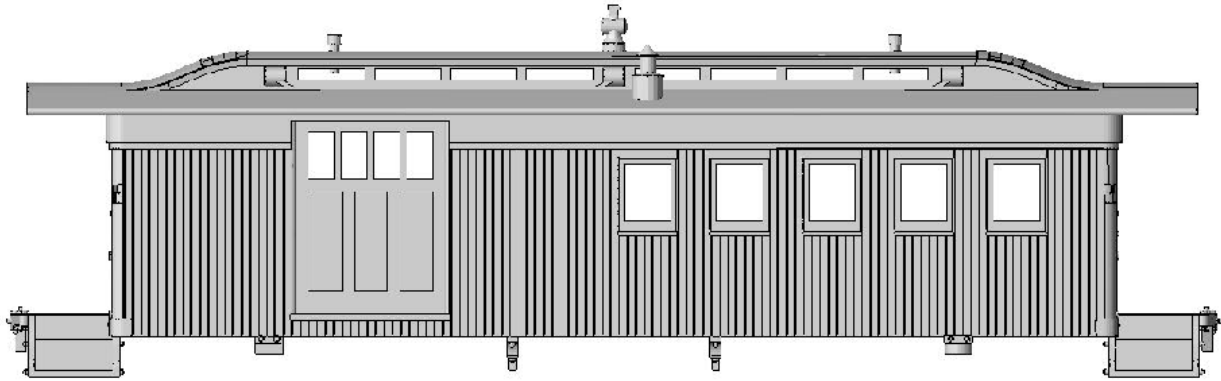


John Hall Design

Carter Bros. South Pacific Coast Railroad Caboose 45-48 HOn3 Partial Kit Assembly Instructions.



These instructions are for the HOn3 partial kit available at Shapeways.com:
www.shapeways.com/designer/r3feetr/creations

The kit includes the body, roof, and some details. The modeler will need to supply: trucks and couplers, including screws; grab irons; railing; brake staff; brake wheel; truss rods; glazing material; brake gear; paint; decals; etc.

The model is based on the original 1882 Carter Bros. South Pacific Coast Railroad cabooses 45-48. Number 47 is being restored at Ardenwood Historic Farm in Fremont, California. The cabooses went through many modifications over their years of operation. This kit can be used as a base for those modifications.

The model is made of an acrylic plastic and is somewhat brittle. Handle with care. Broken pieces can be repaired with CA.

Cleaning the Model.

The parts received from Shapeways must be cleaned before painting. The printing process uses a wax to support the openings and overhangs of the model. Shapeways runs the model through a cleaning process that includes a hot oil bath followed by a water and detergent bath. However the models still have a wax and oil residue that needs to be removed prior to painting.

A search of the internet will reveal numerous methods for cleaning Shapeways Frosted Ultra Detail (FUD) plastic. Everyone seems to have their favorite method and favorite solvent for removing the wax and oil residue left over from the initial Shapeways cleaning.

The wax is soluble in oil and melts at a temperature near 165°F (74°C). The plastic begins to soften above 176°F (80°C). I use a complex method of hot vegetable oil in an ultrasonic cleaner followed by hot water and detergent in an ultrasonic cleaner. Using this method I have gotten the best results. However simpler methods work almost as well.

The key to the simpler methods is to first go over the model with a dental pick removing any noticeable wax. Then use one for the following processes that will leave a finish clean enough to paint:

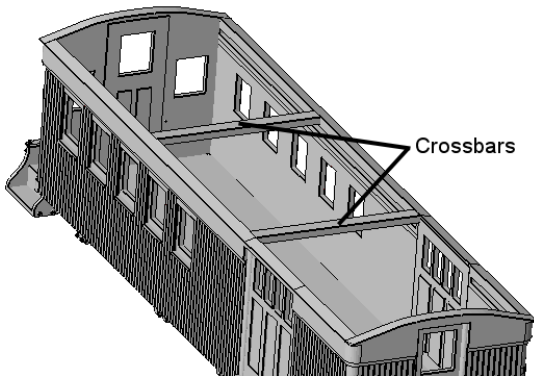
- 1) Soaking the model in a bath of acetone and gently scrubbing.
- or
- 2) Soaking the model in a hot water/dish detergent bath and gently scrubbing, then rinse.

After using a water method it is essential to get all of the water out of the model. The 3D printing process creates a porous surface which retains water. It will take a long time to air dry. I use an airbrush (just air) to rapidly dry the model. Rapid drying can also be done by a brief bath in acetone.

After drying you will notice two surface textures. One smooth and the other frosted white. The frosted white is where the supporting wax touched the plastic. If the frosted white surface has spots that look damp it probably still has some absorbed oil.

Remove Crossbars

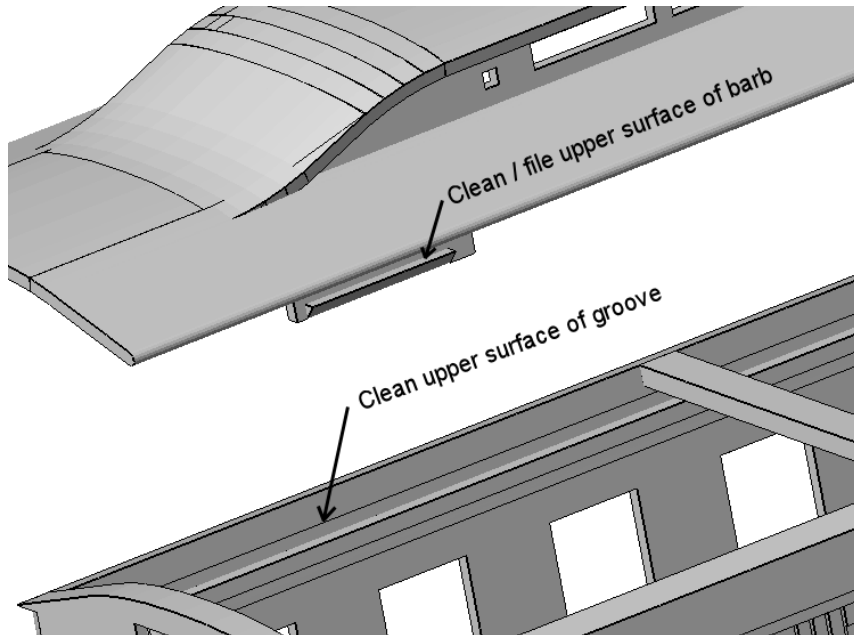
There are two crossbars between the tops of the walls of the caboose body. They are there to minimize warping during the printing and cleaning process. They can be removed or left in place as desired.



Roof

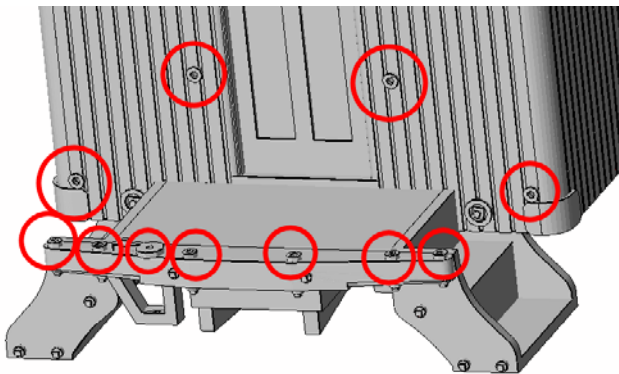
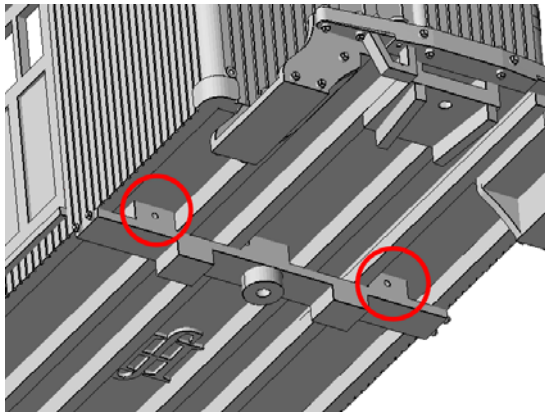
The roof is designed to snap into the body and be easily released by a gentle squeeze of the roof sides near the tabs. This allows for future interior modeling, lighting, etc. Careful cleaning is necessary in order for the roof to snap together with the body. The top surface of the small barb on the roof tabs should be cleaned and or filed as needed for a snug fit. Also clean the

upper surface of the groove in the body side. Refer to the illustration below. Squeeze gently when attaching and removing the roof.



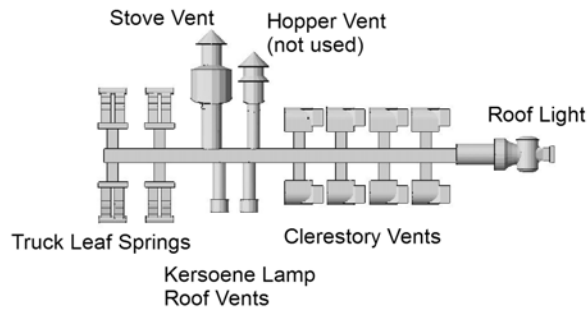
Holes

The body has numerous small holes in it for receiving 0.015 wire for platform railing, grab irons, brake staff and truss rods. These holes are typically filled by wax which should be removed prior to assembly. Refer to the illustrations below for locations of the holes. A piece of 0.015" music wire or drill bit can be used for cleaning. The holes for the platform railing do not go all the way through. The brake staff, truss rod, and grab iron holes do go through.



Detail Cluster

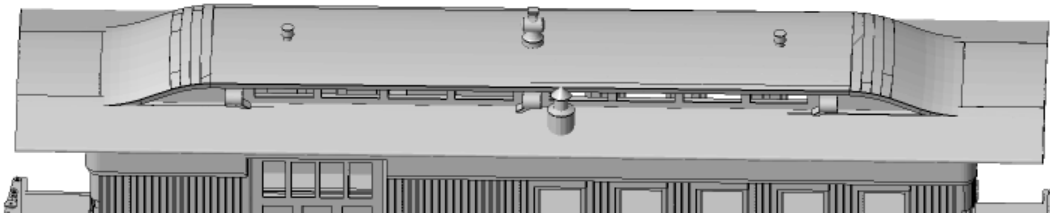
Parts on the Detail Cluster are identified in the illustration below.



Assembly

Roof

The roof is pre drilled for the stove vent, roof light, kerosene lamp vents and the clerestory vents. Two additional clerestory vents are supplied. These are fragile and need to be carefully fitted into the clerestory sides. Some enlarging of the square vent holes may be necessary to fit the vents post into the clerestory sides.



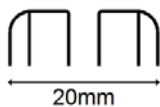
Truss Rods

0.015" wire or fishing line may be used for the truss rods. Thread the wire or line through the holes in the bolsters.



End Rails and Grab Irons

The platform end rails and grab irons need to be formed out of 0.015" wire. The illustration below can be used as a guide for the platform railing. The grab irons have a similar outer shape but connect to the caboose end wall with a right angle bend in the wire at each end. Print this page from the pdf file at 105% for proper size.



Platform Railing Bending Guide

Brake Staff and Wheel

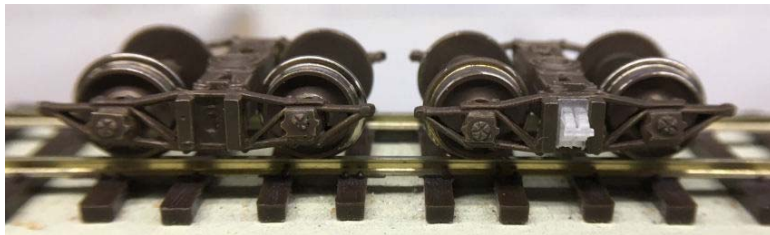
The brake staff and brake wheel are supplied by the modeler. The brake staff slips into a hole in the ratchet and pawl molded onto the end beams.

Couplers

The model is designed to use MicroTrains 001 02 011 (1025) couplers. Should you use a different coupler it may be necessary to remove the "ears" that retain the coupler box sides. A 00-90 screw will self tap into the hole.

Trucks

The model is designed to use Rio Grande Models No. 3211 Carter Bros. trucks. Four leaf spring details are included on the detail cluster. These should be glued to the ends of the truck bolster to approximate the original trucks. The image below shows a RGM 3211 with and without the Leaf Spring detail. A 00-90 screw will self tap into the car bolster center holes.



Painting

The actual body paint colors of Caboose No. 47 have been determined by Randy Hees. They can be found on a color card available at PacificNG.org

Scalecoat Chessie Yellow paint is a very close match to the original 1882 paint color found on Caboose 47 at the Society for the Preservation of Carter Railroad Resources in Ardenwood Park, Fremont, CA.

The rest is left to you. I hope you enjoy this model as much as I enjoyed creating it.

