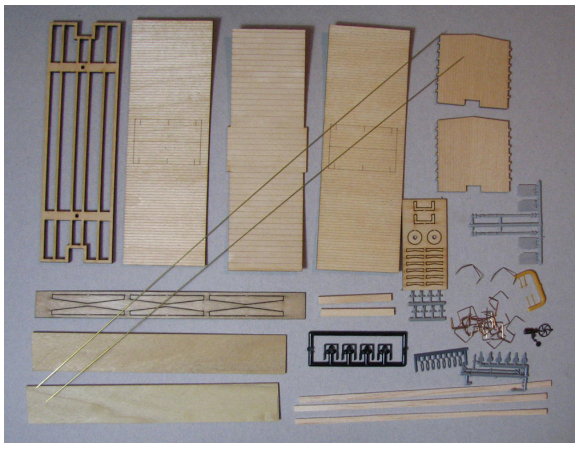
The following information and photographs are what I did to build the kit. Your methods and needs may differ from this which is fine. There is no right or wrong way if you are used to scratch building. The idea is to make a final model that fits your railroad.
I do recommend having trucks and couplers on hand so they can be used to determine your final dimensions. Most kits include grab & step irons, truss rod wire & turn buckles and other various items for each particular car. You can add additional items as you desire. Most detail parts are available from Grandt Line, Tichy and others.
You can also modify the wood parts to get a shorter or narrower car, or you may want to use the full width bolster or you might want to add a name board or the end beam. The point is, make it your own. Now for my tips.
You can print these instructions by selecting them (highlight with your mouse) and copy and past into MS Word or similar program and print from there.
Or download the PDF here: Reefer Assembly PDF

Reefer Assembly

Make sure you have all the parts shown in the photo. Any missing parts will be sent free of cost. Newer kits may have additional parts. Or stripwood may be in long lengths which you have to cut. Also, have your trucks and couplers on hand so you can complete your assembly to work with them. Some of your parts and modifications will depend on these and on you making them match the other cars on your railroad. The procedures given here is how I built the model. You may find better methods and of course are free to use what works for you. Just try not to get ahead of yourself and get blocked into a corner.
The older kits had plain roofs meant to be covered with either simulated canvas or metal. A scribed wood roof is now being supplied. I use Pink Flamingo glue from Northeastern for all my wood to wood joints and Pacer CA (super glue) for dissimilar items like wire and plastic. You may have your own favorites.

REEFER PARTS



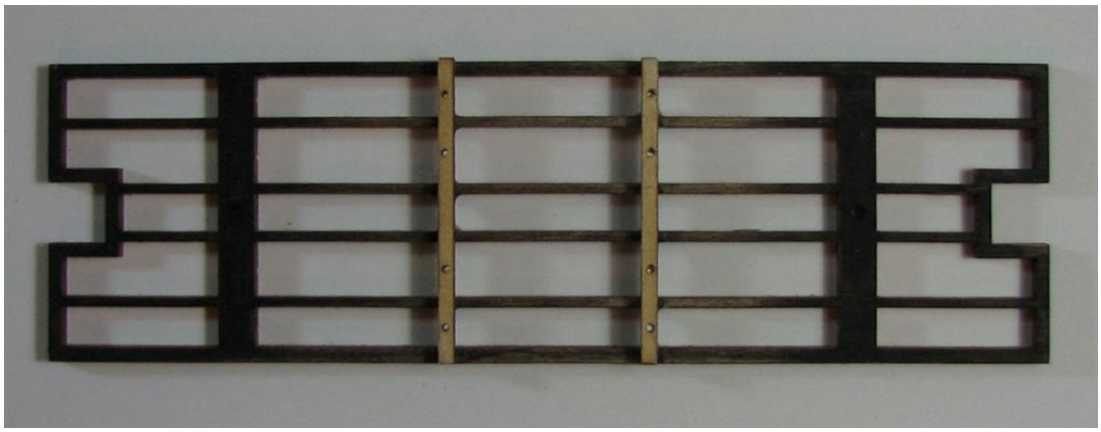
This kit follows most of the same methods used in the Boxcar kit. The primary difference being that the doors do not slide open and the addition of the roof hatches. You may prefer or discover a different or better way to assemble your kit, which is perfectly all right. Please read the instructions first and become familiar with the various photographs.
NOTE: After my most recent assemblies, I believe it is preferable to paint or stain the

sides, ends and roof, prior to gluing them together. And then add the small detail pieces after the kit is assembled. For me, it was difficult going back and trying to touch up all the grab irons, hinges and stirrups after painting. I also plan on using a metal black for the grabirons, trussrods and brake shaft.

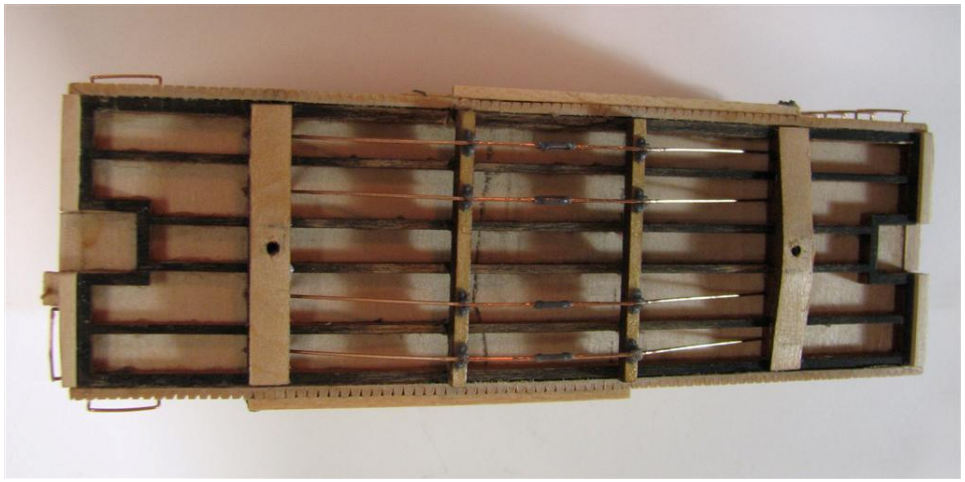
FRAME

The first step is to work with the frame. Cut & remove the full bolsters and needle beams inside the frame. Set them aside for use later. Check the frame and make sure to locate the trussrod laser cut slots in the top surface above the bolster. These will accept the ends of your truss rods. Use a razor saw or knife to make these slightly wider and deeper to just accept the rods (included in the kit). Older kits required locating these slots to align with the queenposts.
You need to decide how the ends of your truss rods will terminate. The rods in the kit are long enough to reach the bolsters, but you can add longer ones or use fishing line or beading wire. You could then drill holes through the end of the frame and into the bolsters as the prototype is made. You will install the truss rods later in the assembly.

Next is to glue the Needle Beams to the BOTTOM of the frame (the surface opposite the slots). The needle beams should be located approximately 1/3 the distance from each bolster (about 31/32" or .980"). Glue to the frame bottom, with the hole markings facing you, making sure the beams are square to the sides (use a small square). Now drill the needle beams to accept the queenposts. The hole location is marked along the centerline of each needle beam and should be drilled with a #58 - #60 drill (.042" to .040") all the way through. Make sure to hold your drill perpendicular to the frame and beam when drilling.

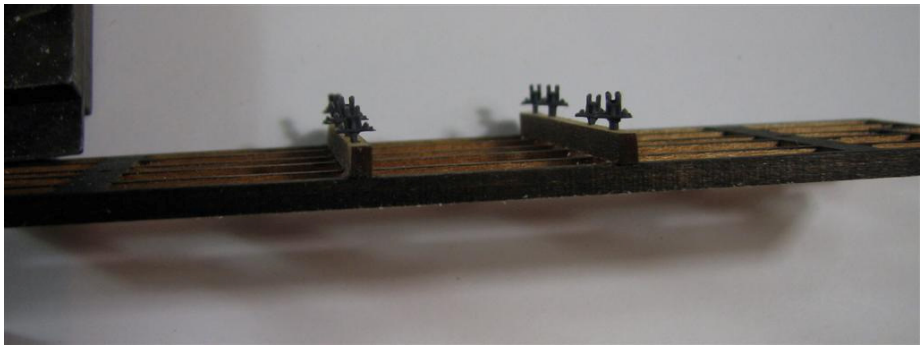


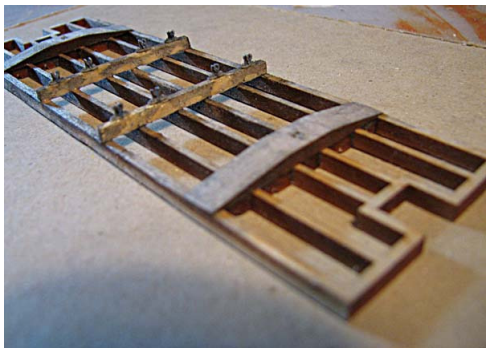
The next step is the Bolsters included in the kit. The full bolsters need to be tapered as shown. I use my Xacto to carve the taper, holding the bolster on end on the cutting mat. Then a little sanding afterwards, making sure NOT to have a "chisel edge" end.



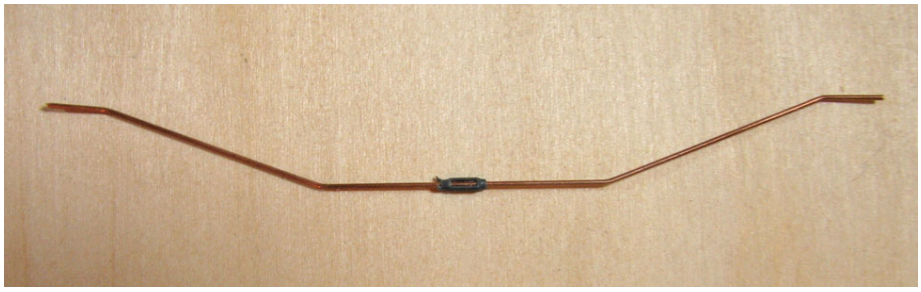
Glue the round or full bolster to the frame bottom. Drill the bolster with the appropriate hole size for your truck screws using the hole in the frame top as a guide.

Trim the queenposts from their sprue and cleanup any flashing. Insert them into the holes in the needle beam leaving them partially inserted. Then using a paper clip or toothpick, apply CA "super glue" to the shafts and push them down tight to the beam. Do this one at a time and make sure they are aligned with the beam so the trussrods will slide through them properly, turning them as required before the glue sets.



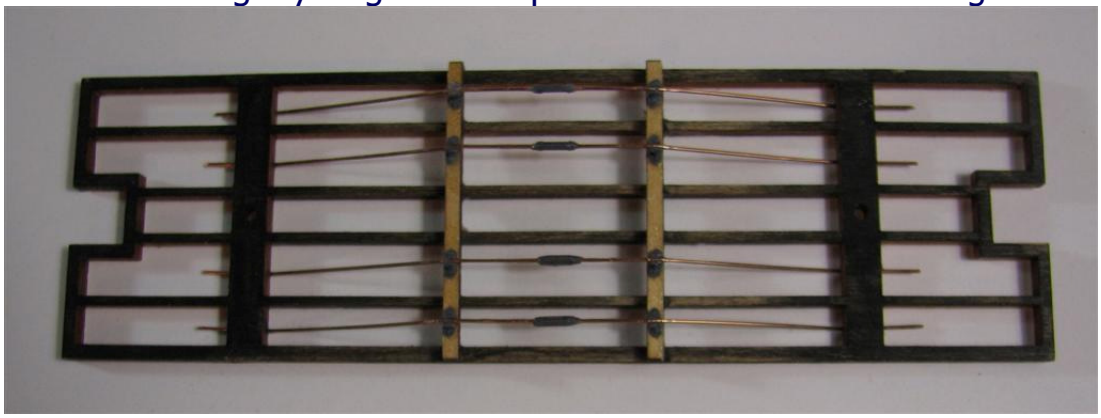


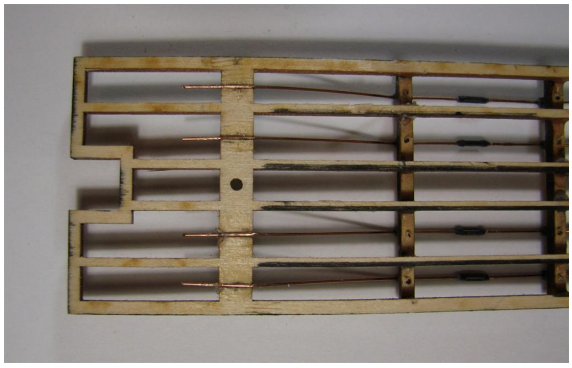
Now take the four, 4" long pieces of wire in the kit for the trussrods. You need to bend each of these to fit the queenposts and over the top of the frame bolsters. You can make a bending jig or simple use flat face pliers. Lay one wire into the queenposts and with a black marker, mark the edge of each queenpost on the wire. Then holding the wire with the pliers, bend it slightly with your fingers. Both ends must be bent as shown. Do NOT over bend the wire! Make sure your bends are aligned with each other and not rotated or the wire will not lie properly in the queenposts and bolster slots. As I said earlier, you could use nylon fishing line (not supplied; about .020 diameter) and drill the end beams for the line. The photo below right is using .019 beading wire and runs through the end beam.



Next, insert the wire in the queenposts and over the bolsters aligned with the slots. You can mark them and then bend, but I was able to put a couple of small spring clamps on the queenposts to hold the wire in place and then with my small flat pliers, reach in next to the bolster to hold the wire and bend it with my fingers. Again, do NOT over bend. After bending, lay the wire in the slot and make sure it looks correct from the side view. You can make slight adjustments with your fingers. Over bending will result in the wire having a "bowed" shape which is not desirable. Slip the turnbuckles over the wires and place them near the center.

Put the rods back into the queenposts and over the bolsters, one at a time and hold them tight into the queenposts (I used my small spring clamps). From the top of the frame, push the rod into the slot, hold it there (I used a small clamp on the extended end) and apply CA (super glue). Glue both ends and each rod one at a time. After dry, turn the frame over, bottom up. Move the turnbuckles to the center, between the queenposts. Now apply CA to each queenpost and wire and to the turnbuckles. You can turn the turnbuckles slightly to get a side profile of them when looking at the finished model.



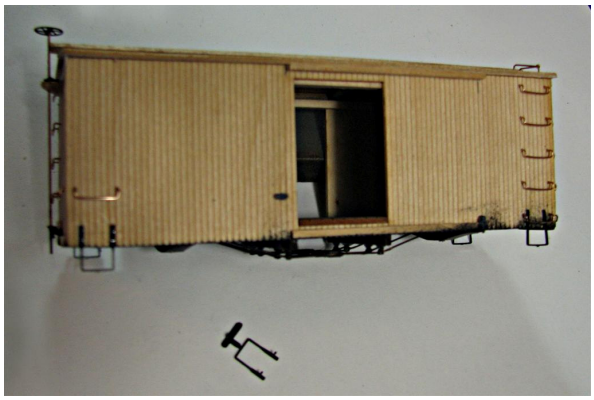


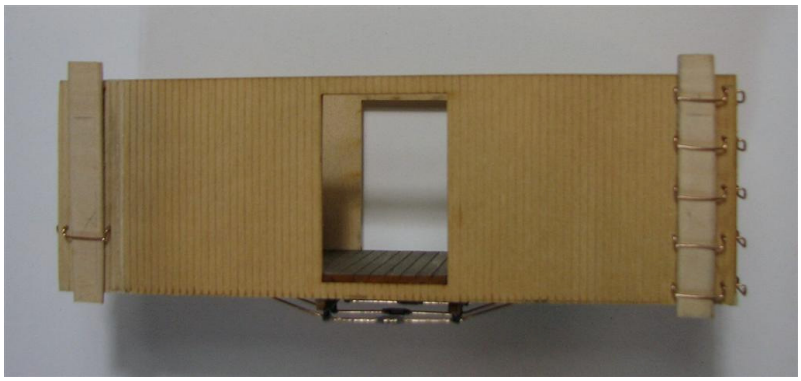
After the glue dries, trim the trussrod ends with your cutting pliers

NOTE: The current new kits have the coupler pocket block still in place and the End panels do not have a coupler notch. This allows you to set the coupler height for your railroad. Temporarily install the trucks on the frame and put it on tracks with one of your finished cars and determine (and mark) the coupler height. If you need the coupler to sit up into the cut (either part or fully) you can remove the block (or trim it to correct height) and cut the End panel notch to match. Or, you can just leave the block in place and mount your coupler to that, below the End panel.
You can now glue the floor to the top of the frame. Make sure all edges are flush and do not overhang the frame. You can sand it if it does.

SIDES & ENDS

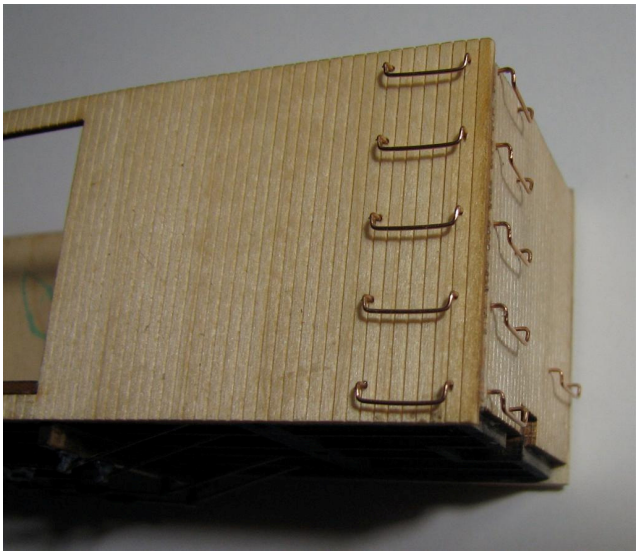
The kit has two sides and two ends which are precisely cut to fit the frame. I've added the grabirons both ways; before and after and I think before works better.
NOTE: With the latest batch of grabirons I received from Tichy, I noticed they weren't bent exactly square on each end. I had to take each one and hold it in my flat nose pliers and bend it slightly. If you place a grabiron in a pair of holes, you'll see what I mean. They kind of tilt to the right and need to be fixed now. Later will be too late and your car will look strange with all the grabs tilted.
Before actually attaching the wire grabs, locate and glue the drop stirrup irons. I forgot mine and had to do it later. The older kits had Tichy stirrups which were simply glued in place with CA but the newer kits use Grandt stirrups which require a hole to be drilled. Refer to my photograph and locate your stirrups and the hole locations. Drill with a #74 - #76 drill (.020" - .022"). Keep the holes the correct distance apart to avoid the angled ones I ended up with. Now apply a drop of CA to the holes and press the stirrups into place. You can apply a drop more CA to the outside after assembly. New kits include 8 stirrups so that you can also add them to the ends also. Drill the ends for the stirrups at the bottom in the same manner.





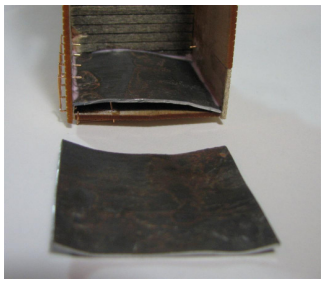
Insert the wire grabirons into the holes, one row at a time. Slide a 1/16" spacer behind them and hold in place (I use tape). Now apply a drop of CA to the back of each grab

wire. I sprayed the AC with accelerator to speed up the process.



You can now trim the inside of the grabs at the corners. Leave a nub with glue(do not cut flush). They will hit each other when you assemble the sides/ends if you don't trim them.

Now glue the sides and ends to the frame and floor assembly. The bottom of the sides and ends should be flush with the bottom of the frame. I like to glue one side in place, then the two ends, gluing the corners together, and then glue the other side to the frame and ends. Try to keep everything square as you do your glue up.
The next step is an option that I like to include at this point (it may get forgotten until too late). These cars are light weight so I try and add enough to meet the NMRA HO specifications. I have a lot of sheet lead left over from home improvement jobs and roofing work but this is also available at lumber yards. You may have other favorite weights. I cut a piece of the lead to fit inside the boxcar end. Then slide it in place and glue the mating joint with sufficient wood glue to lock the weight in place. With the Reefer, if the doors are to remain closed, you can simply glue the weight to the inside floor of the car.

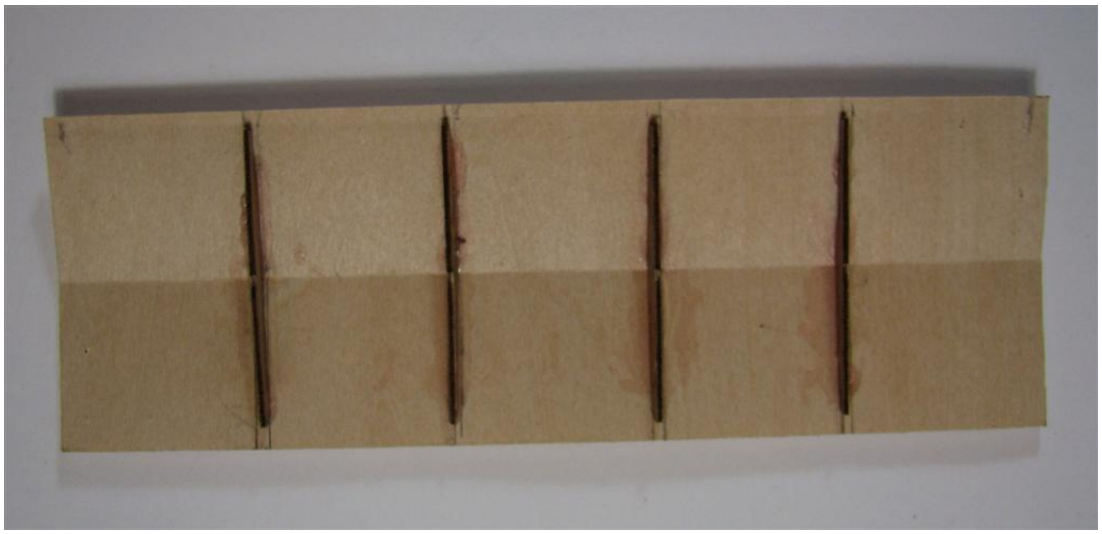


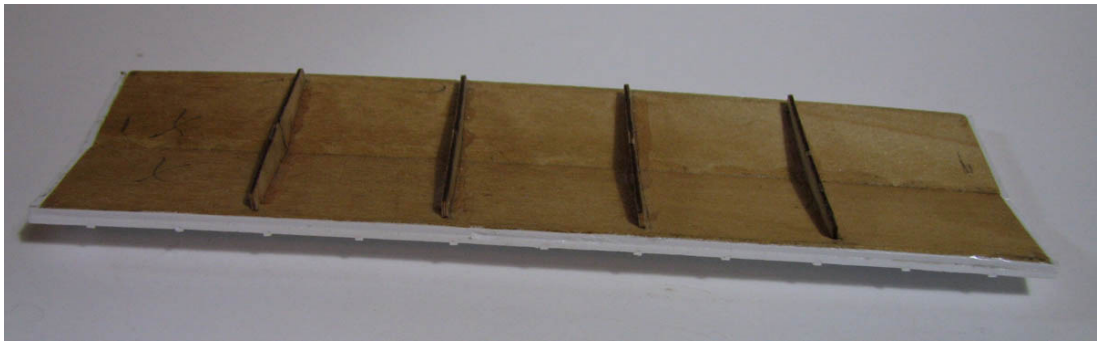
It was at this time I noticed the sides had a slight ripple to them. If you notice this with your kit, add the top braces as shown from some scrap wood. Just keep the braces down low enough so as not to interfere with the roof trusses.

ROOF

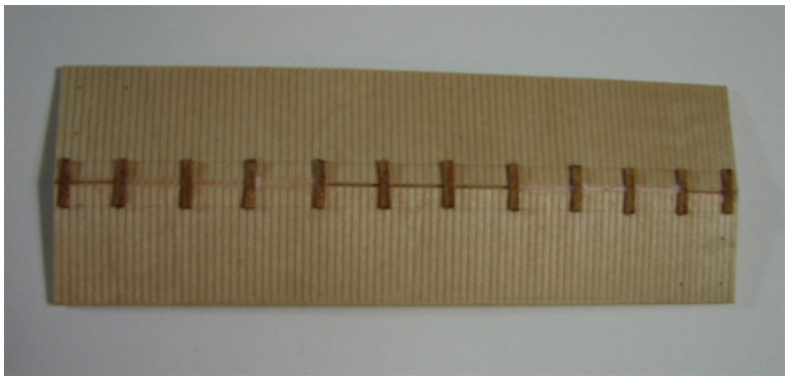
The roof has a laser marked centerline to use for bending the roof angle. You will need to cut this deeper with your knife....go slowly.... until you can bend the roof slightly.
Next, mark locations for 4 of the roof trusses, equal distance apart and away from the ends. Also draw lines along both inside long edges to indicate the length of the trusses so when gluing you don't get them out too far that they will hit the side(s).
If you decide to create a canvas or metal roof (not included) you might prefer to use some flat basswood or balsa for the roof and then glue the material to that. Or turn the roof in the kit over and use the flat side (except the roof corner brackets will have to be re-located.
OPTIONAL: On my build, I covered the roof with standing seam metal (Evergreen Plastics sheet, ½" spacing). Canvas can be simulated using old tea bags or model airplane paper or gift wrapping tissue paper. I noticed on my roof, that it bowed after attaching the plastic sheet which required me to cut notches on the underside, in the wood every ½" or so, to allow bending the roof back down onto the ends later on. I think this was because of the dissimilar materials and the glue I used.

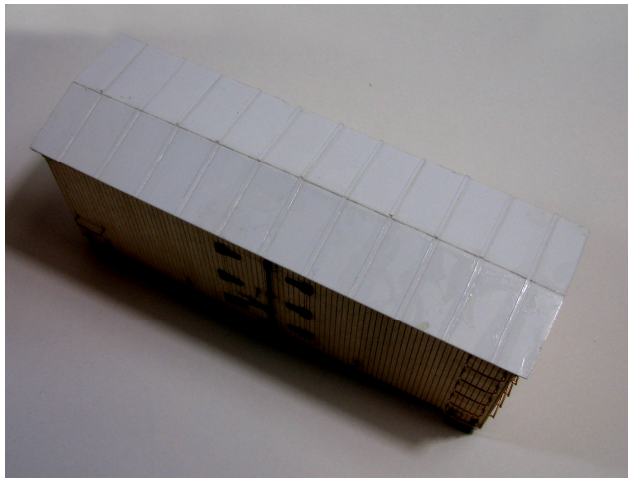
When gluing the trusses, I like to tape one edge of the roof, upside down, to my table to hold it. I then apply a bead of glue on the flat underside for one truss and put the truss in place, making sure it doesn't go outside the edge line and lines up with the center crease. Once set up, I glue a second truss in the same way. After glue dries, I fold the roof to meet the other edge of the trusses. If it looks OK, I put lines of glue down and bend the roof to the trusses, holding in place and letting it dry. Then I add the last two trusses, holding the bend in the roof with some light rubber bands. Be careful not to over bend the roof.
Once dry, try the roof on the car for fit. Check the underside overhang on the sides. If necessary, the ends of a problem truss can be cut or sanded back slightly so as to not hit the sides.





Next, layout the top of the roof for the walk supports. These are about ½" apart, center to center. Also mark lines the length of the roof for the ends of the supports to keep them centered over the peak as you glue them. Apply glue to each roof location and put the support in place.
Continue until all 12 supports are down.

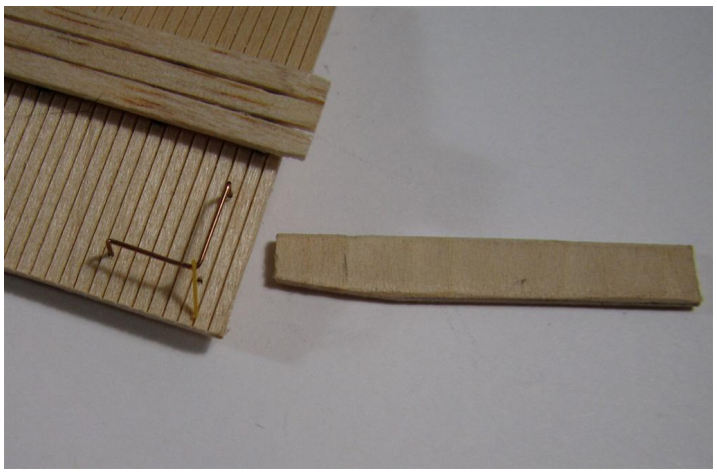


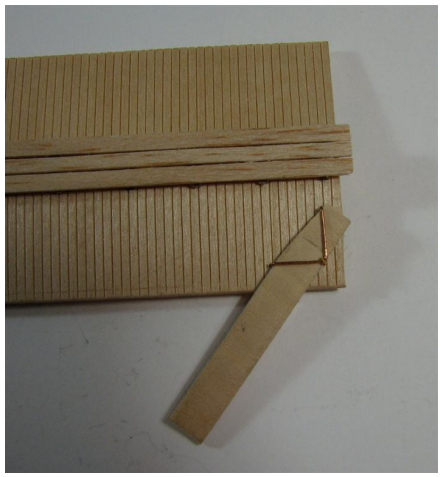


On my build, with the styrene roof, I glued the walk supports to the actual walkway boards, spacing them out properly (½") and then attached the walkway assembly to the roof using CA after painting. For me, this was the better method. I also applied styrene strips around the underside edge of the roof.

The Hatch Frames are square and can be glued to each corner as shown. If you decide not to use the corner roof grabirons, the hatch base can be located to cover the holes in the roof. Otherwise, the base must be kept back, just flush to the holes to allow installation of the corner grabs. The Hatches can then be glued on top of that. If you want the hatches to be open, you can glue them in that position. The latest kits include both a hatch frame and the hatch.
With my roof, I made some styrene roof frames, cemented them to the roof, and then cemented the hatch to that. If you have your hatches open, paint the inside of the frame cutout black to simulate a dark interior of the car.

If your kit is going to have corner roof grabs, install them by sliding the eyebolt over the wire grab. Then push the two wires of the corner grab, part way into the roof, leaving the eyebolt loose at the corner. Now, lift the corner slightly and push the eyebolt over and into the hole as shown in the first photo below. Once all three are in their holes, slide a 1/16" spacer underneath, hold the grab tight to the spacer and apply CA glue to the back of the wires and eyebolt. I used an accelerator on these to speed the drying time.





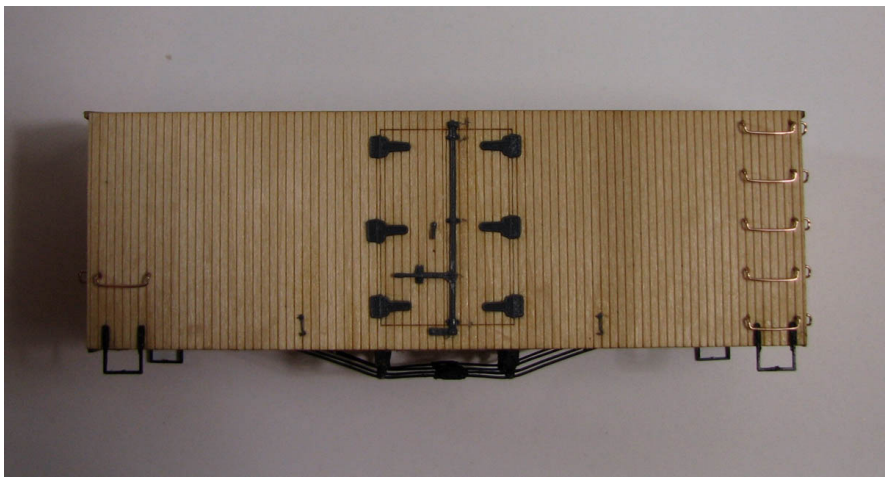
You can now glue the roof to the car. Apply glue sparingly to the tops of the sides and ends and place the roof down. Make sure the reveal is equal all the way around under

the roof edges. Adjust as necessary and hold down with rubber bands. Do not put them on too tightly as it may warp the roof or sides.
Note: Because I have a metal roof and will paint it a different color than the body, I waited until the end to glue the roof down. I did prime both assemblies separately.
Now, if you haven't done so previously, add the three walk boards to the roof. Apply glue sparingly to each roofwalk support and place the boards down, one at a time, keeping them aligned with the support edges and straight. These boards are meant to be a scale 6" wide (.125") and can be trimmed or lightly sanded to width if necessary.

Included in the kit is a 1¼" length of .015 wire for use on the roof hatches. You will have to cut these to 5/16" length and bend these to fit the hole spacing in the hatch. Use CA glue to attach them.

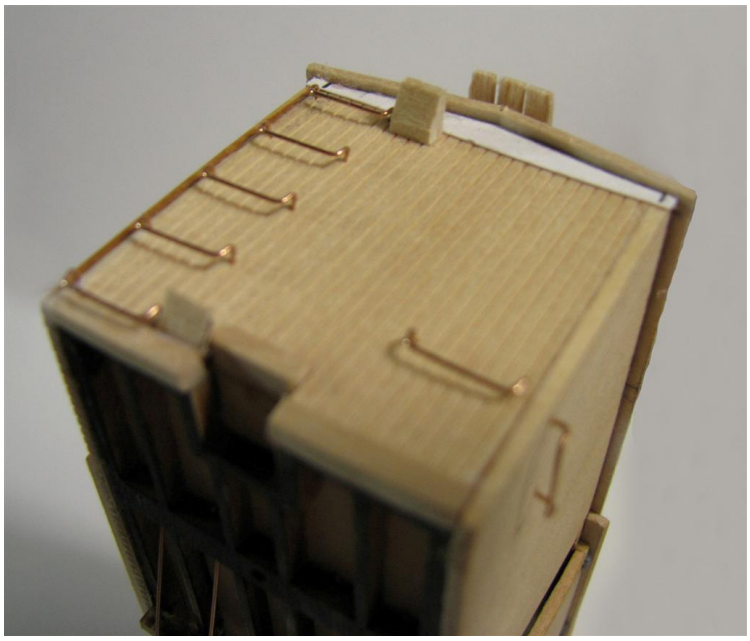
SIDE DETAILS

The kit includes detail door hinges and latch. When I apply these, I either apply a drop of CA and slide them in place or hold them in place and apply a drop of CA at the contact points. On my kit, I applied the details before painting. I think this was a mistake. It was difficult re-painting all the little parts after the finish was done. My next one will have the details added AFTER the sides are painted the final color.

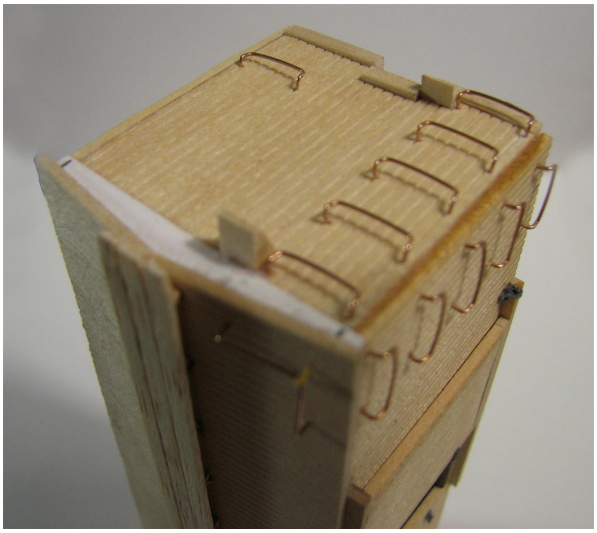


END DETAIL

You need to decide the height of your car at this time. Screw your trucks to the frame temporarily and check for the coupler height with one of your other cars. Based on this observation, you may need to cut the notch for your new couplers in the bottom of the end panel to match the coupler pocket in the frame.. If your car sits higher, then add a filler block in the frame pocket to mount the new coupler to. If desired, you can apply the coupler frame, from the sheet in the kit, around the cutout opening in the end panel. You can also decide if you want the gable board at the top of the end panel. You can use the two left over roof trusses or use a piece of card stock or manila file. Cut to size and glue in place.



Next, make up a top and bottom brake shaft support from scrap basswood (not included). I cut my pieces 3/32" long and 1/4" wide. I then used my Xacto to cut an angle on the top support, leaving a slight edge to make it look like a platform. I did the bottom one the same way except I cut it a little shorter (see photo). I then glued both of these pieces to the end, next to the grabirons. Once dry, I drilled them for the shaft using a #70 (.028) drill. Use care and support the parts with your fingers when drilling.

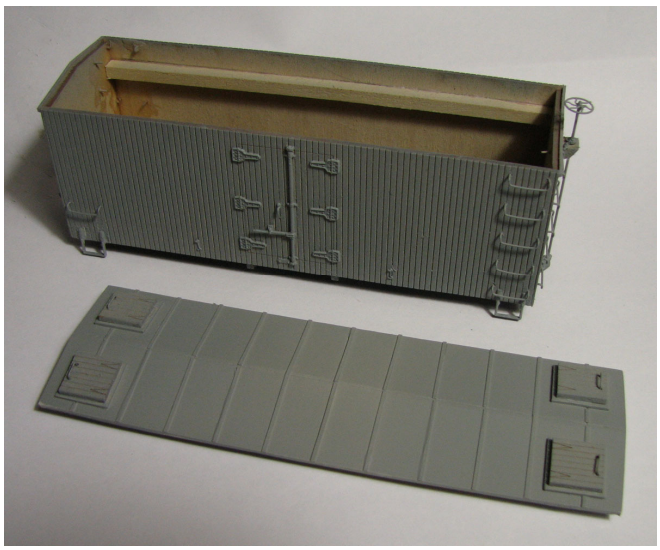


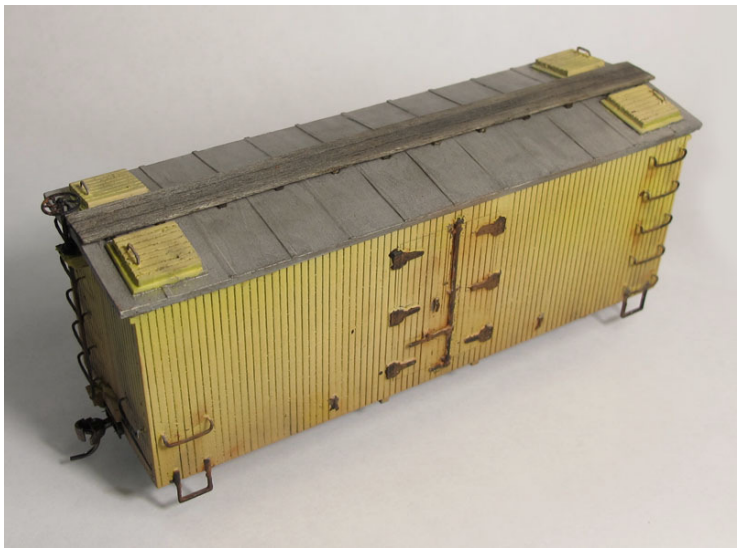
The last photo shows an option one modeler used for his brake shaft. If your eyes and hands are better than mine, you can do this also.

FINISHING

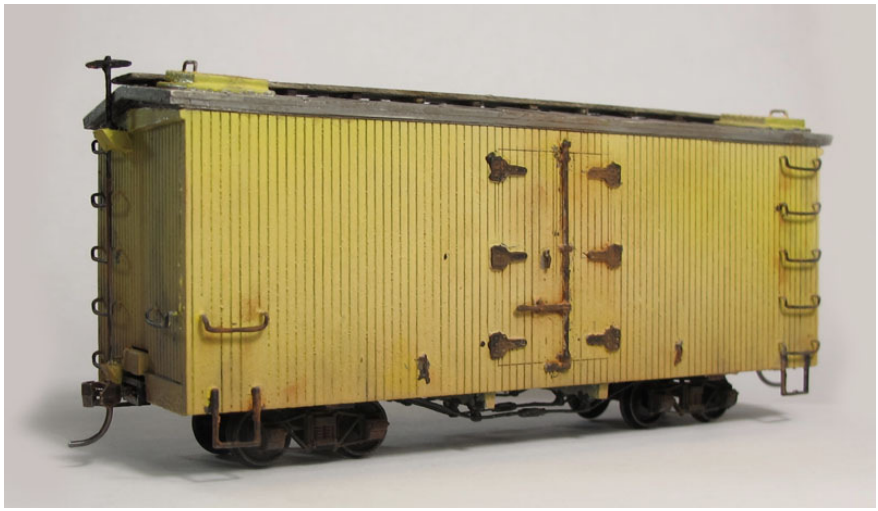
I chose to paint this car after assembly. I first primed the car using a can of Wal Mart gray. This is inexpensive and works well because there are no added fillers in the paint

to hide details. As I said before, because the roof will be a galvanized roof color and the sides a different color, I kept them separate as shown below.





After the primer dried, I used the airbrush to paint the car. Finally, I used black paint for the grabirons and hardware. A gentle touch is needed here, although I did have to go back and touch up a couple spots with the body paint. Next time I'm going to try a metal blackening chemical on the wire parts. And as I said before, my next build will have the detail parts added after the final paint is done. Now add your trucks and couplers.



Add decals and lettering for your RR, then weather the car appropriately. Place it on the layout, load it up with freight and start making deliveries to your cities and towns.
I hope you have found this kit enjoyable to build. If you send me a photo, I'll add it to the gallery here. And as always, any suggestions are appreciated. I try to keep costs down to make these kits affordable to you and writing these assembly instructions here is just one part of that. If you note an error or have an improvement, let me know.