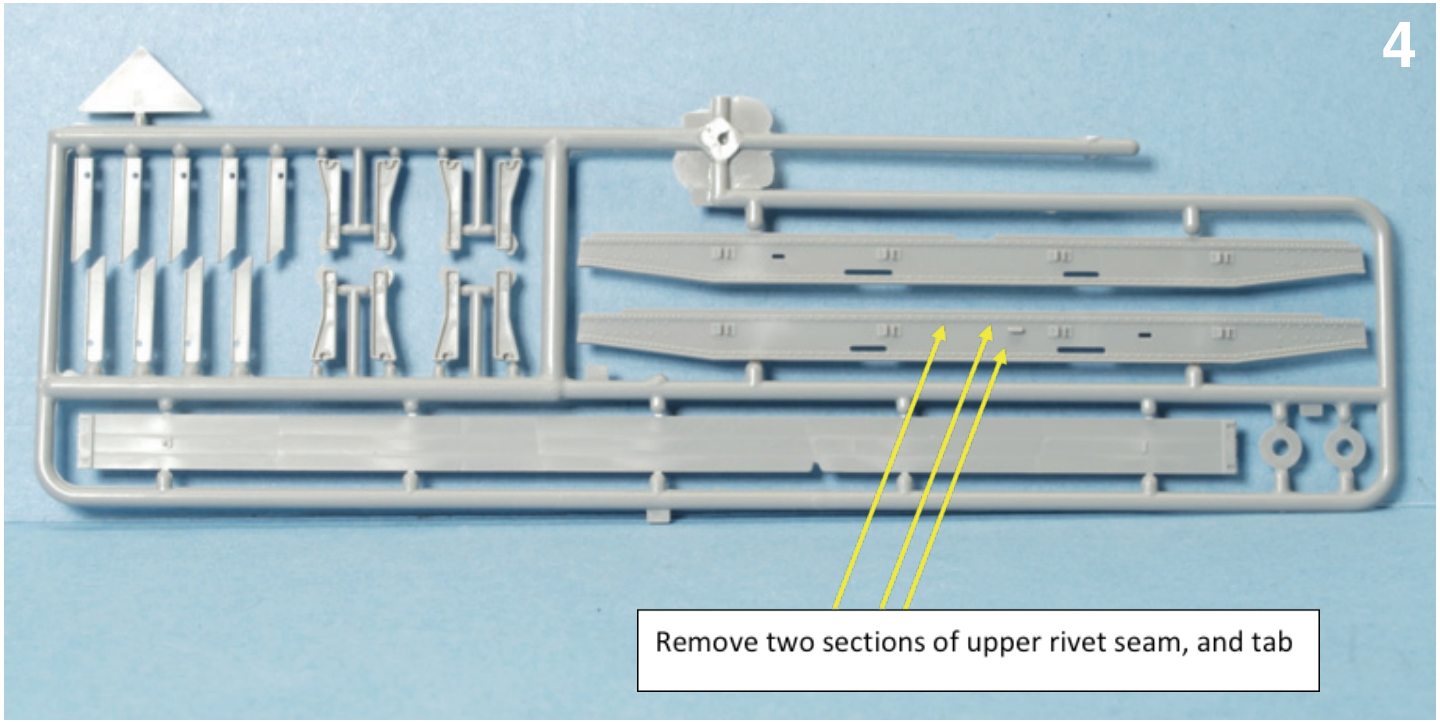


Figure 4. Tichy Plastic Details Sprue 1 (DS1)

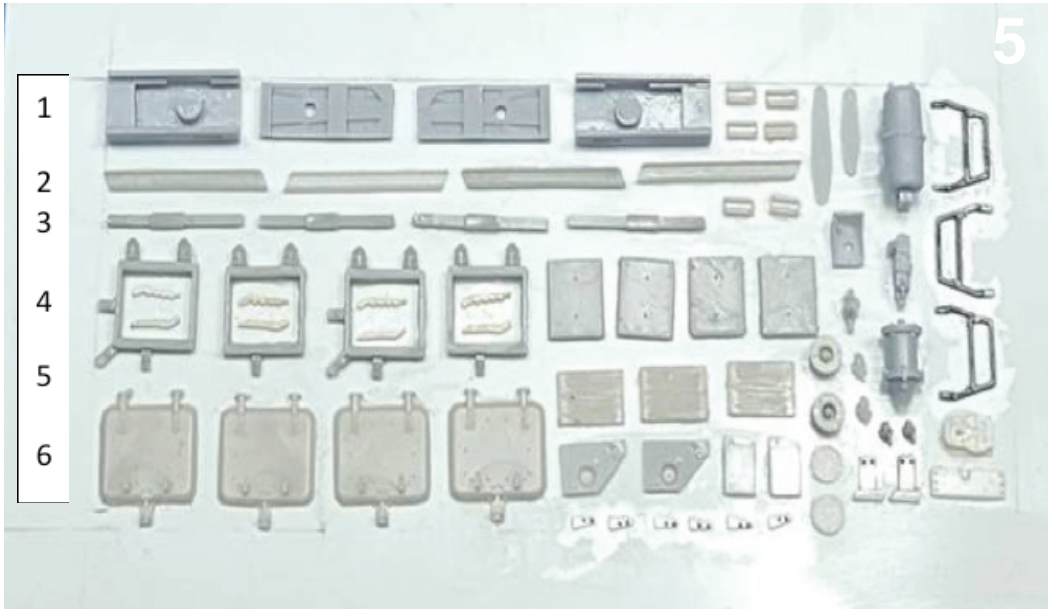


Step 4. Install the center sills: Cut center sill part 2 from DS1. From the upper rivet strip, remove two sections (see Figure 6): From the left edge of the longer slot, measure left to 0.130" and continue left to 0.280"; remove this 0.150"-long section. This gap will be for the larger brake bracket. Continue left and remove another section from 0.500" to 0.560". This gap will be for the smaller brake bracket. Remove the tab above and to the left of the longer slot.

Cut the center sill part 1 from DS1. Glue both sills into position in the center of the underbody frame. The parts are shaped differently to fit into the two recesses in the frame.

Step 5. Install bolsters: Cut from DS1 and glue together four pairs of parts 3 & 4, and install in place as bolsters. There is a pocket at the inside end of each pair; this is for the air line.

Figure 5. Resin detail castings that will be used in this car



Line 1: Coupler enclosures, lids, 4 drain chutes, 2 brake levers
Line 2: 4 underframe channel angle braces
Line 3: 2 spare drain chutes, brake bracket
Line 4: 4 hatch plugs
Line 5: Far right: Retainer(s)
Line 6: Far right: Power hand brake enclosure

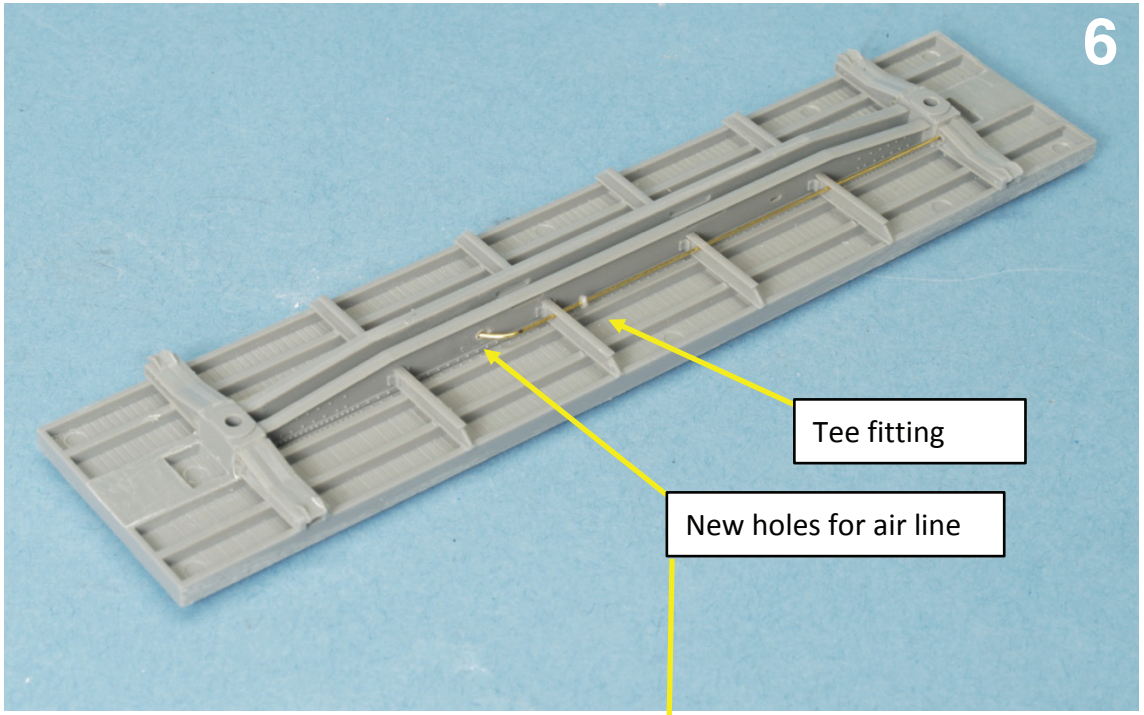
Parts not called out here will be used on other refrigerator car kits. There is also a Tichy AB Brake sprue and a Tichy K Brake sprue included in the kit. Chose whichever brake you prefer. These instructions will show how to install a K brake.

Figures 6 and 7. Frame with crossbearers and air line

Step 6. Drill holes for air line: For this car, new holes for the air line must be drilled through both center sills near the A end of the car. Mark a new location as shown. Drill through both center sills using a 0.030" drill bit at a 45-degree angle from right side to left side. Cut and bend two lengths of 0.020" brass wire, one for each side of the air line. They are installed in Step 8.

Step 7. Tee fitting: A Tee fitting is needed for attaching the air line connection from the K brake to the main air line. Find a gray Tee fitting in the parts bag, drill through the long axis for the air line.

Step 8. Install crossbearers: Slip one crossbearer onto the longer of the two air lines, then add the Tee fitting (do not glue it), then two more crossbearers. Slide the curved end of the line into the new hole in the center sill, and the other end into the pocket in the bolster. Glue the crossbearers in place. Do the same for the short side of the air line.



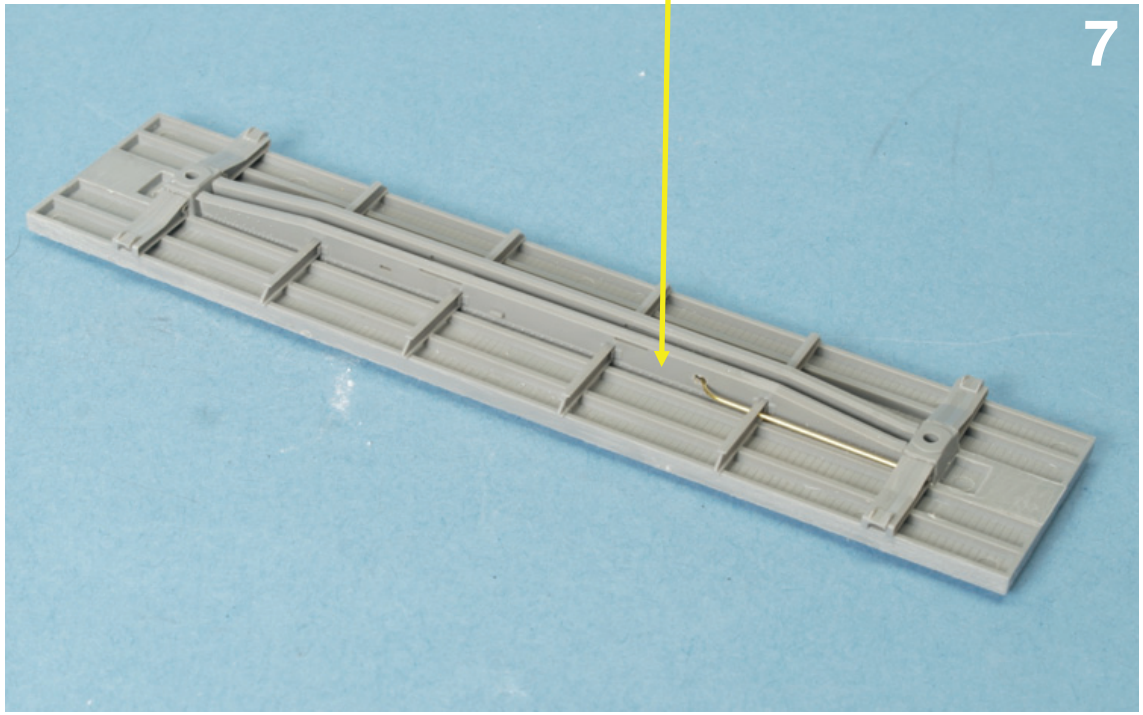
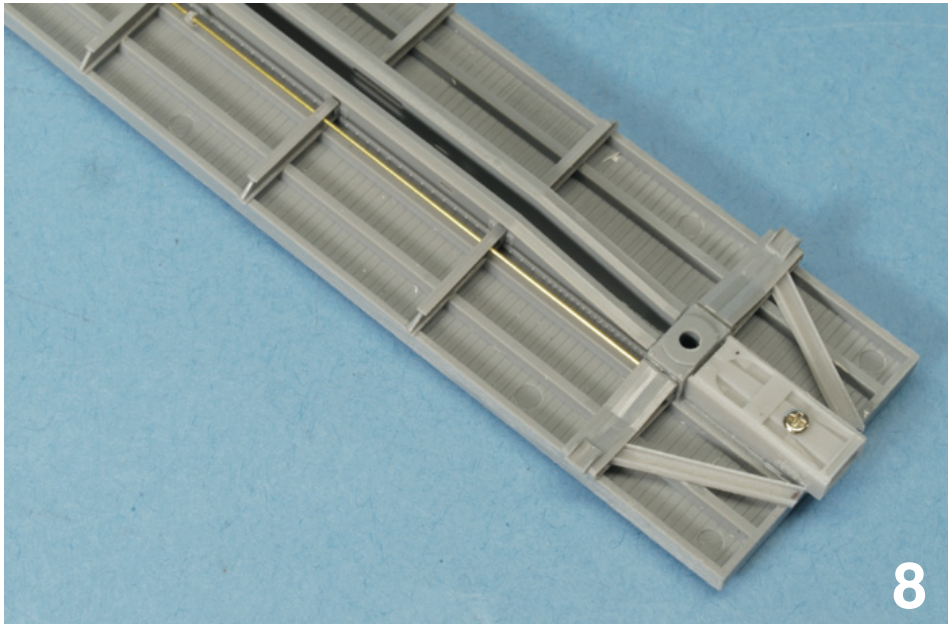


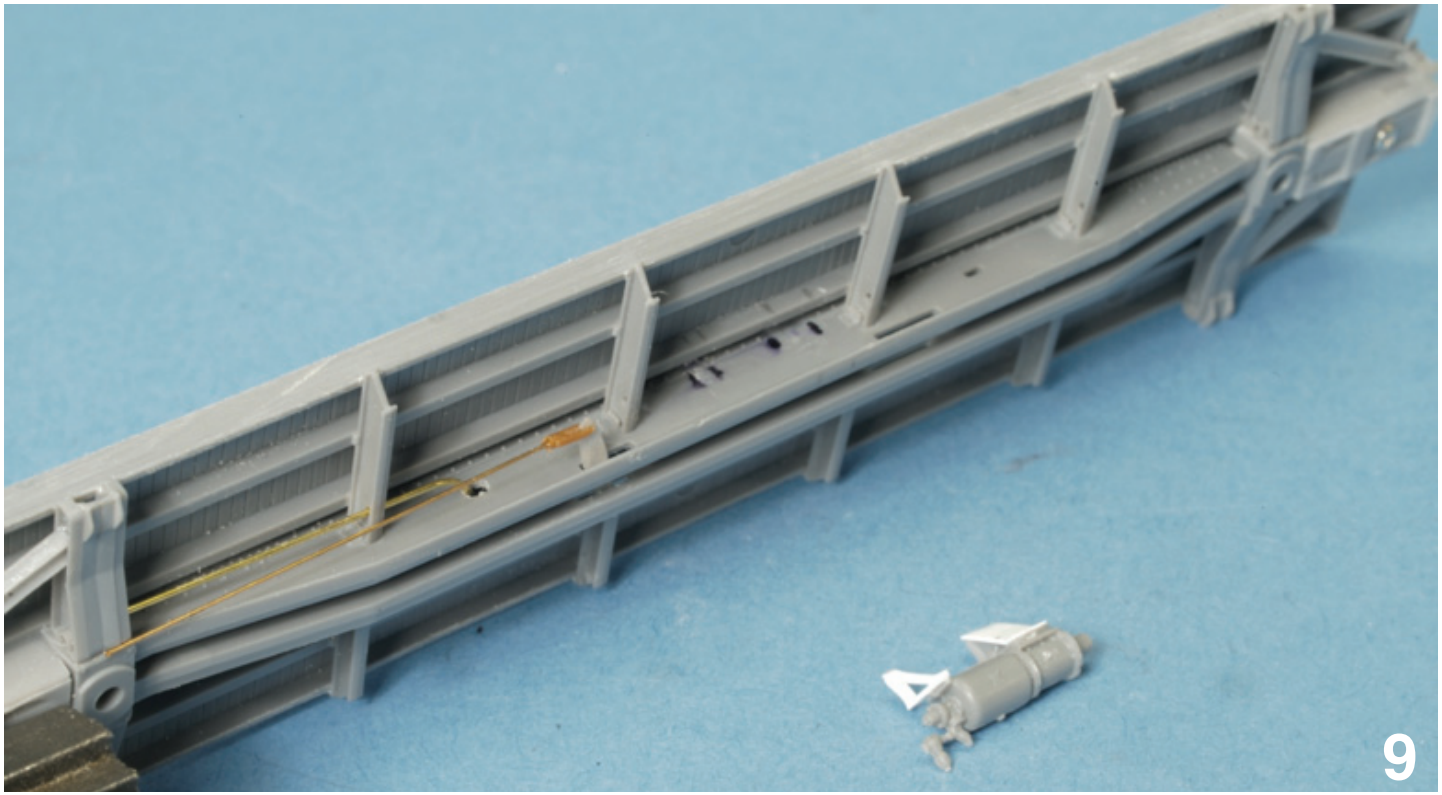
Figure 8. Air line, coupler box, and braces



Step 9. Install coupler boxes: Remove enclosures from resin casting sheet and sand off any flash. Sand the inner end at an angle to meet the bolster and glue in place (Use ACC). Cut and trim the lids to slide into position, and drill/tap for screws to secure the lids. 1.7mm is a good size. Couplers will be added later; securing the lids with screws enables replacement of couplers, should it ever be needed.

Step 10. Install braces: Cut four channel angle braces from the resin casting sheet and trim to fit at an angle as shown. Thin the back side of the castings by 0.020" so they will not impinge against the wheels when in place. There are two left and two right channels, with angles at the ends. Glue in place.

Figure 9. K Brake brackets and location



Step 11. Prepare K brake: The K brake is on the Tichy sprue. Cut off the piston and clevis close to the cone, and drill the cone end to accept a short piece of 0.020" wire. Attach the triangular bracket from the resin casting sheet to the top of the cylinder. File away the triangular sides of the bracket leaving an "L", and glue a piece of 0.010" x 0.125" styrene strip onto the bracket. Make a triangular rear bracket to match, from a 0.015" x 0.040" strip bent in an "L", and a 0.010" x 0.040" strip on top. Attach this assembly to the rear bracket shelf of the reservoir.

Cut off the plastic line leading away from the dirt collector, and drill a #78 hole into the very end. This will

be for the air supply connection to the air line.

Step 12. Install K brake: Carefully open one end of a turnbuckle to accept the short piece of 0.012" wire; glue it on the wire. Insert the wire into the cone with the turnbuckle only 0.030" from the cone end; glue in place, making sure the turnbuckle is oriented to accept the brake lever. Sand the wider end of the resin cylinder lever in both thickness and width until it will fit inside the turnbuckle. Set it into the turnbuckle (See Figure 10 - Do not glue), and position the assembly so the lever goes through the longer slot. Glue the brake brackets to the sill in the gaps provided in Step 2 above. Position the cylinder lever into the turnbuckle and glue in place.

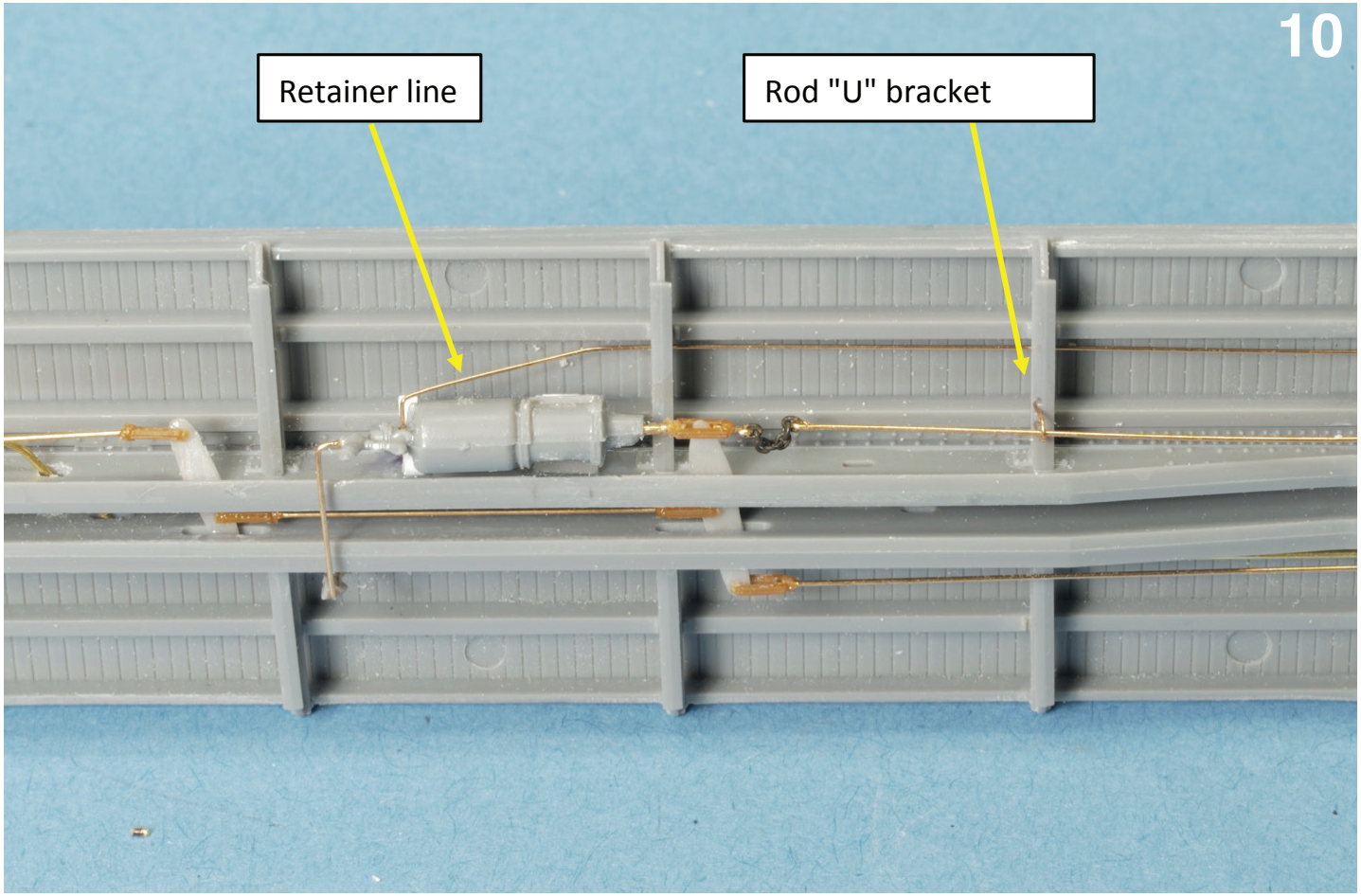


Figure 10. Brake rigging

Step 13. Brake rods: Glue lengths of 0.012" brass wire into the ends of three turnbuckles. Approximate lengths are: A end rod: 1.400", B end rod: 1.400", Connecting rod: 0.925". Then, cut the turnbuckles from their sprue, and open the free end of each one to make a clevis on each rod. Clean the open end of each clevis with a piece of fine sandpaper to accept the levers. Insert the short brake lever into the smaller slot in the center sill and glue in place. Connect each clevis to its lever and glue in place. For the connecting rod, place one turnbuckle on a lever, slide a loose turnbuckle onto the rod, slide it over the other lever and glue in place.

Step 14. Handbrake connecting rod: Make a loop at the end of a 0.100" piece of 0.012" wire, and attach a 7-link length of fine chain (40 links per inch). Make a loop in a 1.450" length of 0.012" wire and connect it to the other end of the chain. Test-fit the short piece of wire into the turnbuckle on the cylinder lever, cut it to fit, and glue in place. Drill two holes in the adjacent crossbearer, fashion a "U" bracket of 0.010" wire, glue in place to support the handbrake connecting rod. Cut the other end of the long rod to lay on the bolster and glue in place. If the curves on your layout will allow, add the chain and rod leading from the bell crank to the bolster.

Figure 11. Underframe details

Step 15. Retainer line: Drill a hole into the rear fitting of the reservoir. Using 0.010" wire (or 0.008" if available), fashion a line from this location to the "B" end frame sill. On many of these cars, the retainer line was installed at an angle. Glue the line in place.

Step 16. Drain Chutes: Add the four resin drain chutes from the resin detail sheet as shown. Note that they have one square end and one angled end. The angled end positions the chute correctly on the frame.

Step 17. Bell Crank: Note the position of the bell crank from the K Brake sprue (part 10). It will be added later to mate exactly with the handbrake rod.

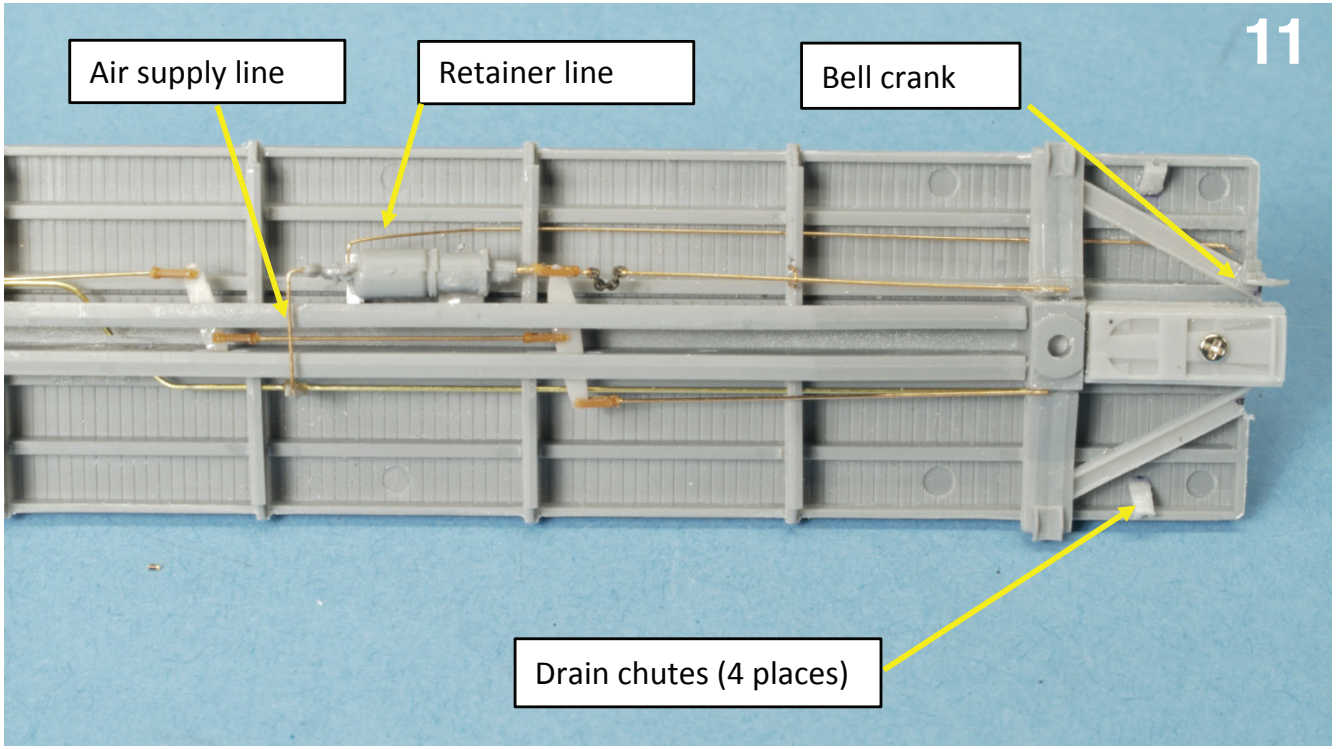


Figure 12. Air line connection

Step 18. Air line connection: Fashion a length of 0.012" wire to connect the dirt collector to the air line; the line goes under the center sill with a little clearance. Use the retainer on the Tichy K brake sprue as a quarter-turn valve. Drill for the line before removing the retainer from the sprue; slide it onto the wire. Drill a hole into the Tee fitting already on the air line. Connect the wire to the dirt collector and to the air line and glue in place.

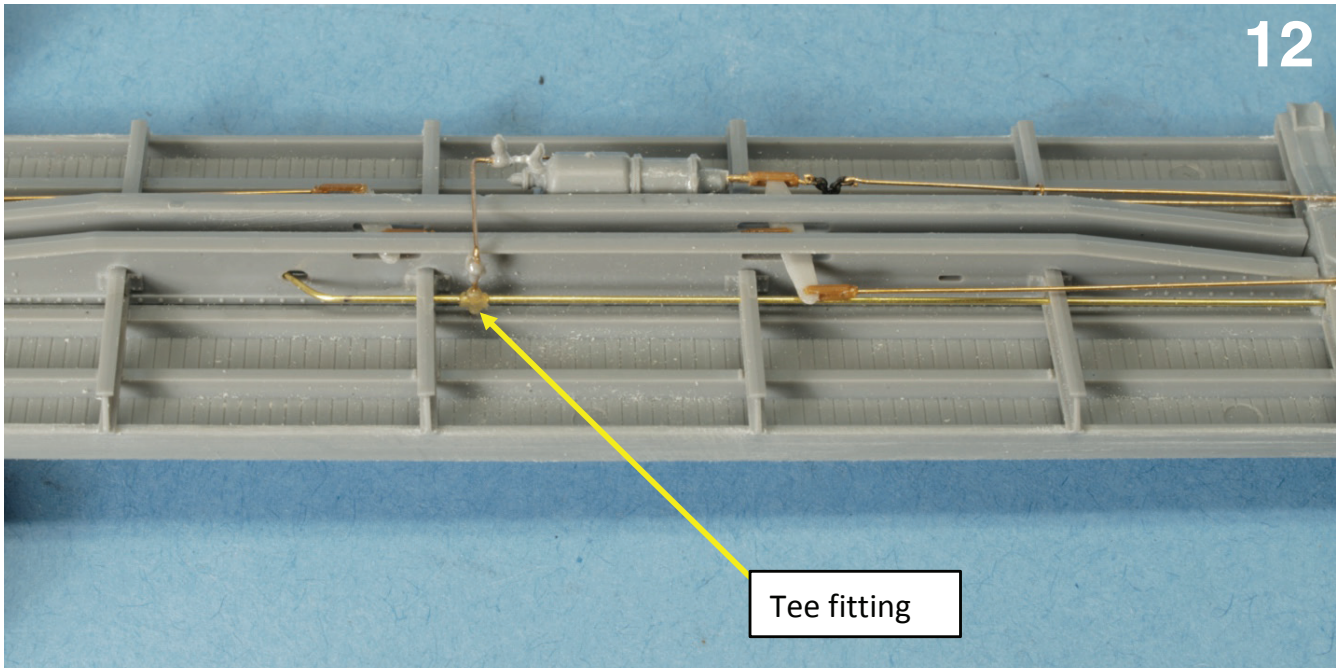


Figure 13. Running board

Step 19. Attach the running board: The running board has two tabs at either end, about 1/4" from the end. These tabs fit into two recesses in the running board supports. Position the running board and tack it in place with plastic glue. When satisfied, secure it with CA at each running board support.

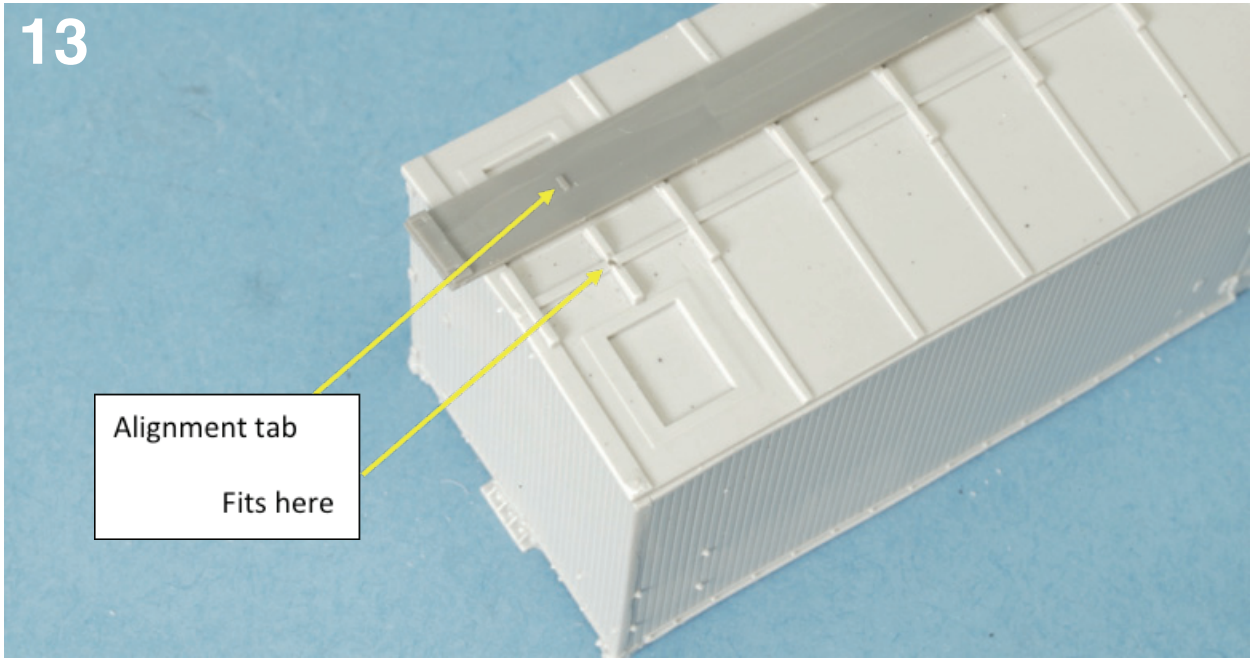
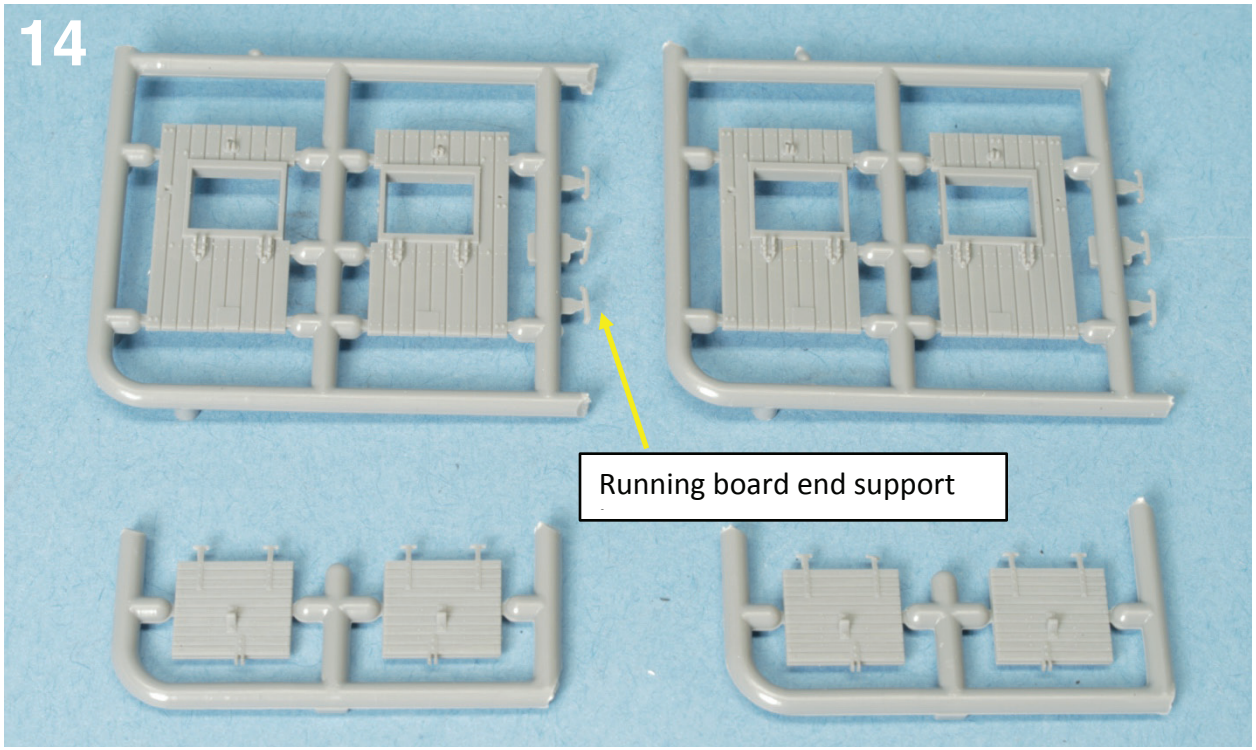


Figure 14. Roof details

Step 20. Supports: Cut four running board end support braces from the ice hatch platform sprue and glue in place under the ends of the running board.



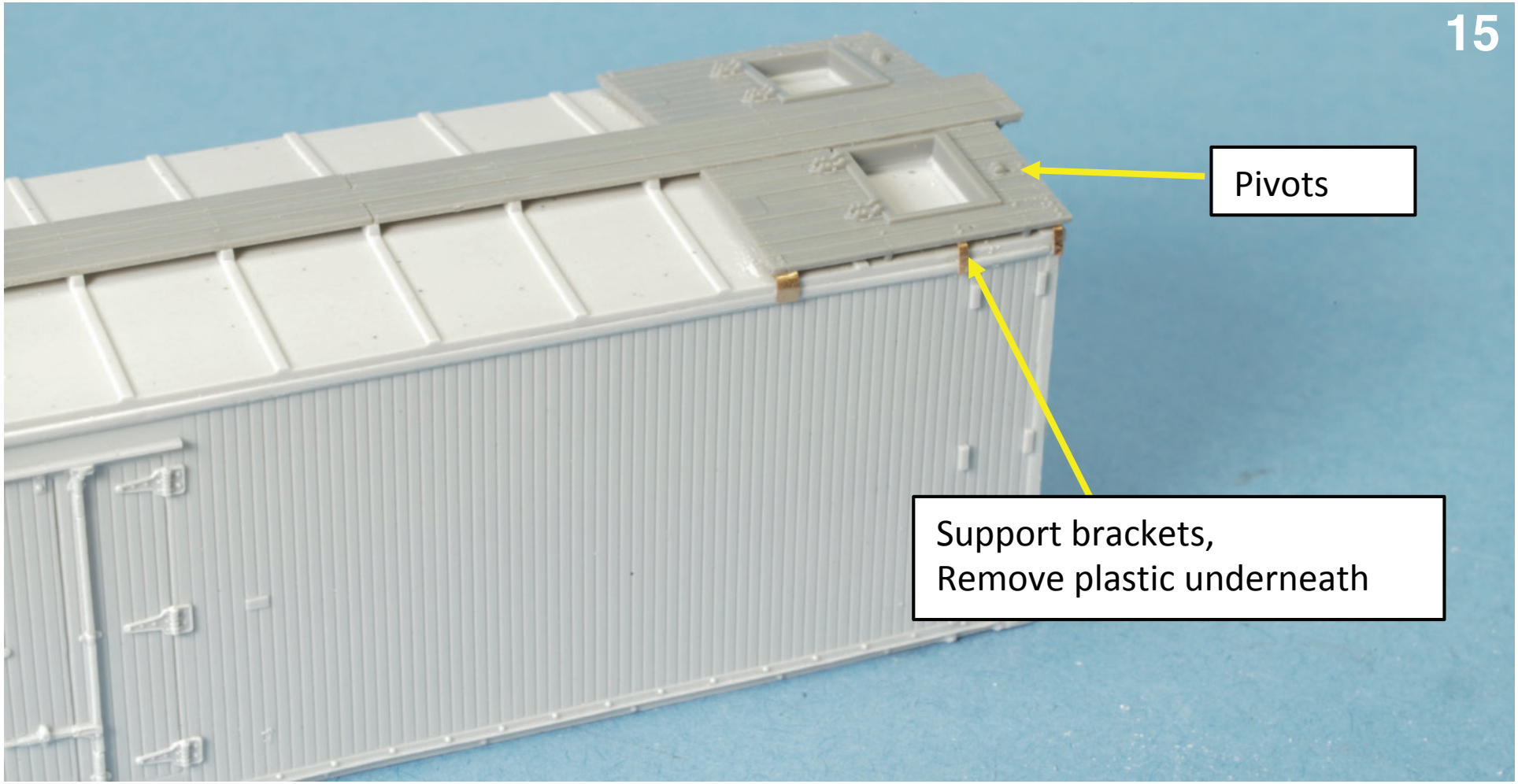


Figure 15. Ice hatch platforms

Step 21. Attach ice hatch platforms: Under each ice hatch platform are long support sills. Remove about 0.100" of three of these at the outboard edge in positions where support brackets will be added. Make three supports for each ice hatch platform out of thin styrene or brass strip; the larger support is 0.060" wide, and the other two are 0.020" wide; the wider support is also shorter on the side than the other two. Place the ice hatch platforms in position so the opening surrounds the recess in the roof, and secure with CA. Then add the three supports. Complete this step for each ice hatch platform.

Step 22. For a real challenge, drill through the hatch cover support pivots so you can insert a piece of 0.012" wire. This will allow the metal supports to rotate if desired.

Step 23. Platform grab irons: Drill the dimples for the right-angle grab irons. Bend 0.010” wire to form the grab iron; it is 0.220” on each side, with legs 0.080”. Slide on a brass eyebolt, and glue the grab irons in place.

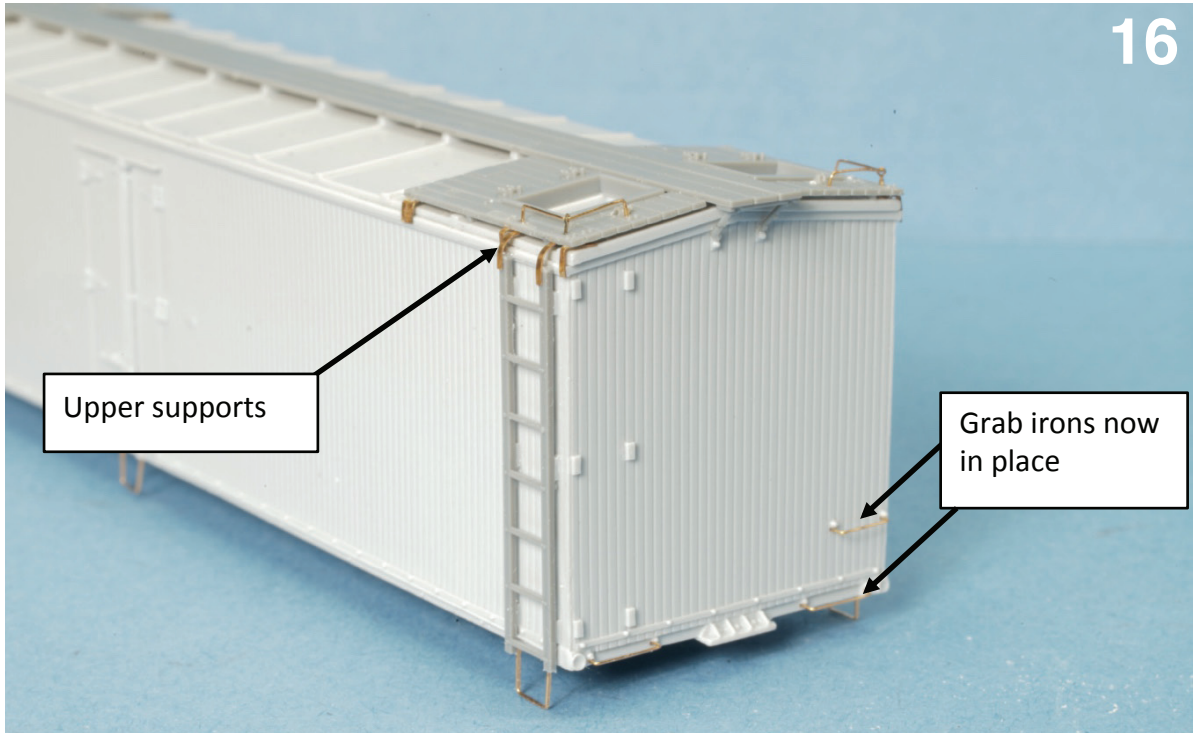
Step 24. Side grab irons and stirrup steps: Drill each dimple for grab irons. Use the ones provided (0.012” wire), or make new ones from 0.010” wire. In addition, drill the bottom of the body at locations for the stirrup steps. You can use the ones provided, or make new ones from 0.012” wire by first flattening the wire by squeezing between the jaws of pliers, then bending to size and shape. Twist the upper section of each leg 90 degrees so it appears flat against the side. Insert and glue in place the grab irons and stirrup steps.

Figure 16. Side ladders

Step 25. Attach side Ladders: At the bottom of a ladder, remove excess rail length on both sides to within 0.030” of the bottom rung. Also remove two sets of tabs cast into the back of the ladder on each side, the upper set and the lower set. Then use the middle set as alignment tabs. Turn the ladder over and place it so that the rungs face outward, and the alignment tabs butt against the bottoms of the middle set of tabs cast onto the body. Glue in place. Repeat for the other side.

Figure 17. Upper ladder supports

Step 26. Attach upper ladder supports: From very thin styrene or brass strip, fashion two curved upper ladder supports. The supports are 0.030” wide and 0.150” long. Curve them in a gentle arc so that the top of the support goes under the ice hatch platform. Glue in place at the tops of the ladder rails. Repeat for the other side.



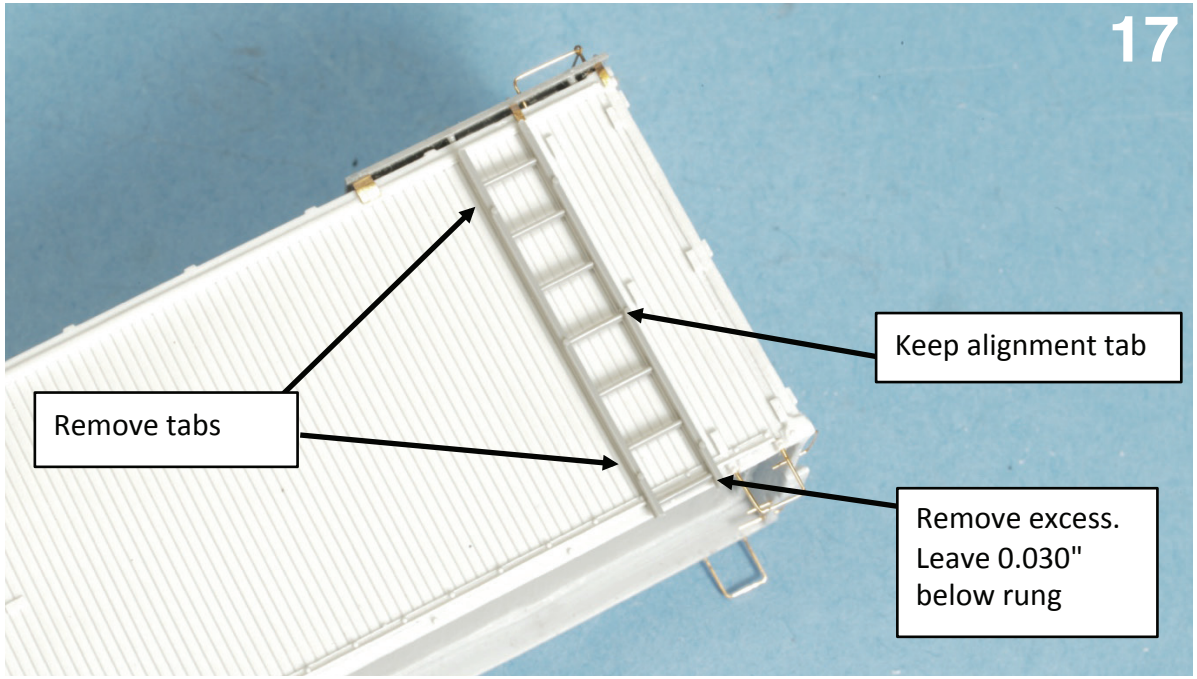
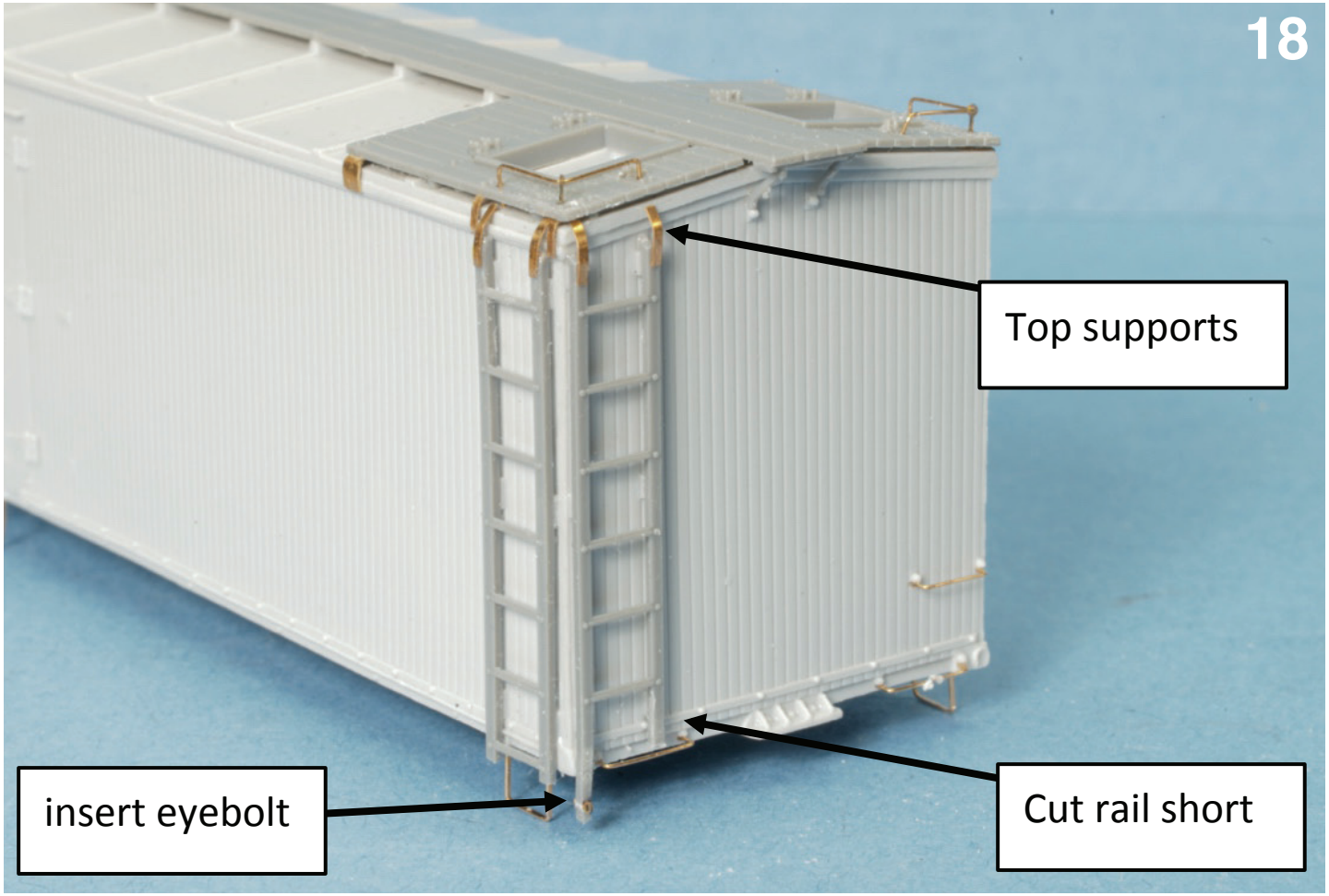


Figure 18. End ladders



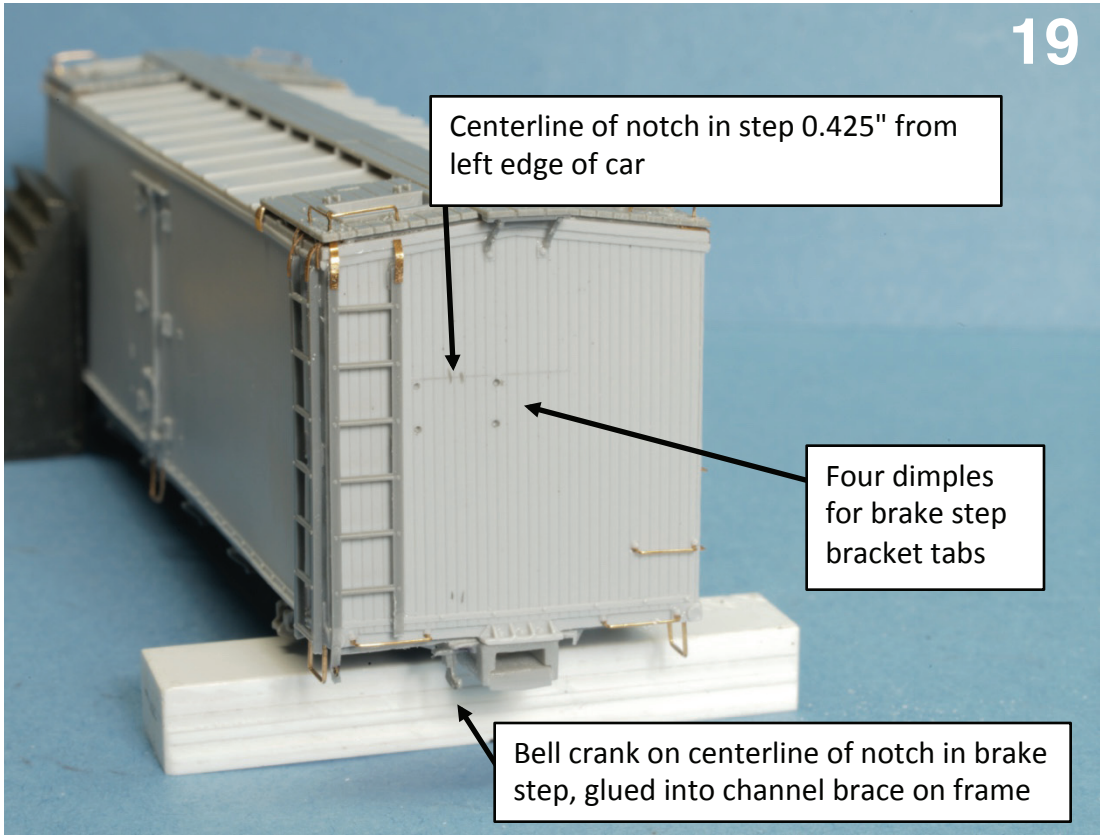
Step 27. End ladders: At the bottom of a ladder, remove the last rung entirely, including the rivets on the front of the rails. Remove the right rail starting at 0.130" below the next higher rung. Also remove all three sets of tabs cast into the back of the ladder; sand all cuts smooth. Turn the ladder over and place it so that the rungs on the end ladder face outward and match exactly level with the rungs on the side ladder. Glue in place, on the tabs cast onto the body. The lower left rail contains the fulcrum for the coupler lifting device (cut lever); drill into the lower left rail 0.040" from the bottom and insert an eye bolt. Repeat for the other end.

Step 28. Attach upper ladder supports: As you did with Step 26 above, from very thin styrene or brass strip, fashion two curved upper ladder supports. The supports are 0.030" wide and 0.150" long. Curve them in a gentle arc so that the top of the left support is even with the supports of the side ladder, and the right rail support is equal in height to the left. Glue in place on the tops of the ladder rails. Repeat for the other end.

Figure 19. Location of brake step

Step 29. Brake step: Sand the top of the step (K Brake sprue part 6) smooth of rivets and use it upside down, so the off-center notch is toward the centerline of the car. Attach two brake step brackets (parts 5) to the step. Locate the position of the notch at 0.425" from the left edge of the car, just below the second rung of the ladder. Transfer the positions of four tabs on the backs of the brackets to the car end; drill a dimple (#76) for each, and glue the step brackets in place.

Step 30. Temporarily place the frame in the body, and directly below the brake step notch, locate a spot on the frame for the bell crank (K brake part



10 - refer to Figure 11). Sand the square base of the bell crank flat, and sand off the inside rear corner so the part will fit inside the channel angle brace. Also, notch out a piece of the outside lip of the channel. Glue the crank into the channel. The end of the crank should protrude beyond the end sill of the car so the rod from the brake housing will connect.

Figure 20. "B" End details

Step 31. Brake housing: Inside the brake housing (K brake part 8), glue the end of a 0.180" length of fine chain (40 links per inch) into the housing, coming down the right side; ensure it does not protrude past the plane of the back of the housing so the housing will sit flat against the car end. Cut the chain short of the step. Create a loop in a length of 0.010" wire and attach it to the bottom end of the chain. Straight down from the notch, in the end sill strap, drill a hole and insert an eyebolt to hold the bottom of the wire. Then feed a turnbuckle onto the wire and over the bell crank. Cut the wire as needed and glue the turnbuckle in place on the wire only. Leaving it free of the bell crank will help ensure the frame is removable. Wait until the roof work is finished to install the handwheel.

Step 32. Retainer: Attach a retainer to a length of 0.010" wire, or 0.008" wire if available. Locate the retainer on the car end, feed the wire behind the brake step and lower grab iron, and glue the retainer in place. Bend the wire under the end sill, and extend it slightly under the body, short enough so the

frame is still removable. The retainer wire from the K brake should appear to join it.

Step 33. Coupler lifting device (cut lever): Drill a hole for an eyebolt in the end sill strap, directly above the second triangular brace on the striking plate. Make a coupler lifting lever to fit from this eyebolt through the one at the bottom of the left ladder rail. There is a slight curve around the handbrake rod. Slip a second eyebolt onto the lever, feed the lever through the ladder eyebolt, insert the second eyebolt into the hole over the striking plate, and glue in place. Repeat for the "A" end.

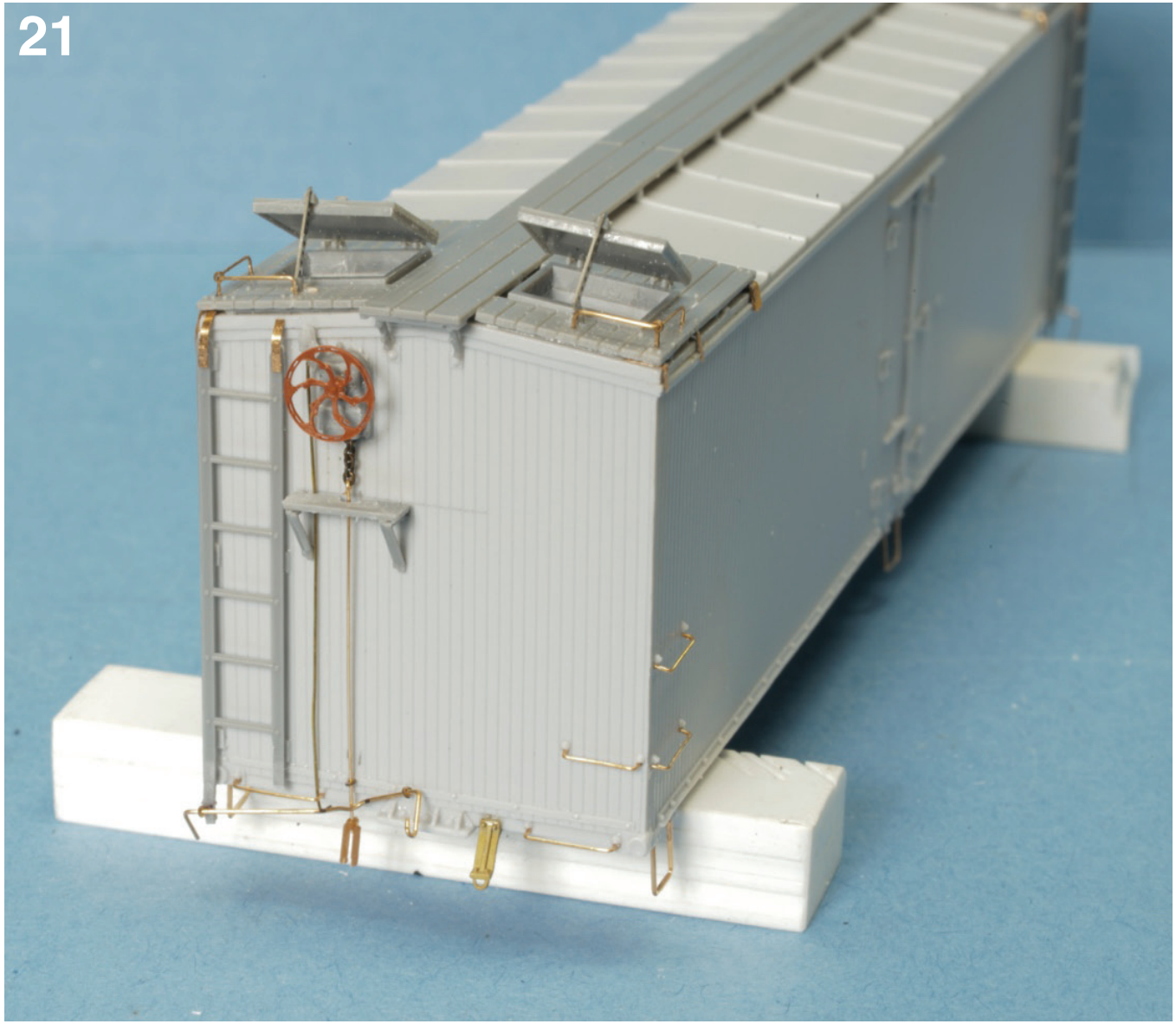


Figure 21. Roof and End Details

Step 34. Roof hatches: Remove the hatch plugs from the resin details, clean up any flash, and paint the hatch plugs a light gray. Set aside for later installation. Glue the hatch covers into their hinges. If you drilled the pivots, insert a short piece of wire into one pivot, add the etched metal brace, and push the wire through the other pivot. This will also work if you want to have the hatches closed with the braces loose in their pivots. Adjust the brace to fit into the hatch connection, and glue the parts in place. Repeat for the other hatches.

Step 35. Final end details: These cars had an air hose bracket of the type made by Hi-Tech Details as their HTD-6039 or 6040. Install it now if you wish. You may find that the brackets protrude past the inside of the end. If so, file them away, or file a notch in the frame ends to clear the protrusion.

Install a brake handwheel. Some of these cars apparently received an Equipco E-312 handwheel; the Kadee 2031 Equipco handwheel can be modified to an appropriate appearance.

Figure 22. Painting and Finishing

Step 36. Wash the entire body and frame to remove contaminants in preparation for painting. Using Dawn liquid is a good way to clean the resin castings.

Step 37. Paint the car: Selection of paint and color is your choice. A recommendation is Scalecoat 1 Daylight Orange, Scalecoat 1 Box-car Red # 2, and Scalecoat 1 Engine Black # 10. Using Scalecoat will give a good gloss coat, ready for decals.

Step 38. Decals: The decals that are included provide many choices for these cars. See the history provided for types and styles, as well as other books showing WP-PFE refrigerator cars. Overspray with a clear gloss once decals have set and dried. Spray a final dull coat and add weathering if and as desired.

Step 39. Final assembly: Add the hatch plugs to the underside of the hatch covers. Install couplers of your choice into the draft gear. Glue weights into the spaces on the top of the frame. Assemble the frame into the body. Add hoses into the air hose brackets. Install the trucks, and add this car to your fleet roster.

We hope you have enjoyed building this car. Drop us a line at Resin Car Works, and send a photo of your finished work.