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R-70-20 Refrigerator Car

CAR HISTORY AND DECORATION

The InterMountain Railway Co. R-70-20 Refrigerator Car is an HO scale replica of the last series of mechanical refrigerator cars purchased by Pacific Fruit Express. The prototype was manufactured from 1969 through 1972, by Pacific Car and Foundry. Similar cars were also manufactured for the Northern Pacific Railroad and the Burlington Northern Railroad. The cars were rated at 70 tons, had 10 ft 6 in wide door openings, and were equipped with load dividers. Upon the breakup of PFE, the PFE cars were divided between the Southern Pacific Railroad (SPFE), and the Union Pacific Railroad (UPFE). These cars have had a long service life, working into the current time while undergoing significant modification to the refrigeration systems.

GENERAL COMMENTS

Please read all instructions and study the drawings and parts before beginning assembly of this kit! Many of the parts are very delicate, in order for your completed model to be as attractive and authentic as possible. **DO NOT ATTEMPT TO BEND, TWIST, OR BREAK PARTS FROM THE SPRUE.** The most effective tools to use in removing parts from their sprue are an X-ACTO knife, fine clippers, or a sharp, single edge razor blade.

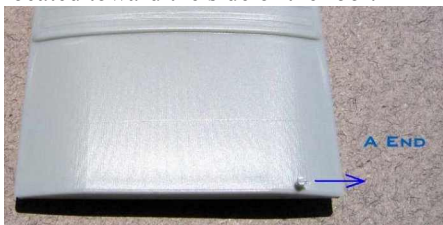
It is best to test fit ALL PARTS before applying glue. The locators sometimes are slightly damaged when removing them from the runner and must be trimmed before the locator holes will accept them. It may be helpful to open locator holes with a drill or reamer. We recommend a gap-filling cyanoacrylate glue for joining the parts, plastic-to-plastic, and the metal parts to the plastic. Generally very small amounts of glue are needed to affix parts, so we recommend that glue be used sparingly and applied with a small applicator.

The connecting point between the part and the “runner” to which it is attached is called a “gate”. The gates have been designed to be trimmed completely flush with the part except in those cases where the part itself is used as the gate.

ASSEMBLY SEQUENCE

THE CAR BODY

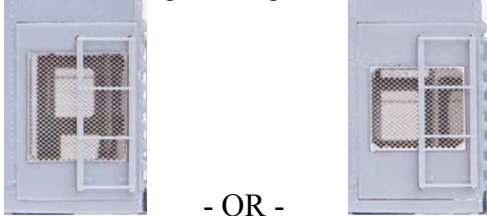
Step 1. Select the roof for the version of the car being modeled. Two different roofs have been included in this kit. The roof with alternating panels, of ribs/flat/ribs/flat/etc., were on cars in PFE road number series 456901-457500 and 457501-458100, manufactured in 1969. Remove any flash from the roof. Attach the exhaust pipe in the locator hole at the end of the roof. The hinge detail on the top of the exhaust pipe is located toward the side of the roof.



Step 2. Attach the roof to the body. The exhaust pipe is located at the end of the car with the openings on either side. Note that you may want to paint the roof before attaching it to the body.

Step 3. Remove any molding flash from the body. The A end of the body has openings on either side where the refrigeration equipment was located on the prototype. To provide support for the thin webs of plastic at these openings, insert (but do not glue) the floor into the body.

Step 4. Select the panel for the opening in the right side of the body. Two different panels have been included. The application varied on the refrigeration system used on the prototype. Remove the panel from the sprue, and attach the matching etched metal screen to the panel. Then glue the panel assembly into the opening in the right side of the body.



Step 5. Separate the door support rods from their sprue. To size the rods, cut them as close as possible to the sprue runner. Glue the rods at the locator holes at each door. Note that the rods are not symmetric. The lower half of each rod has two raised collars that align with the details molded into the side door.

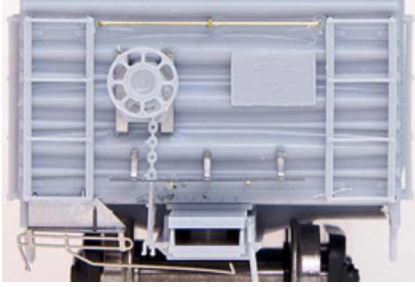


Step 6. Attach the wire grab iron in the locator holes, to the left of each door.

Step 7. Glue the etched metal screen access door into the opening in the left side of the body.

Step 8. Attach the ladders to each side of the body. Note the tall ladder is located over the etched metal screen access door. It may be helpful to clear the locator holes for the ladders with a .026 in. diameter (#71) drill.

Step 9. Attach the placards at each end of the car. The locator holes for the placards are along the bottom of each placard.



Step 10. Attach the ladders to each end of the body.

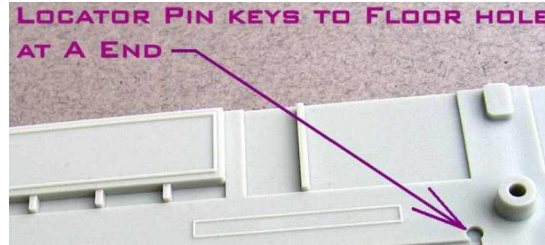
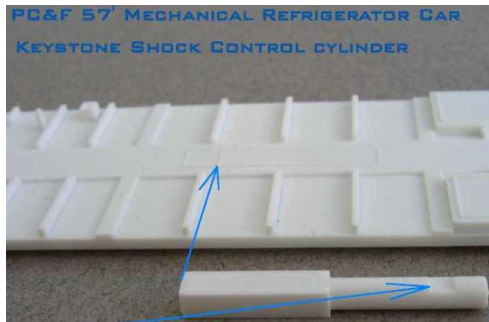
Step 11. Bend the legs of the etched metal brake mechanism bracket to 90 deg. Attach the etched metal brake mechanism bracket to the B end of the body, and the brake mechanism to the bracket. Then attach the brake wheel to the brake mechanism.

Step 12. Attach the wire grab iron and eyelet in the locator holes, between the ladders in each end.

Step 13. Remove the floor from the body. Cut the stirrups from their sprues, with a sharp blade. Attach the stirrups to the body in the locator slots along the inside of the side sills. The rectangular stirrups are attached at the corners of the car. The trapezoidal stirrups are attached under the side doors.

THE UNDERFRAME

Step 14. Trim any flash from the floor and underframe parts.

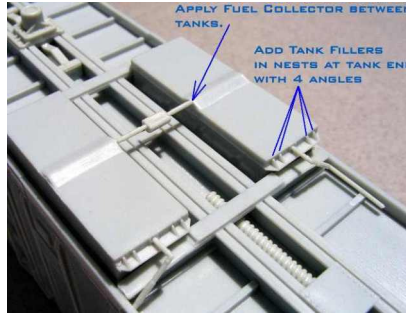


Step 15. Select the version of the underframe to be modeled. If assembling with the Keystone cushion system, attach the Keystone cushion cylinder to the floor, located within the rectangle sized to match the rectangular half of the cylinder, in the center of the floor. Then attach the underframe to the floor. There is a round locator pin on the underframe that fits in the locator hole in the floor.

Step 16. If assembling with the Hydra-Cushion system option, attach the Hydra-Cushion spring located within the rectangular locator in the center of the floor. Note the Hydra-Cushion cylinder is attached in Step 20. Then attach the Hydra-Cushion return spring located within the narrow rectangular locator on the floor next to the bolster. The square end of the return spring should be located away from the bolster, between the pads for the fuel tanks. Then attach the underframe to the floor.



Hydra-Cushion spring and cylinder.

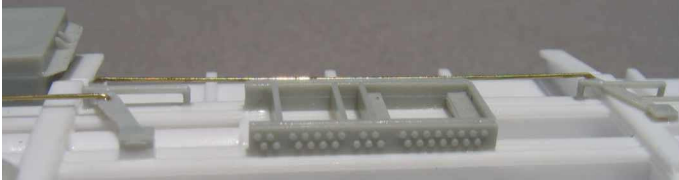


Fuel Tank Assembly

Step 17. Note that there is a left side fuel tank and a right side fuel tank. There is a V shaped rib at the center of each fuel tank. Note that at one end of the V there is a bolt head molded, but at the other end of the V, near the sprue gate, the surface is flat. With a .026 in diameter (#71) drill, form a shallow dimple on the flat surface, located in a similar manner opposite the bolt head. These dimples will locate the fuel collector. Then attach the fuel tanks to the floor. The dimples formed previously locate toward the underframe, and the ends with the single pair of gussets are located toward the center of the floor.

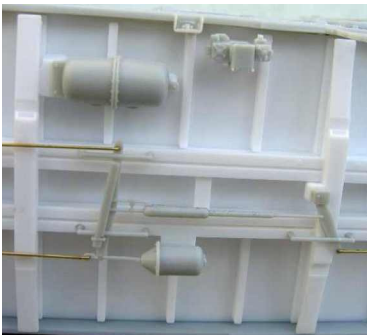
Step 18. Remove any flash from the bolsters and coupler pocket covers. Assemble the Kadee® No. 78 coupler and spring to the bolster and place the coupler box cover onto the bolster. Place the bolster assembly onto the floor and fasten with the flat head screw, through the coupler box cover and the bolster, into the floor. Attach the second bolster assembly in the same manner.

Step 19. If assembling with the Keystone cushion system, attach the Keystone frame to the car underframe, located in the center, over the rectangular half of the Keystone cylinder. Then attach the left and right Keystone panels to the sides of the Keystone frame. The right side panel is shown in this image.



Step 20. If assembling with the Hydra-Cushion system, attach the Hydra-Cushion cylinder to the underframe, located in the center, over the Hydra-Cushion spring.

Step 21. Remove the brake cylinder from its sprue, and drill a hole with a .016 in diameter (#78) drill, into the center of the rear end of the cylinder. Then attach the cylinder to the underframe.



Step 22. Attach the brake valve and the air reservoir to the underframe.

Step 23. Attach the brake beam assembly into the locator holes in the underframe. The rod molded onto the long lever inserts into the brake cylinder.

Step 24. Using a .016 in diameter (#78) drill, form a shallow dimple on the back side of the retainer valve. Then form the ends of the retainer to 90 deg., and attach the retainer to the floor. The end of the cross bearer, between the brake valve and the air reservoir, has been removed to provide the locator for the retainer valve.

Step 25. Attach the brake idler lever to the locator holes in the underframe, near the fuel tanks.

Step 26. Attach the fuel collector between the fuel tanks. The flat side of the collector is located away from the underframe.

Step 27. Attach the long fuel tank pipe to the right side fuel tank and the short fuel tank pipe to the left side fuel tank.

Step 28. Attach the brake fulcrum into the locator hole at the B end of the floor, next to the underframe.

Step 29. Attach the wire brake rods and lines at the locator holes in the parts.



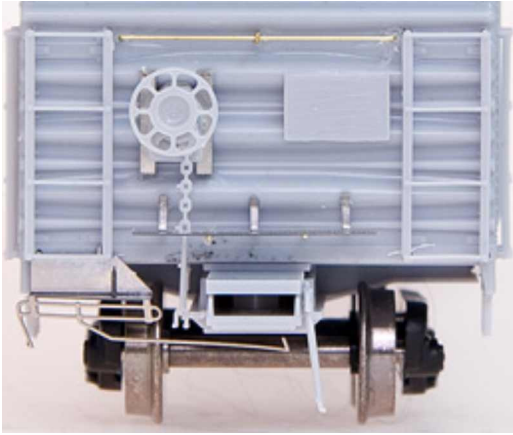
Step 30. Attach the radiator frame to the top of the floor, at the locator surface provided.

FINAL ASSEMBLY

Step 31. Insert the wheel sets into the trucks, and fasten the trucks to the floor at the bolsters, with the screws provided.

Step 32. Attach the necessary weight to the floor, and assemble the floor into the body. Be careful not to break the stirrups. Adding 1.5 oz of weight will bring the car to approximate NMRA recommended practice.

Step 33. Attach the brake chain between the brake mechanism and the brake fulcrum.



Step 34. Form the brackets of the B end walkway, and attach the walkway to the B end of the car in the two locator holes in the lower center of the end. There is an opening in the walkway to clear the brake chain. Attach the A end walkway to the A end in a similar manner.

Step 35. Form one of the etched metal coupler bars along with the coupler bar gusset, and attach it to the B end of the car at the locator holes beneath the ladder to the left. Attach the other coupler bar assembly to the A end of the car.

Step 36. Attach the air hose to the right, flat side of the coupler box at each end of the car.



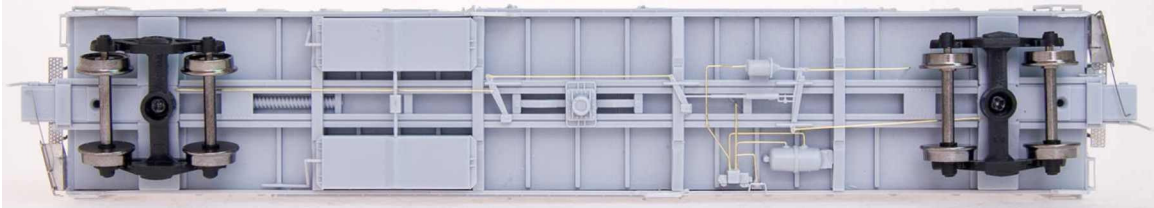
LEFT SIDE OF THE ASSEMBLED CAR



RIGHT SIDE OF THE ASSEMBLED CAR WITH SMALL SCREEN PANEL



RIGHT SIDE OF THE ASSEMBLED CAR WITH LARGE SCREEN PANEL



HYDRA-CUSHION UNDERFRAME ASSEMBLY



KEYSTONE CUSHION UNDERFRAME ASSEMBLY



RIB/FLAT/RIB/FLAT... ROOF



FULL RIBBED ROOF



A END



B END