

Hiawatha

GENERAL ASSEMBLY INSTRUCTIONS

EXTRA
COPY
TO ALL-NATION

PRE-ASSEMBLY

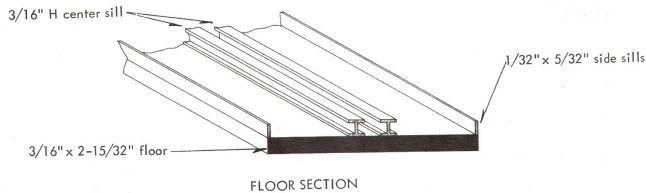
These passenger cars are designed to be assembled in a series of sub-assemblies. Each sub-assembly is then painted before final assembly of the complete car. After assembly of the cars, only some minor touch up around hand rails may be needed and the addition of trucks and couplers to finish the cars.

To achieve the best results in assembling this kit; All the wood parts should be sanded and primed with a sanding sealer and sanded again to fill the grain of the wood. It may be necessary to apply several coats of sanding sealer to obtain a smooth finish. All wood parts are cut to length except for the side sills, center sills and 3/16" box supports which can be primed in advance and cut to length during assembly.

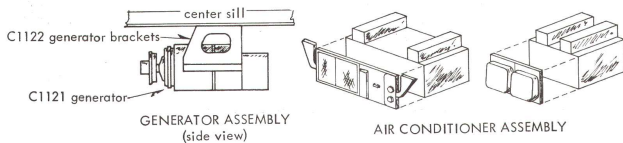
All cast parts shall be filed to remove flash and cut to length during assembly. Ends, end doors, tank ends, etc. against their mating parts. Cut the draft sill casting to the shorter length if the car is 15-1/4" or 18-1/4" long.

UNDERFRAME ASSEMBLY

- (1) Lay out a centerline the full length of the car and lines for the two 3/16" H pieces for the center sill, 3/32" on both sides of the centerline.
- (2) If the car has steps; position them and Goo them to the floor using the sides for a guide.
- (3) Cut the side sills to the length of the floor, or to fit between the car end and vestibule steps if the car has steps. Goo the side sills of 1/32" x 5/32" stripwood to the edges of the floor standing on edge, see the floor section illustration.



- (4) Prepare two C 1140 draft sills for each end of the car, each draft sill is mounted on the centerline of the car and is 1/16" back from each end to match the coupler hanger on the bottom of the C 1113 ends. In the case of 15-1/4" & 18-1/4" long cars, 7/16" of the draft sill (marked on the back) must be cut off for the proper wheel base.
- (5) Goo the C 1139 bolster against the inside ends of the draft sills and between the two side sills.
- (6) Cut two 3/16" H sections to fit between the two C 1139 bolsters and Goo them to the floor 3/32" from the centerline on the layout lines.
- (7) Lay out the spacing for the four C 1123 cross braces with dimensions from the car underbody plan and Goo them to the floor.
- (8) Assemble the battery box by Gooing the C 1116 battery box cover on the ends of the 1" x 9/16" x 1-5/8" wood block. Goo two 3/16" x 1" supports on top of the battery box(es) 1/8" in from the ends so that the battery box stands 3/16" away from the floor. The 1-5/8" box straddles the center sill.
- (9) Assemble the dual air tanks by Gooing the four C 1117 tank ends to the ends of the 1-5/8" x 3/8" dia. dowels. Mount the two tanks on two C 1159 air tank saddles spaced 1/8" in from the tank ends.
- (10) Goo or epoxy two C 1122 generator mounting brackets to the lugs on the C 1121 generator; the wide portion of the brackets mate to the generator lugs and the angle points toward the drive end of the generator.



- (11) Begin the detailing of the underframe by test fitting the C 1118 water tank fillers and C 1119 water tank where they should fit on the underframe. First Goo the C 1118 water tank fillers to the underframe and then the C 1119 water tank on the center sill. Two water tanks end to end may be called for. See the individual car plans for placement of the water tank(s) and filler(s). Kits 4882 & 4883 use a wood block and C 1174 for the tank assembly.
- (12) Goo the battery box, air tank assembly, generator assembly, C 1120 combination reservoir, C 844 triple valve which is mounted on a 1/8" x 1/4" x 3/8" piece of stripwood, and steam traps. Refer to the individual car plans for placement of these details.
- (13) Assemble the air conditioning unit, gas bottle housing and sub-cooler if called for in the plans, cut and add 3/16" sq. supports as necessary and glue the assemblies to the floor.
- (14) Make up as many strap steps as required for the car; refer to the car plans. The strap steps are installed by cutting two notches in the floor with a .020" wide razor saw (Zona #112 or #308 blade) 1/16" deep. The strap steps are then pressed and glued in place with the tabs on top of the floor. See individual car plans for placement.
- (15) Spray the entire underframe assembly black (Floquil RR 141, Scalecoat #10) and overspray with DDV (Hobasco #537) when the black has dried. Set aside for final assembly.

SIDE ASSEMBLY

- (1) Drill the sides for grab irons and hand rails with a #76 drill. Refer to the grab iron placement layout diagram and the individual car plans for number and placement of the grab irons and hand rails. Each hole should be started with a scribe with the side backed up with a heavy piece of metal. Be Careful! Take great care in starting and drilling the holes to avoid marring the sides.
Insert the hand rails and grab irons in to the sides. Use small pieces of 1/32" material as spacer between the hand rails so that they all stand away from the side a constant 1/32". Use epoxy to fasten the hand rail ends to the sides from the back. Do not insert the hand rails or grab irons that are marked as such on the individual car drawings until the car body has been assembled. These hand rails will interfere with the end and the end needs to be drilled out after the body has been assembled and hand rails inserted. On kit 4889, if the vestibule end is made to be removable, the hand rails should be inserted into the car sides and the inside portion bent flat against the back of the sides; file the sides of the end so it can be slipped in.
- (2) Check the fit of all the window castings and pre-paint them black. Paint the Hiawatha emblem aluminum (Hobasco #101) and the background behind it on the side maroon (Hobasco #624).
- (3) Goo in the window castings, C 1129-C 1136, from the back, avoid using excess Goo that will squeeze through and spoil the effect. Excess Goo squeezing out around an object can be cleaned up by letting it dry so it isn't a liquid (1 or 2 minutes should do) then poke a sharp object like a scribe into the Goo at a low angle along the edge.

Then twirl the scribe and the Goo will pick itself onto the scribe. Work around the edges to pick up all the excess. Frequently clean the scribe by rubbing the Goo off with your fingers. Do not put the window panes in at this time. Sparingly Goo the Hiawatha emblem to the car sides.

- (4) Apply the two black stripes along the edges of the maroon band; see the painting diagram. Use 1/64" black striping tape (Mico tape #470-1641).
- (5) Apply appropriate decals on the sides as indicated in the individual car diagrams. Spray the entire side with DDV (Hobasco #537) and let dry.
- (6) After the sides have dried, lay them face down on some soft material and install the V 102 cellulose cut to fit in each window frame. Run a bead of Goo around the edges of each of the cellulose window pieces.

END ASSEMBLY

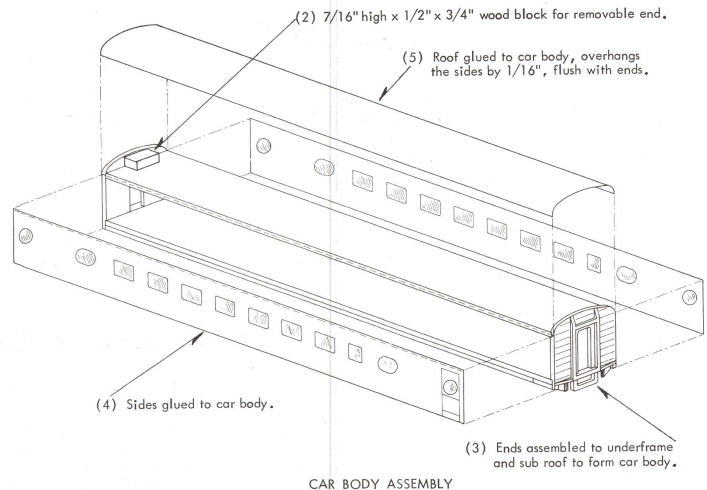
- (1) The C 1113 ends are designed to be glued in the car body, however, one end can be made removable for the addition of interior lighting and detailing. See the individual car drawings for which end can be made removable. If one end is to be made removable, drill through the two spotted holes on the back of the end with a 3/32" drill. Countersink the holes for #2 x 1/2" flat head wood screws.
- (2) Drill out the eight spotted holes (with a #76 drill) in the C 1113 ends for the S 120 grab irons and end hand rails.
- (3) Make up two right and two left end hand rails from .020" wire, using the hand rail bending diagram. Fasten into the ends with epoxy or cyanoacrylate glue.
- (4) Install C 1114 end door(s) shown on the individual car drawings.
- (5) Pin the S 109 brake wheel to C 1115 brake box and Goo the assembly to the C 1113 end if called for in the individual drawing.
- (6) Mask off the sides and top of the ends before spraying for better glue adhesion when assembling the car. Prime the ends if they haven't already been primed. Spray the ends orange (Hobasco #623) and the coupler hangers black. After the paint has dried, overspray with DDV. Remove the masking tape.
- (7) When the ends have dried, cut out round window(s) of V 102 cellulose to fit the door window(s).

ROOF ASSEMBLY

- (1) Clean up all roof details and give them a coat of primer. Spray the details black (Floquil RR 141) Let dry.
- (2) Goo on the roof details in position shown on the individual drawings. Avoid using an excess amount of Goo or the finish may be marred.
- (3) Apply the D 689 air vent decals.
- (4) Touch up the roof edges (Floquil RR 141) if needed and spray the entire roof assembly with DDV.

FINAL ASSEMBLY

- (1) If one end is to be removable, it will only be held in place with two #2 x 1/2" flat head wood screws. When the sides and roof are applied they can not be glued to the removable end.



- (2) Test fit the ends to the floor and sub-roof and check that the sides match the assembled length; some floor length adjustments may be necessary. If one end is removable, install the 7/16" high x 1/2" x 3/4" wood block on top of the sub roof for the upper end screw.
- (3) Begin final assembly by Gooing ends to the floor and sub-roof, check with the individual car drawing for proper placement of the ends.
- (4) Carefully Goo each side in place, the top of each side should rest in the notch on the ends or be even with the bottom of the side sills.
- (5) Test fit the roof to make sure it is in good contact with the sides and ends. It may be necessary to put an additional bend in, which can be done by finger pressure, to get good all around contact. The roof should overhang the top of both sides by 1/16". Carefully Goo the roof to the top of the car body.
- (6) Drill through the holes for the remaining grab irons and hand rails with a #76 drill. Press the hand rails and grab irons in place and fasten them with a drop of the appropriate color paint. Touch up the hand rails and grab irons and DDV.
- (7) Goo the striker plate to the bellows and the completed diaphragms to the ends; note the position from the end drawings.

- (8) Apply the C 096 couplers, or your favorite coupler, with #2 x 1/2" round head wood screws in the pivot hole of the C 1140 draft sills. Use #4 x 5/8" round head wood screws to fasten the Nystrom trucks to the car. The brake cylinder on the side frames are nearest to the middle of the car and the slack adjuster is nearest to the ends.

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