Twenty Models

Classic 1920s Railroading

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Canadian Pacific

344001-344437 Series

38’-10” Composite “Baby” Hart-Otis Gondola

Kit: GN-02

Introduction

Thank you for purchasing this model kit. It’s my pleasure to share models that I have made for my own model railroad with you. If you need help, have suggestions for improvements or new model ideas contact me at sales@twentymodels.ca.

History

The CPR had approximately 411 composite (steel reinforced wood side) Hart-Otis patent drop bottom gondola cars used for transporting coal, and eventually to move ash, sand, gravel, etc. These cars were 38'10" long and numbered 344001-344437 (odd number) built by Canada Car & Foundry (previously Dominion Car & Foundry) in 1910. The cars were out of revenue service by 1950. One was listed in the 1949 roster, 344197. Some were reassigned to cinder service in the 416xxx number series. Possible car numbers in 1950 roster based on build date and car length: 416496-416507 (10 cars).

Please refer to Ken Goslett’s excellent two part series on Otis cars in December 1987 and January 1988 Railroad Model Craftsman. Photos can be found in John Riddell’s Morning Sun Books, Canadian Pacific Color guide to freight and Passenger Equipment, Volume 1 and 2. A scan of the original CPR stenciling diagram can be found in the Canadian Pacific Historical Association’s digital library, https://www.cptracks.ca

Kit components

Contents:

1) One-piece body, floor insert and under frame
2) Small details: door release levers, KC air brake, airline hose and bits
3) Etched brake clevises and brake wheel, eyelets and stirrup sets
4) Wire bending grab iron and handrail jig
5) Decals appropriate for your model

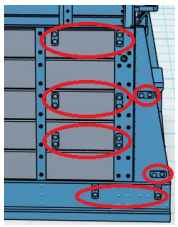
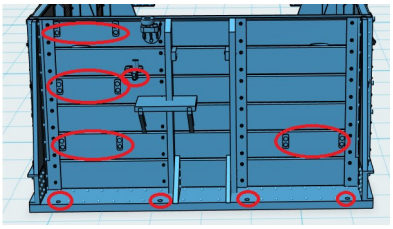
You will need to supply the following:

1) 0.008" and 0.012" wire
2) Flat lead sheet, tungsten putty, or similar, to add weight to your model
3) Arch bar trucks – Kadee 501 or Tahoe Model Works AC&F truck (TMW-103 or TMW-203)
4) Couplers - Kadee #58 or your preference

Instructions

Superstructure and Prep Notes

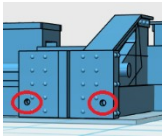
1) The printer resin is like polyurethane resin and will sand, drill, and tap as you would expect. It has some give but will break if bent too far.
   Tip: Avoid using knifes or razor blades. The material is too hard to control with a blade. Plastic nippers, course metal files and sand paper are better for removing a large amount of material. Then finish up with a small file and sand paper.
   TIP: Make yourself a large sanding block out of scrap wood. Glue different grades of sand paper on each surface so you have even surfaces to sand on.
   TIP: Warped flat pieces, like underframes, can be straightened by quickly warming in hot tap water or using a blow dryer until flexible, then weighted down to set in the desired position and let cool or immediately put under cold water to fix the shape.
   TIP: Instead of using a hand pin vise try the Tamiya Handy Drill.
   TIP: Don't force the drill bit rather, start with light pressure to start the hole and back out to clear chips so it won't jam.
2) Carefully try to insert the floor into the body. Check around the bottom of the inside for flashing and the floor. The floor is directional so check the floor brace detail is correctly lined up with the inner wall braces. The floor is in correct position when it is even with rivet detail on the inside. When happy, glue the floor in place.
3) Inspect the underframe for small stiffening structures used when printing and remove them. Sand the bottom of the body and underframe mating surface flat. Don't take too much material off - just sand until it's flat.
4) Drill all points are marked on the body and should be easily found using reference images.

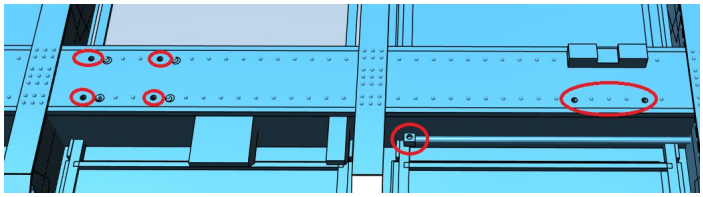
Grab iron locations and door lever guards

5) Drill out and tap the bolsters with your favorite screw sizes. I use 2-56 screws.
6) Drill out the foot irons on the ends. Refer to image for location.

7) Locate the stirrup step drill points and drill with a #76 drill.



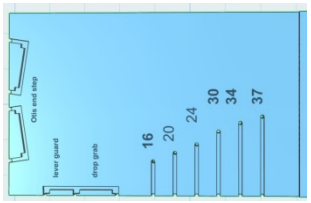
8) The included coupler boxes can be drilled out at this time too. Align the edge to the end of the draft gear. Fit the underframe and confirm this is where you want it, drill holes and tap your screws.
9) Locate the brake bracket countersink holes on the underframe and drill them out using a #79 drill
10) The airline on the frame has a cast spot to drill for cylinder airline to the frame. Drill it out with a #79 bit.



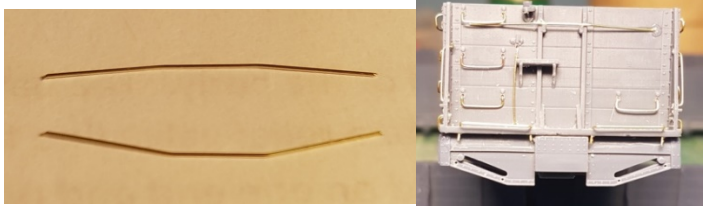
11) Once the fitting is done and ready for assembly, wash the parts in cool soapy water, rinse and let air dry.
12) Place the underframe upside down on your work surface with the 2 brake cylinder mounting pads closest to you. The “B” (brake) end of the car is on your left, the “A” is on the right. You can use a marker to write on the coupler pads for reference.
13) There is a 1.25mm cavity in the model for lead sheet or tungsten putty. This can be purchased from Amazon, fishing supply or golf shop.
14) Gluing or fit the weight in place. The weight should not be thicker than the space provided.
15) Align and glue the underframe to the body with the “B” end of the underframe and body. The underframe is centered to the body. Draft gear aligned end to end and the underframe braces flush side to side. The sides of the buffer block will be slightly wider than the body.
    TIP: Try Canopy or B-7000 glue instead of using ACC to fasten weight, body and underframe. Clamp the part and wait for the glue to fully cure.

Body Details

1) Drill the reference holes in the bending jig. You will find the drill point dimples on the opposite side.



2) Using the bending jig provided, fabricate twenty four 20" drop grab irons from 0.012" brass wire and ACC in place. Trim the excess wire from the inside of the car.
3) Using the jig, fabricate four 24" grab irons from 0.012" brass wire and ACC in place. Trim the excess wire from the opposite side.
4) Fabricate 2 end truss rods from 0.012" wire. The rods rest on end braces and the ends go between end boards. You'll notice the dimple close to the side. Bend like so:
    - Cut wire to 27mm
    - Bend one end 9.6mm at a 3 degree angle
    - From the other end measure 9.6mm and bend a 3 degree angle. Make sure there is no twist in the part.

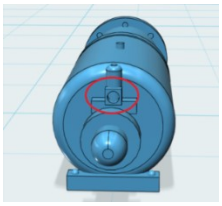


5) Fabricate 4 door lever guards from 0.012" wire and glue in place. The release levers will be glued in later. Bend like so:
    - Make a 90° bend at the end of the wire.
    - Measure 10mm from the new end and bend 90°
    - Insert in the bending jig and bend the ends down.

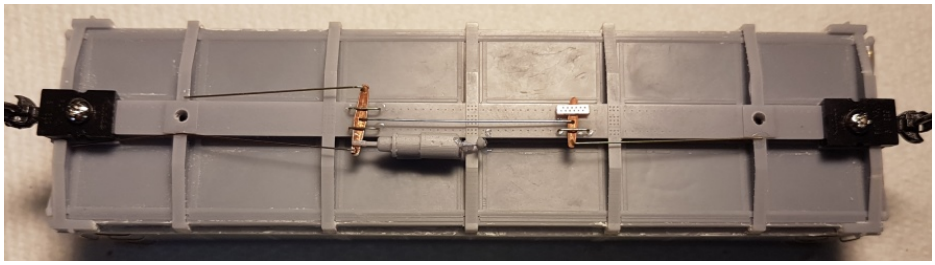
6) Locate the brake relief valve to on the B-end of the body. The base of the valve has a dimple to drill a hole to fasten the relief valve line. Fabricate a relief valve line from the valve to the bottom of the car end using .008" wire by making a 90° bend on one end and put it in the hole. Then work the wire to go to the floor and glue in place.
7) Carefully drill the brake stem winder hole through the brake racket and down through the brake platform. Drill brake stem winder hole on the floor.

Underframe

1) Locate the starter hole on the rear of the K Brake part and drill with a #79 bit deep enough for a wire to hold.



2) Glue the large brake clevis to the K brake part and then mount on the bracket pad. The cylinder has 2 pads on it. The piston rod and clevis point to the "B" end of the car.
3) The train line has a point to drill for the airline going to the cylinder. Bend a piece of 0.12" wire to connect the train line to the cylinder. Thread the line dryer on the wire and glue it with the trap pointing (big end) to the ground. Then finish up by gluing the wire to the train line and cylinder.
4) The second smaller clevis has an end without a hole glue this end on the underframe slack adjuster pad. Then glue the slack adjuster plate on top.
5) Fabricating three 16" brake rigging brackets and glue them in place.
6) Using 0.012" wire, run brake roads to join the brake cleaves referring to diagram. Ensure that brake rods won't interfere with the trucks.
7) Underframe is complete; add a set of trucks and couplers.



Final Assembly

1) Bend four rear foot stirrup irons out of 0.12" wire. You need to fabricate two sets of left and right parts.
    - Make a 90° bend on the end.
    - Measure 7mm from the end and make a right 90 degree bend.
    - Place the wire in the bending jig and bend the ends down.

2) Optional: Add uncoupling levers. There are eyelets included for the task.
3) Glue the door release levers in the closed position. The levers will cross and rest on inside lever guards.
4) Stirrup steps are fashioned by bending them like so:
    - Measure from one end 8.5mm and make a 90° bend. Repeat the bend on the other end.
    - Measure 4.6mm and clamp with pliers and then make a 90° twist. Check that the rivet details are facing the same way.
    - Finish up by bending the tabs.

- Finish shaping the stirrup and then glue in the mounting holes.

5) Cut a piece of 0.12" for the brake winder stem. The brake wheel can be soldered or glued, thread the wire through the brake racket and platform holes and cut stem winder shaft so its 1.2mm above the side. The brake winder will set flush on the deck plate of the car. You may drill a spot for stem winder to set.
6) Optional: Install air brake hoses to dress up the end of the car. A #65 hole in the airline bracket will be large enough for the hose to fit easily. Locate the airline brackets on the lower right side of the buffer block.

Painting tips

1) Wash the car in warm water and put aside to thoroughly dry.
2) Acrylic paints stick to almost everything, but if you're not sure, prime the model.
   Tip: Automotive spray can primer work well on resins. Apply in very quick light coats allowing time between so the paint doesn't run.
3) Paint the entire model black… trucks… everything.
   Tip: If your paint dries flat, apply a gloss coat so that decals can set properly.
4) Decal according to the provided illustration and flat coat when done.

   Notes:

   1. This car series had only odd road numbers
   2. Build date is 1910
   3. Load and dimension data

   Load: Capy: 100000, Ld Lmt: 100500, Lt Wt: 44500

   Dimension: IL 36-5, IW 9-7, IH 5-0 CU FT 1746

   Tip: The decals are thin and can easily break. You can tough them up by airbrushing a light coat of Microscale Liquid Decal film thinned 50/50 with TruColor thinner or similar.
5) Reassemble and sit back and admire your work. Another great job well done!