Parts Set P126 - Santa Fe BX-34 Modified AAR Box Cars with Duryea Underframe

Otto Perry photo, Denver Public Library

Note

Before starting construction, inspect the castings carefully. The surface may have some "slick" areas that are residual mold release. This can be removed by washing with dishwashing detergent. If the floor casting is not entirely flat, the following technique can be employed to flatten it: heat an oven to 175 degrees Fahrenheit and then turn the oven off. Place the part on a flat surface such as a piece of glass (flat side down and detail up.) After 15 minutes remove the casting from the oven and let cool completely. If should have flattened. If there are any bubbles in the casting, they should be on the "back" surface of the casting and will not be visible once the model is assembled. If you wish, you can fill them with ACC or putty and sand smooth. If there are any castings that are defective or cannot be used, please contact us for a replacement.

History

To all appearances, the Santa Fe was a strong proponent of the ARA/AAR standard designs, building both single and double sheathed cars based upon ARA designs in the 1920s, and steel cars of ARA/AAR design in the 1930s. This continued in the early 1940s with the Santa Fe adding the largest fleet of Modified 1937 AAR design box cars in the Bx-34, -37, and -44 classes. The Bx-34 class was different from the two subsequent classes through its use of the Duryea Cushion underframe.

Instructions

General - please, please, please read first, even if you are an experienced resin freight car modeler

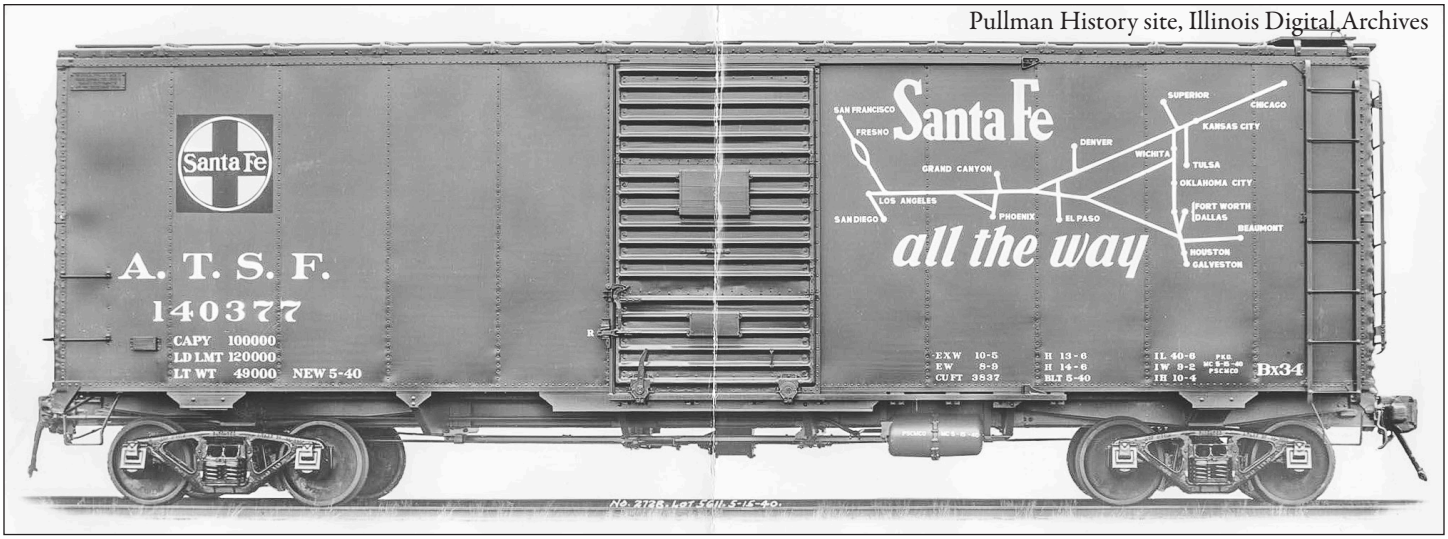
This kit includes some extremely detailed etched parts. They can be fussy and may be fragile if not handled as directed or assembled in a different order than laid out herein. It is recommended in the strongest possible terms that you pay attention to the order of operations and also follow the suggestions for tools (as noted at the end of this section.) Not to sugarcoat it, this was a difficult model for me to build and I designed it! I am already streamlining future kits to improve the experience, but maintain the fidelity to detail. Rest assured that the challenge is worth it. Exercise care and patience and you will be rewarded with one of the finest models in your fleet. One other note: when I created the patterns for this model, some of the things that are used in it now, particularly the etchings, were not even in my dreams. That means that in some instances, the castings must be modified to suit these parts. I will mention those things as the build progresses.

The instructions contain high resolution images. You can print the file or zoom in quite a lot to aid in understanding assembly.

The general order of the assembly is in many ways up to the preferences of the modeler. There are also few things that are optional and require items not included in the kit. These are noted throughout the instructions.

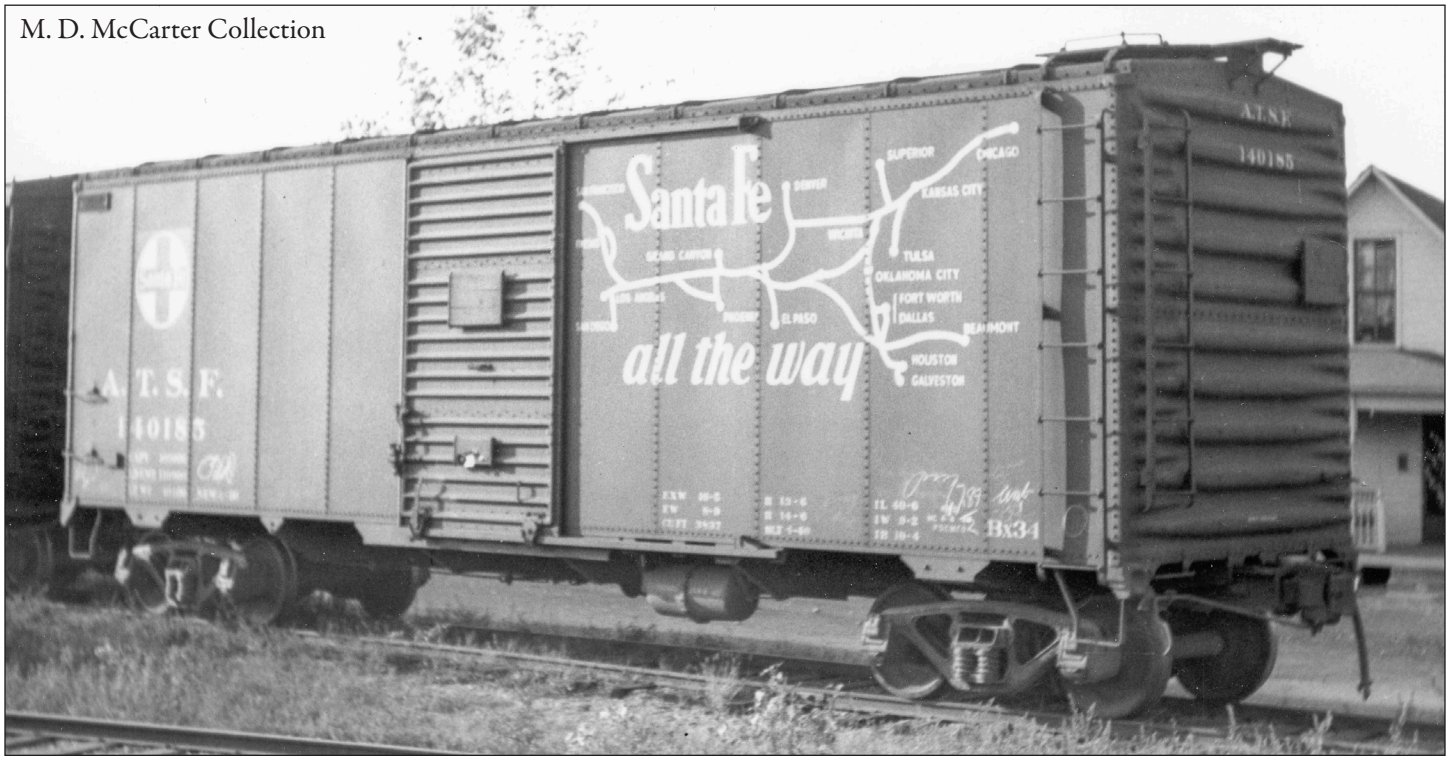
Important note about working with the etched metal parts... Many of the etched metal parts have half-etched "score" lines. These are to be used to aid in folding the parts. *Unless specifically instructed to fold "away" from the score line,* always fold *into* the score lines, meaning that the angle formed by the subsequent bend will "contain" the score line, which will "disappear" into the fold in most instances, such as 90° bends, Also, the etched parts in this kit are quite thin and easy to cut or trim. I recommend the following method: lay the parts fret on a cutting mat and overlay that with a steel ruler. Trim straight down using a chisel blade like an X Acto no. 17. When overlaying with the steel ruler, leave the excess "gate" that joins the parts together exposed and the actual part under the ruler. Yes, this leaves you a little "blind" in terms of what you are cutting, but there are extra parts and

Pullman History site, Illinois Digital Archives



August 5, 1947, PRR siding at Division St., Harrisburg, Bob Charles Collection, Kalmbach Memorial Library, NMRA

M. D. McCarter Collection



Charles Winters Collection

San Francisco, Arnold Menke Collection

you will get the hang of it! If a part bends, you can flatten it by "crushing" it between the mat and steel ruler. Also, while I did not encounter any un- or underfilled holes, it does happen and they can be cleaned out with a drill bit (as referenced in the tools section below).

Suggested tools:

• Tweezers such as these with serrated jaws or these with diamond tips - etchings can be difficult to handle and plain tip tweezers, no matter how high quality, are not the best tool for the job... avoid flying pieces of metal followed by colorful language!

• Etched part bending tool - these devices make bending etched metal parts, especially long narrow ones like ladder stiles, much easier - I use the 195mm Piranha, but UMM-USA carries many types.

• Drill bits - all drill bits are not created equal. I purchase mine from McMaster-Carr for quality and durability. I also recommend this specific one to have on hand to "ream" holes in etchings in case you find one that is not etched completely. Yes, it is an expensive bit, but I use it only for this purpose.

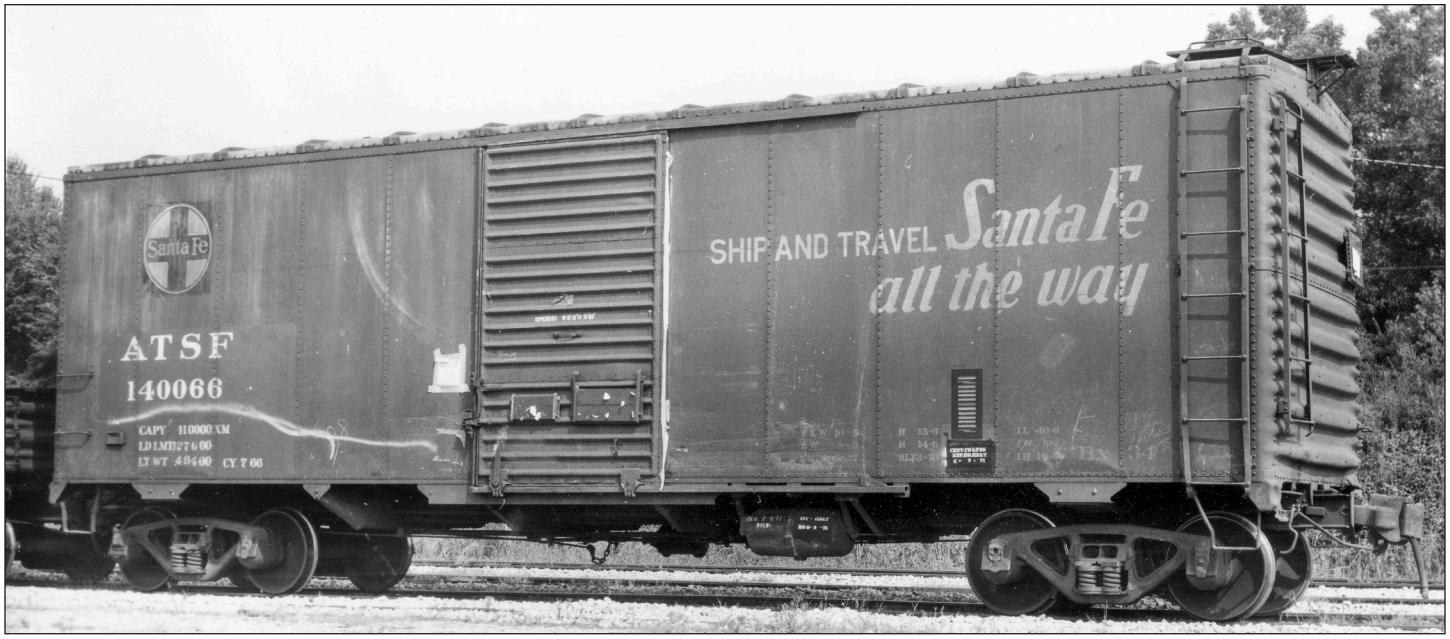
• Square - I recommend having a tool grade combination square in your arsenal, but for this model, I use it to "finish" the bends in the ladder stiles. Yes, it's expensive, but I use it all the time!

Parts List:

• Resin castings (floor/underframe, detail castings)
• Decals
• Etchings (two frets)

Extra Parts and other optional items (not included):

• 0.008" wire
• 0.010" wire
• 0.012" wire
• 0.015" wire



Camden, Alabama, August 14, 1971, Howard Ameling Collection

- 0.020" wire
- Retainer valve
- Screws (2-56 and 1-72, one and two pair each, respectively)
- Washers
- Tichy AB brake sets (or similar)
- Kadee couplers, pair (or your preferred option)
- Coupler pockets (draft gear)
- Moloco angle cock/air hose, pair
- Chain
- Nut-bolt-washer (NBW)
- Branch pipe tee
- Scale Hardware 0.4mm brass rivets
- Plastruct 0.010" styrene rod
- Paint
- Weathering media
- Chalk mark decals
- ... and, of course, a Modified 1937 AAR box car kit. I used a Sunshine Models kit since it is easier, given that the underframe is separate anyway. Another obvious choice is the Intermountain Modified 1937 AAR box car kit, with the floor removed.

Assembly Sequence

◊ Begin by cleaning up the floor casting. It can be rubbed on a piece of medium grit (220 or 320) sandpaper on a flat surface. Carefully file the edges to clean them up as well. Compare the floor to the opening inside the car body to assess the fit. If anything, you may have to remove material from the ends and perhaps a small amount from the sides. The ideal tool for removal of material from the ends of the floor/underframe casting is a tool like the True Sander, which squares up the edges. When satisfied with the fit, you can move to the next step. Do not glue the floor in place yet! It is possible that the floor fits into the body better one way than the other. If so, use something to mark the orientation (I often mark an 'X' on both the floor and the body so I maintain that orientation.)

◊ Drill the underbody for the truck screws. The truck screw holes should be drilled with a no. 50 bit. Do not do anything at this time to adjust the bolsters vis-à-vis truck and coupler height. That will be addressed later in the build. Add desired amount of weight to the floor.

◊ Begin creating the center sills. Add the upper cover plate/"spreader" to the floor, carefully centering between the edges of the floor casting [PHOTO 1.] Digital calipers are extremely helpful tools for this step (and many others, as well.) It can be helpful to tack in place with sparing amounts of a 50/50 mix of solvent (such as MEK) with Barge cement or Goo, followed by application of ACC to secure in place.

◊ Next add the two center sill sections [PHOTOS 2 AND 3.] These sit on the "lip" of the upper cover plate/"spreader"and against the upper cover plate/"spreader." See photos. Secure with ACC. Proceed in steps rather than trying to glue all at once, ensuring that the sills nest snugly into the angle of the upper cover plate/"spreader"and against the outer faces of the upper cover plate/"spreader," as well.

◊ Add the bottom, riveted center sill cover plate [PHOTOS 4 and 5.] It is again advisable to tack in place with sparing amounts of a 50/50 mix of solvent (such as MEK) with Barge cement or Goo, followed by application of ACC to secure in place.

◊ Remove the side sill support tabs and bolster tabs from your model, e.g. the Sunshine, Intermountain or other kit that is the basis for this project. Take care to maintain a straight bottom edge of the car side. If you are scratchbuilding the lower corner junctions of the sides and ends, then these portions should be removed from your base model now, as well. On the pilot model shown herein, these were scratchbuilt. If you are unsure, you can read ahead and look at the photos to aid your decision making. Just know that these details on the Bx-34 (and Bx-37) were different than on a "standard" Modified 1937 AAR box car. Add the ends to the body or assemble the body "box" depending upon which base model you are using. At this time, you should also

Walter Frost Collection, Vancouver Public Library

choose a 'B' end for your model and mark in a way that you can easily identify it. Note that if you are using the details included in this parts set, many or all (depending upon the level of detail you choose) of the holes in the Intermountain kit for ladders, brake details, etc., should be filled and sanded smooth (if you are using an Intermountain kit.)

◊ Add the side sill support sections below the door openings [PHOTOS 6-9.] These are the long "tabbed" sections. It is important that they are centered. They should be attached on edge to the bottom face of the side sill, with their faces aligned with the faces of the side sill or in other words, they should be recessed or stand out from the side sill. Again, it is advisable to tack in place with sparing amounts of a 50/50 mix of solvent (such as MEK) with Barge cement or Goo, followed by application of ACC to secure in place.

◊ Remove the crossbearers from the resin detail sheet. Take note that the flanged sections of the center crossbearers face each other (towards the center of the car) while the flanged sections of the outer crossbearers face towards the ends. See photos. The train pipe (or trainline if you prefer) passes through four of the crossbearer sections. Using the etched template that is shaped like the crossbearers, drill holes to accept the train pipe, with a no. 70 drill bit. Also drill holes in the webs of the bolsters in corresponding locations that will allow the train line to pass through the bolsters.

◊ Add the etched zee bar segments to the crossbearers [PHOTOS 10-12.] Note that on the prototype, these passed through above the center sills (above when the car was on the rails.) However, the model only uses the visible sections for ease of assembly. These incorporate two bends to create the zee bar shape. They are glued in place with both the solvent–Goo/Barge cement mix as well as ACC. See photos.

◊ Add the floor to the car body. The plane of the surface of the floor should be even with the bottom edges of the car sides and ends, with the "pad" from the couplers NOT level with the bottom of the ends. On the prototype, the floor boards were not flush with the bottom of the side and end sills, but for our HO scale purposes, the way we are doing things is okay. The floor should be secured with ACC. Note that on your model, the roof should still be removable to allow you to add weight to the model at the appropriate time (although you may have already added it.)

◊ Add the draft gear (coupler pockets). These extend about 12 scale inches from the end sill of the car. Secure using screws.

◊ Add the center crossbearers to the model [PHOTOS 7-9,] Each is comprised of two, one on each side of the center sills. They should align with rivets on the tabbed sections that you previously added under the side sill. The "plain" side of each (the flat side of the crossbearer section without the flanged detail) is 2'11¾" from the center of the car (or 0.41" in HO scale.) There are small plates located between where the crossbearers abut the center sills. The edge of these plates is wider than the crossbearer with the excess aligned with the zee bar sections that were added to the crossbearers. See photos for clarification. Secure the plates and crossbearer sections as shown in the photos, taking care to ensure that the sections on opposite sides of the center sills are aligned. Secure with ACC. *Make sure that the crossbearer sections with holes for the train pipe are in the correct locations!*

◊ Add the second set of crossbearers [PHOTOS 16-17.] The "plain" side of each (the flat side of the crossbearer section without the flanged detail) is 6'0$\frac{3}{16}$" from the plain face of the adjacent crossbearer (or 0.829" in HO.) First add the small tab segments in the appropriate locations. These are tiny resin parts. Note that the right one has one "square" edge while the edges on the left tab are both angled. Also, for this set of crossbearers, the plates between the center sills and the crossbearers extend beyond the crossbearer in both directions, unlike on the first set of crossbearers. Again, consult photos, and *make sure that the crossbearer sections with holes for the train pipe are in the correct locations!*

◊ Add the bottom zee bars to the crossbearers [PHOTOS 13, 16, 17.] Unlike the upper ones, these are easily visible and are

replicated in "full." Each one spans across the center sills to join the two crossbearer sections. These were secured with both the solvent–Goo/Barge cement mix as well as ACC. See photos.

◊ Add the bolster bottom cover plates; *note that in your kit these are cast resin parts, NOT etched metal parts* [PHOTOS 16-17.] These are resin parts, rectangular in shape with rivet detail (on the pilot model, these are etched metal with rivets added separately; take note of this difference!)

◊ If you plan to modify the lower corners to replicate the prototype, now is a good time to do so as the handling required might be detrimental to detail parts if they are added first [PHOTOS 18-24.] I will refrain from a blow-by-blow of how I created these details, but will provide a little context. The main structure of the lower corners is an angle created by two pieces of styrene that will be hidden behind the detail once it is added. These "angles" were trimmed to match the shape of the prototype. I added 0.005" styrene to the bottom of the end and at the lower corners, with excess as shown. It was also wrapped around the lower corners. Once dry, it was trimmed to shape to match the prototype. Rivets were left off until much later in the process to prevent damage top them during further construction and sandblasting. 0.005" styrene can "pit" through the use of solvents; the grey color on the styrene is Tamiya Surface Primer (in a jar) that was spread and sanded to fill these pits. The push pole pockets are round styrene disks glued on and drilled and filed to replicate the prototype's shape.

◊ Add the brackets for the brake cylinder and AB valve [PHOTOS 25-26] (note that depending upon the brake parts that you use, you may need to assemble the cylinder and/or reservoirs and also pre-drill the parts to accept wire brake "piping" prior to adding these brake parts.) *Take care to orient so that the angled front of the cylinder will point toward the 'B' end of the car!* The cylinder bracket is comprised of the mounting bracket (a fairly wide "strap") plus a zee bar support that spans the crossbearer sections. The best way to simulate this is to have the strap attached to the face of the floor stringer and also nesting into the *very, very* small lip between the center sill and center sill bottom cover plate. The zee bar can be glued to the back side of the cylinder bracket and the two crossbearer sections. The cylinder bracket strap has two half-etched lines to guide where to bend (be sure to bend *into* these lines so they are "hidden" once bent.) Add the AB valve bracket, as shown, with several bends and attached to the face of the floor stringer and the bottom of the side sill.

◊ Add the two strap brackets to the lugs on the reservoirs [PHOTOS 27-30.] Note that when the car is on the rails, the strap for the single lug passes *under* the lug and for the double lugs, it passes *over* the lugs. Holes may be drilled in the lugs so that wire can be threaded through the lugs and the holes in the straps. There is also a small bracket that supports the single lug and is also attached to the adjacent crossbearer. Add the straps (and reservoirs!) to the underbody. Make sure that if you are adding piping that you drill the reservoirs to accept wire "piping" before adding the reservoirs to the underbody. Consult photos.

◊ Add the pipes between the AB valve and the cylinder and reservoirs using 0.012" wire [PHOTOS 29-35.] The pipes between the reservoirs and AB valve should pass a closely as possible to the bottom of the center sill cover plate.

◊ Add the train pipe [PHOTOS 33-41.] The one on the model shown is 0.020" wire and was created in two segments, with each one terminating across from the AB valve, where the dirt collector is (would be) located. There are a complex series of bends to allow the pipe to pass through the crossbearers, but then be routed between the center sill bottom cover plate and the long angles that span the crossbearers.

◊ Add the dirt collector (if your AB brake set has one) and pipe between the dirt collector and train pipe. The dirt collector shown on the pilot model is from the Tichy AB brake set, the "pipe" is 0.015" wire and the branch pipe tee is a resin part offered years ago by Tom Madden, although a similar part could be fashioned from short segments of hypodermic tubing or styrene rod with holes to accommodate the two "pipes."

◊ Add the long angles that span all four sets of crossbearers [PHOTOS 36-41; 46-47.] Each "angle" is actually comprised of two long angles that abut along a common face and are attached to the zee bars on the crossbearer bottoms rather than to the crossbearers themselves. I found it easier to add the outer long angle first, aligned with the edge of the center sill cover plate and then add the second angle to the angle already in place. This technique was then repeated for the other angle. I used the solvent–Goo/Barge cement mix followed by ACC. See photos.

◊ Add the brake levers and rods [PHOTOS 46-48; 50-51.] The pilot model shown herein used clevises that were formed by bending etchings. These "clevises" have holes that can be aligned with holes in the brake levers through which wire can be inserted, glued, and trimmed to create a secure and highly realistic arrangement, as shown in the photos. The dead lever (the one not attached to the cylinder) employed an interesting bracket that was attached to the face of the center sill and through bends in the metal created a place where the lever was mounted. There is an etching to replicate this arrangement. The levers and rods are just below the long angles (below, meaning closer to the rails when the car is on its trucks and "upright.") There are three lever hangers that are attached to the long angles, as shown. The brake "rods" are 0.010" wire.

◊ Complete the underframe. Add the etched plates on either side of the bolsters, to the "face" of the center sill and the draft gear [PHOTO 42] ("coupler box.") Next, add the trapezoidal sections between the bolsters and first crossbearers. At this time, *do not* add the trapezoidal sections between the bolsters and end sills.

◊ Fabricate the ladders. You have a couple choices to make in this step. The ladders are an exact match to those of the Bx-34 in terms of stile details and tread (rung) width and spacing. There are jigs to aid in assembly of the ladders. We use the following technique, although you may find that you work better with another. At the end of this section, we also offer a couple suggestions should you wish to pursue a different avenue. Ensure that the holes in the jig

are free and clear. We use a drill bit for that: I recommend this specific one to have on hand to "ream" holes in etchings in case you find one that is not etched completely. Then glue a strip of styrene (0.060" x 0.080" is what we used, but something similar that you have on hand will work, too) using the solvent–Goo/Barge cement mix followed by ACC. Then glue that assembly to a piece of sheet styrene with your favorite solvent cement, e.g., Testors, Tamiya, Tenax, MEK, etc. Add 0.010" wire into the four holes (top and bottom on each stile = four total) and secure these wire segments in place with ACC. Leave about ⅛" wire extending from the face of the jig. Ensure that the holes in the ladder stiles and treads (rungs) are free and clear, as described above. Trim a pair of opposing stiles free from the fret and bend along the score line (a bending tool like this one will make this job infinitely easier and the bends will be more square and true.) Thread the stiles over the pieces of the wire in the jig, with the "leg" formed by the angle in the stile facing out and "over" the edge of the jig, with the two stiles forming mirror images of each other. Using a piece of Plastruct 0.010" styrene rod, add the rod and a rung to the jig. Flood the stile/rod/rung combo with solvent cement. Do the same for the other side of the rung, gently pushing both rungs against the faces of the stiles. Repeat for the remainder of the rungs, except top and bottom since those holes in the stiles are filled with the wire from the assembly jig. Let dry. Once dry, add *very* sparing amounts of ACC to the stile/rod/rung joints using the fine point of a pin or needle. Let dry. Carefully trim the rods almost flush with the rung – we use P-B-L Swiss-made sprue nippers for this. Carefully remove the ladder assembly from the jig and flip it over on to a work surface. Add more sparing amounts of ACC to the back of the rod/stile joint. Let dry and trim with the sprue nippers. The back need not be entirely flush cut. Set aside and repeat for the other ladders. *Remember that the top and bottom rungs have still not been added to the ladder at this point*.

◊ Add the ladders to the car body. Please read carefully as this could be confusing. The brackets have a visible part that attaches to both the car side (or corner on the right) as well as to the side face of the ladder stiles, plus a part of the bracket that folds back on itself to provide a small "ledge" which the stile rests on to provide the proper amount of offset from the car body. See photos. In addition, the ladders are "pinned" through both rung holes at the top and one at the bottom, meaning a piece of wire is passed through the hole in the rung and stile, as well as the car body providing a hard to see, yet solid form of attachment. The holes in the car body need to be pre-drilled and should be slightly larger than necessary, allowing for a little play in locating the ladders in the proper spot and orientation on the carbody. The "pins" are glued in place with ACC, while the stiles and rungs are still free to "float" over the wire. The brackets referenced before are glued to the stiles with the solvent–Goo/Barge cement mix. Next, the stiles are carefully pushed down until the ladder brackets rest against the car side and then the rung/stile is secured in place with ACC. Voila! Realistic brackets and solid attachments. Repeat for the end ladders, except that the right brackets are quite short, so there is no "wraparound ledge" on the right hand end ladder brackets. Bonus points: rivet decals (not included) can be added to the brackets to simulate the mounting rivets of the prototype.

◊ *Alternate ladder strategies:* the simplest option is to use the ladders from your kit and attempt to modify them to match the prototype as closely as you can (or dare!) You can also use the ladder stiles included in the kit, open the holes a bit more and use commercial wire grabs instead of the rungs. The ladders, either "full" kit assemblies or wire grab ones can be attached by "pinning" without the brackets, easing that part of the detailing process, yet still providing a solid attachment. It's your model and the choices are yours!

◊ Add the center sill "rails" and brackets above the draft gear [PHOTOS 43-45; 49] (coupler boxes.) Simulating the rails of the Duryea underframe is a challenge, given their diminutive size when scaled down to HO. We tried several options and the one provided here proved to be the best compromise of fidelity and feasibility. Each rail is an I-beam assembled from three etchings: one main "strip" and two strips with half-etched lines into which the two edges of the main strip nest, creating a simulated I-beam. Granted this is a fragile assembly, but the location of the I-beam between the bottom of the car end and the top of the draft gear and routing through the end sill bracket provides a measure of stability. Consult photos to see how these are oriented and how far they extend from the car's ends. I assembled these using the solvent–Goo/Barge cement mix followed by ACC to firm things up. The rails pass through "brackets" that mount to the bottom of the car end. The brackets have a cutout through which the I-beam assembly passes. There are a couple sizes of brackets as your model may accommodate one size better than another. These brackets can be mounted to the ends using 0.010" wire. I used the following order of operations: I added the rails using the solvent–Goo/Barge cement mix, which held the I-beams in place, but allowing some adjustment as necessary. I slid the brackets over the I-beam rails to identify where to drill holes. I drilled no. 78 holes in the bottom of the ends. I then slid the brackets over the I-beams and secured them to the ends with ACC. Consult photos to aid your efforts.

◊ Add the trapezoidal torsion braces on either side of the bolsters [PHOTOS 50-51.] These butt up against the center sills. The ones at the end of the car back up against the brackets that were mounted to the ends in the previous step. Consult photos.

◊ Add the brake details to the B end [PHOTOS 49; 65-68; 75.] The hand brake housing, pressure retaining valve, and brake step all use etched metal brackets/supports. They may be added as shown. Note that the retainer valve is mounted to a bracket that is mounted to the face of the end of the roof, not to the end. All brackets/supports were secured with 0.010" passed through the holes in the etchings and into holes drilled into the model. The wire from the hand brake housing to the bell crank is 0.012" wire with 40 links/inch chain at top. The retainer valve pipe is 0.008" wire. The brake step is an etched metal part from Yarmouth (there are extras in the Yarmouth parts) and the hand

wheel is from Kadee (Ajax.)

◊ The method to mount the end sill grab irons has proven to be mostly a fail on my part. Mea culpa. I included "brackets" that mount to the end sills for the "legs" of the grabs that are closest to the couplers and added discs to simulate the mounts. This proved a little fiddly. It can be accomplished but the diminutive size of the mounts and the fact that they are mostly circular makes them hard to handle! One leg of each grab mounts into the lower corner of the side/end junction and the other passes through the "slot" in the bracket mounted on the end sill. Apologies if this is difficult. I will try to improve for future models. I am always straddling the tightrope of fidelity versus buildability.

◊ The angle cocks/air hoses are mounted using brackets that attach to the bottoms of the end sills, adjacent to the coupler pockets/draft gear [PHOTOS 65-68.] I used "rubber" angle cock air hose parts from Moloco (P-B-L/Hi-Tech also offers such details) that were secured by passing 0.006" wire through the holes in the brackets to simulate the U-bolts used on the prototype. These were secured with solvent–Goo/Barge cement mix followed by ACC. The brackets themselves were attached with 0.010" passed through the holes in the etchings and into holes drilled in the end sills. Due to the extended draft dear of the Duryea underframe, these extend farther from the end sills than typical.

◊ The uncoupling devices use brackets that are created from etched metal parts [PHOTOS 67, 75.] The brackets were attached to the lower left corners of the ends, again using 0.010" passed through the holes in the etchings and into holes drilled in the lower corners of the carbody. The levers themselves were bent from 0.010" wire using beading pliers, as shown.

◊ Add the running boards [PHOTOS 52-57; 59-62.] The etched details include all of the end bracing, including the diagonal straps that span between the end of the running boards and the top of the car ends and also the "straps" that support the latitudinal running boards and mount to the face of the roof edge. Again, these can be secured using 0.010" wire. The corner grabs on the latitudinal running boards are 0.008" wire with eyebolts bent from 0.008" wire. I also added Grandt Line nut-bolt-washer castings at each point. The running boards themselves were created from two layers of 0.010" x 0.060" strip styrene. The first layer spanned the entire length of the car roof, spaced apart 0.015". The second layer was added on top of the first, but with "breaks" in the same locations as on the prototype. The latitudinal running boards are 0.015" x 0.060" boards, 27 scale inches in length.

◊ The doors on the pilot model shown are modified versions of the doors in the Branchline Yardmaster 1937 AAR box cars kits. The key thing is that the area below and behind the door roller hardware should be "free" to accommodate the etched metal door tracks. After you have glued your doors to the model, remove the brass door tracks from the etched metal parts fret and bend. It is *highly recommended* that you use this tool for such bending as it makes the bending a breeze, even significantly better and easier than other etched metal bending tools. Seriously... trust me! If you plan to purchase other Speedwitch offerings in future, it will pay for itself in clean, straight bends and frustration avoided. Tack the door tracks in place using something similar to (or the same as) the solvent–Goo/Barge cement mix. The door track brackets are etched metal parts that nest against the underside of the top of the door track and also against the car body [PHOTOS 70-74.] Of the eight brackets, the four under the door opening ("1" through "4," left to right, and "5" attach to the face of the center door/side sill support section and "7" attaches to the face of the small tab at the crossbearer. The other two have small bits of scrap styrene attached to the bottom of the side sill for strength. You will note that these brackets have two etched "slots." When the brackets are bent, these slots can accommodate tiny triangles that are included in the etchings. For sanity's sake, we left them off our model. You are free to add them if you choose. The door stop is also an etched piece that is bent and attached to the top of the door track above and slightly to the right of the small tab at the crossbearer. Consult the photos for detail.

◊ Unlike most cars of the era that used bracket grabs on the car sides, the Bx-34 employed traditional iron grab irons. They were created from 0.008" wire with mounting details of punched 0.005" styrene discs and rivets in the center.

◊ The kit includes cast resin placard and route card boards that match those used on the prototype. There are also etched brackets with "ears" that match the prototype [PHOTO 58.] These brackets should be attached to the backside of the boards and the entire assembly added to the doors and ends (in the case of the placard boards.) Note that because of the doors I chose to use, the route card board is actually one corrugation too low on the door, as compared to the prototype! I had to cover the remnants of the cast-on board and decided to live with the inaccuracy. The etched parts also include the "backing" for a defect card holder [PHOTOS 68-70.] I added a piece of scrap styrene and rivets to the backing to simulate the defect card holder (note that there is only one defect card holder on a car and on this prototype it is at the lower left on the Right side of the car body.)

◊ The sill steps are etched metal parts and are bent and attached as shown. They are delicate and that is why they are the last step in construction. They were attached by drilling no. 80 holes and securing with 0.010" wire.

◊ The prototype used two different trucks: National B-1 or spring plankless cast steel sideframe. The former are available from Proto 2000/Walthers, Kadee, and Athearn and the latter have been offered by Intermountain in a type that is an *exact* match to the Santa Fe prototype

◊ It is highly recommended that you brush on a coat of Future, Quick Shine or a similar protective coating besides paint to ensure that any rivets or similar details that you may have added are not accidentally flicked off at some point.

◊ Construction is complete! Before painting the model, we recommend lightly sandblasting all metal and engineering plastic surfaces with aluminum oxide to ensure that the paint will not chip or flake. This should be followed by a washing using liquid dishwashing detergent and a soft toothbrush, taking great care to

avoid delicate parts and assemblies. Rinse thoroughly and allow to dry completely.

◊ We highly recommend painting using an airbrush. Prime the model with your choice of primer. The pilot model was primed with grey primer from the Badger Stynylres line. The sides, ends, and underframe (as well as trucks) were painted with Polly Scale ATSF Mineral Red. The roof was painted with Tamiya black. Add a gloss coat to aid in decal adhesion.

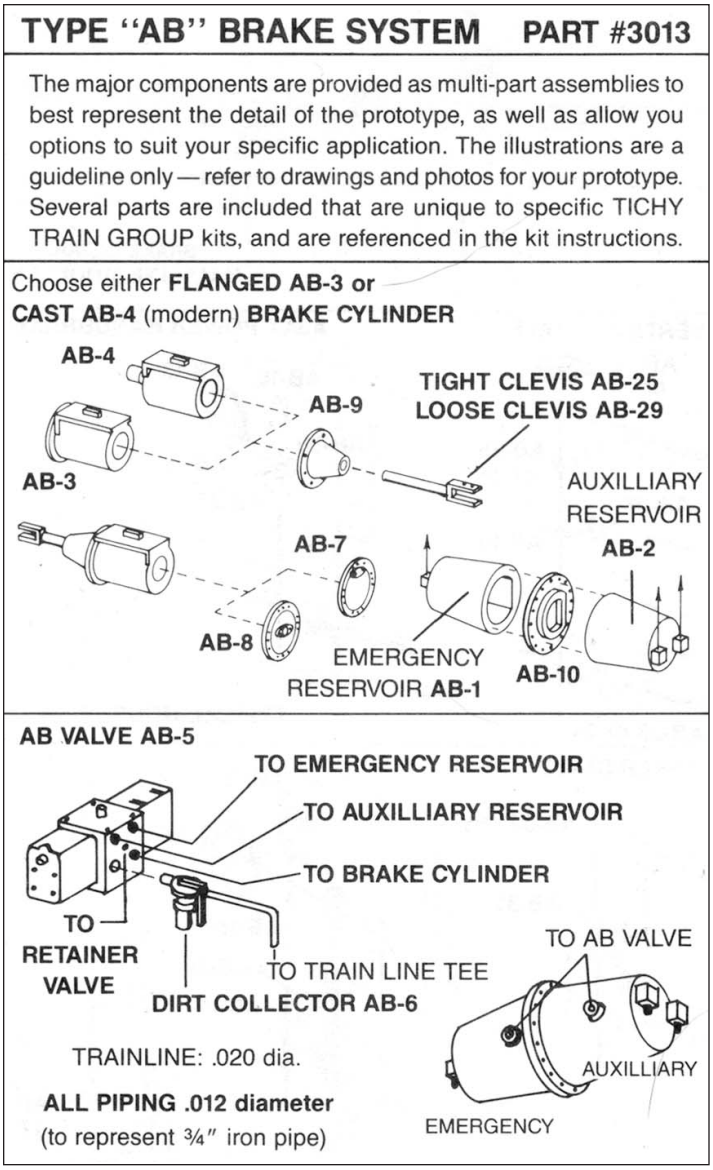
◊ For decaling, our recommended approach is to apply the decals with only water. After sliding them in place (with a dull object) let them dry *mostly*. Apply decal setting solution by touching the edge of the decal with a brush that has the solution on it and letting capillary action pull the solution under the decal. Again, let the decals dry thoroughly. After they have dried again, add setting solution over the entire decal and let that dry (and don't panic if the decals wrinkle or pucker a little when wet). After they have dried yet again, using a sharp knife, slit any areas where there are bubbles or silvering. Add decal setting solution. Keep repeating until all traces of air are gone. Add a gloss coat to seal the decals and hide the edges of the film. Add a flat coat.

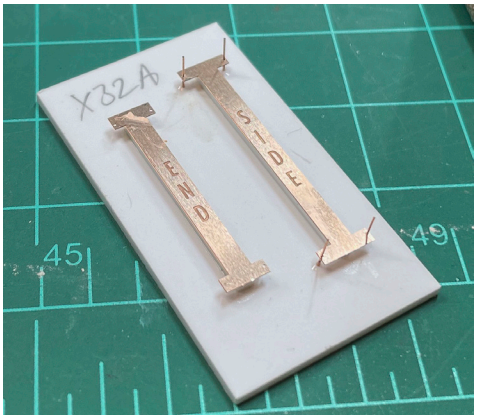
◊ Weather to your preference, add reweigh and repack stencils, and chalk marks, and your model is ready. Congratulations!

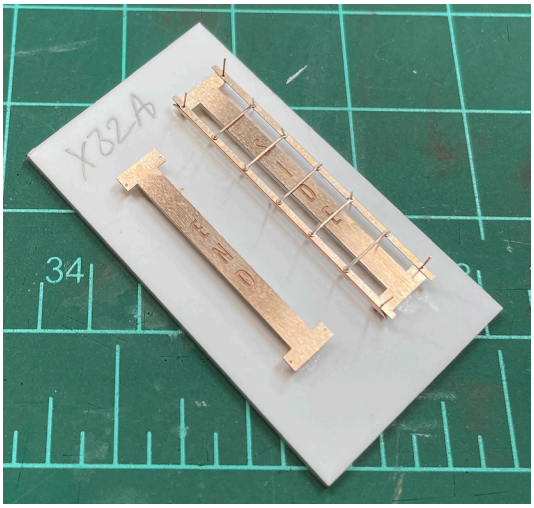
◊ I have written up the finishing of my model at my blog: Prototype Railroad Topics

This effort would not be a success without the aid and efforts of others. Thank you to:

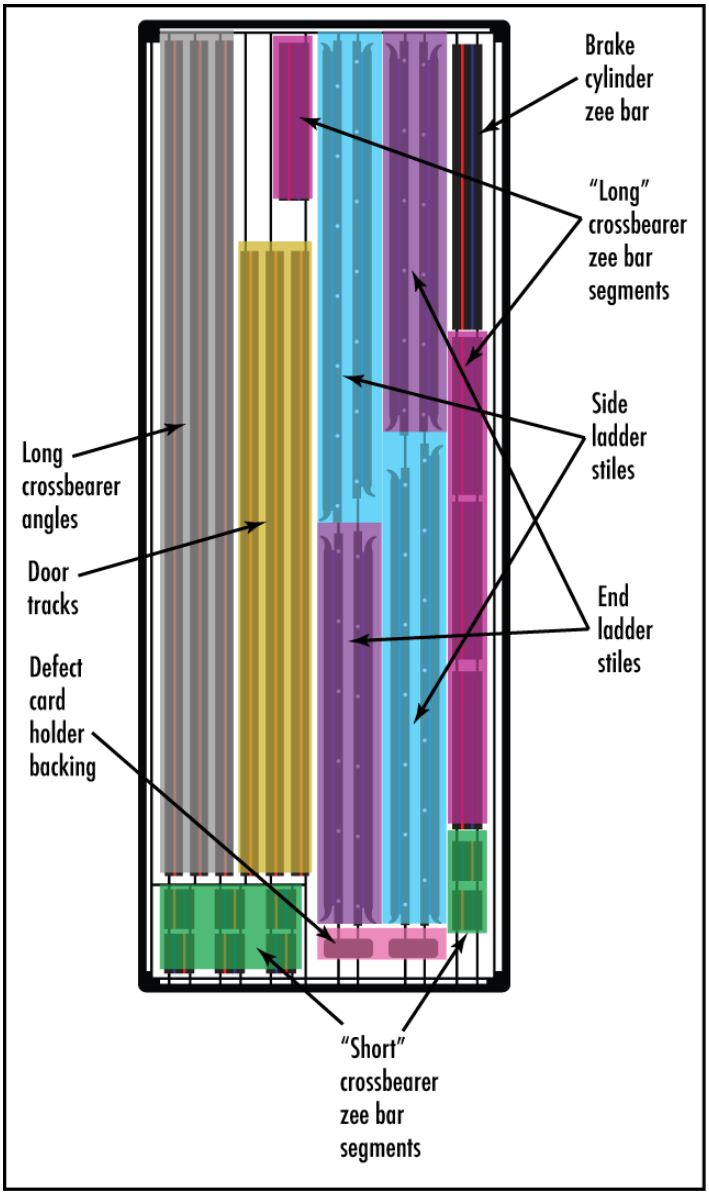
- Ron de Pierre for casting of the original patterns
- Tom Madden, Ron de Pierre, and Jim Harr for much help in getting my casting efforts off the ground
- National Scale Car/Ryan Mendell for development of the underframe components
- Tichy Train Group

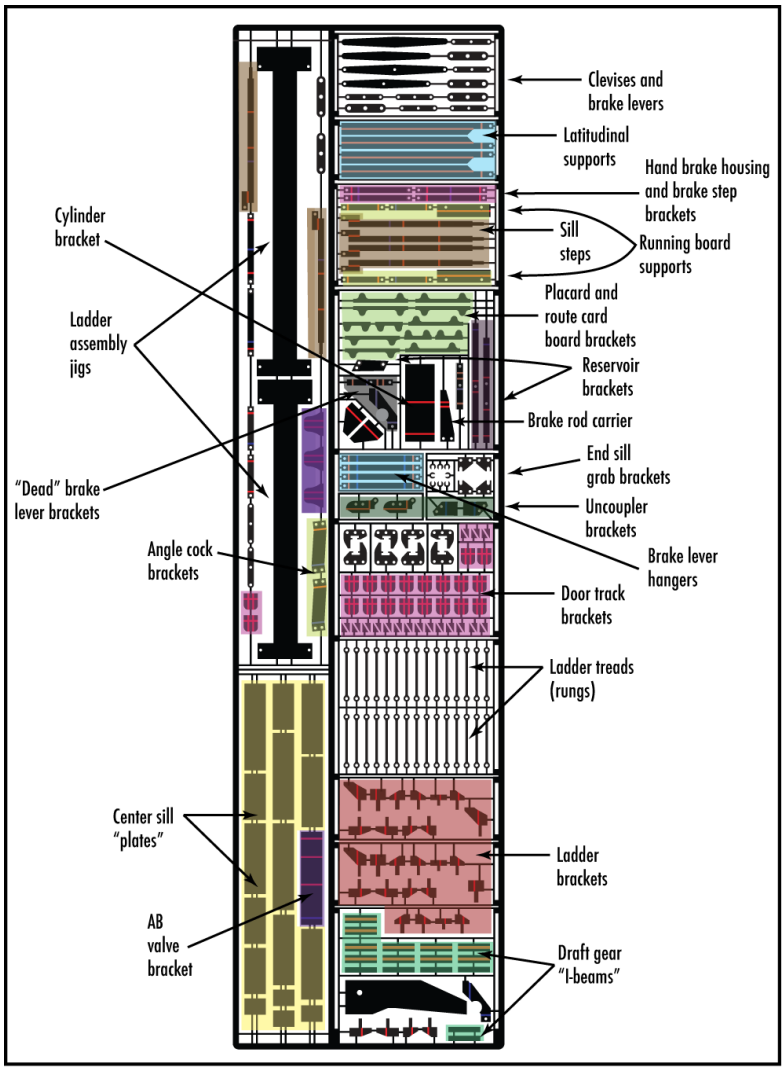


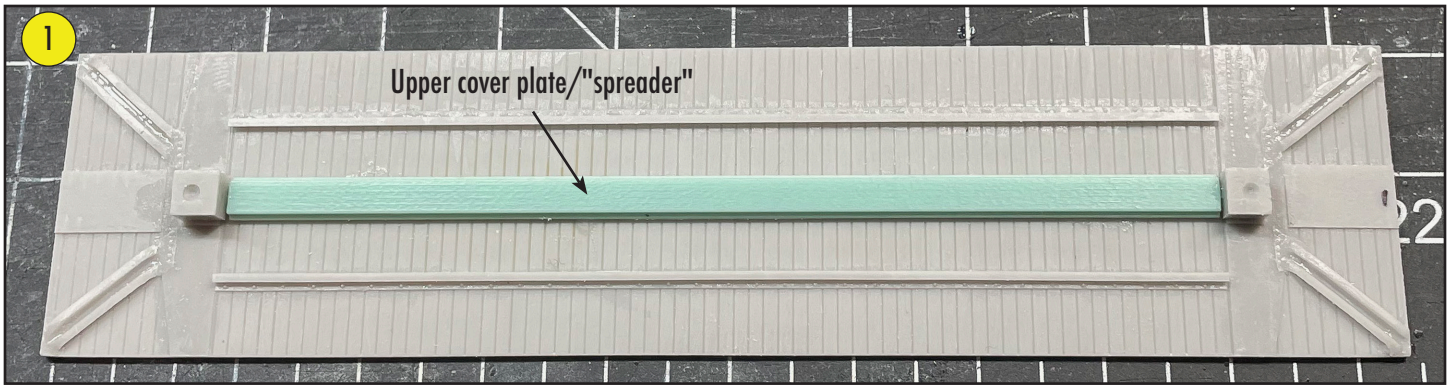




While not the ladder assembly jig from this kit, these three images illustrate, L to R, the wire placed into the jig at top and bottom, the stiles held in place by the wire, and the rungs assembled into the stiles (except those at top and bottom)


Brake cylinder zee bar
"Long" crossbearer zee bar segments
Side ladder stiles
End ladder stiles
Long crossbearer angles
Door tracks
Defect card holder backing
"Short" crossbearer zee bar segments


Clevises and brake levers
Latitudinal supports
Hand brake housing and brake step brackets
Sill steps
Running board supports
Placard and route card board brackets
Reservoir brackets
Brake rod carrier
End sill grab brackets
Uncoupler brackets
Brake lever hangers
Door track brackets
Ladder treads (rungs)
Ladder brackets
Draft gear "I-beams"
Cylinder bracket
Ladder assembly jigs
"Dead" brake lever brackets
Angle cock brackets
Center sill "plates"
AB valve bracket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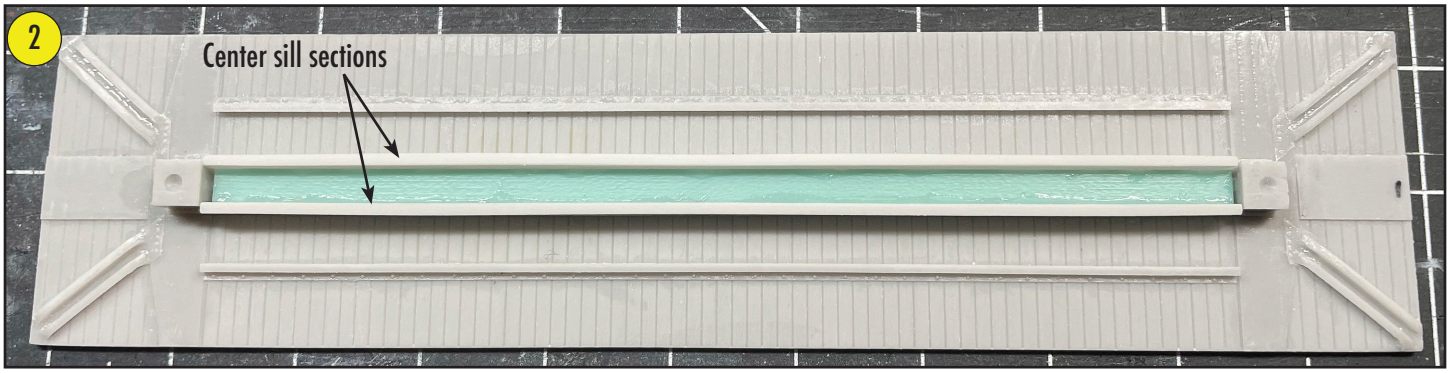
Upper cover plate/"spreader"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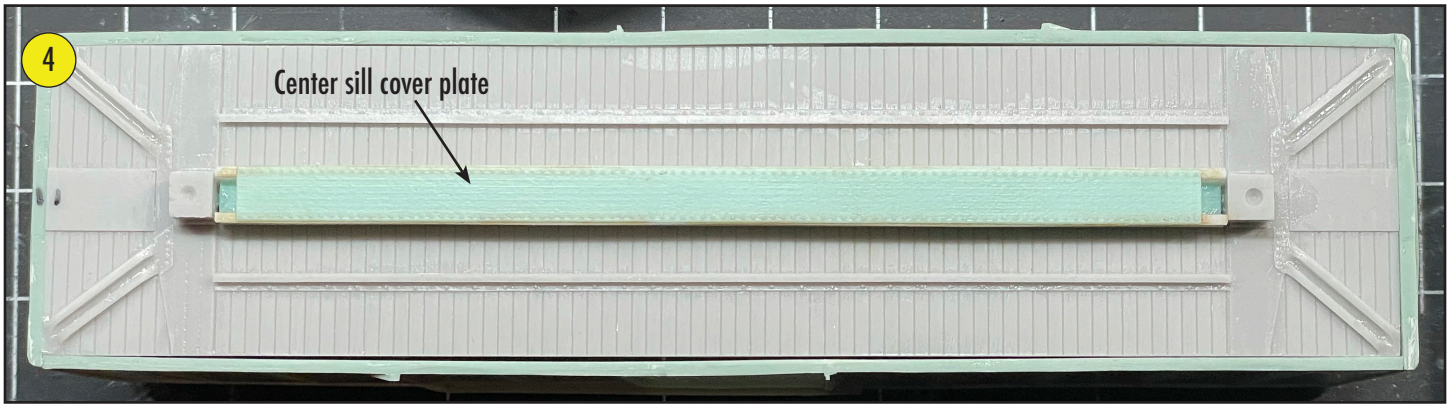
Center sill sections


3
Center sill sections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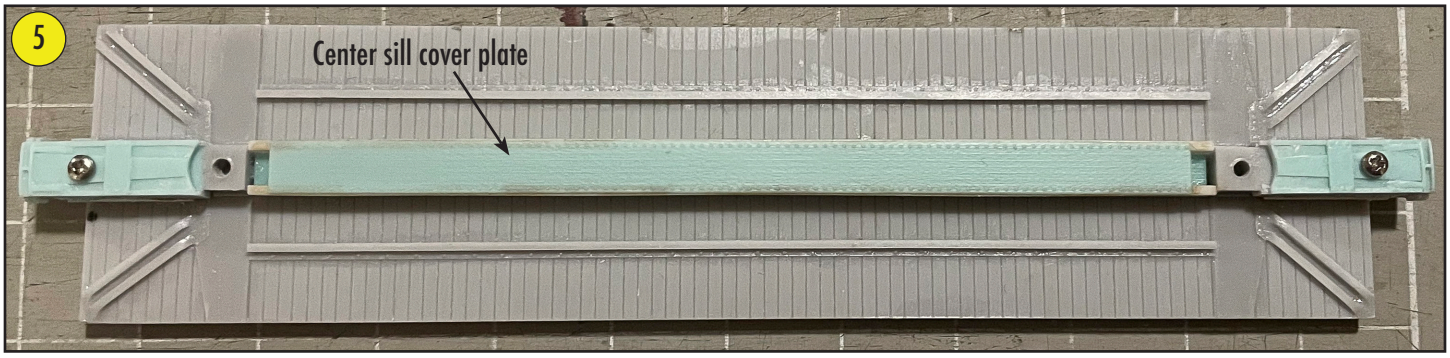
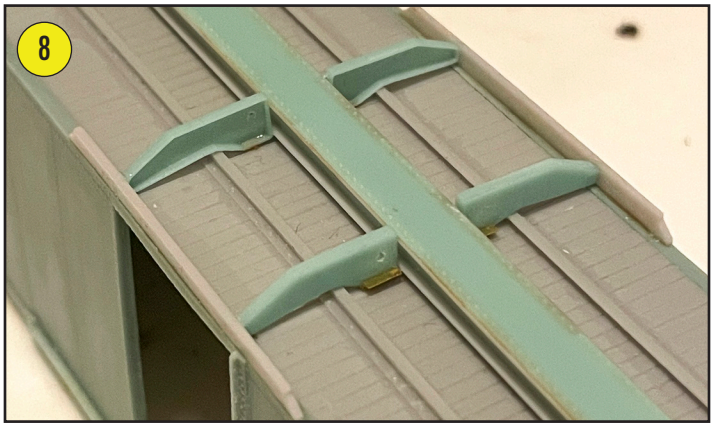
Center sill cover plate


5
Center sill cover plate


6
Bolster tabs
Tabbed side sill support sections
Bolster tabs


7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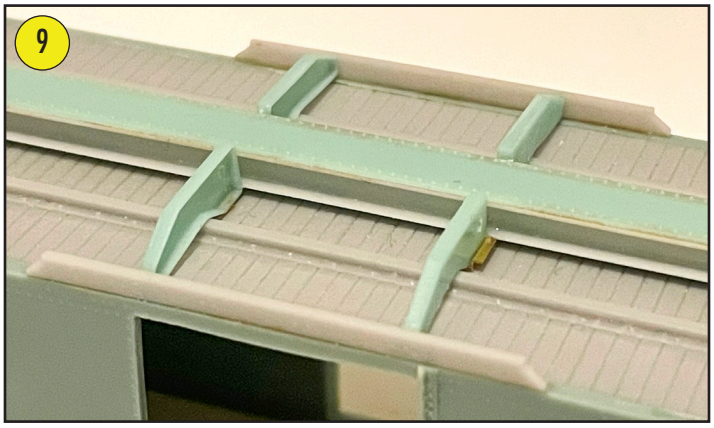
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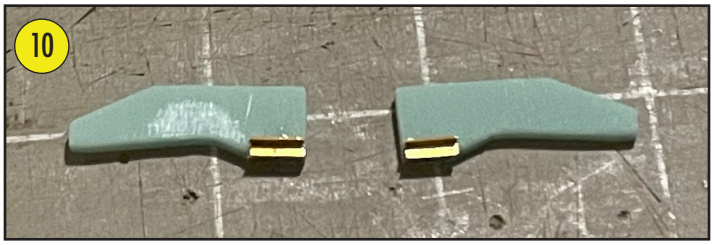
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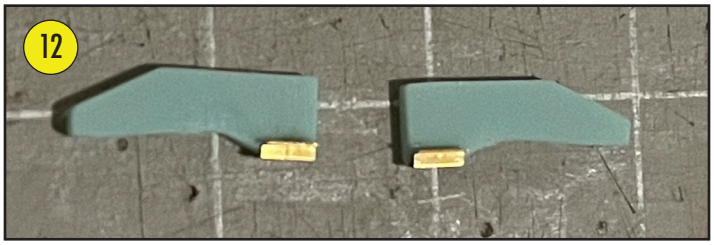
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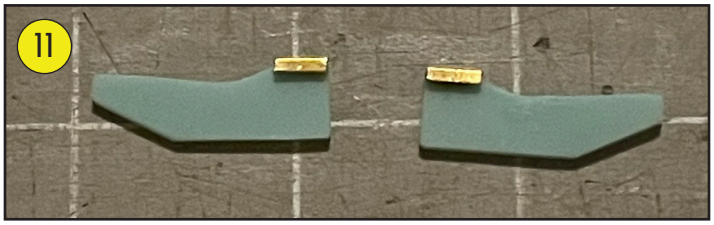
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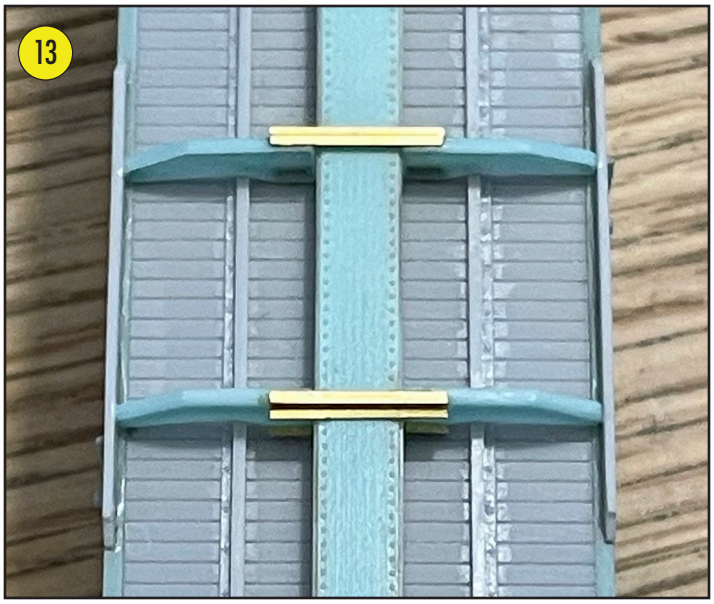
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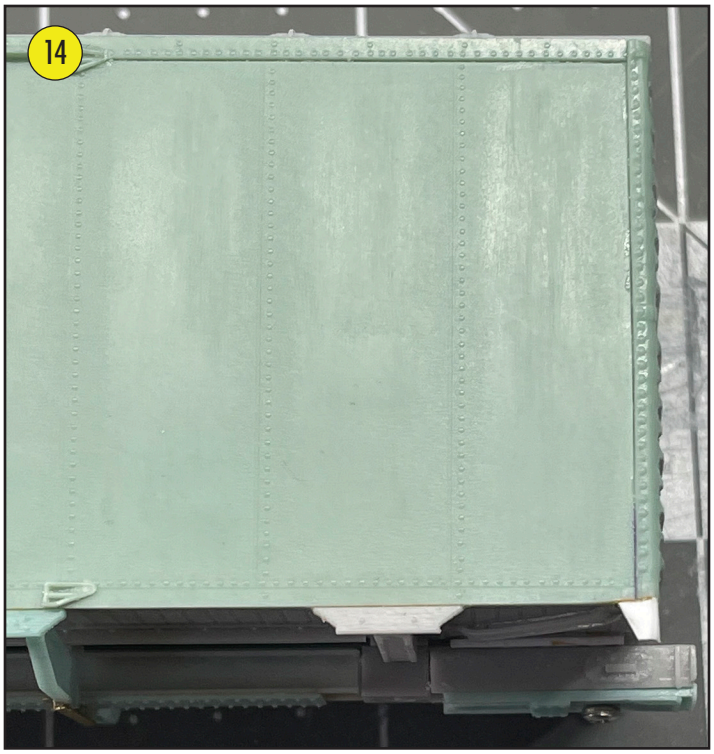
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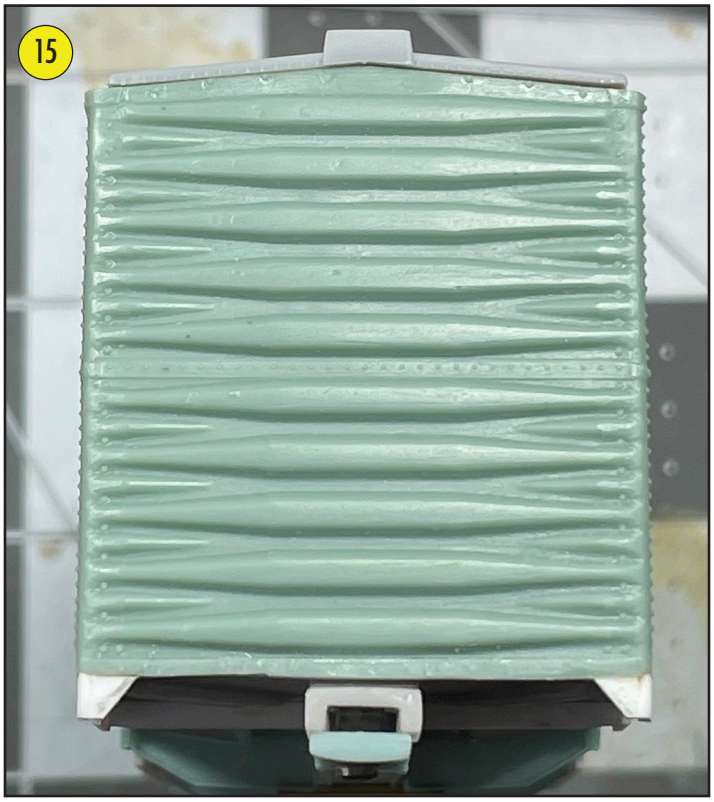
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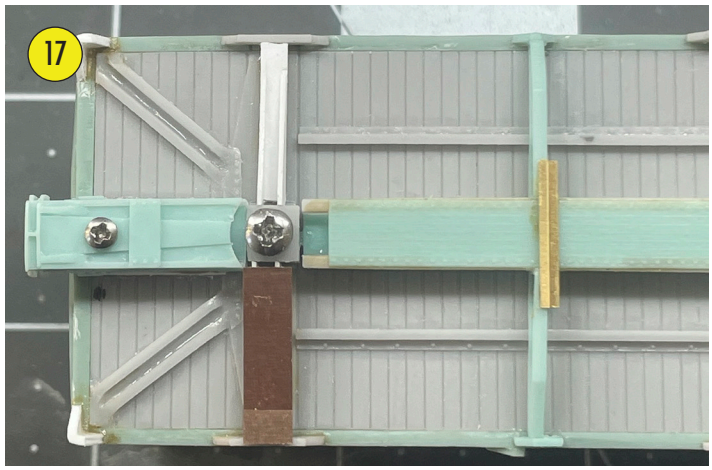
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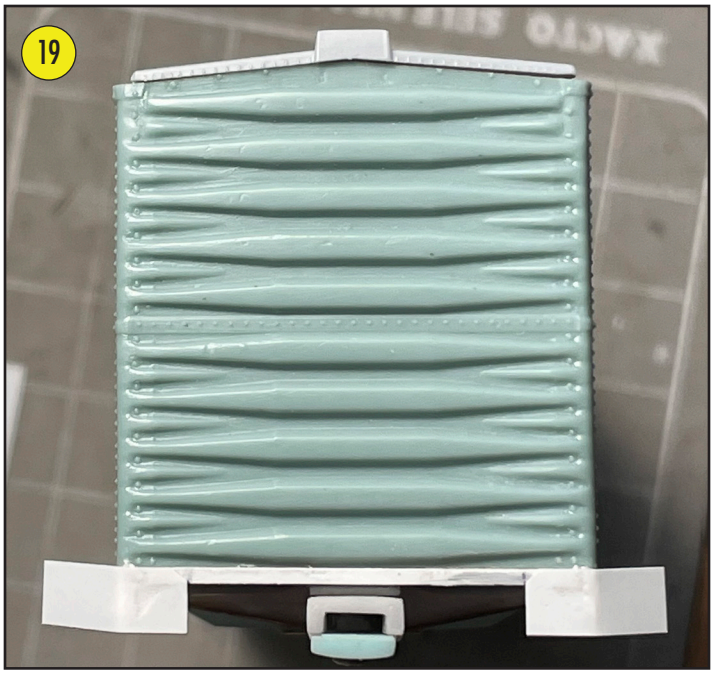
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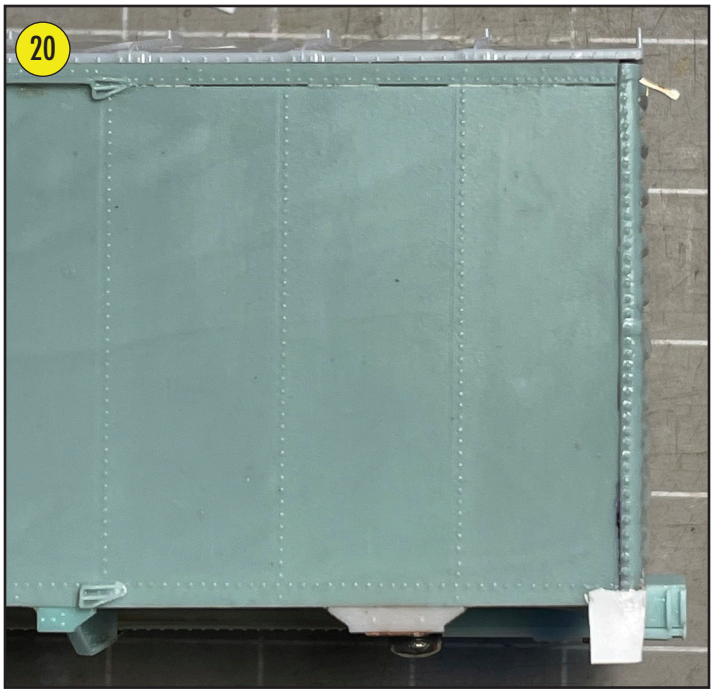
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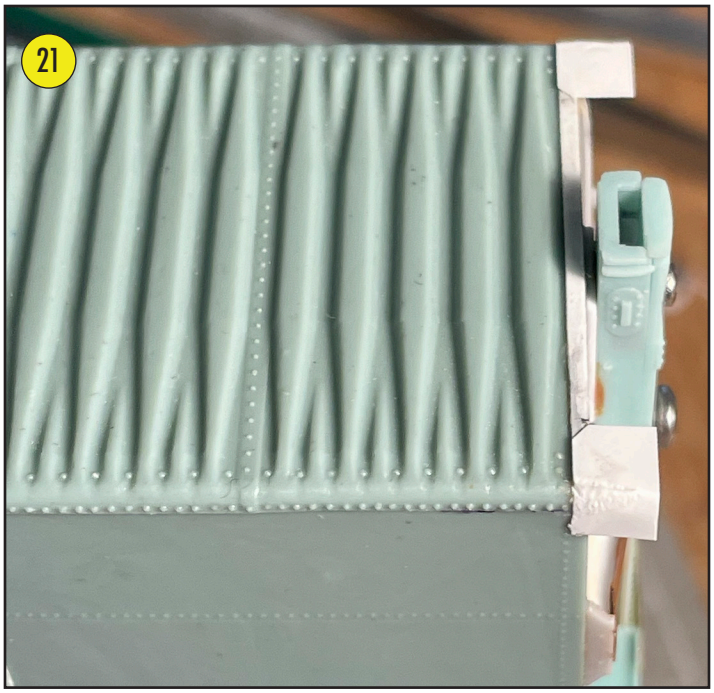
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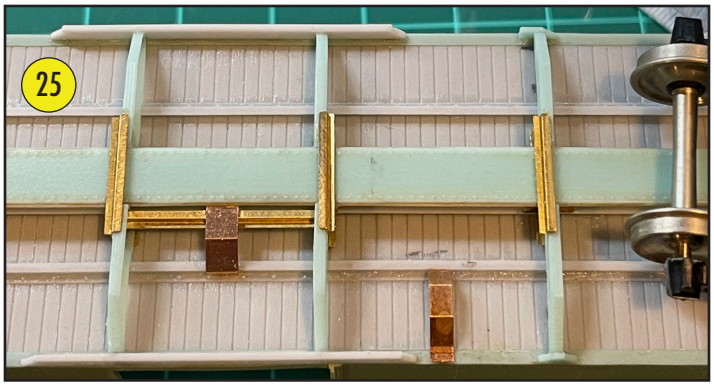
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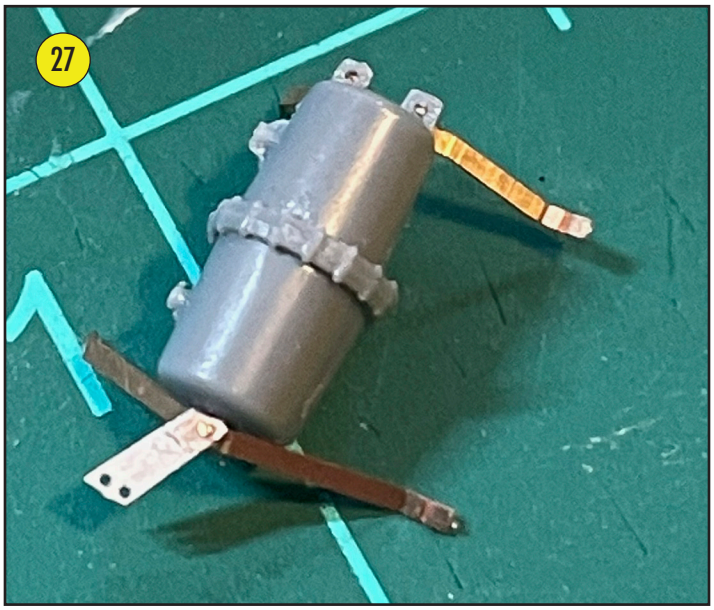
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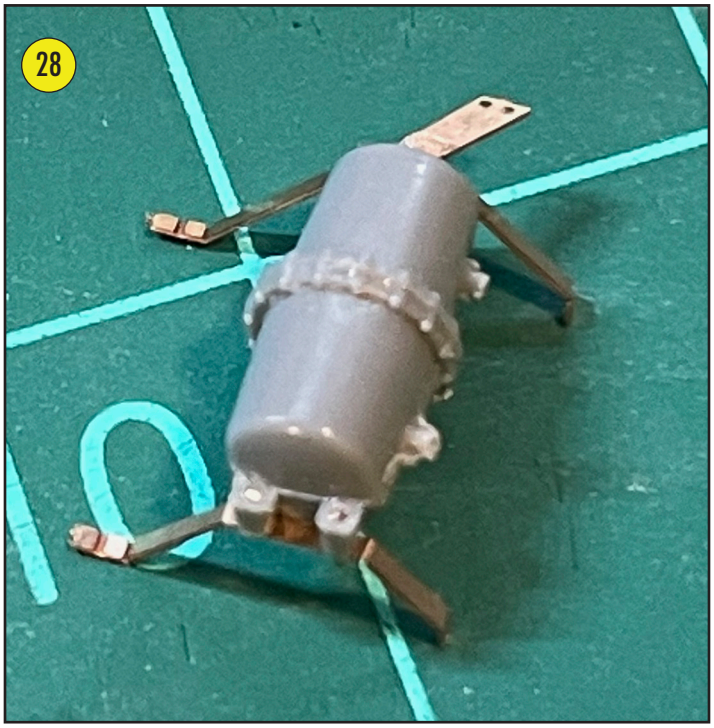
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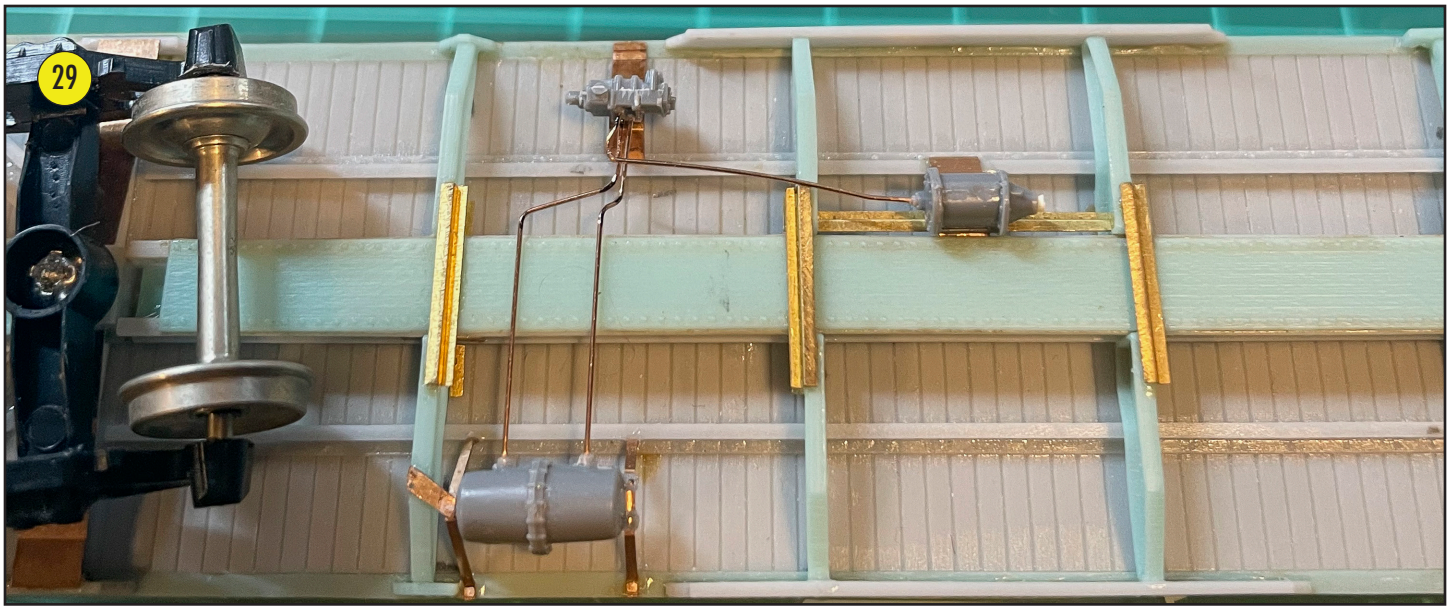
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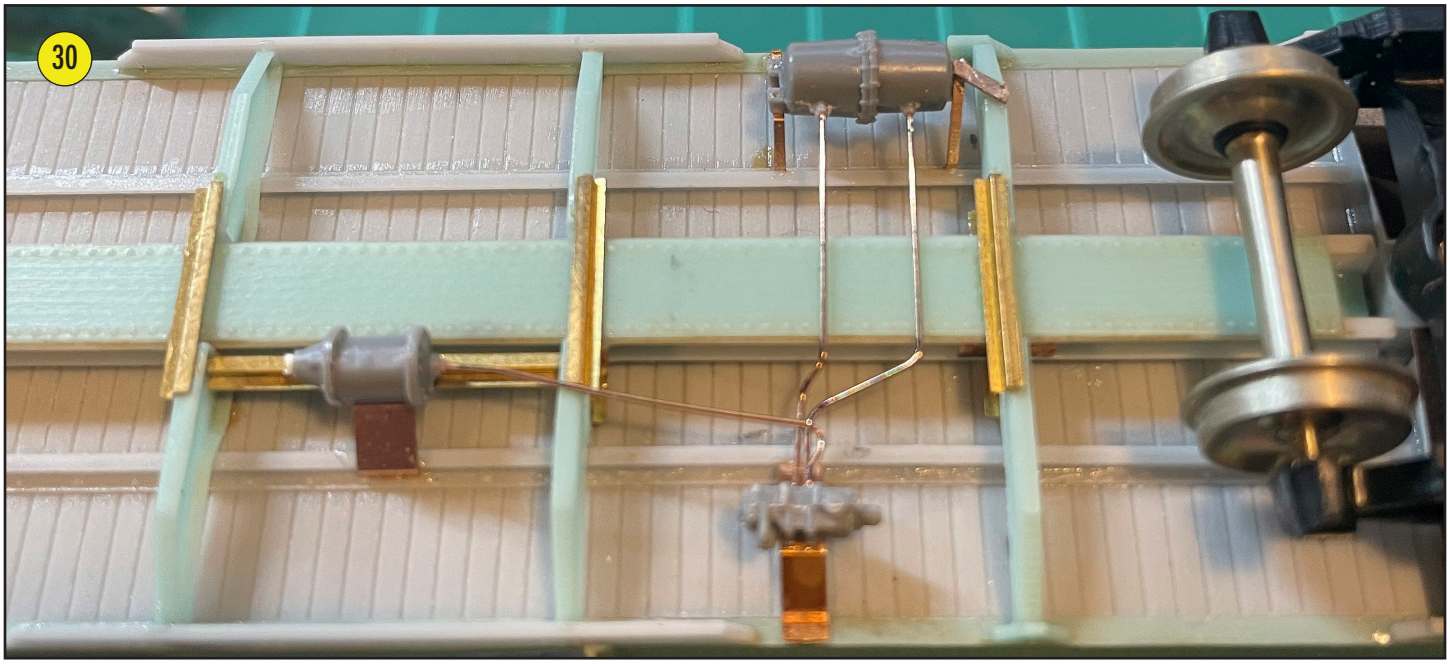
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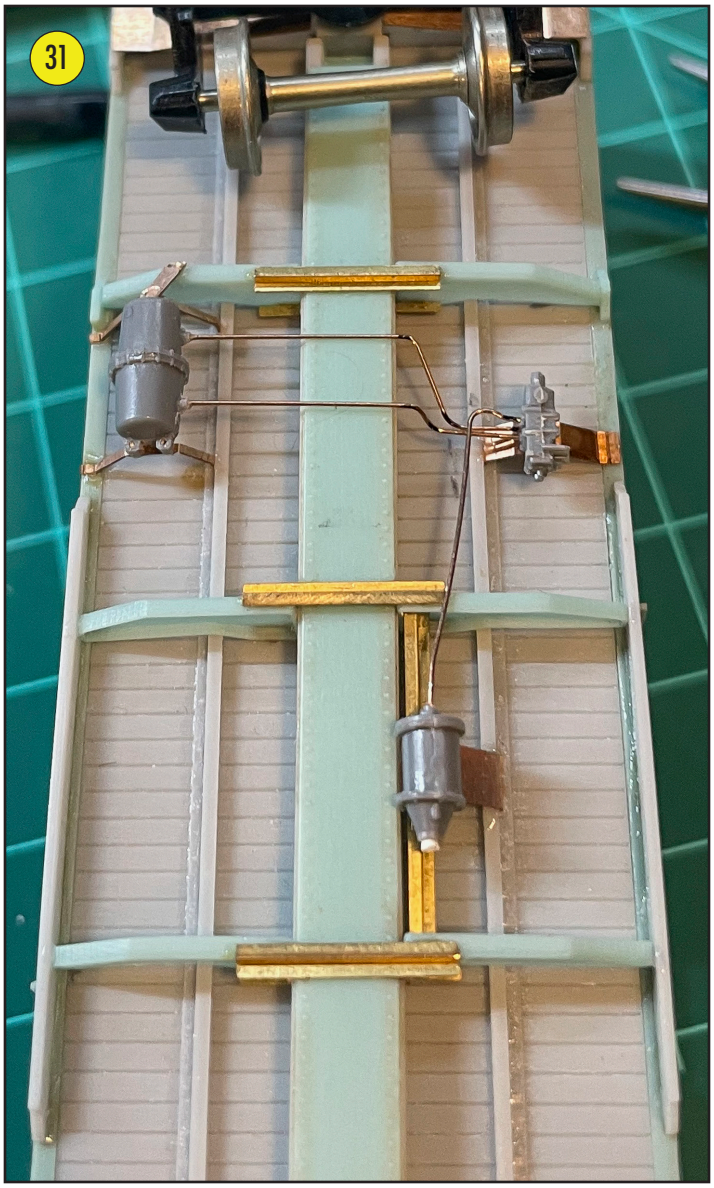
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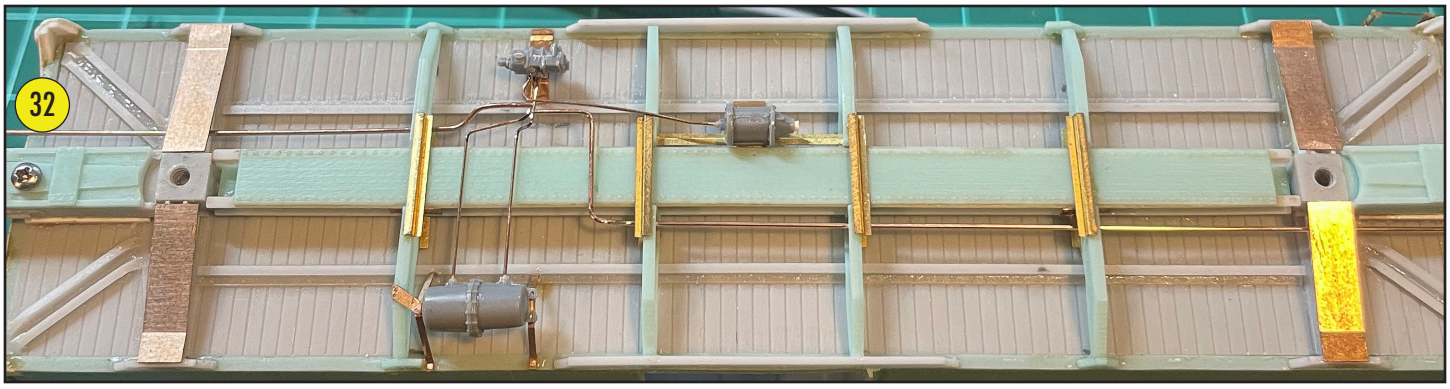
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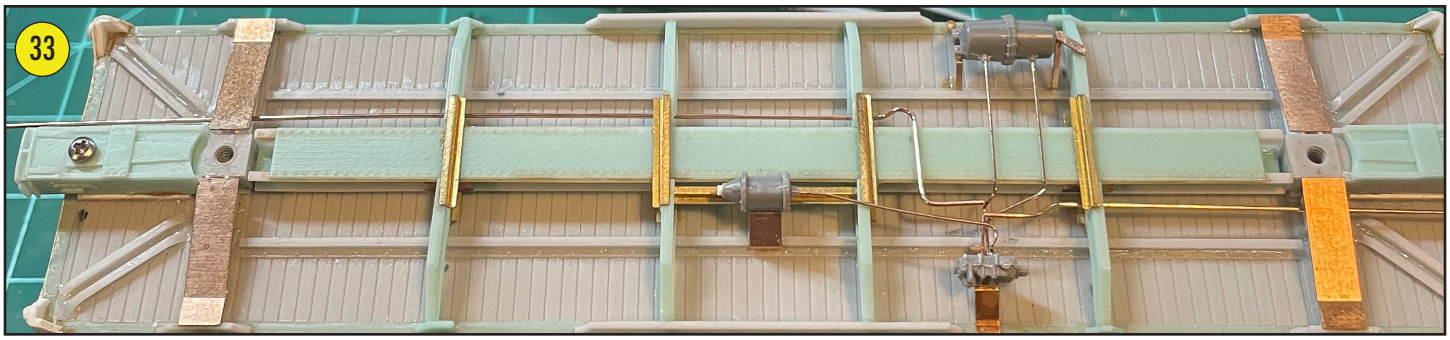
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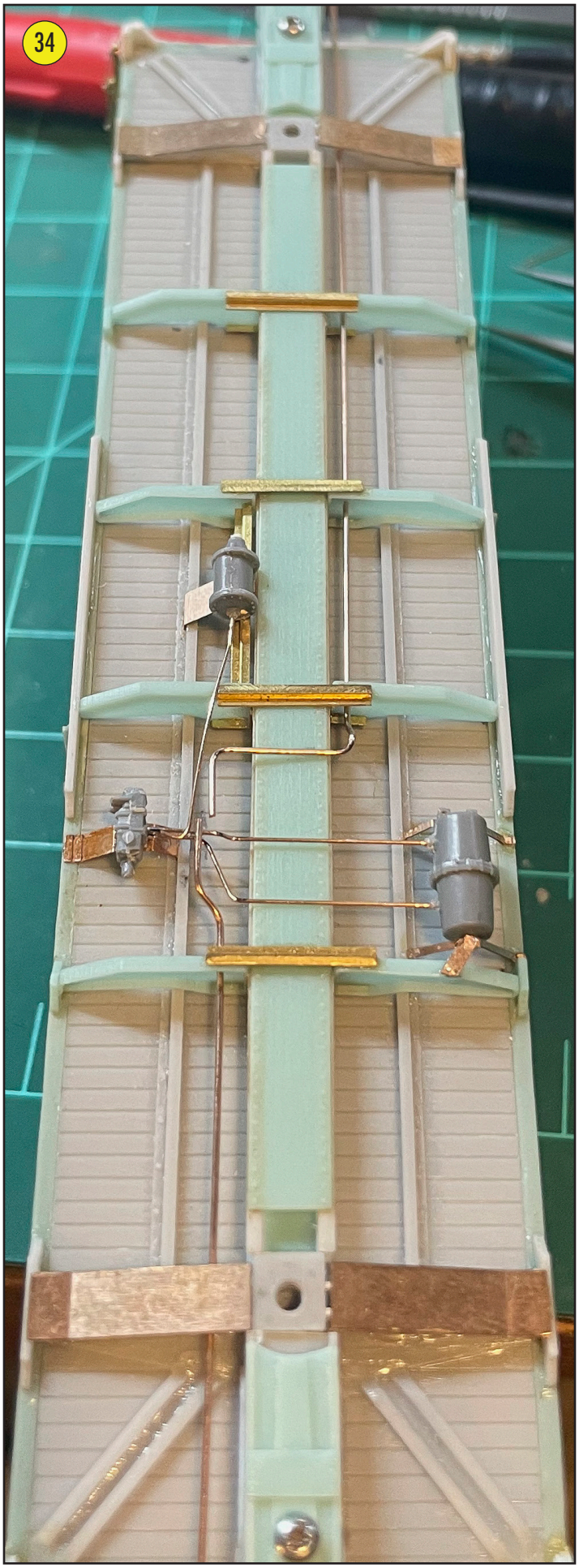
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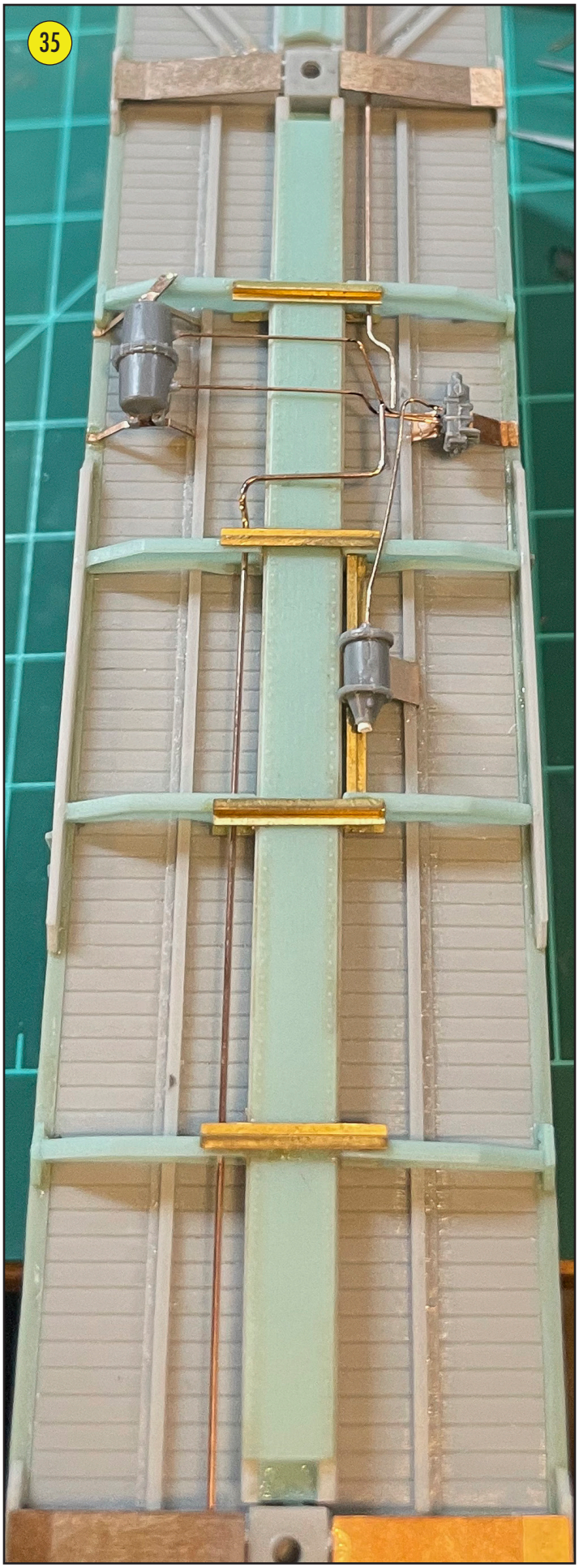
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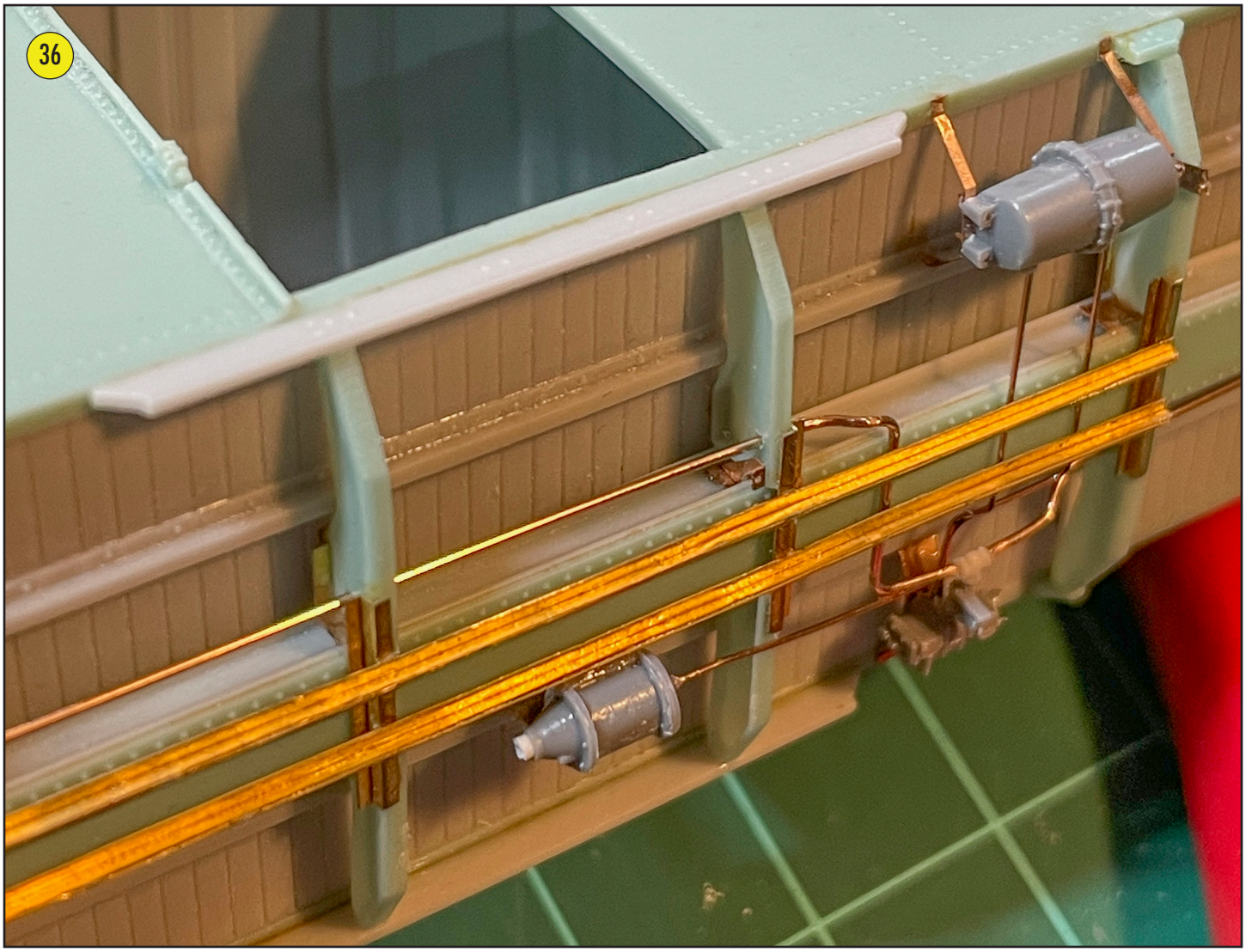
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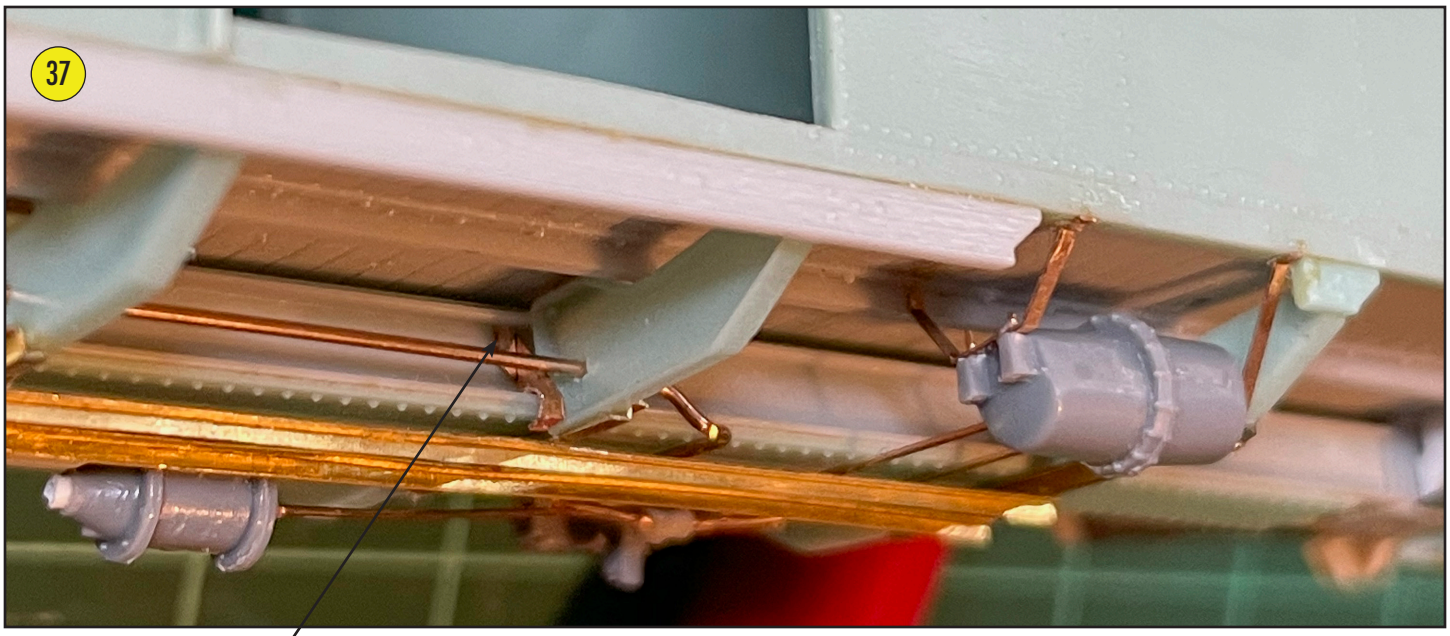
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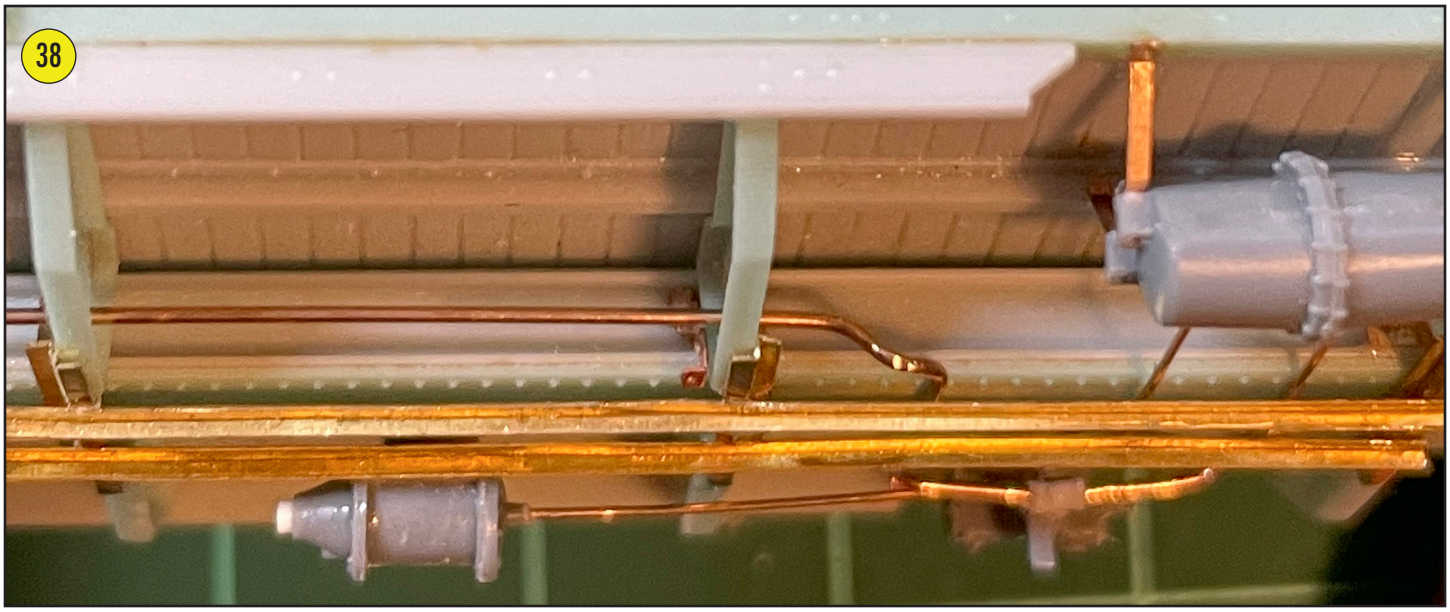
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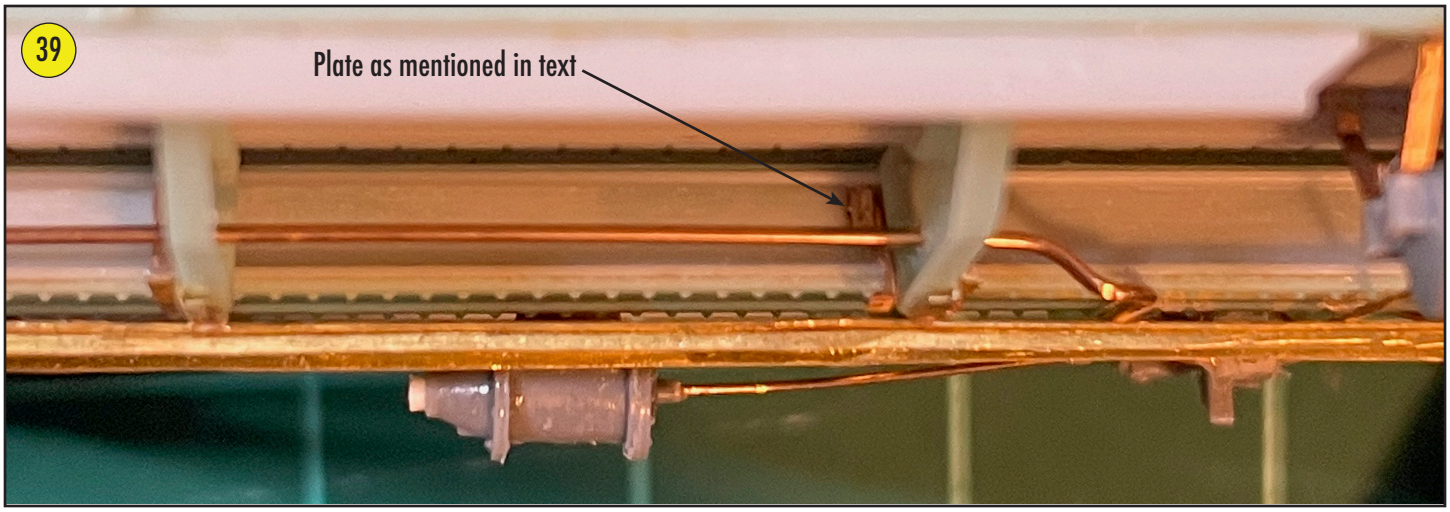
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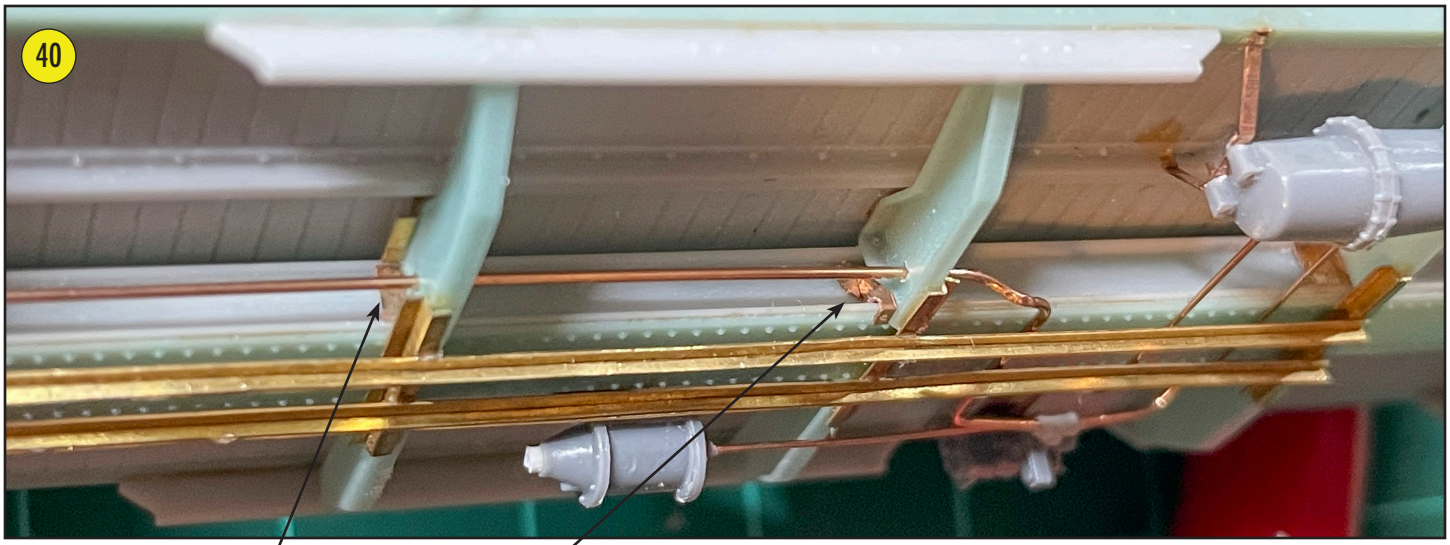
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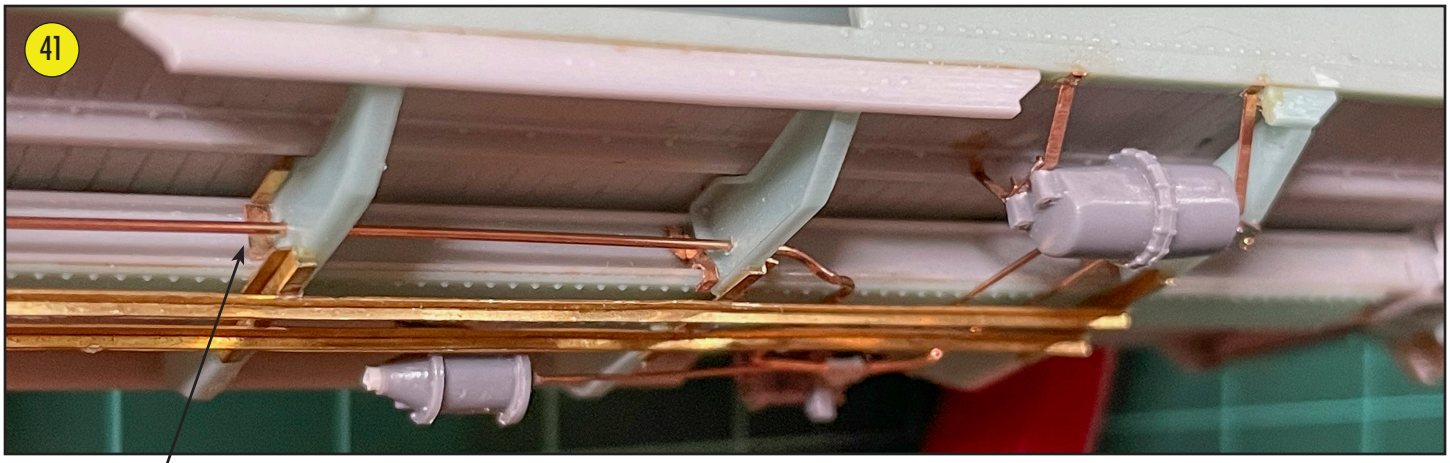
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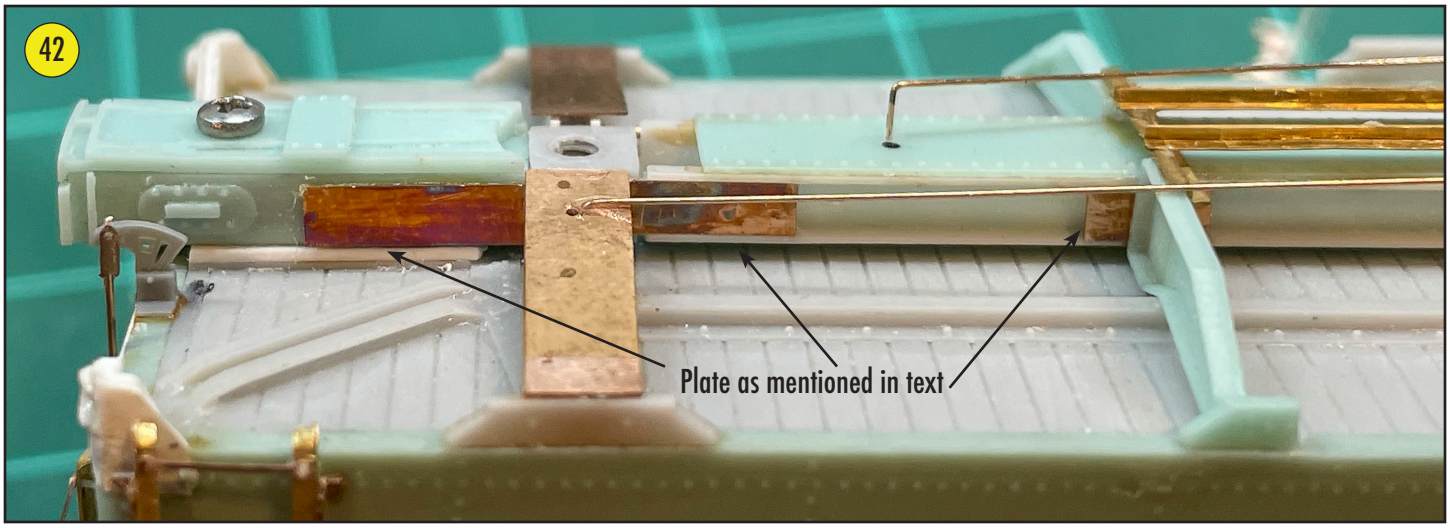
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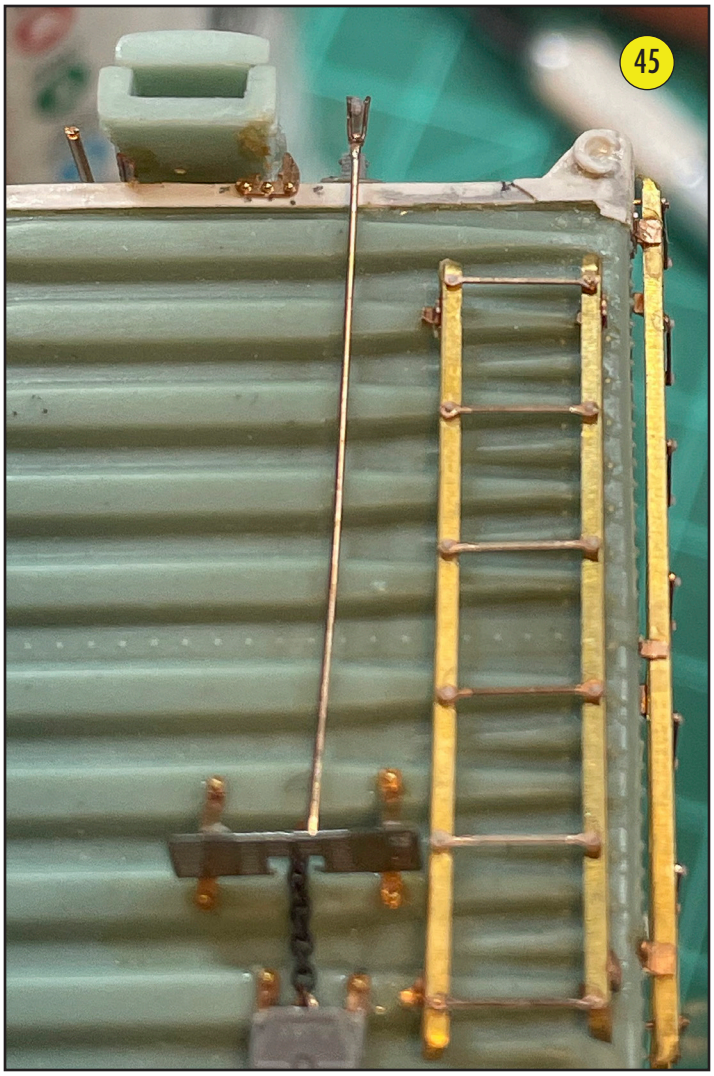
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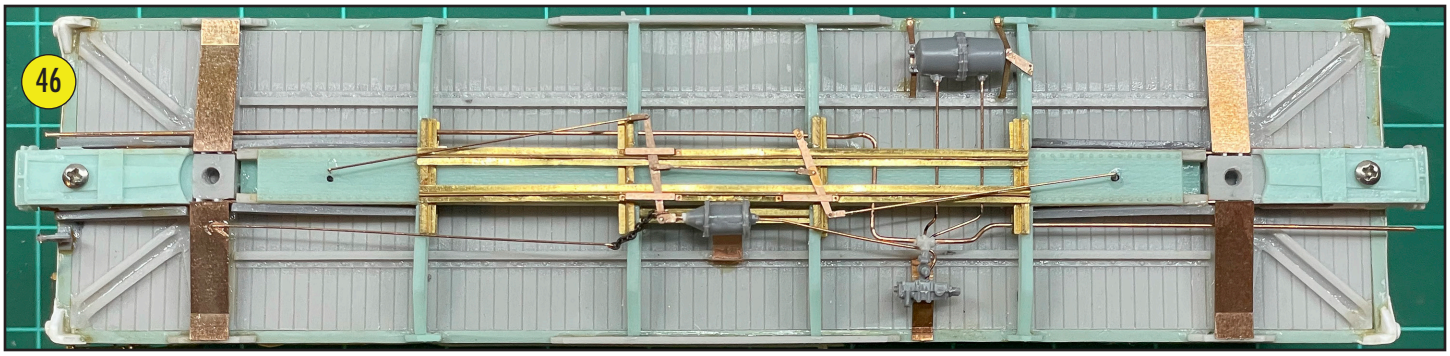
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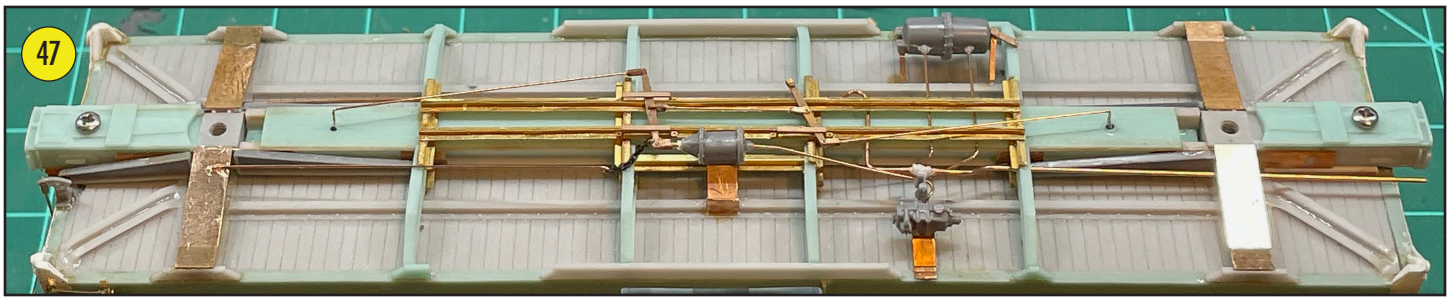
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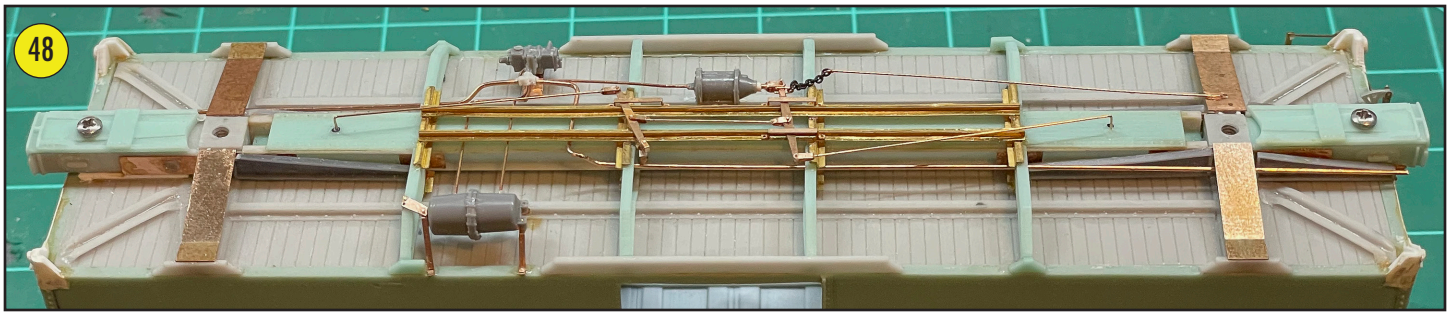
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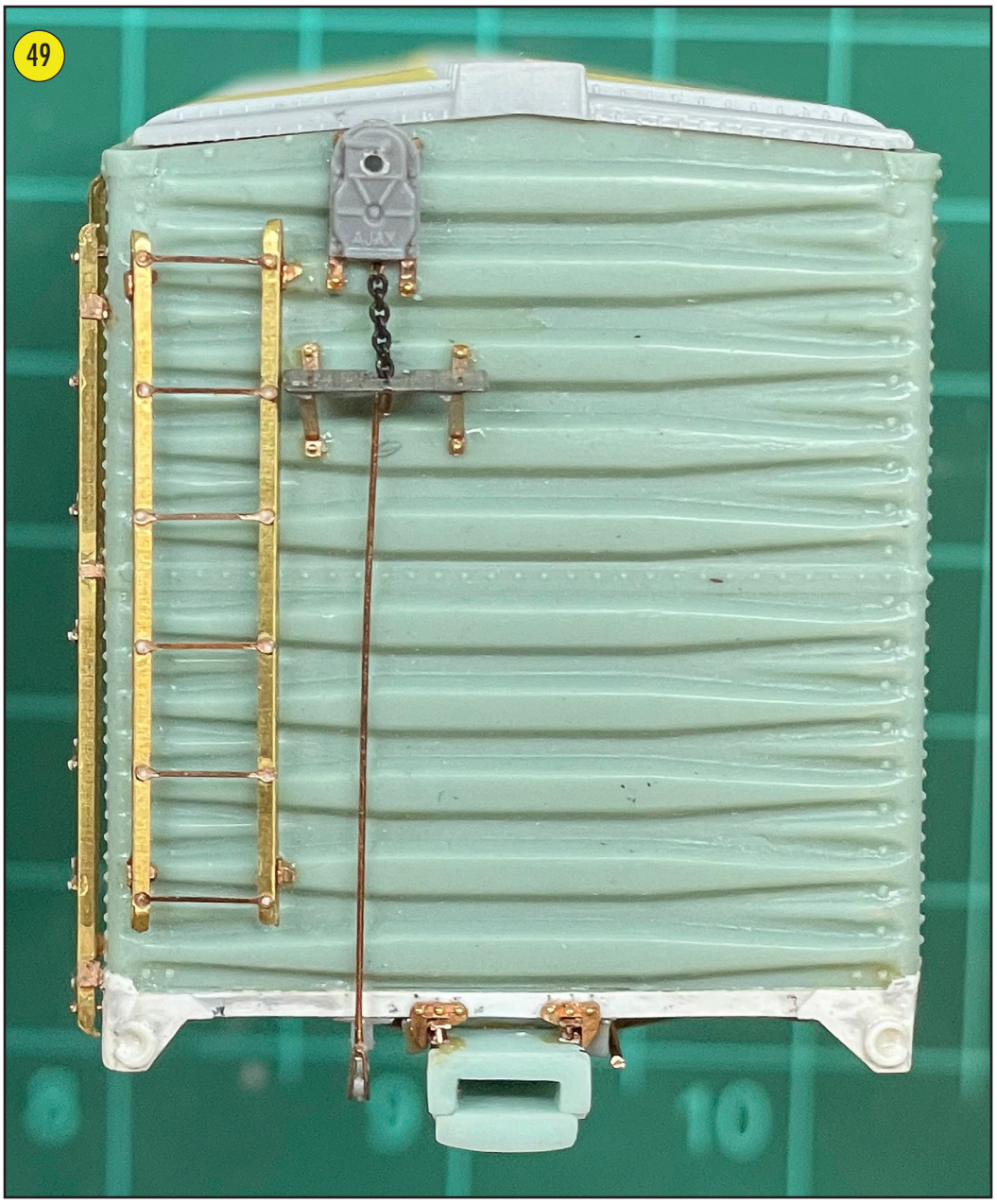
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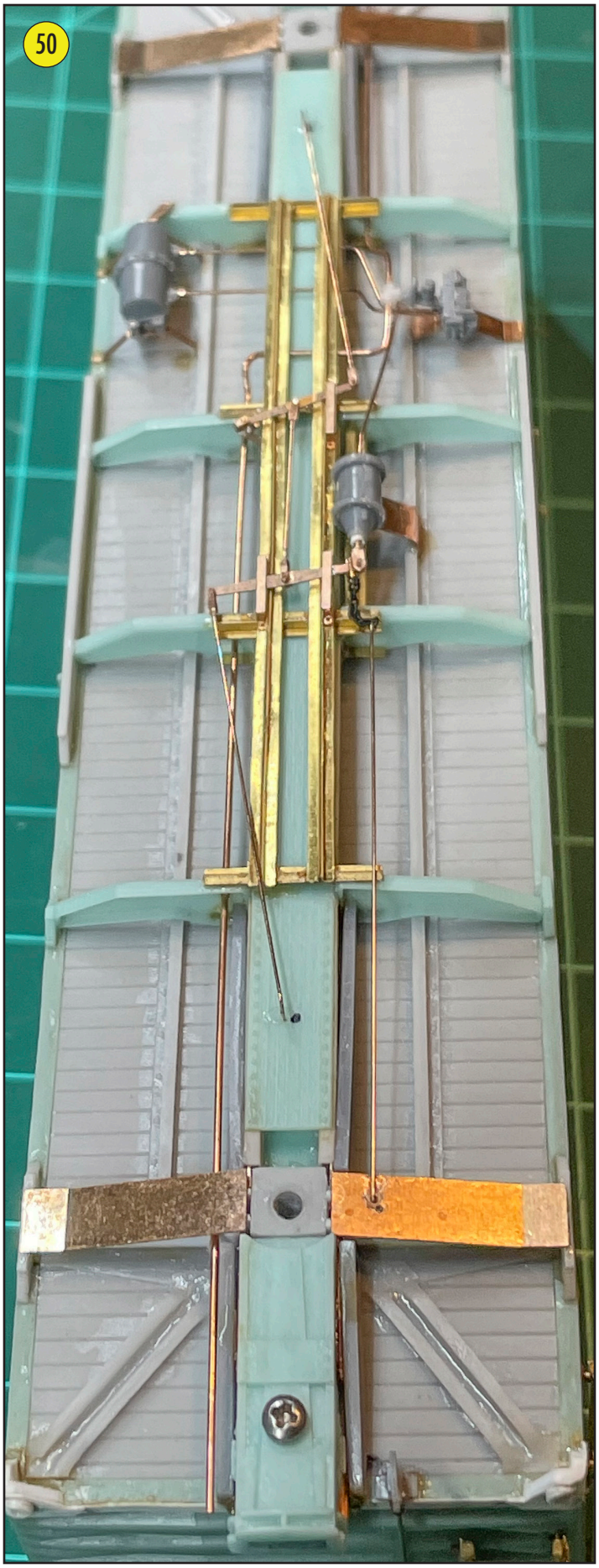
AJAY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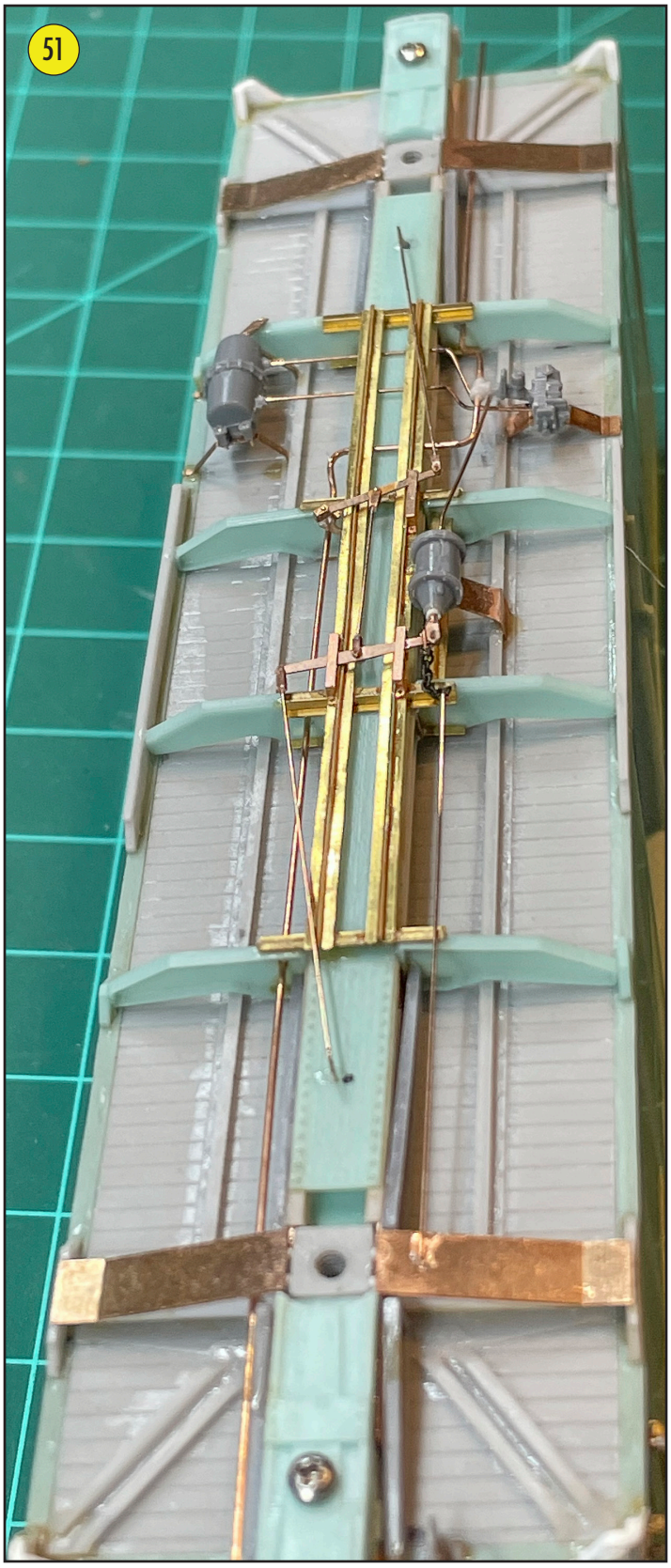
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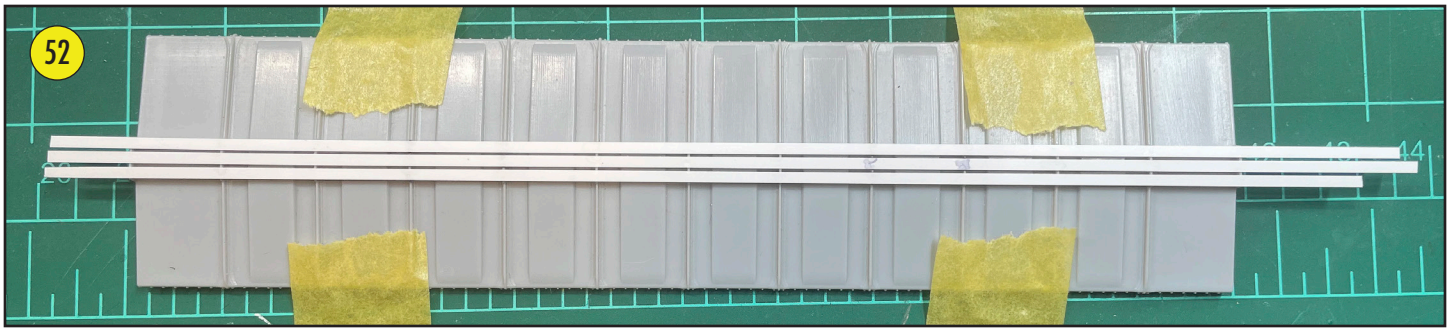
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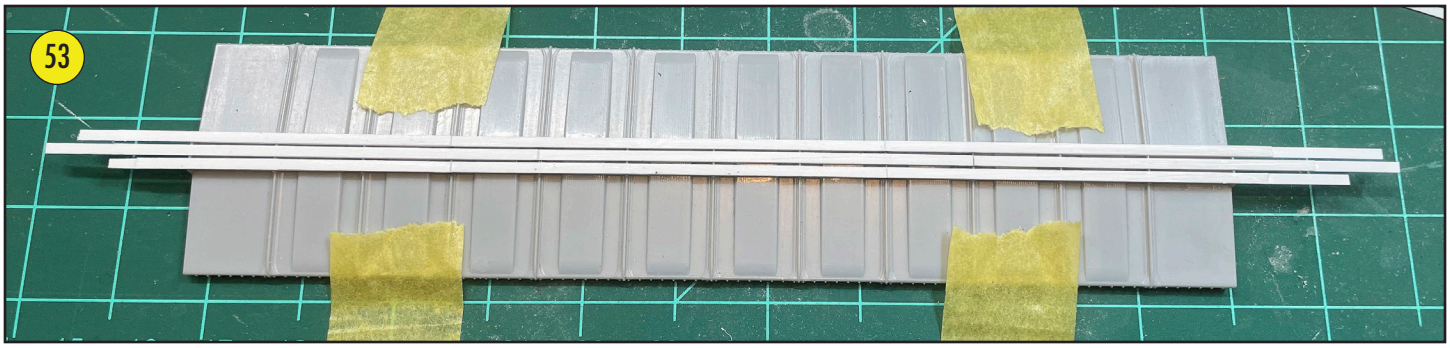
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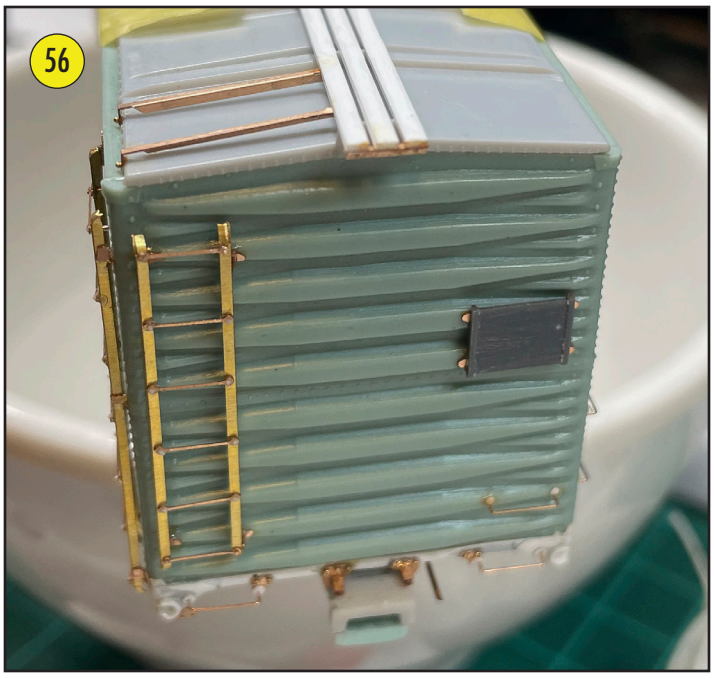
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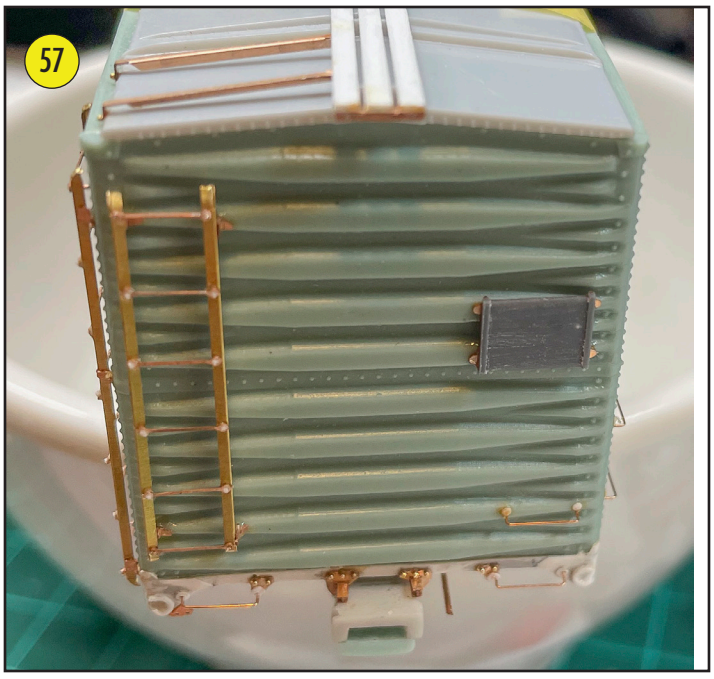
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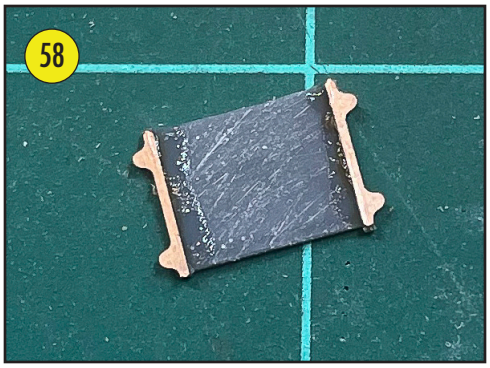
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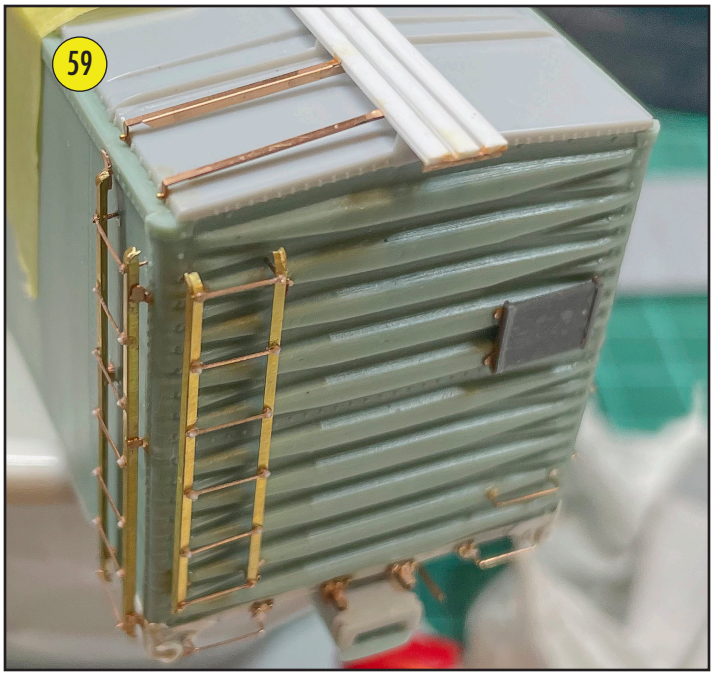
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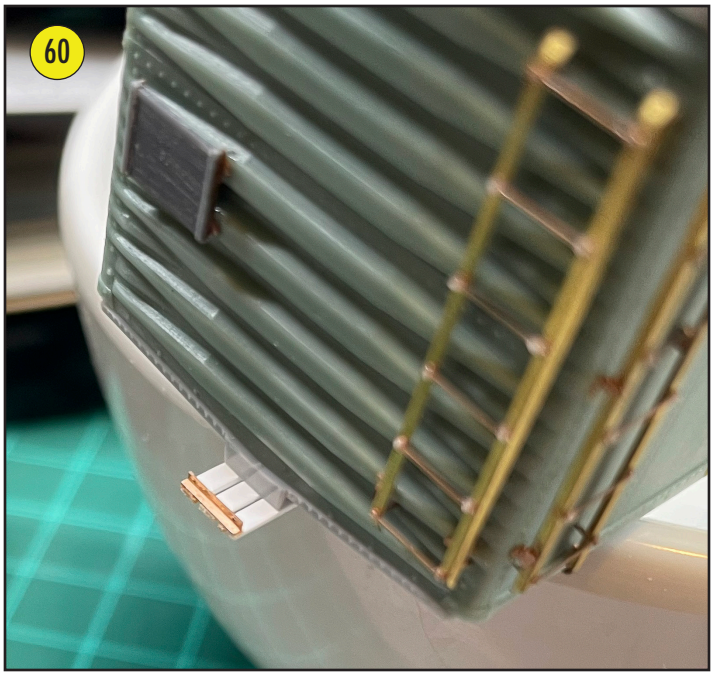
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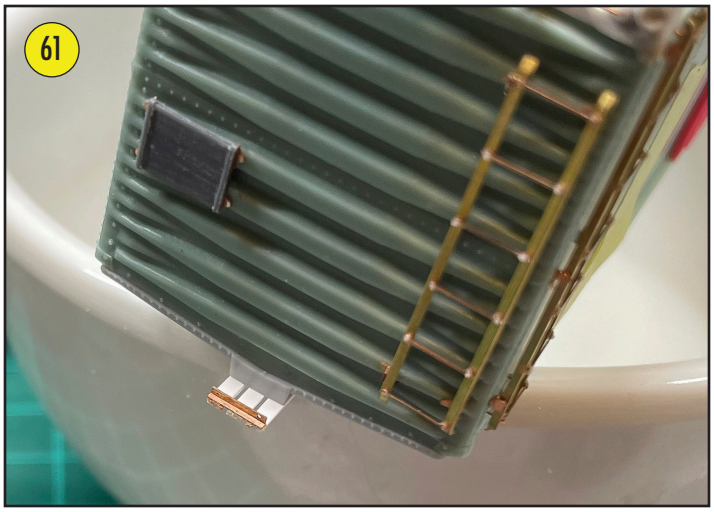
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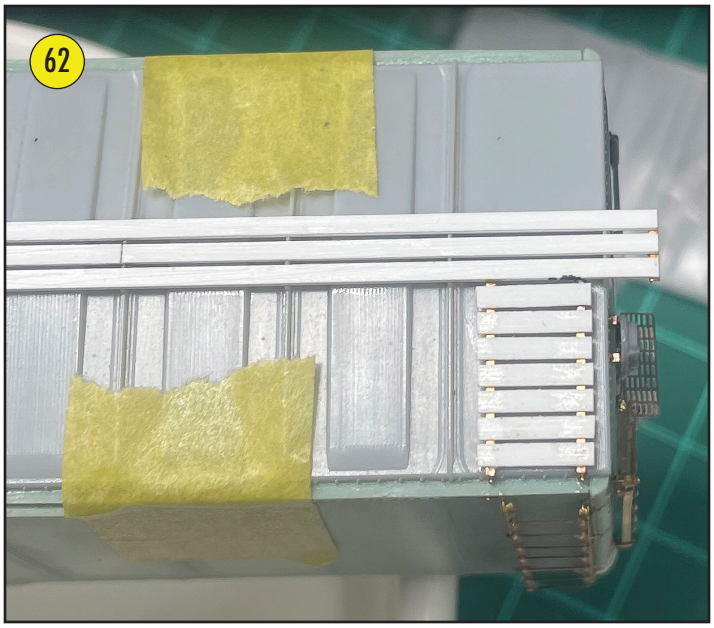

62

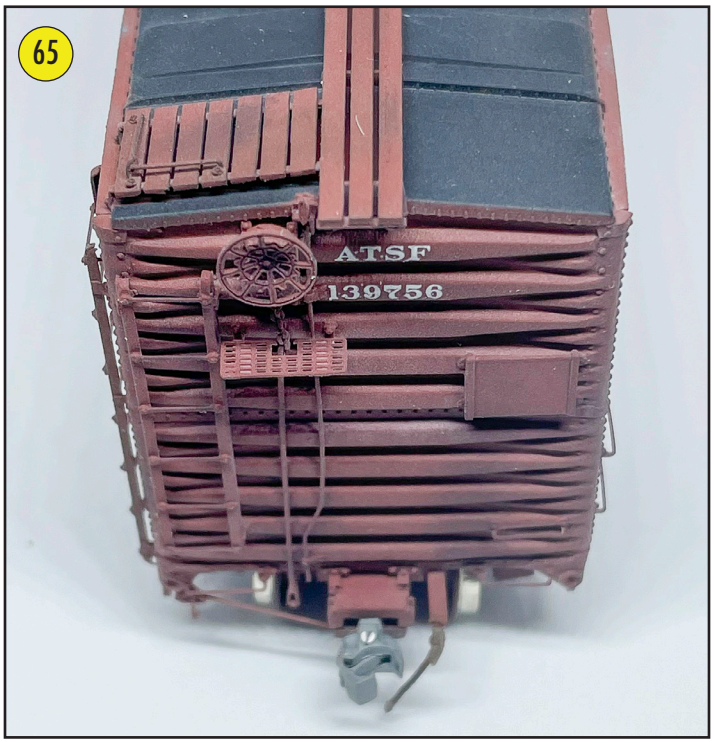
63


Santa Fe
ATSF
139756
CAPY 100000
LD LMT 123200
LT WT 45800 WC 2-52
THE ROUTE OF
THE Chief
All Pullman Chicago-Los Angeles Streamliner
Bx34

64


Santa Fe
ATSF
139756
CAPY 100000
LD LMT 123200
LT WT 45800 WC 2-52
SHIP AND TRAVEL Santa Fe
all the way
Bx34

65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67
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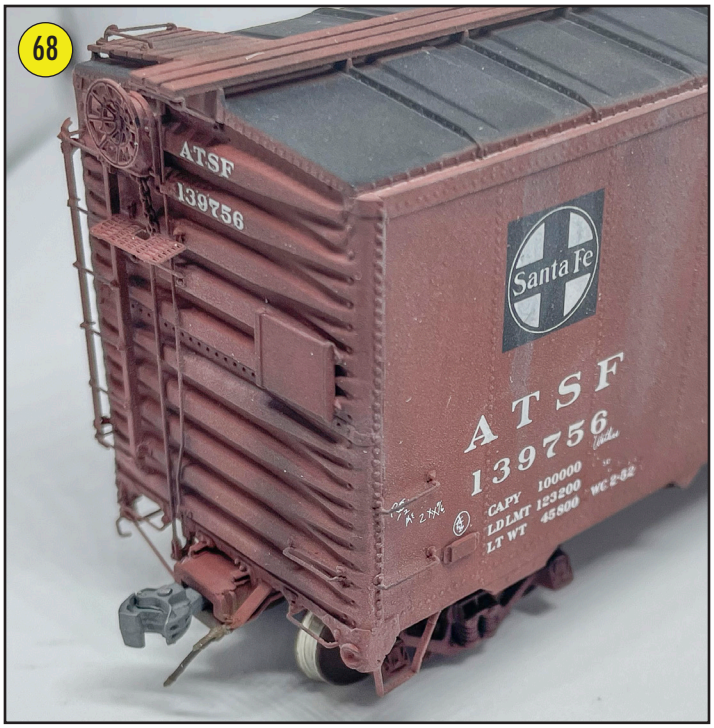
Chief
an Chicago-Los Angeles Streamliner
ATSF
139756
BX84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Santa Fe
ATSF
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WC 2-52


69
Santa Fe
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139756
CAPY 100000
LD LMT 123200
LT WT 45800
WC 2-52


70
Santa Fe
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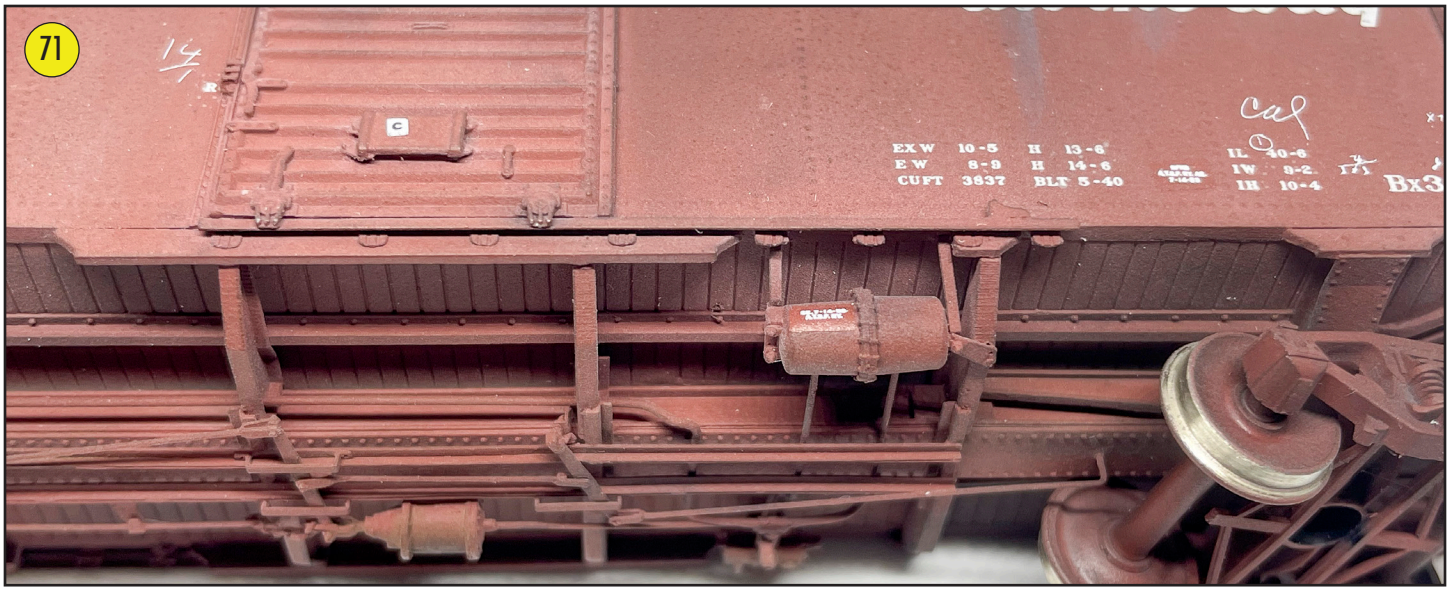
139756
CAPY 100000
LD LMT 123200
LT WT 45800
WC 2-52
SHIP AND TRAVEL Santa Fe
all the way
BX84

71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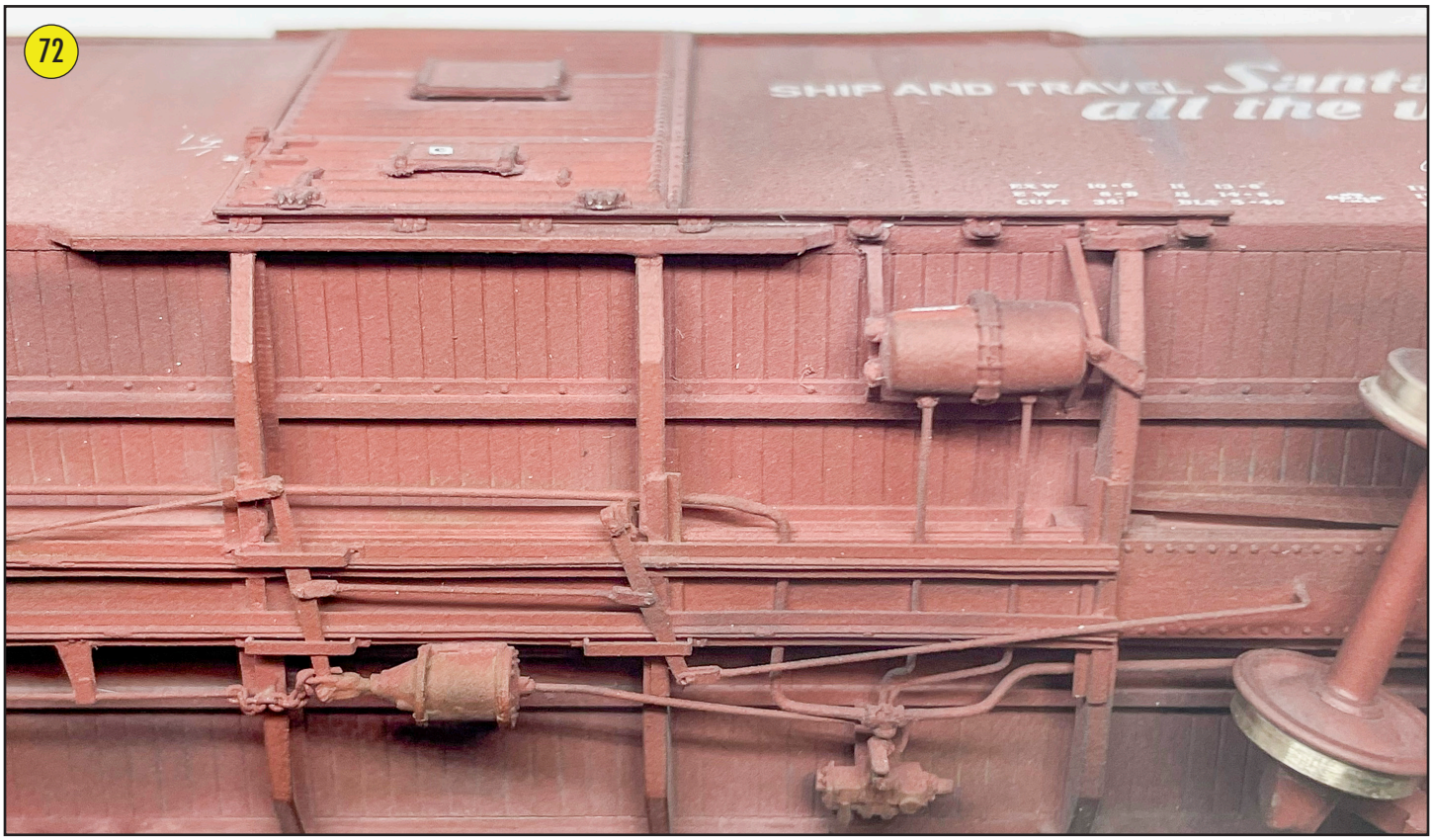
EW 8-9 H 14-6
CUFT 3837 BLT 5-40
IL 40-6
IW 9-2
IH 10-4

72


SHIP AND TRAVEL

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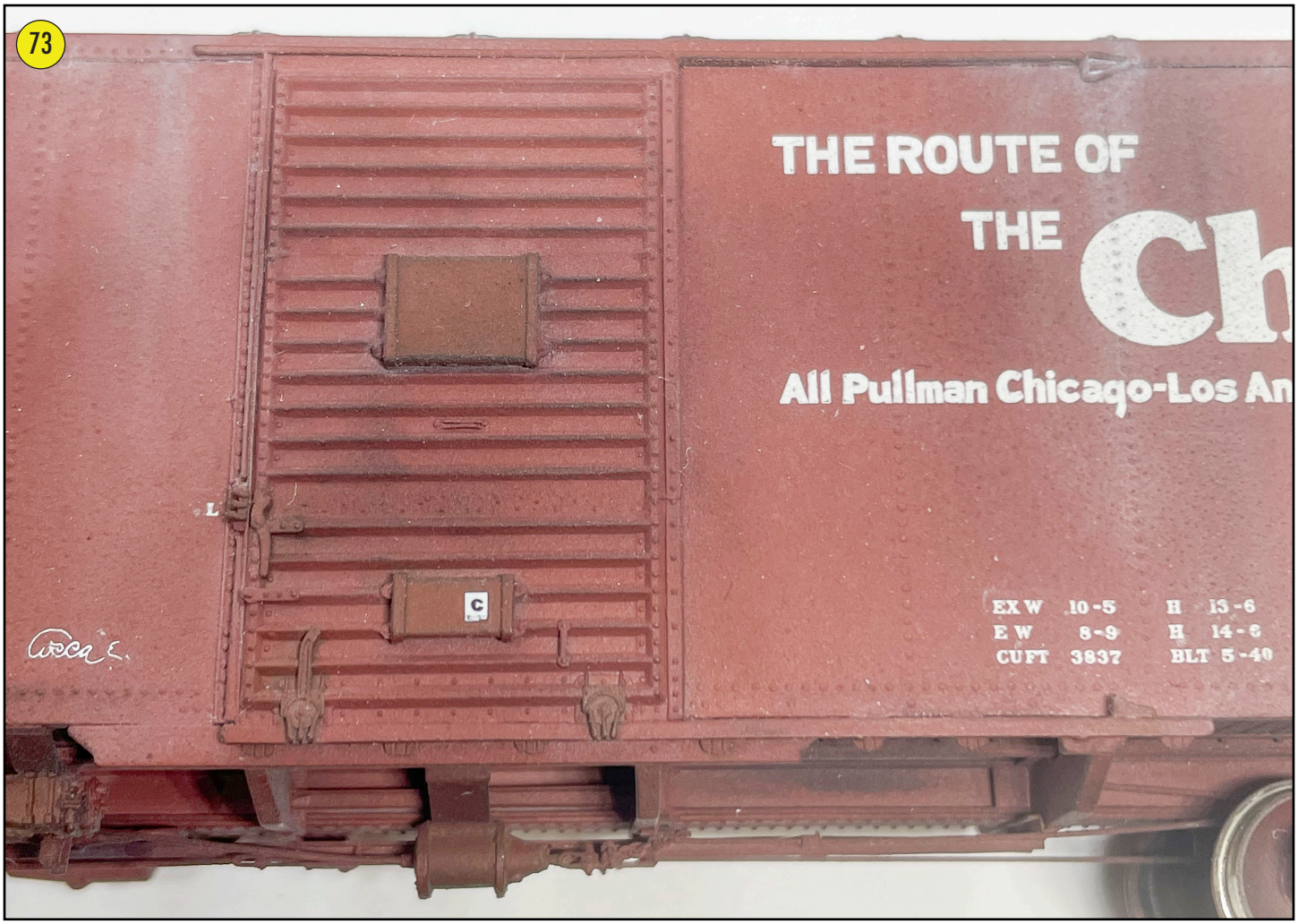
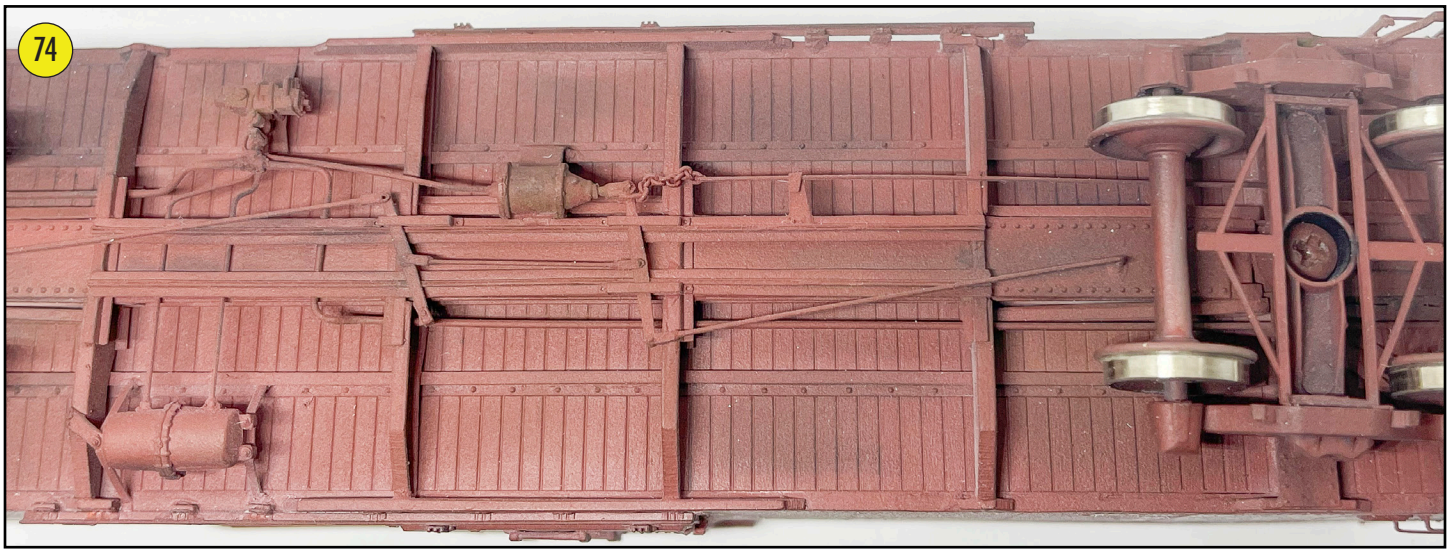
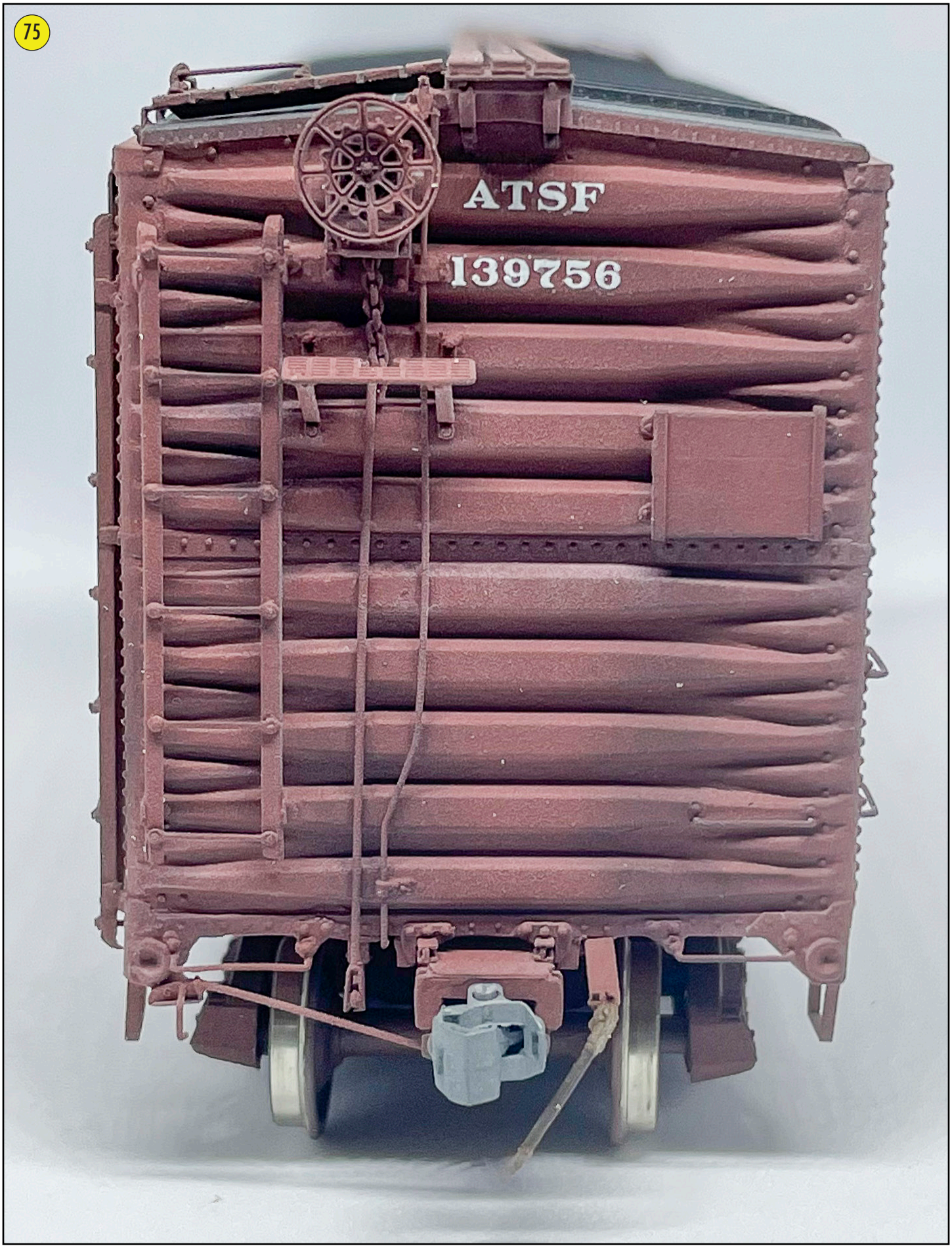

THE ROUTE OF
THE
All Pullman Chicago-Los An
L
C
EX W 10-5 H 13-6
E W 8-9 H 14-6
CUFT 3837 BLT 5-40

74

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139756