

NORTHERN PACIFIC STEEL SIDED GS GONDOLAS

THE PROTOTYPES

The NP had a total of 2000 of these cars. 500 built in 1936 numbered 53000-53499. 750 built in 1937 numbered 52000-52749. 500 built in 1940 numbered 50000-50499. 250 built in 1949 numbered 50500-50749. In 1960, NP repainted and renumbered roughly 212 gons from the 52000-52749 series into the 58000-58211 series. In 1966 and 1968, the NP repainted and renumbered roughly 198 gons, 58250-58390 and 58750-58808. Information from the Northern Pacific Railroad Historical Association.

Parts list

- 1 One-piece body
- 1 Inner floor
- 1 Underframe
- 1 Lead weight
- 2 .040" x 8" wires for drop door mechanisms
- 1 .025" x 8" wire for train line
- 1 .015" x 8" wire for brake rods
- 1 .015" x 6" soft wire for brake air lines

Detail Bag Containing:

- 1 Flashing sheet containing:
 - 4 Corner gussets
 - 4 Drop door ratchets
 - 2 Tack boards (optional)
 - 2 Brake platforms (1 - wood, 1- steel grate)
- 1 Flashing sheet containing:
 - 32 Drop door chains (tiny squares with holes)
- 4 Brass stirrup steps
- 7 18" Grab irons
- 6 24" Grab Irons
- 2 Brass brake platform brackets
- 1 Brass brake lever bracket
- 1 AB brake set
- 4 ladders

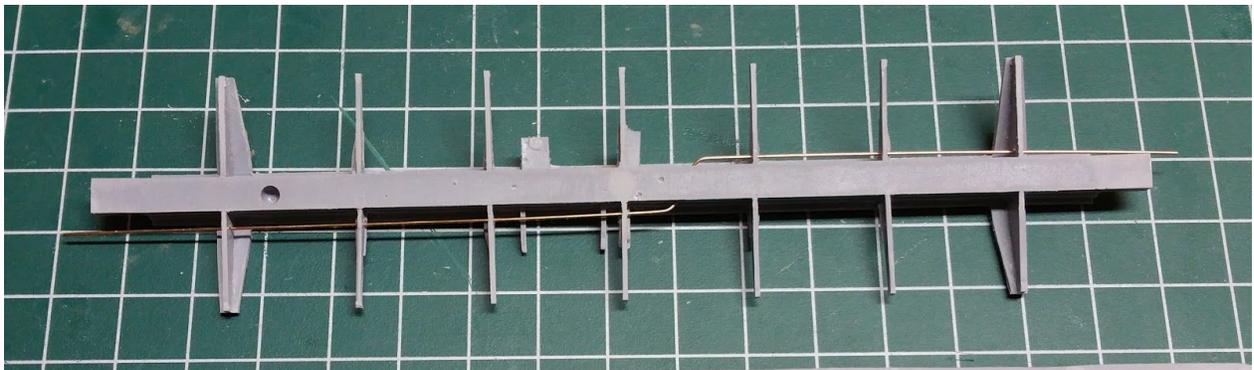
Instructions

Make sure all parts are present.

Clean up the one-piece body. There are flashing and remnants of casting vents along the top edge. Remove any thin flashing with a sharp hobby knife. Remove the air vent remnants and thicker flash with sandpaper, emery board or small file. Be careful not to remove too much material. You want to leave the lip an even thickness.

Clean up the inner floor. When test fitting, put the lead weight in first to help in removing the floor. Using the sandpaper-on-flat-surface, sand the edges so the inner floor fits in the one-piece body. There are two small steps in the floor at the body ends. With the weight in place the inner floor should sit on the bottom step, between the top steps of the two ends.

Clean up the underframe. There are several parts to this step. First, use the sandpaper-on-flat-surface to remove the remnants of air vents along the top of the underframe. Then remove the flashing at the mold parting line. Be careful when removing the flash, as the cross members are fragile. A new #11 hobby knife blade works well for this. Refer to the picture to be sure you know what is flashing and what are thin sectioned parts of the underframe. After removing most of the flash with a knife, finish smoothing the part with a fine emery board or sanding stick. When you have the flashing removed, test fit the underframe on the body. There is a hole in the underframe matching a nub on the body so the underframe can only go on in one direction. You will need to trim some of the cross members to fit inside the body. You may need to sand the ends of the underframe a little if it is too long.



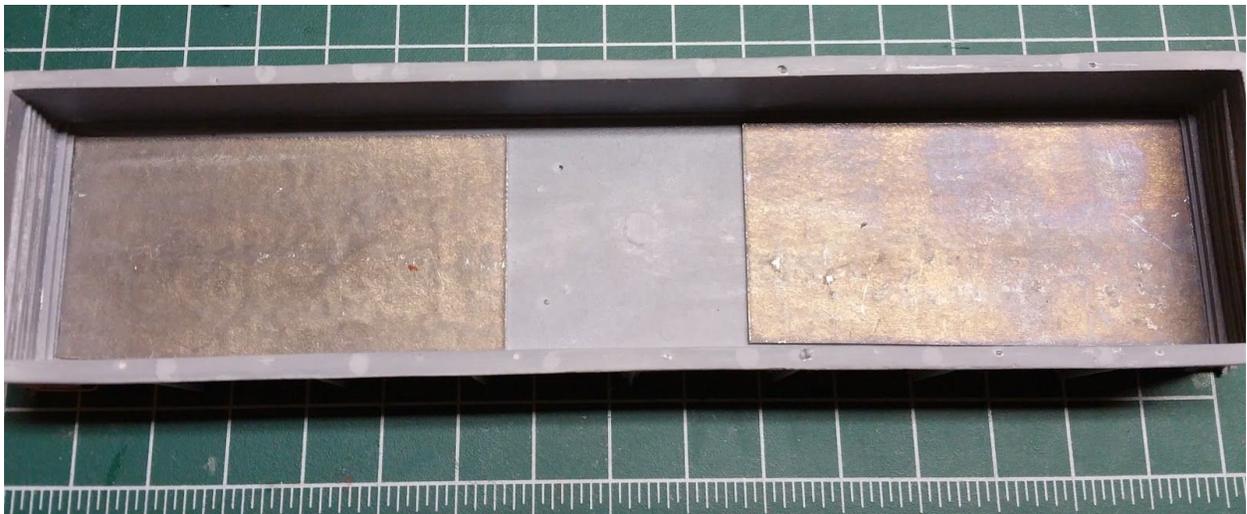
UNDERFRAME WITH TRAINLINE INSTALLED

Now is the time to wash all the resin parts to get rid of the mold release. If this is not done, neither glue nor paint will adhere. Use warm water with dish detergent or a cleaner such as Simple Green or a citrus cleaner. Scrub the parts all over with a toothbrush or use a sonic cleaner if available. The only parts on the flashing sheets that need to be washed are the 4 corner gussets. Sanding the flashing sheets will prepare the gluing surface for the rest of these parts, and the final wash after assembly may be easier. Rinse well and let dry. Inspect the castings carefully for any voids. My favorite filler is JB Kwik, a 5 min epoxy. It can be carved within an hour or so, and sanded after several hours.

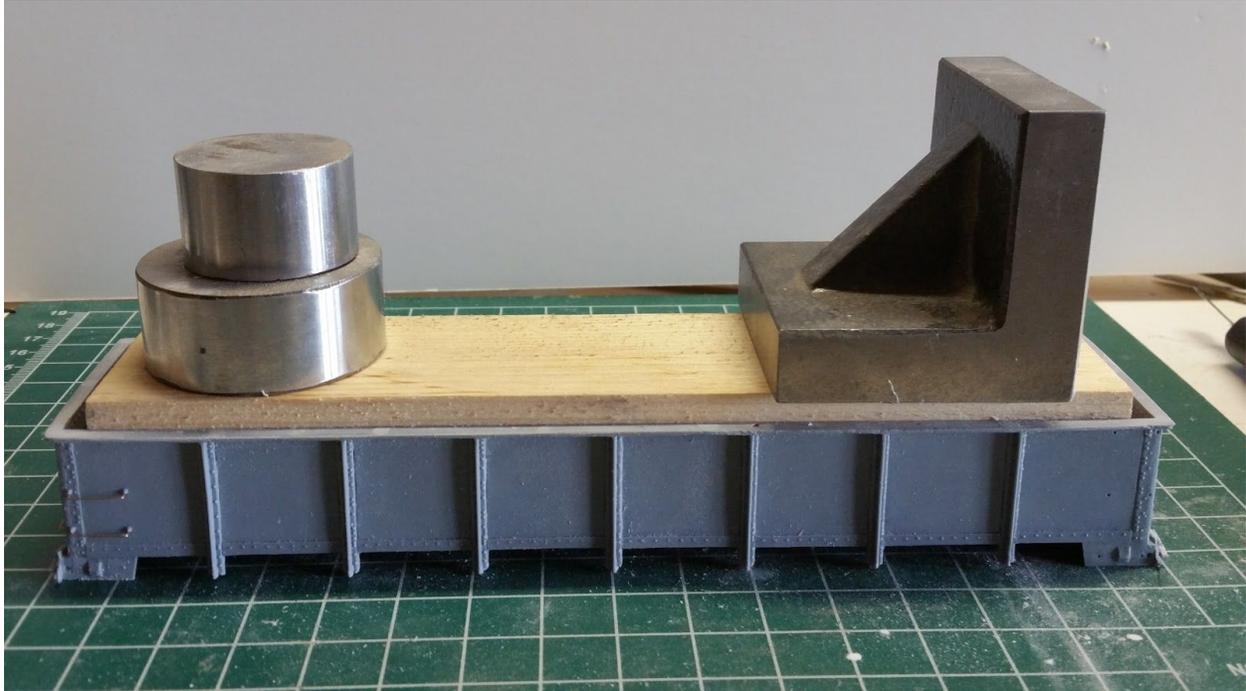
Install the train line using the .025 wire. Starting at one end of the underframe, insert the wire in the pre-drilled holes, 3 holes from one end, 4 holes from the other end. The train line crosses through the underframe towards the middle of the car. You simulate this by putting a slight bend in the wire so that it enters the shallow hole in the underframe. You may want to drill out these holes a little. Use a drop of glue at this location. Cut the wire 3/16" past the end of the underframe. Repeat from the other end.

While the train line is setting up, install grab irons on the body, 2 on the left end of each side, and 3 on each end. You will find some small starter holes just below the NBW's to help you locate them. I use a #76 bit to drill these out. You will need to trim some of the grab irons to length before installing where you won't be able to get a cutting tool to cut them flush inside the body.

Install the lead weight. Use gloves while handling the lead. Use a flat board and table to press the lead to make sure it is flat. This weight will give you a total car weight of six ounces if you use plastic trucks. If you want less weight, trim length of the lead. Cut the lead in two halves so you can put them over the trucks rather than in the middle, to avoid sagging later. Some modelers have had trouble in the past using epoxy on large, trapped areas. After several weeks, the epoxy "outgasses," causing softening and distortion of the resin. I used ACC, which adheres well to lead. "Transfer tape" is reported to work well, also. Glue or tape the weight into the body, making sure it is centered. Sand the bottom side of the inner floor to give it some tooth, then attach the inner floor on top of the weight. Make sure the weight and the inner floor are centered and use a block (a 7" length of 1-1/2 x 1-1/2, or 2x4 wood is perfect) and weights to hold the floor down while the glue sets.



LEAD WEIGHTS



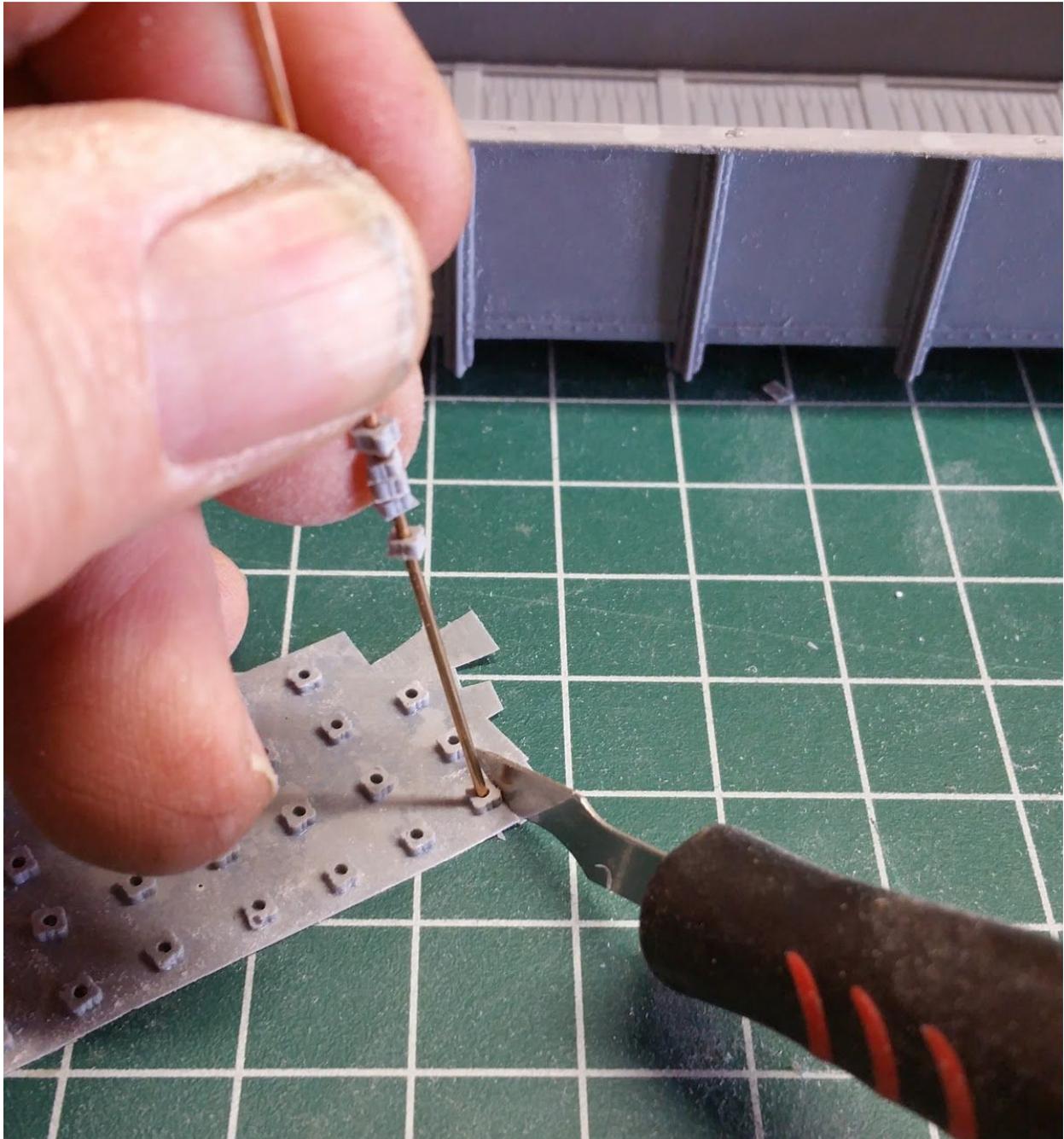
GLUING THE LEAD AND INNER FLOOR

There are 2-right hand and 2-left hand drop door ratchets. See the picture to make sure you can identify them and orient them correctly. These go on the car ends. Remove the flash from these first and handle them with fine-tipped tweezers, careful not to let them go flying. Gluing them on will be easier if you have a way to hold the body end-up. Glue on the tack boards if you want them. Prototype photos show some cars with, and some without.



Cut out the 4 corner gussets, leaving flash around them. You can use the flash to handle the gussets while you glue them on the body. After the glue has set, remove the flash.

Now take the .040 wires and cut each one 7-5/8" so it just fits inside the ends of the body. Take the sheet(s) with 32 drop door chains, and either drill out the hole in each part with a #60 drill, or sand down the flashing until you can push the .040 wire through. Put the sheet on a cutting surface, insert one of the .040 wires in a hole, and cut the part out of the flashing with a hobby knife. The idea is to keep the small part from flying away. Slide the trimmed chain up the wire, and repeat. Put 16 chains on each .040 wire.

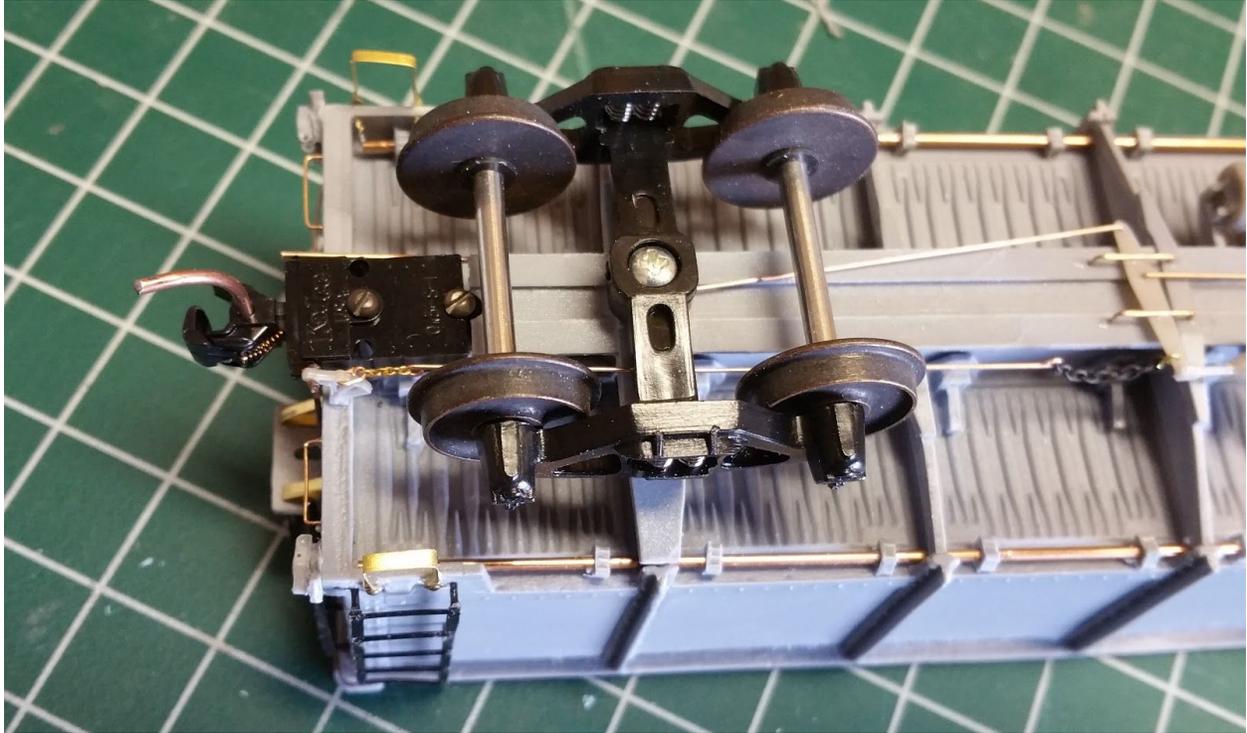


Place the body upside down on your work bench. Spread the 16 drop door chains out on the .040 wire so they fall 2 chains for each door on the car body. Place the wire in the notches in the body. You may want to omit the chains at each end as they will not be visible unless you pick up the car and look. If you want to include them, you may want to trim one side so the wire remains straight at the ends. Repeat for the other side. Now test fit the underframe, making sure you get the wires in all the notches, 2 chains/door, and the underframe fits as it should. Make sure you are comfortable with this procedure, as the next step is to glue the underframe in place. Glue only the center sill at this time. Apply enough pressure to the underframe so that it contacts the body for its full length. After the center sill is secure, glue the end of each underframe cross member to the body, making sure to line each cross member up with the frame members on the body sides.



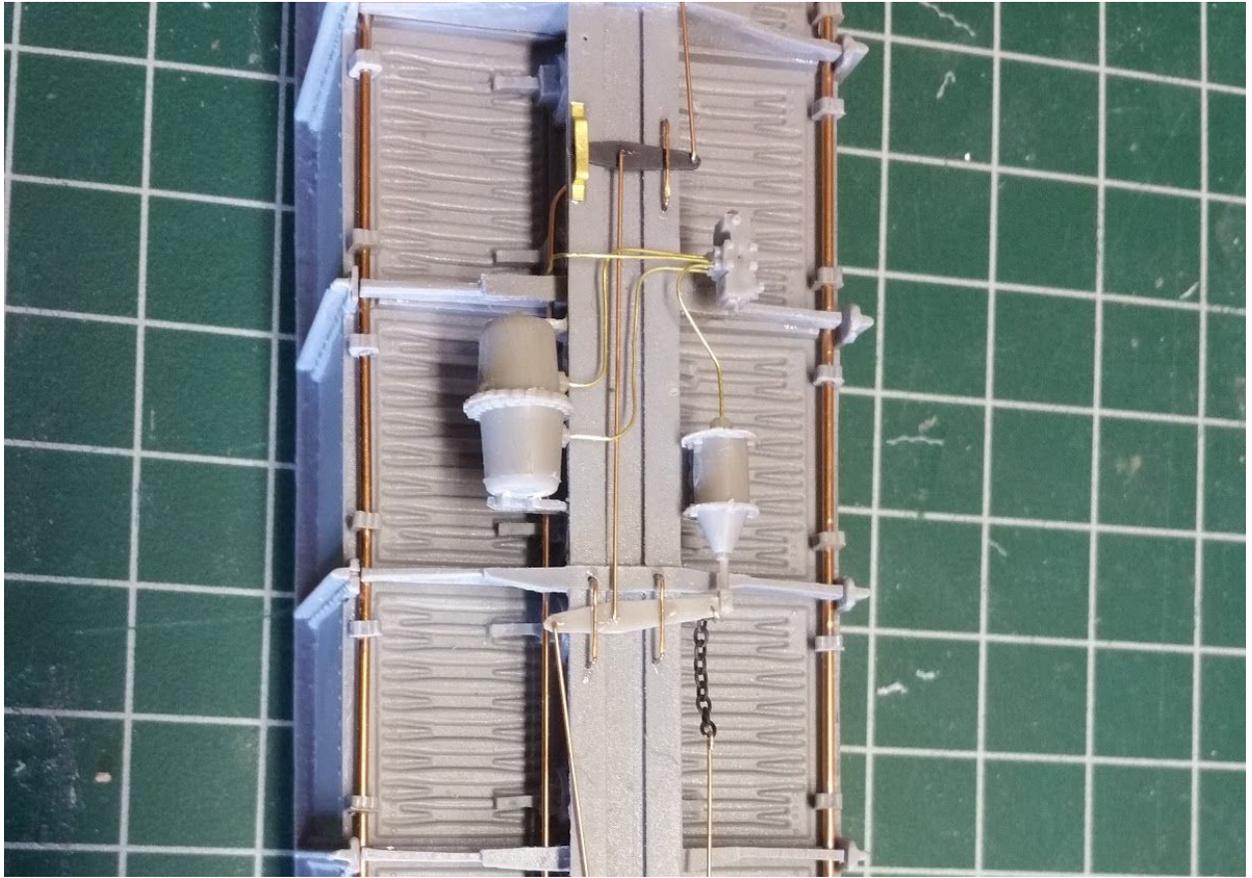
Glue the drop door chains in position on the .040 wires. These should line up with the door hinges that are molded into the body. The hinges line up with a corrugation on the drop doors, so line the chains up with this corrugation. A very small drop of ACC will attach the chain to the wire. The chains should all be in the same orientation, square with the body.

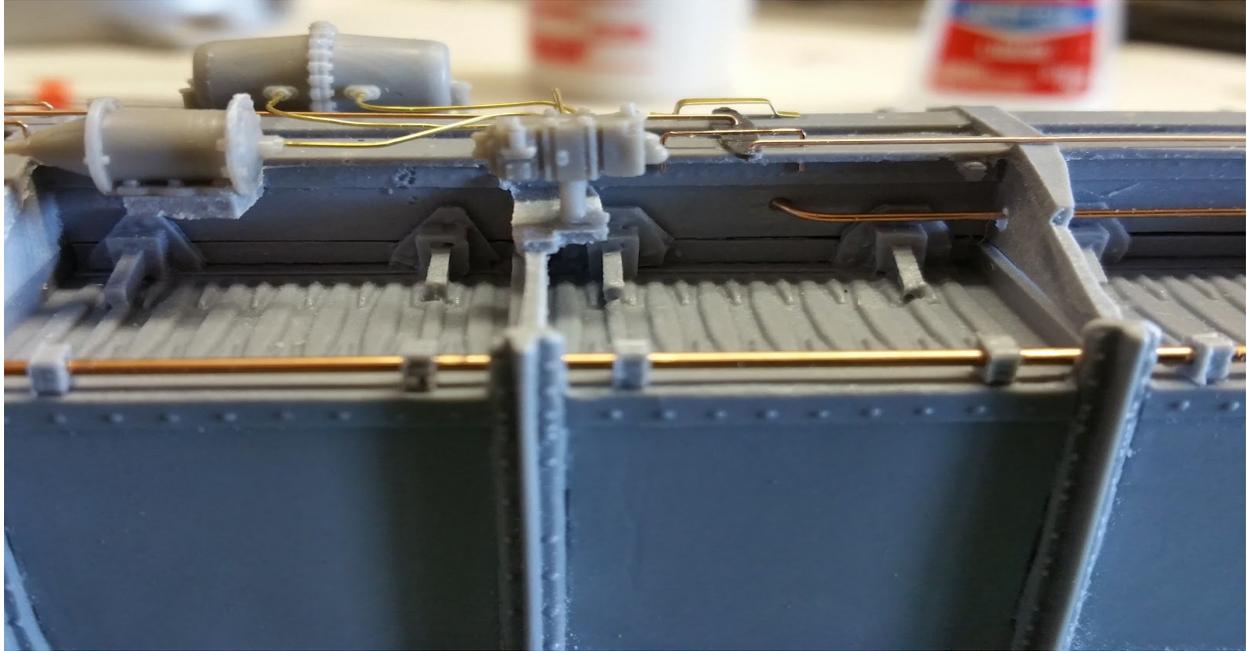
The car is set up to accept Kadee 802 couplers without modification. Just follow the Kadee instructions and drill holes for the mounting holes in the centerline of the draft gear box. Using the trucks described below, the couplers needed no shimming.



Install AB brake set. This can be the most time consuming part of the build, depending on how much detail you want to include. The brake components are more visible than on most cars.

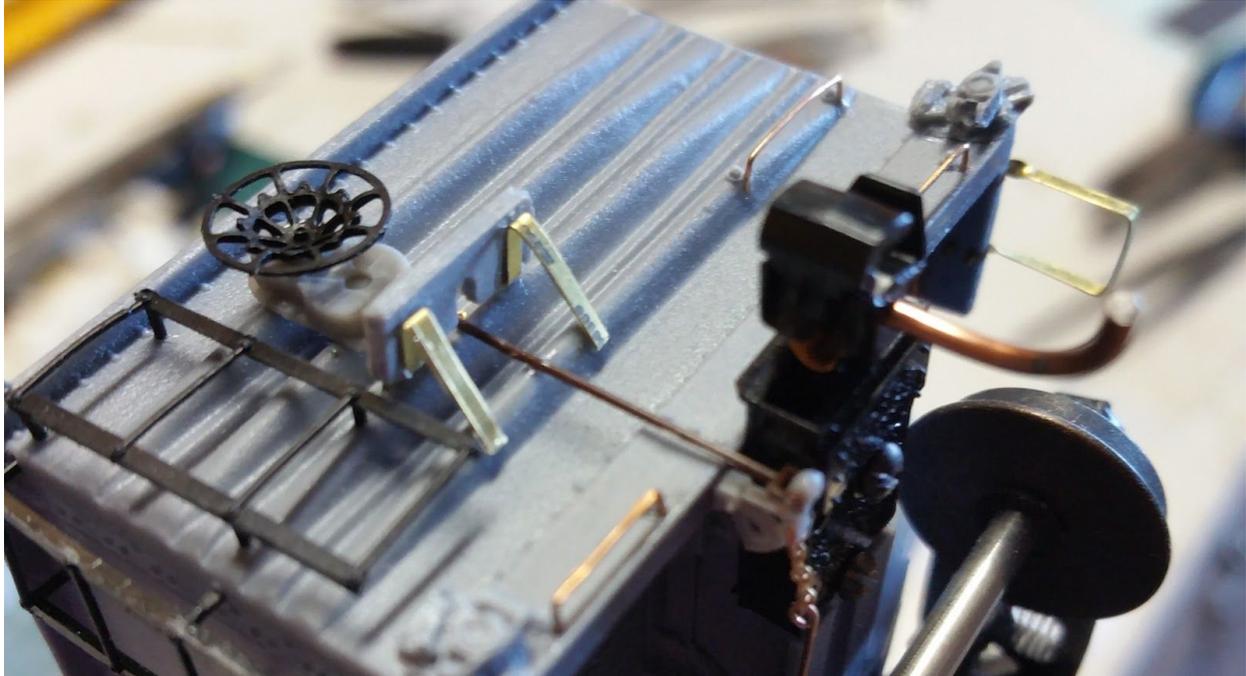
If you are going to install brake piping and rods, you'll want to drill holes in the components before installing them. There are starter holes, I use a #76 bit. One hole in the back of the cylinder, two on the side of the reservoir, one on the bell crank (not the one sticking out), and five on the side of the triple valve. I only used four, as I did not pipe in the retainer valve. There are brackets molded into the underframe to mount the reservoir, cylinder and triple valve. The triple valve extends down from the frame, and is quite visible from the side of the car. Leave the stem on the triple valve when you cut it off the sprue, see the photo. Part way down this stem is a short stem at a right angle. Cut this right angle short stem in half, so there is a flat foot, see photo. This will give you a decent glue surface. See the photo for the orientation of these components, and glue on the reservoir, cylinder and triple valve.



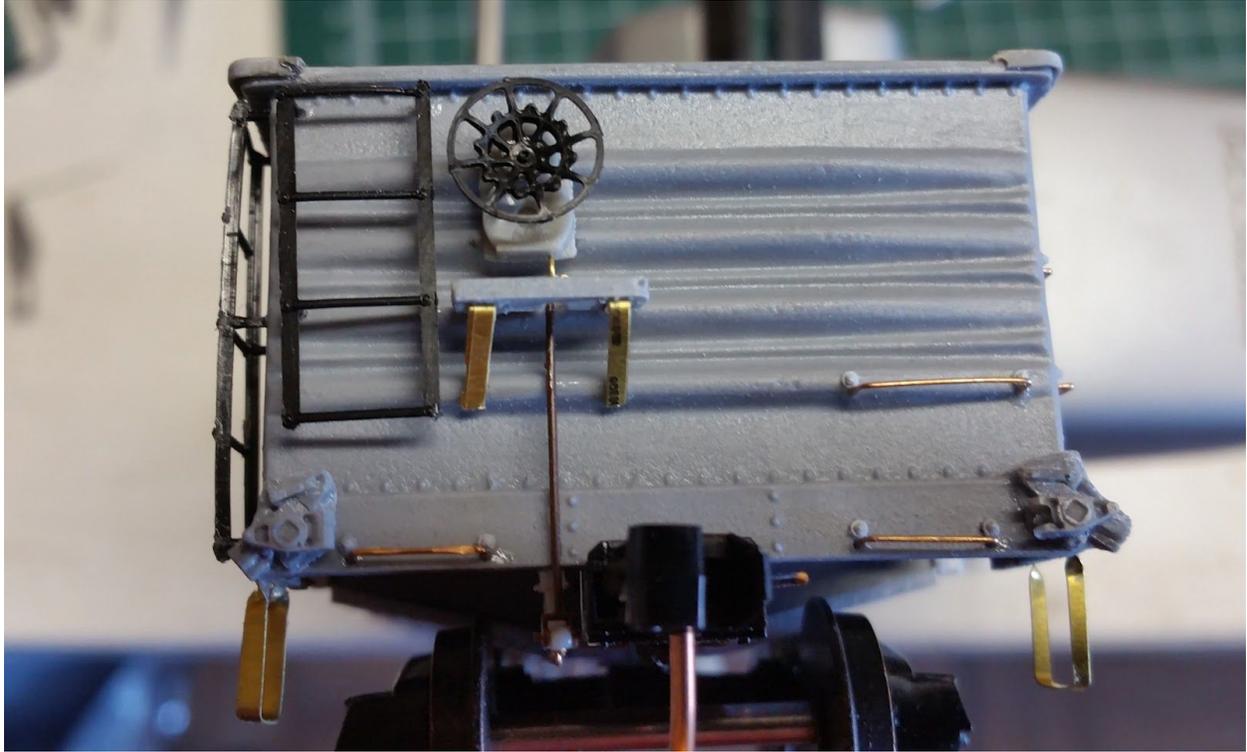


Now let's go to the B end. This is the end that the cylinder is "pointing" towards. First, on the bottom of the end sill drill a #65 hole and mount the bell crank close to the coupler draft gear box. For the rest, it's easiest to work on the end with the end up. The car will stand on end, but you don't want it to fall over. It's best to have a way to secure it in this position, like with a vise. First, install the ladder. Cut a ladder down to 4 rungs and trim the stiles. There are starter dimples to drill 4 holes for the mounting pins, use a #73 bit.

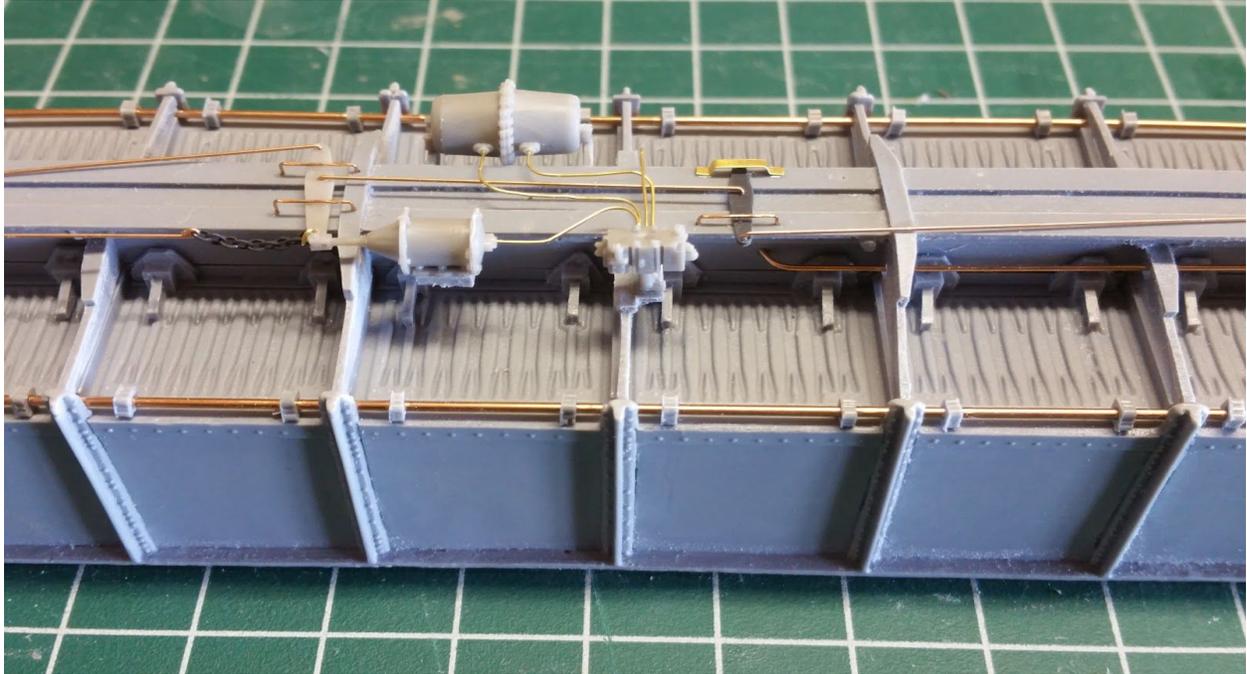
Next, assemble the brake platform and brackets. Turn the platform upside down and glue the brass brackets on. I find canopy cement or epoxy works better than ACC for gluing brass to resin. After this glue has set, glue the assembly to the car end. You may have to bend the brackets a little to get a good fit. The slot in the platform should line up with the bell crank, so the brake chain and rod are vertical.



Now take the brake gear housing and drill a hole in the bottom with a #76 bit for the brake chain. The chain can be frustrating to work with. I find the easiest way is to attach the chain to a piece of .015 wire first. The .015 wire will just fit through an end link. With your fines tipped pliers, bend a very small U in the end of a piece of soft .015 wire. Slip the end link of the chain on the wire so that it rests at the bottom of the U, then squeeze the U closed with the pliers. After the chain is attached, cut the wire short and glue the wire into the hole you have drilled in the bottom of the gear box so all you can see is the loop and the chain. Cut the chain so that it will hang just through the brake platform. Now glue the housing to the car end. The mounting pin on the housing fits in a corrugation so does not need to be trimmed. Let the chain hang through the notch in the brake platform. Take the long brake rod from the brake set, and cut the length so when you snap the clevis onto the bell crank, the end will enter the notch in the brake platform, but will not appear above it. Snap it in place and put a drop of ACC on each end. I find it easiest not to glue the bottom of the chain, but just let it hang in the notch.



Now lay the car down bottom side up and finish the brake rigging. The brake rods are made with the straight .015 wire. First, take the long brake lever and snap one end into the clevis on the cylinder rod, with the lever across the center sill. Lay the short brake lever across the center sill as shown in the photo. Cut a piece of wire to length, allowing for a very short 90 degree bend in each end. Insert these bent ends into the center holes in each lever. Adjust each lever so it is approximately perpendicular to the center sill, and glue them to the center sill. Drill holes for 3 grab irons used as hangers as shown and glue. There is a brass mounting bracket for the pivot connection on one end of the short lever. There is a rod from each lever that disappears under the trucks; make a short 90 degree bend in one end for the hole in the lever, and glue the other end to the center sill.



Now that you have sharpened your skills, you can tackle the masterpiece if you wish. There is a rod connecting the bell crank to the cylinder rod, with a length of chain at each end. About six links at the bell crank, and a longer piece at the other end. Bend a U at each end of the rod and attach the chain. Make a U in a piece of soft wire and attach to the 6 link chain. Run the soft wire through the hole in the bell crank, make a tight link and trim the excess. At the other end of this rod, the chain will attach next to the clevis on the end of the cylinder shaft. Hold the rod in position and cut the chain at the cylinder to length. Cut the chain so there will be some sag, but not below the bottom of the cylinder. Attach a piece of soft .015 wire to the end of the chain. You can either wrap this wire around the brake lever right next to the cylinder rod clevis, or drill a .015 hole through the brake lever and wrap the wire through this hole. Glue the rod where it crosses the bolster so that it makes a straight line from the bell crank to the cylinder rod.

Use the soft piece of .015 wire for the piping. There are 2 pipes from the reservoir to the triple valve, one pipe from the cylinder to the triple valve, and one pipe from the triple valve to the train line. The soft wire is easy to work with. A drop of thin ACC will secure the wires in their holes.



This is where I quit on the brake details. If you want to go further, there is a retaining valve in the pack. It goes just under the top lip between the ladder and brake gear housing.

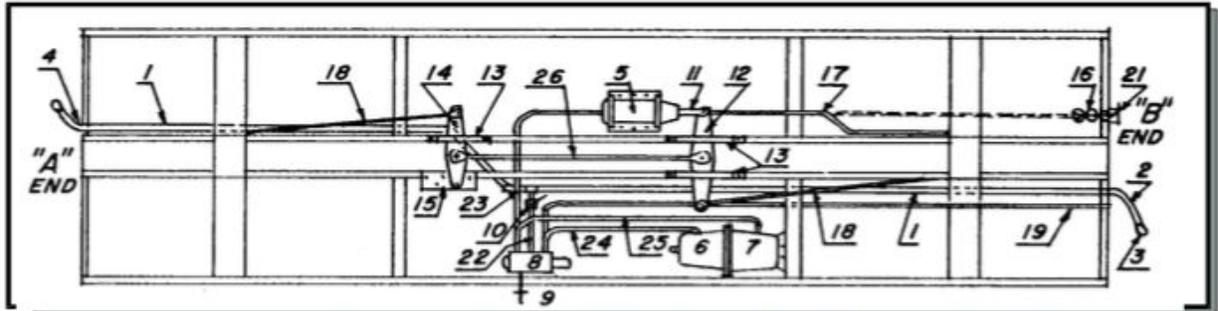
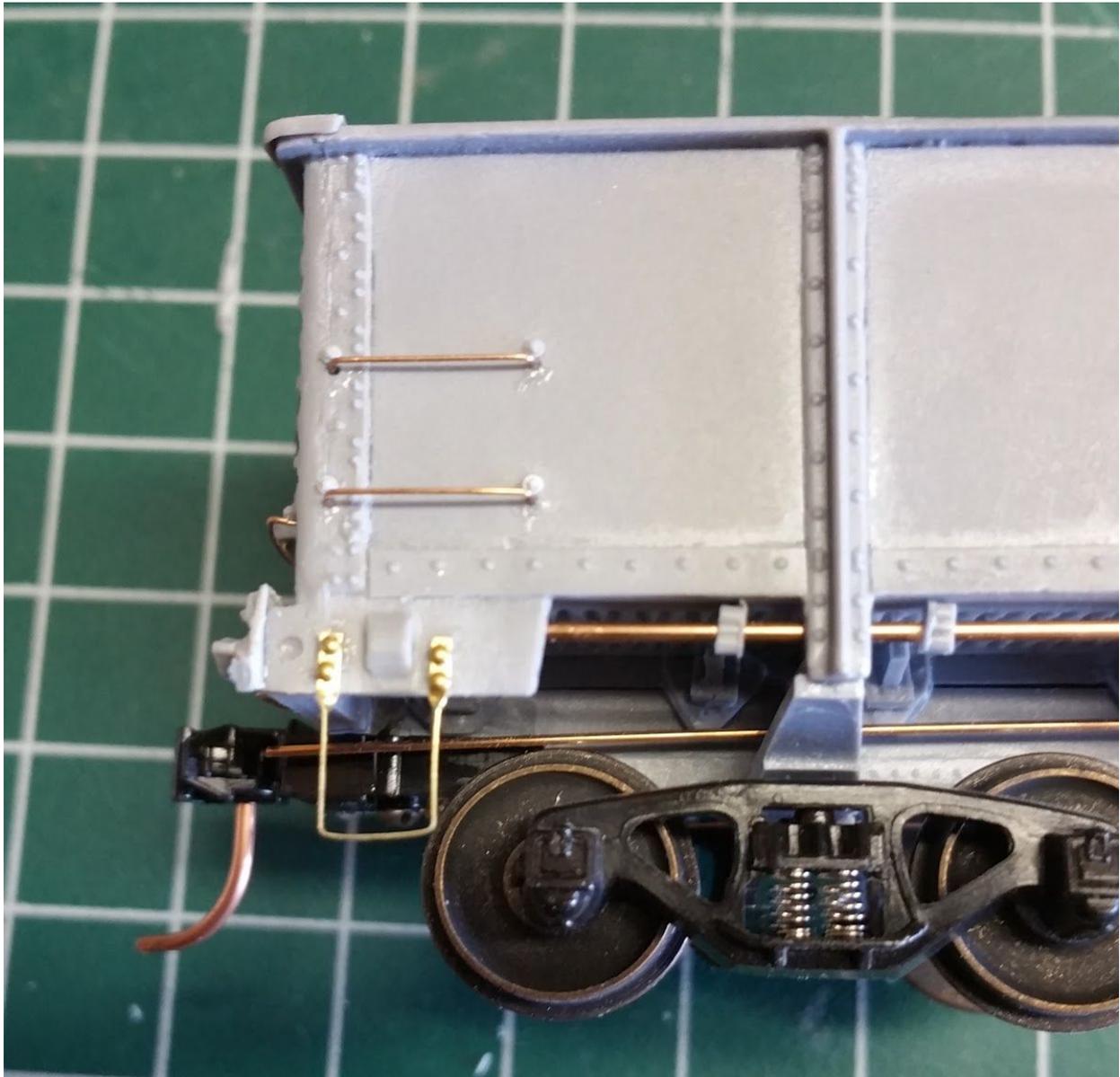


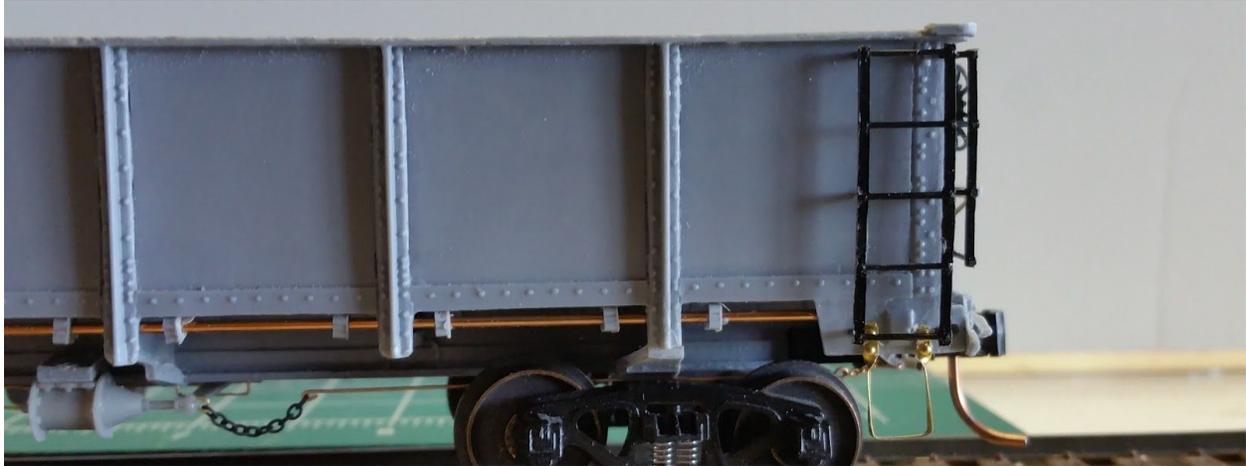
Figure 5b: COMPONENT ARRANGEMENT OF AB SYSTEM "SSR"

Once the brake components are installed, they will be the lowest parts of the car, so install your trucks so the car will sit right side up. I use American Models Bettendorf trucks. I drill the truck mounting holes with a drill press to make sure they are straight. I drill with a 1/16" bit and use 2-56 machine screws without tapping. I know there are different opinions on attaching trucks. This is what I do and I expect you to do what works for you.

Install the stirrup steps. I have included brass stirrup steps so they will bend instead of breaking. Use canopy cement, epoxy or ACC to glue them in place. I feel it is essential to pin them on as well as gluing them so they don't break off. So drill holes in the steps and through the body after the glue has set. My favorite for pins are small brass nails I found here; https://www.micromark.com/Miniature-Nails-Package-of-100_2. I have used copper wire that I peened a small head on, and I have used sewing pins that I turned down by chucking them in a dremel tool and using a file. Some modelers have used brass NBW castings. Use something. This has the added benefit of looking like rivets or bolts.



Install the rest of the ladders. The A end ladder is the same as the one you put on the B end. The ladders on the right hand of each side of the car has 5 rungs. There are dimples for mounting holes. Drill these out and notice where they are when you cut the ladder to length and trim the stiles.



Remove or mask trucks and couplers. Wash the model again, being very careful of the ladders and stirrups. Paint. I am not going to give any advice on painting because I'm sure you know more about it than I do.

Decal. The as-built cars had a white line above and below the "N.P." with periods. The repaints lacked the lines and the periods. Both versions are included. For more prototype photos go to <http://www.nprha.org/Modeling/Instructions%20-%20NPRHA%20Gondola%20Decals%20-%202017.pdf#search=GS%20gondola>



Install trucks & couplers. Run. Send me photos.