

Lake Shore Electric (LSE) Traction Freight Car (800-810)

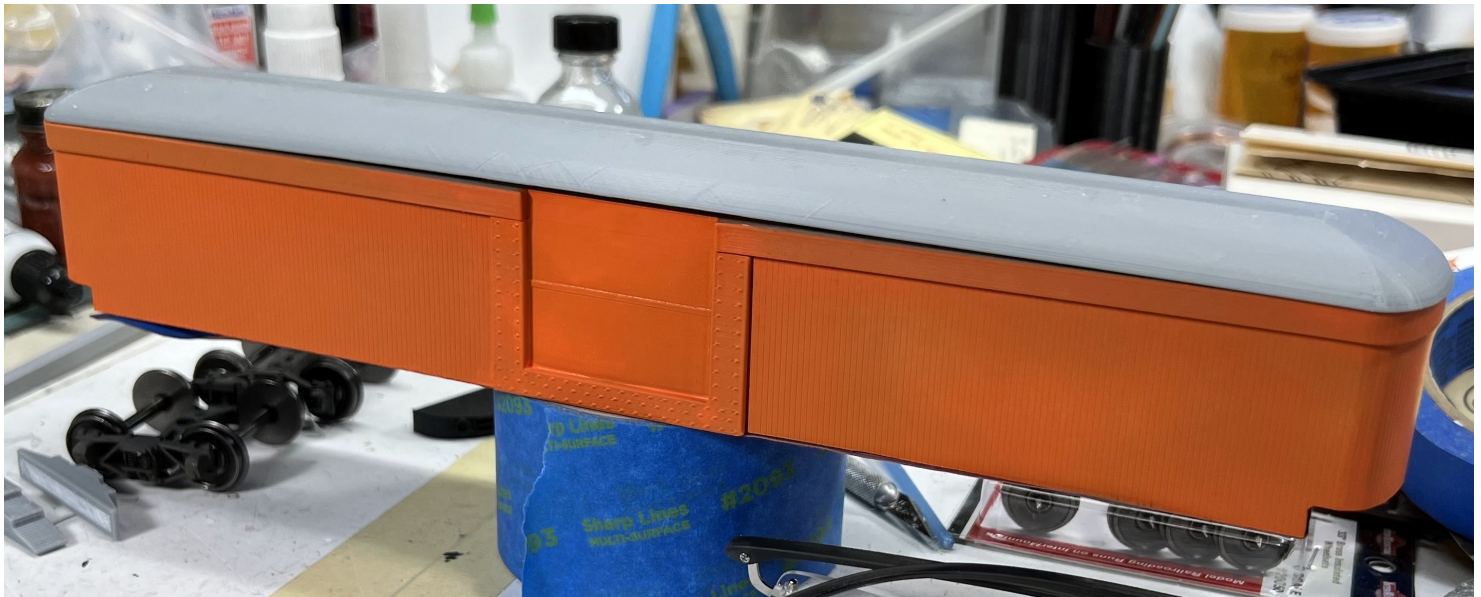
3D Printable Models
Crafted in 'O' Scale (1:48)
By Gary M. Reighn
April 2024

The files provided will allow you to print and assemble models of Lake Shore Electric (LSE) 800 series traction freight cars. Two versions of the cars can be modeled, one with a door at the ends and one without. The models are otherwise identical. The models are provided as multiple pieces to facilitate printing and assembly. These models were designed* and tested in 'O' scale or 1:48 (1/4" to the foot). They may require modification to use in other scales. The models can be printed using either an FDM (filament) (recommended) or MSLA (resin) printer or a combination of the two. Additionally, you can print the detail parts using an MSLA printer and the structural parts using FDM. I will detail which parts print best in each medium. Also, to complete this model you will need one sheet of 6" x 12" Evergreen styrene O Scale Passenger car siding (item no 3047, 2-1/4 spacing, 030" thick). This material will be laminated to the sides of the car body to simulate the 2 1/4" wood planks used in the prototype's construction.

The files for this model are covered under the [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). You may use or adapt these files as you wish but you may not use them to produce parts, kits or finished models for sale commercially.

The files can be found here: cults3d.com.

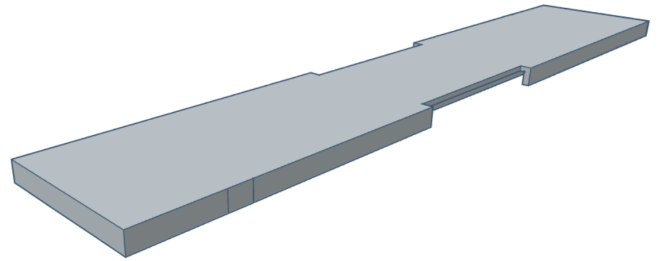
(Photo of actual prototype 3D printed model minus anti-climbers, trucks, handrails, underbody details, and decals)



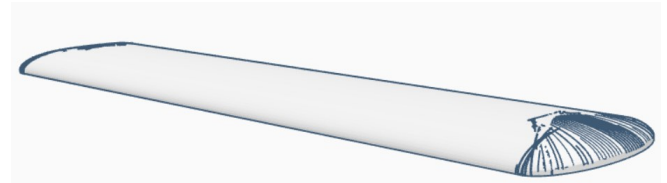
* The final 3D models provided may vary slightly from the picture shown above due to continued testing and refinement.

Printing Notes: This model can be printed using either FDM or MSLA printing technology. I recommend using FDM for the structural components and only using MSLA if you want to print the detailed components at maximum resolution. The only parts that would benefit from MSLA are the side doors with their rivet details and the anti-climber. However, you can achieve very good result using FDM for these parts as well if you print them at the around .08mm line height. See the next page for how to orient the models on the build plate to avoid needing supports.

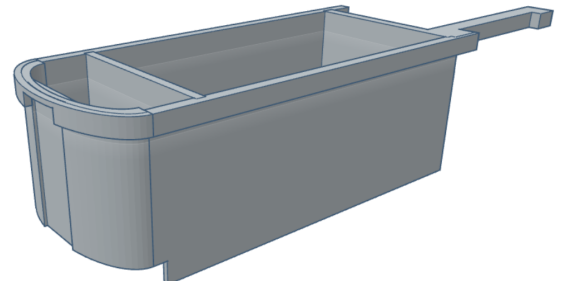
The bottom floor is 285mm in length and would probably be easiest to print in one piece using an FDM printer. Keeping it in one piece will also help the structural integrity of the model. Print the floor upside down and flat on the build plate to avoid needing supports.



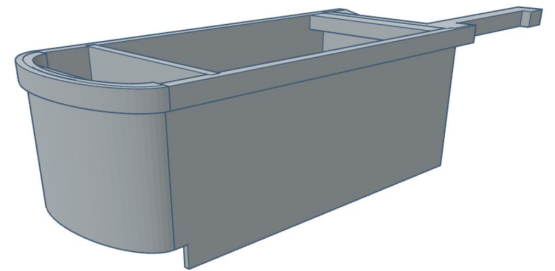
The roof is 324mm and may tax some smaller FDM printers. You can slice it in half for printing and then glue the two halves back together. Print the roof flat on the build plate.



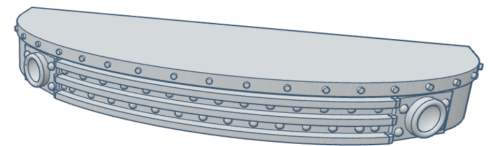
The sides are 190mm in length. Two of these are required. Do not mirror image them, just print two identical pieces. Print the sides upside down to avoid needing to use any supports.



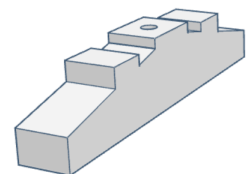
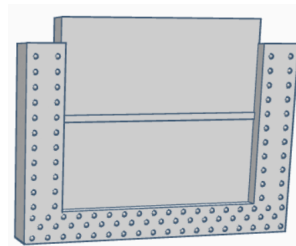
(Option: There is another version of the sides with the file named: Main_Body_Half_No_End_Door.stl that has the end door opening removed if you wish to make a box car with no end doors. Print two of those instead.)



Two anti-climbers must also be printed. Print them facing up for best results.

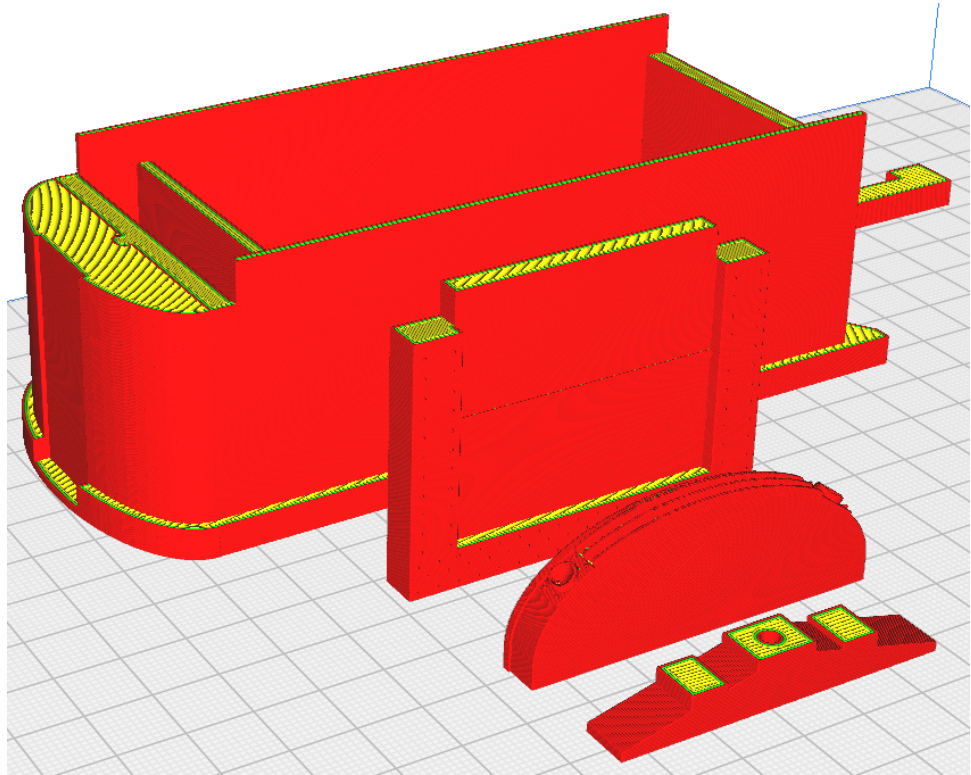


Two side door panels along with two truck bolsters are required. Again, just duplicate the pieces, there is no need to mirror any of them in your slicer. Print these also standing upright on the build plate.

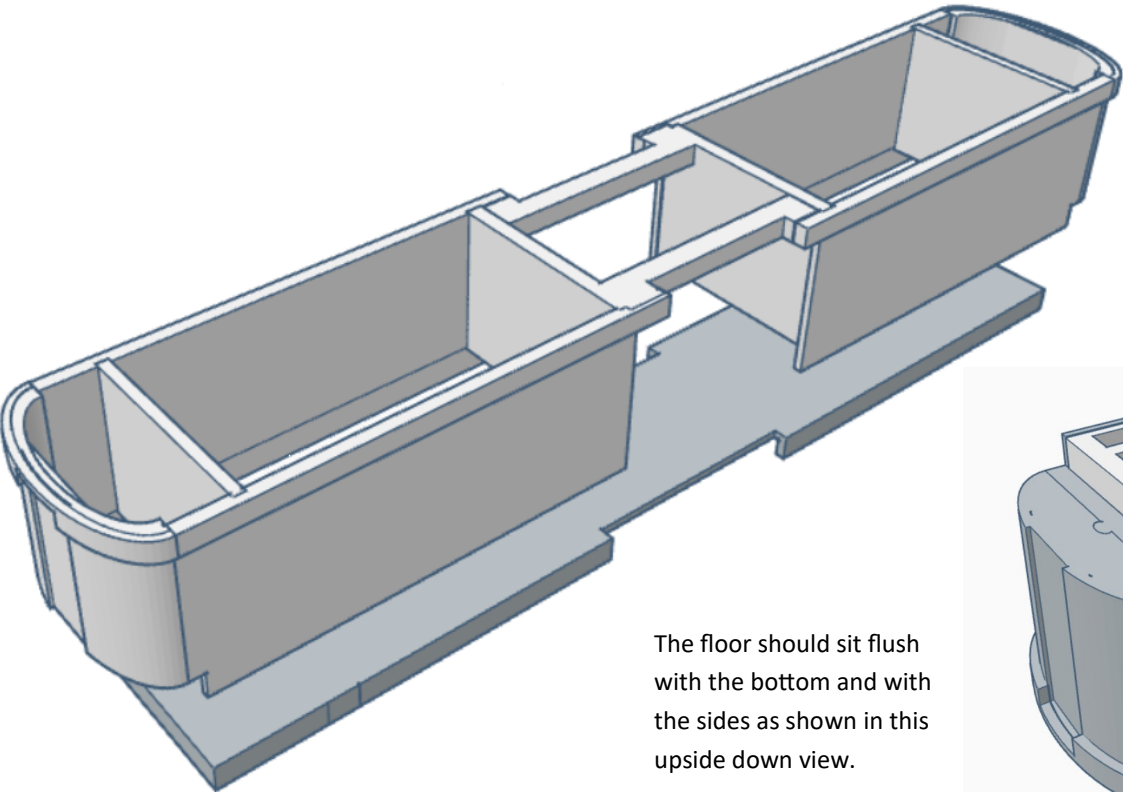


Adhesives: The choice of adhesive will depend on the material used for printing. For FDM pieces printed with PLA, most solvent type plastic glues will work. You can also use CA or epoxy. For resin printed pieces, CA or epoxy are your best choices.

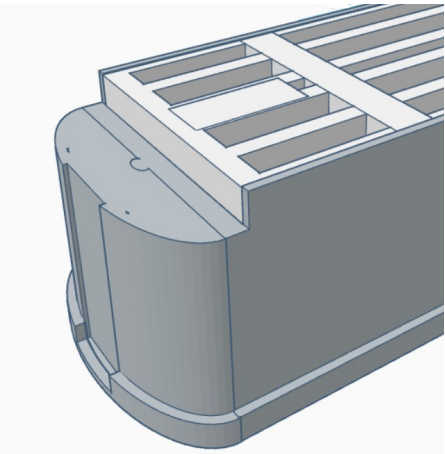
Printing Orientation: All of the parts have been designed to print without the need for any support material if they are oriented as shown below for printing.



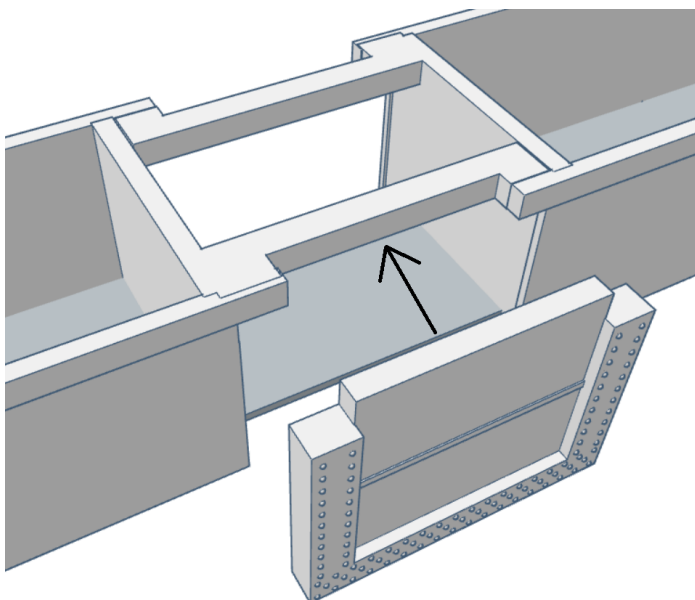
Assembly: Start the assembly by placing the two side halves on top of the floor plate. Orient the two side pieces so the letterboards are at the top and interlock as shown in the picture below to leave the proper space for the side door panel. They should fit flush with the bottom of the floor.



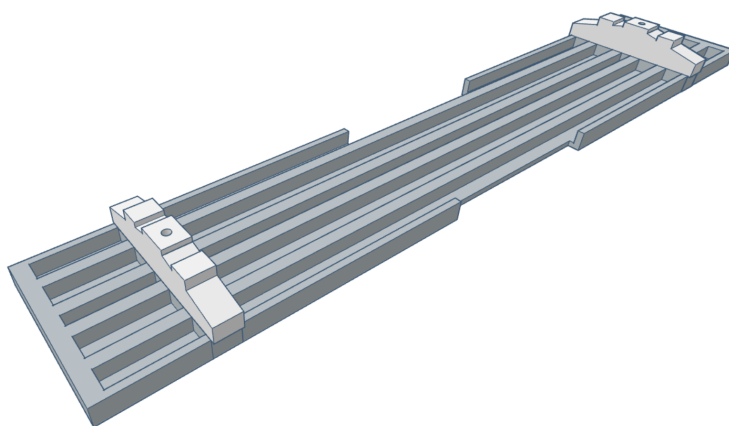
The floor should sit flush with the bottom and with the sides as shown in this upside down view.



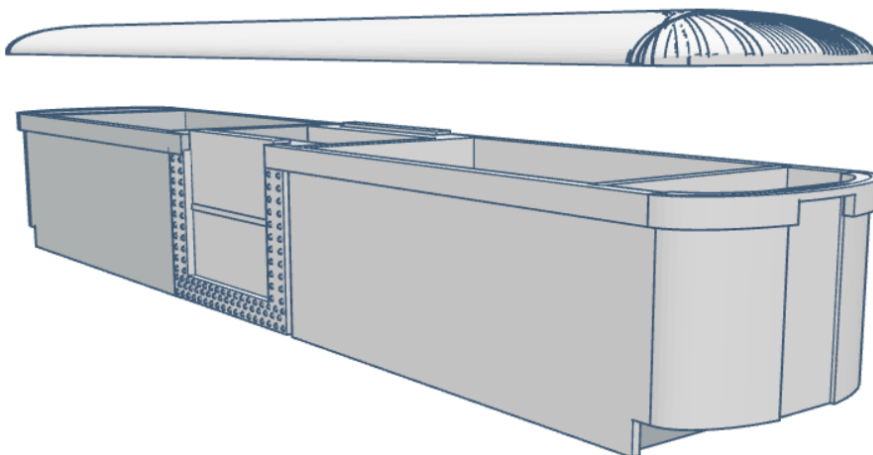
Install the side door panels on each side, rivets facing outward.



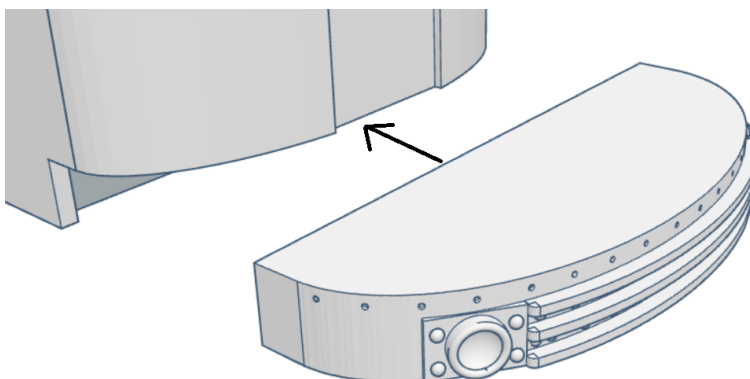
The bolsters can be glued to the underside of the frame where the two flat places are. Holes can be drilled and tapped for screws to hold the trucks in place.



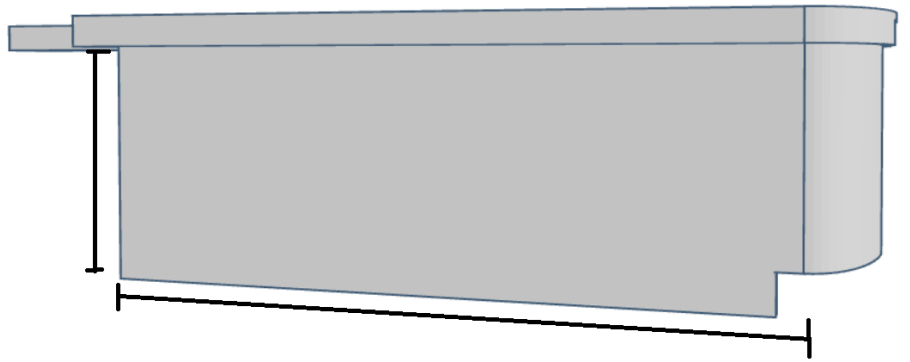
The roof can be added, lining it up with the body, front to back and side to side.



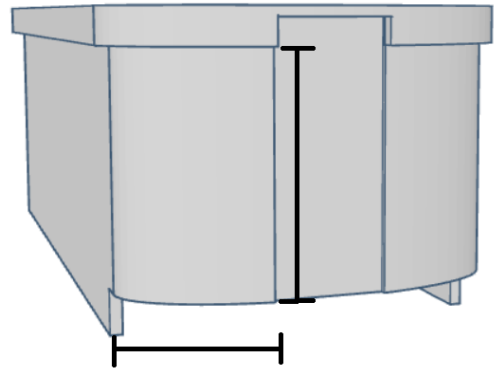
One anti-climber is added to each side, inserted into the opening provided, oriented as shown.



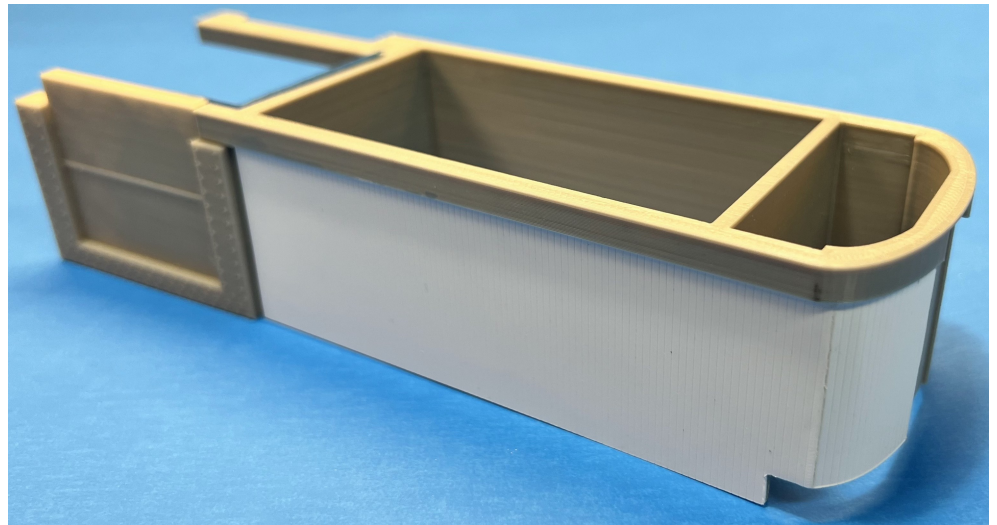
Adding the Scribed Siding: To complete the main assembly, obtain one sheet of 6" x 12" Evergreen Styrene O Scale Passenger Car Siding (item no 3047, 2-1/4" spacing, .030" thick). Cut pieces to fit each side panel, from the end of the side door top to just before the curve on the ends as shown by the lines below. These pieces should fit flush with the bottom of the side, and butt up against the side door and the letterboard. These can be laminated to the body using the adhesive of your choice.




Cut four pieces to fit the end curved section. These pieces should sit flush on top of the anti-climber and butt up to the letterboard at the top, leaving the door opening clear. I recommend warming the plastic (hot water or heat gun) and wrapping it around a 1-2" diameter pole/bottle and letting it cool in that position. That will make it easier to conform to the curve. If you are modeling the version without the end door, just cut one piece long enough to wrap around the whole end.

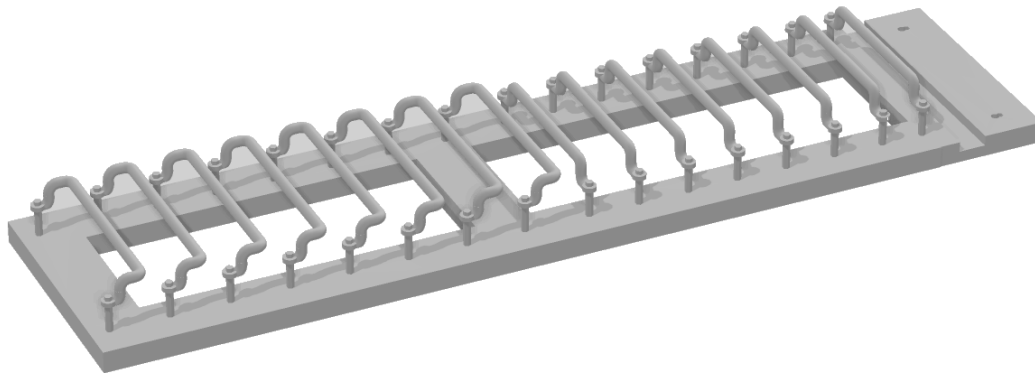
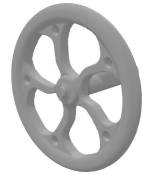
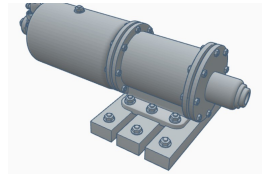
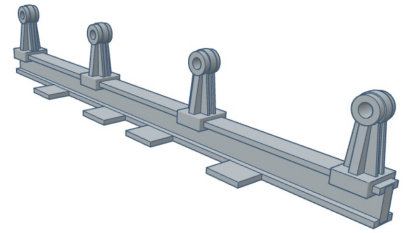


This photo shows the first two pieces of scribed siding applied to the body side and front end.

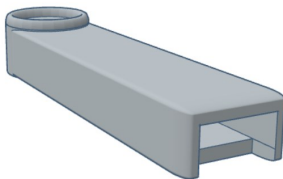


To complete the model you will need some extra parts/material.

- 1) Stirrup steps (4) 
- 2) One pair of Archbar trucks (non-roller bearing) are typical for this era car.
- 3) Queenposts, turnbuckles and .032 brass rod for the truss rods. (Print files for the truss rod end mounts and queenposts are provided. If the queenposts are too delicate, you can have them printed in metal by a 3D printing company like Shapeways.)
- 4) Decals of your choice.
- 5) A model of a K Type brake cylinder is provided to detail the underbody. It is mounted in the center of the underframe between the two middle beams.
- 6) A model of a brake wheel is provided for one end.
- 7) Grab Irons: A file is included for printing a sprue of 16 grab irons. It is recommended that you send this file to a 3D printing service company and have it printed in metal, ideally in brass. I had a set printed in brass from Shapeways for \$12.50. Included at the end of the sprue is a drilling guide to assist with mounting the grab irons. Below is a picture of the sprue. The alternative is to use some .020 brass wire to form the grab irons. Refer to prototype photos for the location of the grab irons.



- 8) Couplers: If you wish to use Kadee couplers, there is file that will produce a shank extension to use for Interurban freight cars that use radial couplers. It is designed for the Kadee 803 Model as these couplers are closer in scale than the standard O gauge ones. The coupler mounts in the slot with the raised circle going against the frame. Set the couple so that its swing clears the anticlimber and then drill a hole and fastened in to the frame. Leave it loose so it can swing with little effort.



Finishing: As with any model there is an unlimited number of options for finishing. I recommend a fine surface primer (e.g. Tamiya Fine Surface Primer) be used to avoid masking the details. Refer to prototype photos for the details, color and decal placement.

I hope you have enjoyed building your model!

Please send any photos of models you have completed to me at 3dprint@reighn.com.