

## COMPOSITE GS GONDOLAS THE PROTOTYPES

### **SP's composite GS gondolas**

This model represents two SP classes, G-50-20 and G-50-23. Built in 1948 and 1949, respectively, they were not built with wood sides because of a wartime steel shortage. They were built to haul sugar beets and wood pulp, and the wood sides were to save weight and simplify side repairs. They wound up hauling many different loads including lumber, pipe, gravel and timbers. The G-50-20 class consisted of 1500 cars, originally numbered 56330 – 57829, and renumbered 380000 – 381498 in 1956. The G-50-23 class had 1000 cars, originally numbered 150000 – 150999, and renumbered 381499 – 382498 in 1956. The familiar sugar beet extensions (and wood chip extensions) were added in 1957, neatly coinciding with the renumbering and with the end of steam locomotives. I plan to offer extensions for these cars in the future. Large number of these cars lasted in service for decades, here are the numbers for both classes: original – 1500, 1960 – 2415, 1970 – 2027, 1980 – 1342.

Information from “Southern Pacific Freight Cars, Vol. 1” by Anthony W Thompson

### **Union Pacific composite GS gondolas**

This model represents Union Pacific class G-50-11, of which 1000 were built in 1943. They had wood sides because of steel shortages during the war. They were numbered 64000 – 64999. Originally they had white lettering, starting in 1947 they received yellow lettering when they were repainted. In 1950 – 1951 the wood sides were replaced with steel.

Information from Dick Harley

Some other roads, such as the D&RGW had similar looking cars that were 46', while this car is 42'. All depends on your tolerance for selective compression.

### **The kit**

This kit was the brainchild of the late Lee Johnson. Lee envisioned a flat kit, but it never got finished. I picked up the pieces and made the modifications needed to cast a one-piece body, added details and put together all the parts to make a complete kit. It has been an enjoyable challenge.

The high grade resin castings include a one-piece body, the inner floor and the underframe, as well as several detail parts. A sheet lead weight that is hidden in the floor of the car. Wire for the train line, brake rods and brake lines. An AB brake set, ladders, grab irons, stirrup steps, etc. You can order the kit with SP or UP decals, or without.

# INSTRUCTIONS

## COMPOSITE GS GONDOLA

### PRE-SIZE MODEL SPECIALTIES



**MODEL BUILT BY MICHAEL ELDRIDGE**

#### 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
- 1 AB brake set

Detail Bag Containing:

- 4 ladders
- 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
- 13 Grab irons
- 2 Brass brake platform brackets
- 1 Brass brake lever bracket

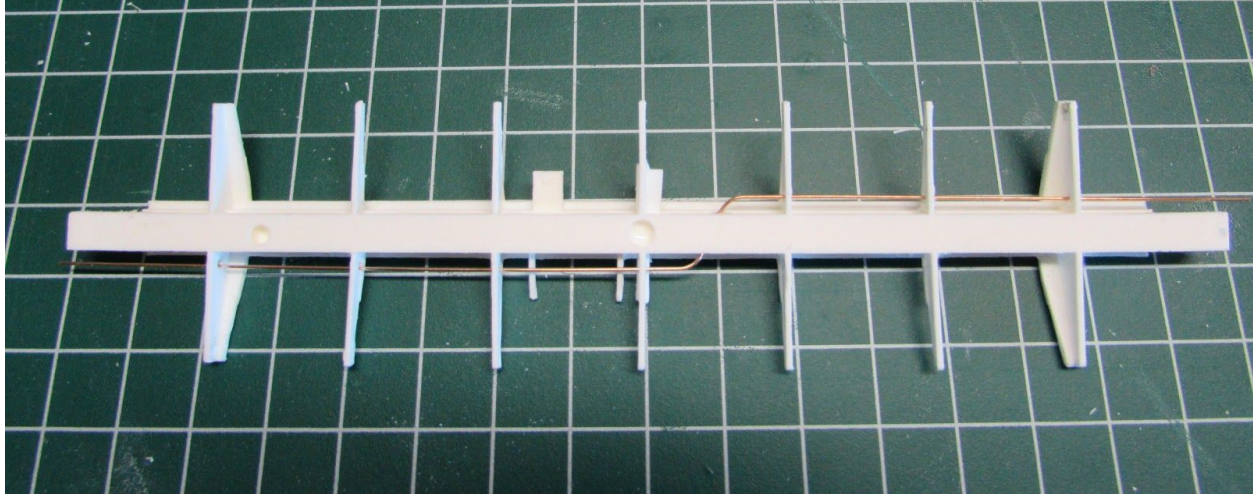
## Instructions

Make sure all parts are present.

Clean up the one-piece body. There is 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 no 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. 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 may need to sand the ends of the underframe a little if it is too long.

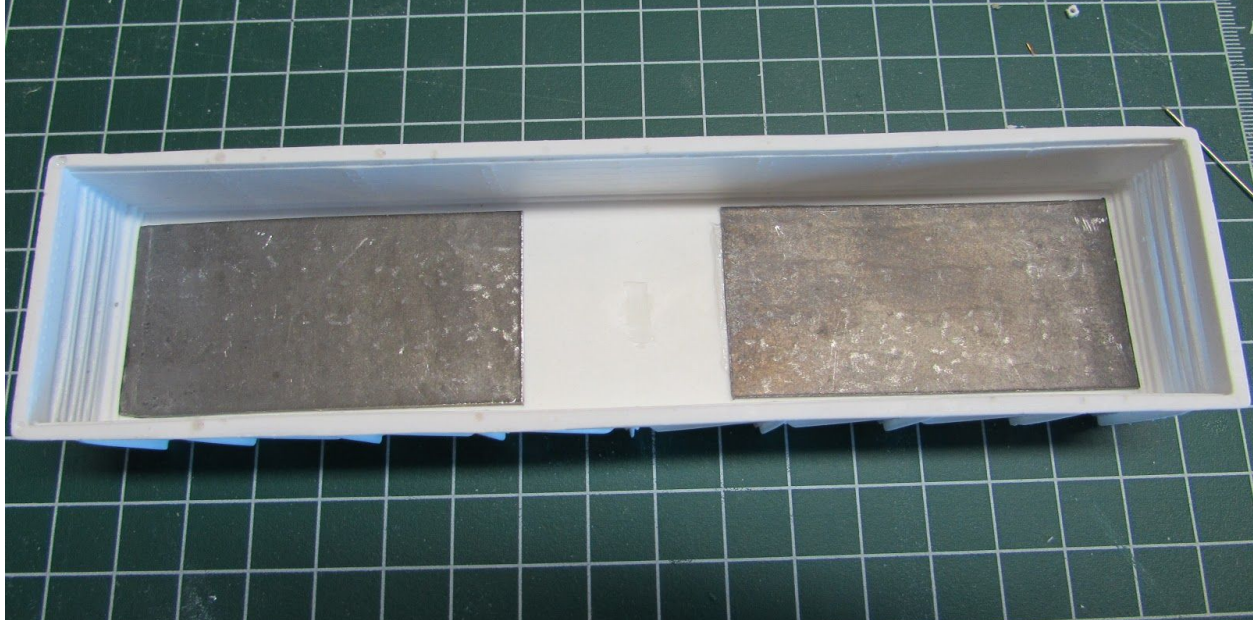


UNDERFRAME WITH TRAINLINE INSTALLED

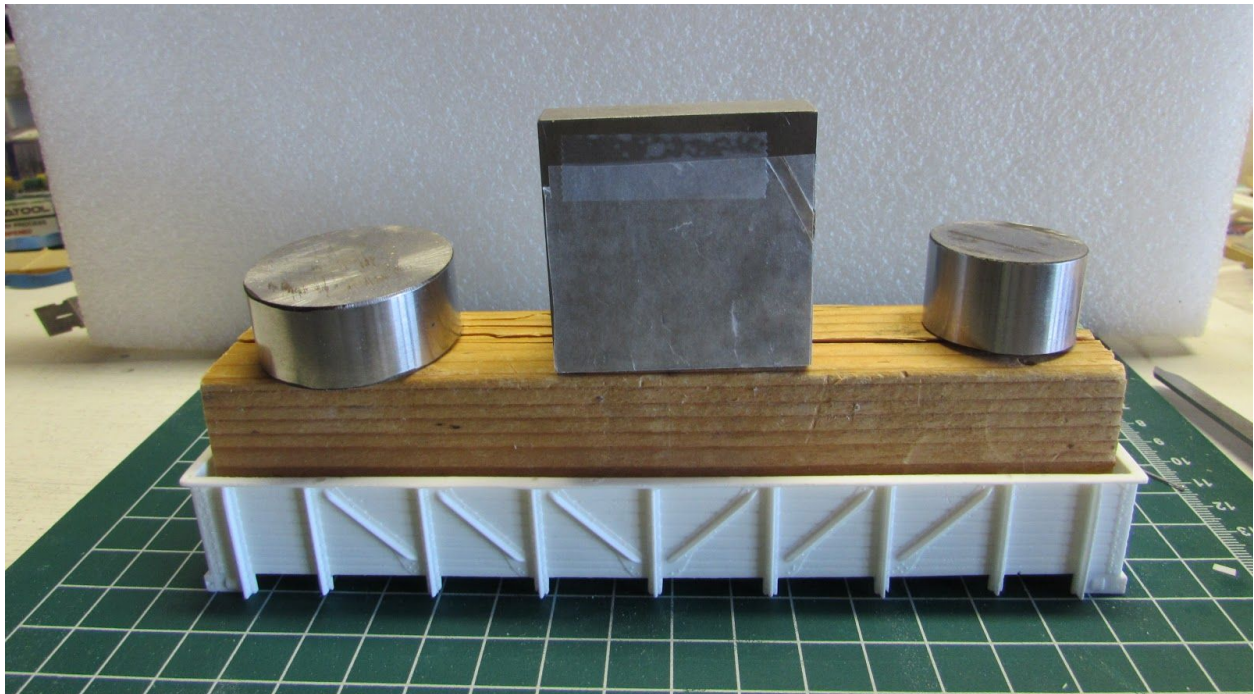
Now is the time to wash all the resin parts to get rid of the mold release. If this is not done, neither glue nor paint will adhere. Use warm water with dish detergent or a cleaner such as Simple Green or a citrus cleaner. Scrub the parts all over with a toothbrush or use a sonic cleaner if available. Don't forget to clean the resin detail sheets now, before removing the details from the sheets. Rinse well and let dry. Inspect the castings carefully for any voids. You can fill tiny voids with gap filling ACC. For larger voids, fill the void with baking soda and then put a drop of ACC on the baking soda. Re-sand the area if necessary.

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 almost six ounces if you use plastic trucks. If you want less weight, trim the length of the lead. You may want to 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 wood is perfect) and weights to hold the floor down while the glue sets.





LEAD WEIGHTS



GLUING THE LEAD AND INNER FLOOR

Now let's put some of the details on the body.

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.



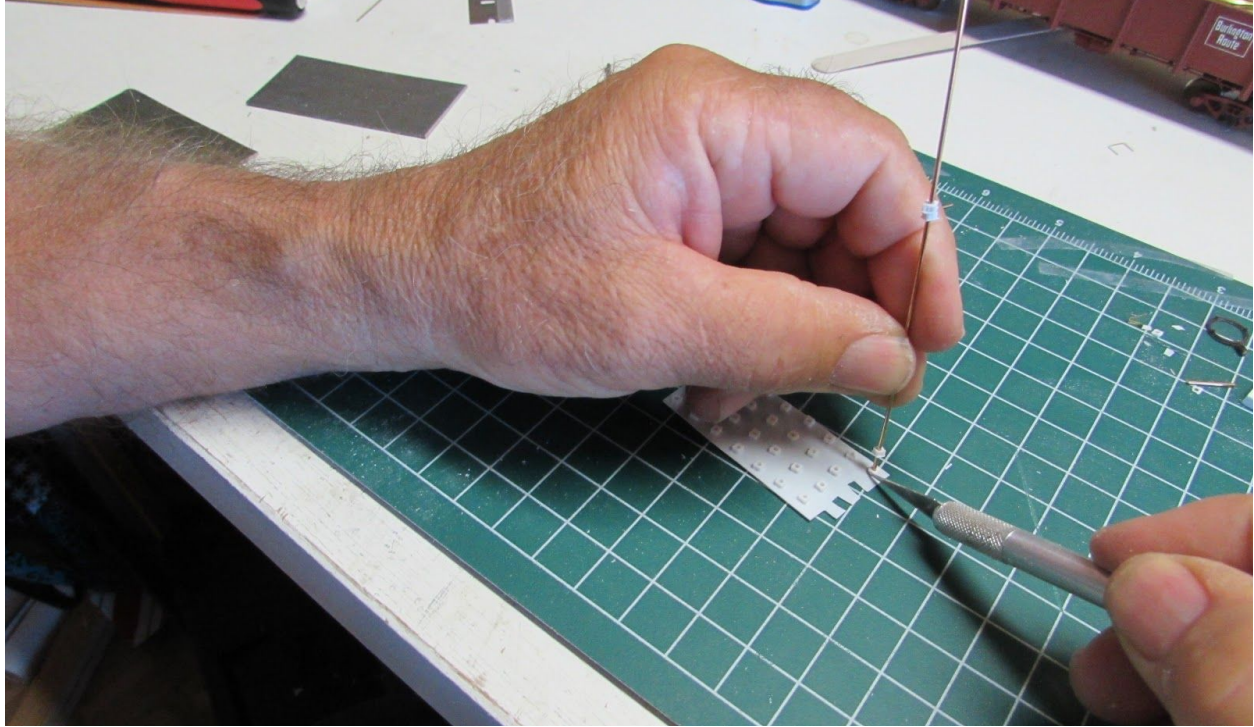
DROP DOOR RATCHETS

Install the train line using the .025 wire. 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. Starting where the trainline crosses the underframe, 3 holes from one end, 4 holes from the other end, insert the wire in the pre-drilled holes. Use a drop of glue where the bent end enters the underframe. 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, 2 on the left end of each side, and 3 on each end. You will find some small starter holes to help you locate them. Drill these through with a #80-78 drill. For the grab irons on the sides, the right side of the irons attach to the rib. There are small starter holes to help you start drilling through the ribs. 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.

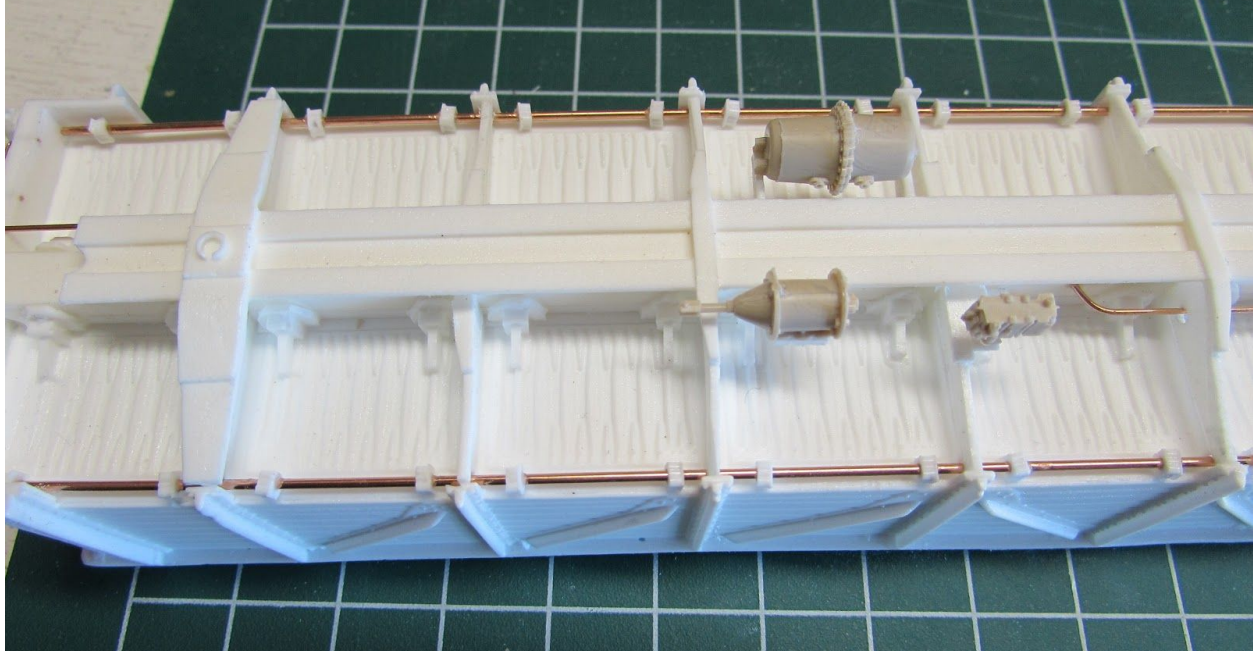
Now take the .040 wires and cut each one 7-5/8" so it just fits inside the ends of the body. Take the flashing sheet(s) with 32 drop door chains, and drill out the hole in each part with a #60 drill. Put the sheet on a cutting surface, insert one of the .040 wires in a hole, and cut the part out of the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





#### CUTTING OUT CHAINS WITH .040 WIRE

Place the body upside down on your workbench. Spread the 16 drop door chains out on the .040 wire so they fall 2 chains for each door. 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 per 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.



CHAINS ON .040 WIRES IN PLACE WITH UNDERFRAME INSTALLED  
CYLINDER, RESERVOIR AND TRIPLE VALVE INSTALLED

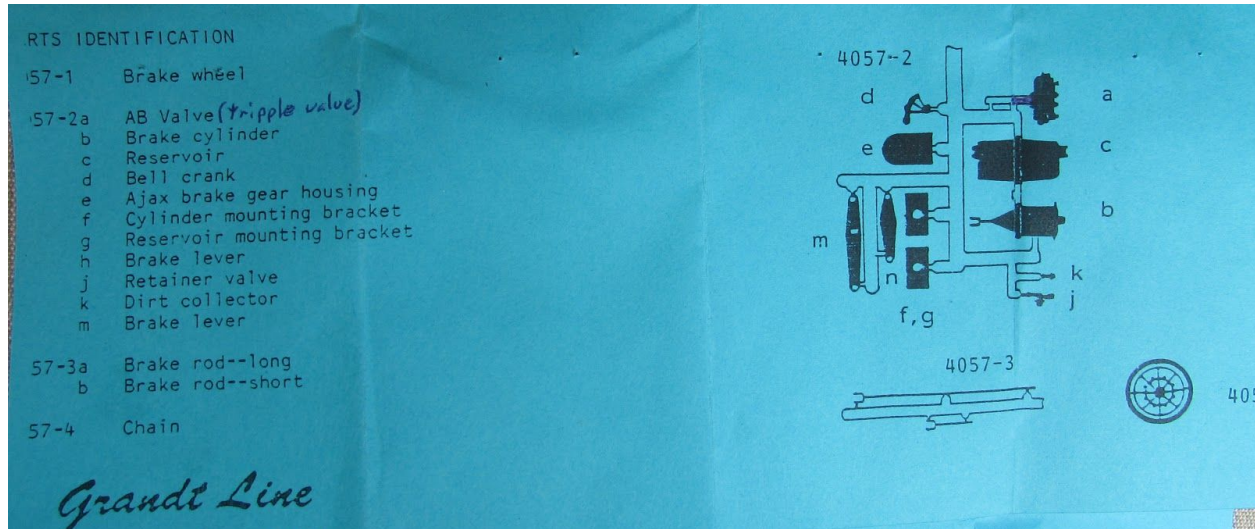
Glue the drop door chains in position on the .040 wires. These should line up with the door hinges that are molded into the body. The hinges line up with a corrugation on the drop doors, so line the chains up with this corrugation. A very small drop of ACC will attach the chain to the wire. The chains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

Drill and tap holes in the underframe for mounting the trucks and couplers. I use American Models Bettendorf trucks. I drill the truck mounting holes with a drill press to make sure they are straight. I use 2-56 machine screws for the trucks, so that would be a #50 drill and 2-56 tap, or a 1/16" drill and no tap. You may have your own method for attaching trucks.

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. I use the short Kadee mounting screws and a #65 drill with no tap. Or you can use 1-72 machine screws, so that would be a #53 drill and 1-72 tap. Using the trucks described above, the couplers needed no shimming.

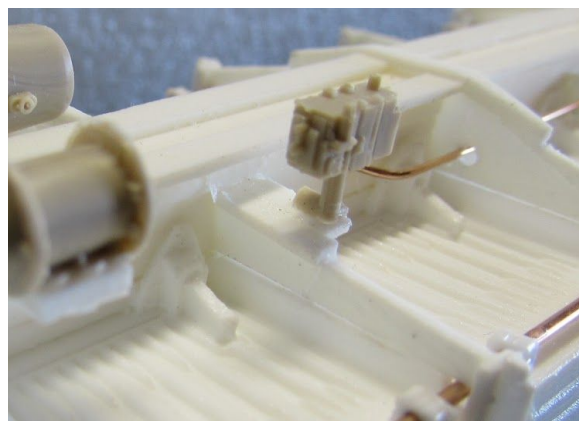
Install AB brake set. This can be the most time consuming part of the build, depending on how much detail you want to include. The brake components are more visible than on most cars, How far you want to go beyond the reservoir, cylinder and triple valve is your choice. I have included parts, photos and instructions for much of the brake rigging.





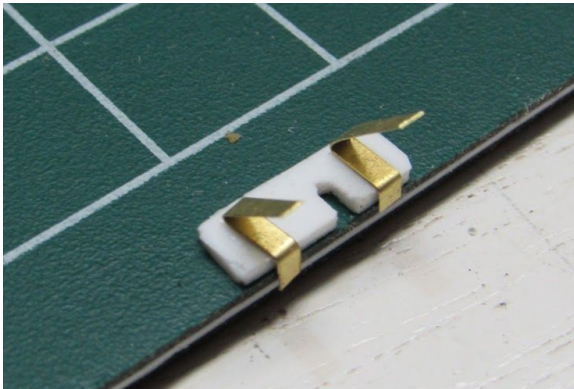
### AB BRAKE PARTS

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, use a #78 or #79 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.

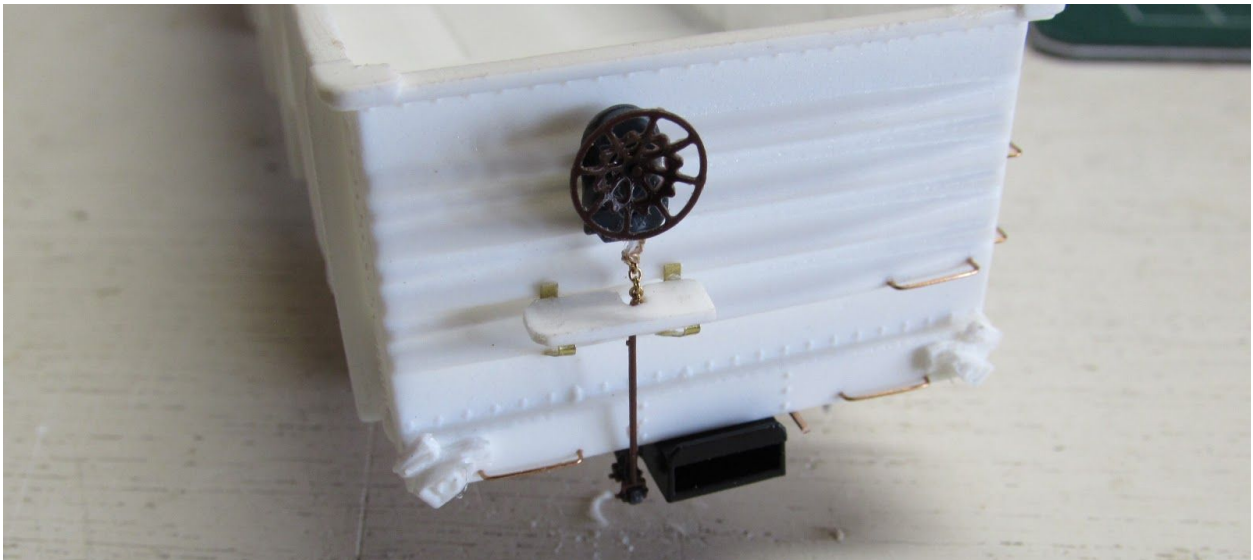


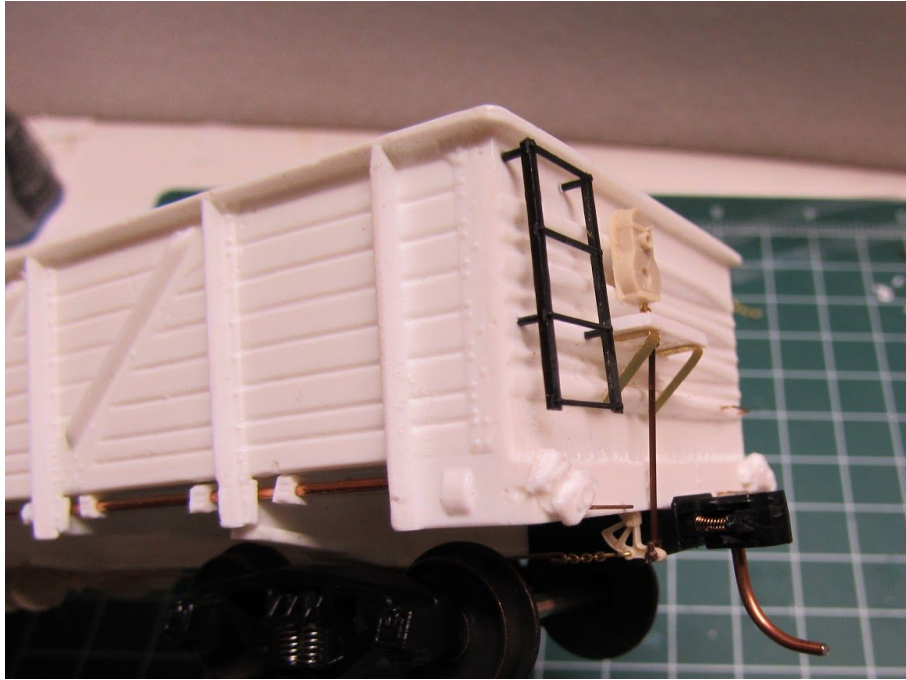
TRIPLE VALVE

Now let's go to the B end. This is the end that the cylinder is "pointing" towards. 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. You will want to trim the mounting pins a little. 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, pretty close to the ladder. You may have to bend the brackets a little to get a good fit.



ASSEMBLING THE BRAKE PLATFORM





#### B END

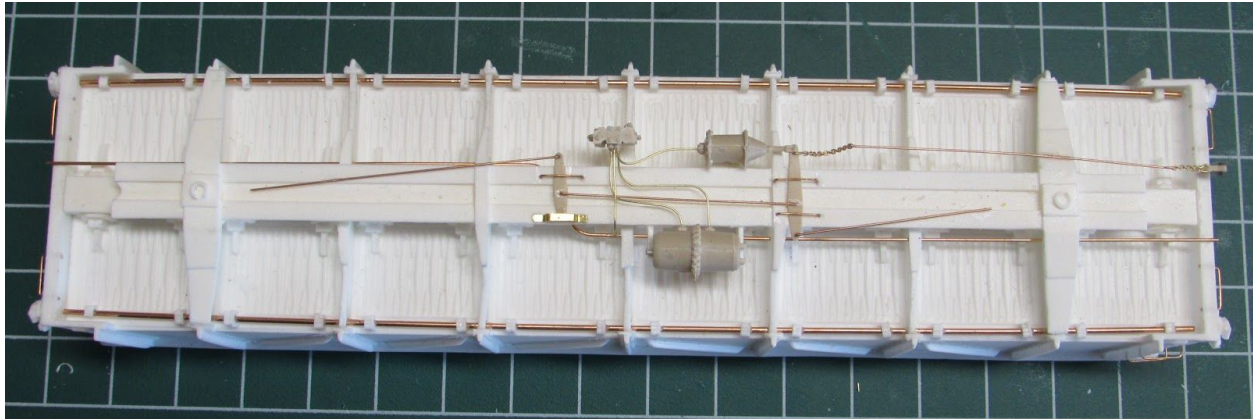
Now take the brake gear housing and drill a hole in the bottom with a #78 or #79 bit for the brake chain. The chain can be frustrating to work with. I find the easiest way is to attach the chain to a piece of .015 wire first. The .015 wire will just fit through an end link. With your fines tipped pliers, 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. Mark a spot on the bottom of the end frame directly below the notch in the brake platform. This is where the bell crank goes. Drill a #65 hole and mount the bell crank. Take the long brake rod from the brake set, and cut the length so when you snap the clevis on 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. 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.

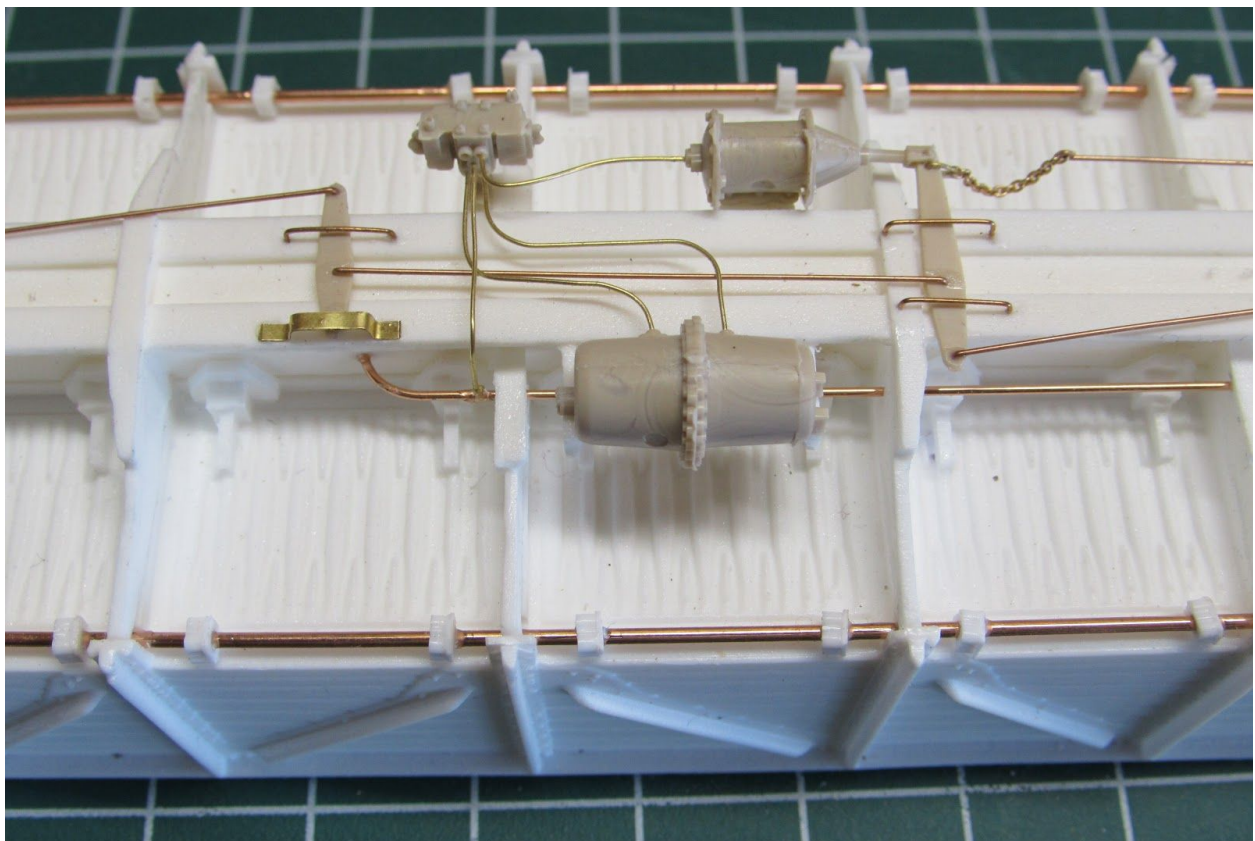
The brake rods are made with the straight .015 wire. First, take the long brake lever and snap one end into the clevis on the cylinder rod, with the lever across the center sill. Lay the short brake lever across the center sill as shown in the photo. Cut a piece of wire to length, allowing



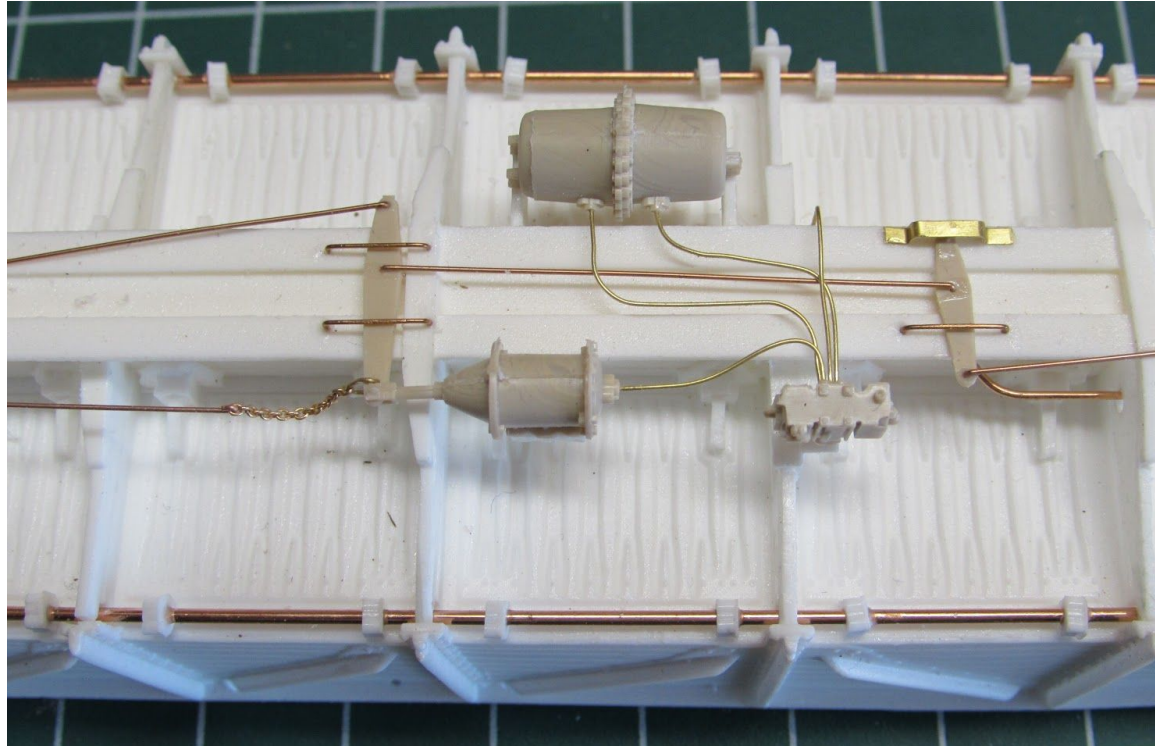
for a very short 90 degree bend in each end. Insert these bent ends into the center holes in each lever. Adjust each lever so it is approximately perpendicular to the center sill, and glue them to the center sill. Drill holes for 3 grab irons used as hangers as shown and glue. There is a brass mounting 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 centersill.



THE B END IS TO THE RIGHT IN THIS SHOT



THE B END IS TO THE RIGHT, SEE WHERE THE HOLES GO FOR THE PIPING

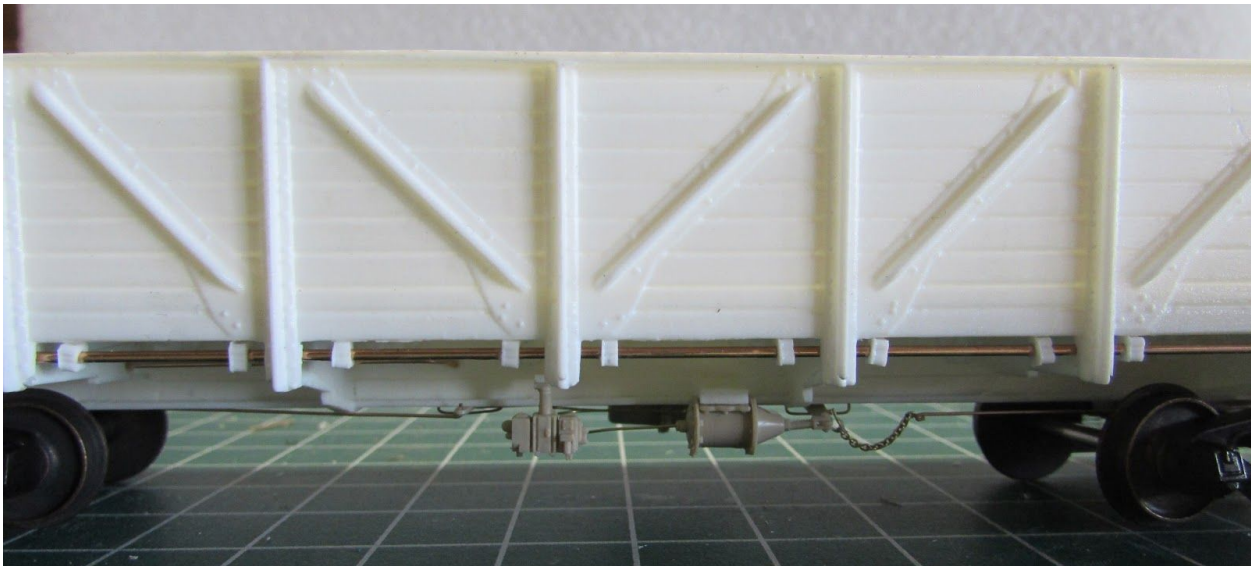
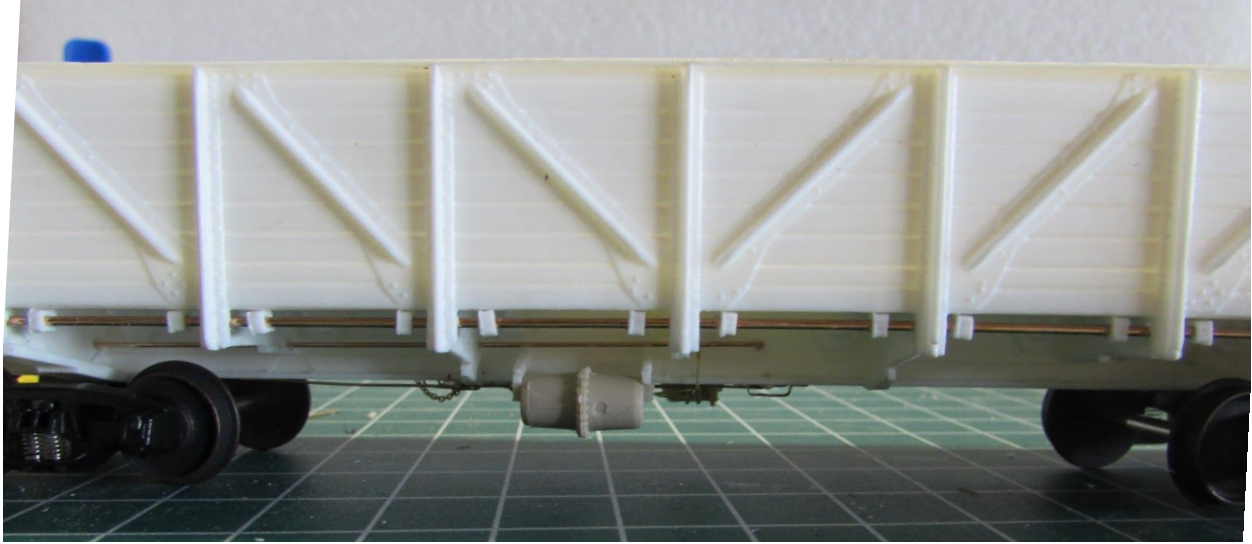


B END IS TO THE LEFT

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 make a straight line from the bell crank to the cylinder rod.

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



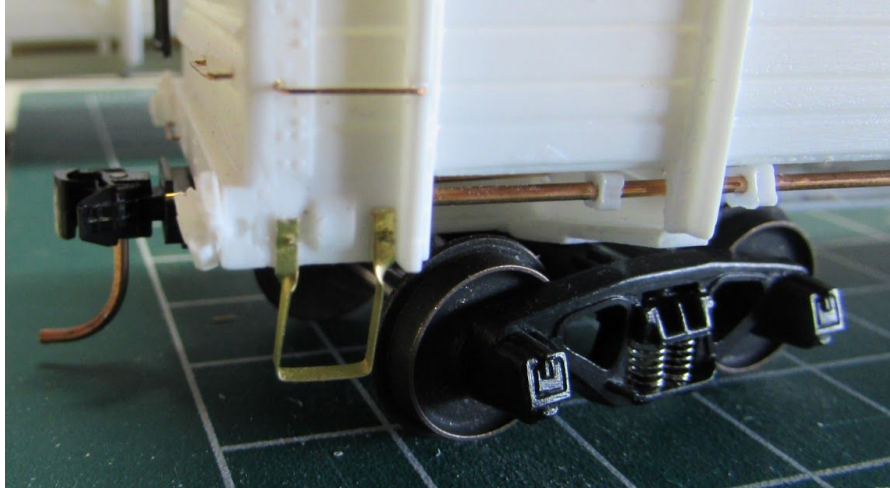


### CHAINS AND BRAKE DETAILS, SIDE VIEWS

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.

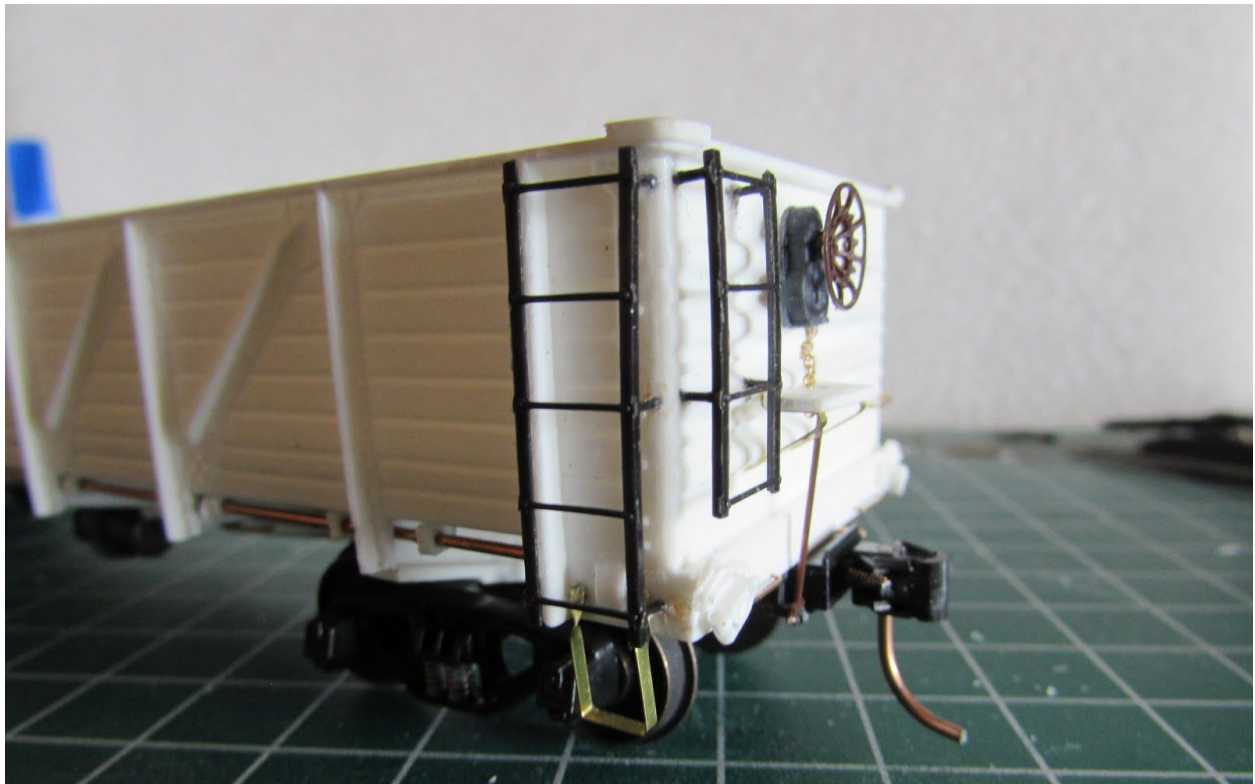
Install the stirrup steps. I have included brass stirrup steps so they will bend instead of breaking. I feel it is essential to pin them on as well as gluing them so they don't break off. So drill a hole in the steps before gluing, and then drill through the car body after the glue has set. I have used 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 a rivet or bolt





### STIRRUP STEP, PINNED KADEE COUPLER AM BETTENDORF TRUCK

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 has 5 rungs. There are dimples for 3 mounting holes under the right hand stiles. Drill these out and notice where they are when you cut the ladder to length and trim the stiles. The left-hand stile of these ladders mounts directly to the rib, so remove the stand-offs on this side. You may want to trim the 3 mounting pins.



### LADDERS, CORNER GUSSET

Cut out the 4 corner gussets, leaving some 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.

The last part I put on is the brake wheel. Drill out the mounting hole on the brake gear housing with a #60 bit and glue it on.

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

Decal. Tichy decals are included unless you ordered the kit without decals. If you ordered the SP decals, you will find a separate sheet with larger heralds. The heralds on the big sheet are too small. Applying Tichy decal heralds requires some different techniques than most decals.

Here is Jim Kindraka's advice.

I agree that Tichy's heralds can be a bit thick. I have been successful using them after learning several great decal techniques from the military modeling folks - who take modeling to unbelievable new levels. Those guys use some super strong setting solutions made by Tamiya and Testor's. I've settled on the Testor's Model Master Solution for complex surfaces. When used correctly I have found it is "spot on" for melting thicker decals into position.

Here are some detailed instructions from Bill Morris

Since they are made with a different process of applying plastic rather than ink to the decal papers clear backing various different methods are required to apply them with great success. The colors are all applied over a base coat of white because the colors are all translucent and without the white base coat they would partly show through to the surface they are applied to. Interestingly some prototype railroad paint did the same thing, and the color variations resulting from being applied over different primer surfaces has caused many arguments and differences of opinions between modelers on the exact colors things were painted. I can provide examples. The white Tichy decals are 1 coat and thus experience much less of the possible issues that I will try to explain how to avoid when applying multiple coated ( colors other than just white ) Tichy decals. Remember if you have issues that I can supply decal set parts to you on an as needed basis to fix the problem area that you may encounter. These decals are thicker where printed than inked silk screened decals.

1) When cutting the decals we use a process for these different from the age old silk screened sets. That is when cutting them from the sheet

cut them out with as much extra clear backing around the image that you can get. This will help the decals snuggle down and give them greater contact area ( holding power ) to the applied to surface. This is opposite to what we used to do with inked decals where we would cut as close to the decals printed ink as possible to avoid a "step" in the surface showing the cut line. After the decal has set we can remove this step with many applications of setting solution, and or roughing up the decal edges carefully and then applying more setting solution.

2) Transfer the needed decal part using warm water as always previously performed. Try not to "poke" the decal with sharp instruments as you may damage the plastic bond to the clear backing it is printed to. Use a soft brush or FOAM covered Q tip or thin closed cell flexible foam piece to position the decals on the surface. This type of foam is commonly used as packing for brass models. You can slice small pieces with a very sharp razor blade. I usually PARTIALLY dry the decal on the backing paper with a small piece of paper towel wicking away the excess water and applying it on the surface where it needs to go after a small amount of decal set solution has been applied to that area. If the decal exhibits signs of not wanting to adhere to the surface have a small container of Elmer's CLEAR glue handy with a brush to apply it. Re-soak the decal slightly with warm water ( I usually use the soft brush for this and move it away from the intended application area then dry the area and put a small amount of the Elmer's CLEAR glue there. Again re-wet the decal slightly and slide it back into place. Pat the decal down with a piece of foam or a Foam covered Q Tip and or the brush. Try to remove most of the glue and water from underneath the decal with the brush a paper towel piece and or a foam covered Q tip. When moving the decal try to move it by pushing or pulling on the clear area only so as not to lift any of the printed plastic from the decal backing. I use tweezers sometimes and or a brush or a wood toothpick. Have all of these tools ready ahead of time. The CRYSTAL CLEAR ELMER's Glue will not show and is compatible with these suggested products. I have used both Walther's Solvaset, Microset, along with Testor's DullCoat and I have not had any issues.

3) If the decal refuses to conform still to the surface heat it slightly with a hair dryer while also intermittently pressing it home with foam or foam covered Q tip and/ or a soft brush. I think that you will find that these steps will work well.

4) Apply a decal setting solution to hide the clear edges of the decal after it has set up sufficiently. I find this time to be at least 3 to 6 hours or more. after you get the edges of the clear backing etched away with the setting solution to a non visible or almost non visible "step" allow to dry for 24 hours. Then gently wash the model in warm water and wipe the areas where the decals have been applied LIGHTLY with a wet brush or damp paper towel to remove any staining from the dissolved clear "step" area. Then allow to dry well again.

5) I have applied Testor's Dull Coat with great results..sometimes applying 4 to 5 light coats to hide any decal edges and protect the decals from abrasion when the models are handled. If you follow these steps you should get good results as I have.

BeSt RegardS  
Bill Morris

I hope you enjoy this kit. I have enjoyed the challenge of producing it. If you have suggestions for improving these instructions, let me know. Please send me photos of your finished car.

Thanks,  
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