

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.

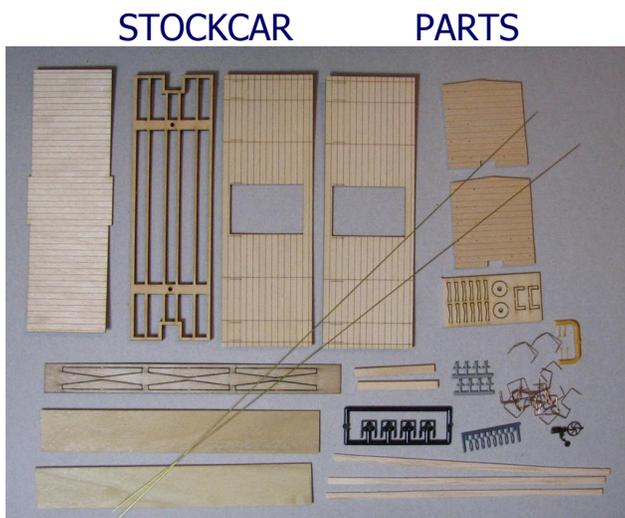
I do recommend having trucks and couplers on hand so they can be used to determine your final dimensions. Most kits include grab & step irons, truss rod wire & turn buckles and other various items for each particular car. You can add additional items as you desire. Most detail parts are available from Grandt Line, Tichy and others.

You can also modify the wood parts to get a shorter or narrower car, or you may want to make a full width bolster or you might want to add a name board or an end beam. The point is, make it your own. Now for my tips.

## Stock Car Assembly

Make sure you have all the parts shown in the photo. Any missing parts will be sent free of cost. 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. I use Pink Flamingo glue from Northeastern for all my wood to wood joints and Rhino Glue CA (super glue) for dissimilar items like wire and plastic. You may have your own favorites.

**Note:** I have made some changes to the kit since this was built. Side bracing and diagonals are in the kit main package as stripwood and must be cut to length. Current kits have optional doors. Either vertical slats like D&RGW or horizontal slats like C&S....your choice. Door frame and diagonal braces (included) should be added accordingly. Bracing for the ends is also included. The ends may or may not be notched for the coupler box; modify to suit your other car couplers. And there now is sliding door hardware, end beams and NBWs in the kit.



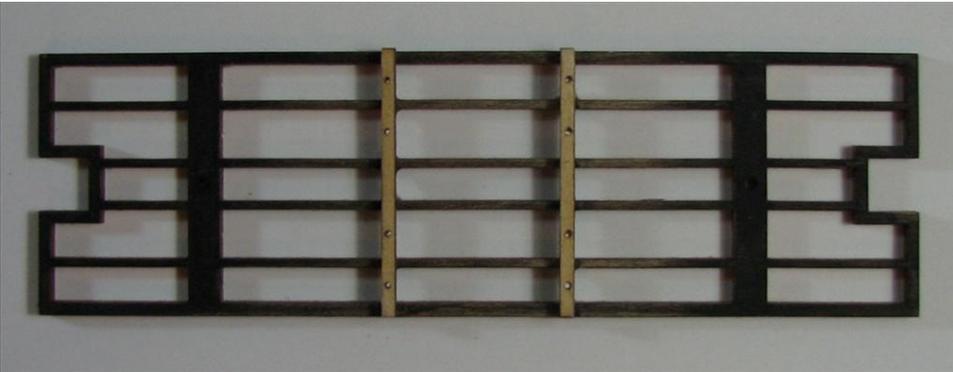
**NOTE:** After my most recent assemblies, I believe it is preferable to paint or stain the sides, ends and roof, prior to gluing them together. And then add the small detail pieces

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 block for the grabirons, trussrods and brake shaft in the future.

## **FRAME**

The first step is to work with the frame. Find the needle beams (4 holes in them) and use the holes to mark locations on the top of the frame bolsters. Then cut shallow grooves with your razor saw to accept the .025 dia. truss rod ends. Newer kits have these marks laser scribed on the frame. You could also use fishing line or beading wire for the truss rods. 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"



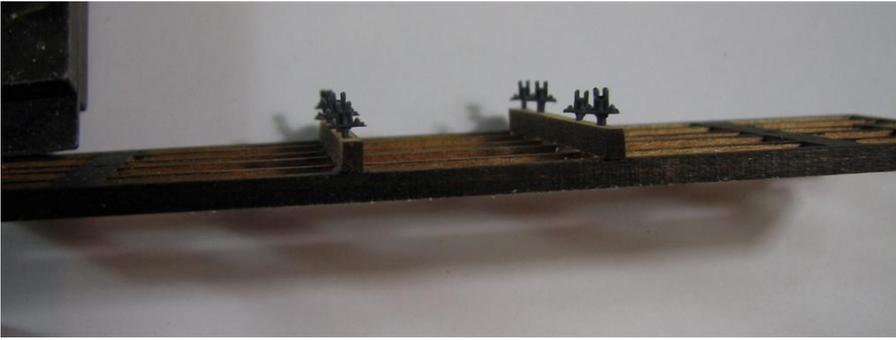
to .040") all the way through. Newer needle beams have the holes laser cut through them. Make sure to hold your drill perpendicular to the frame and beam when drilling.

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 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.

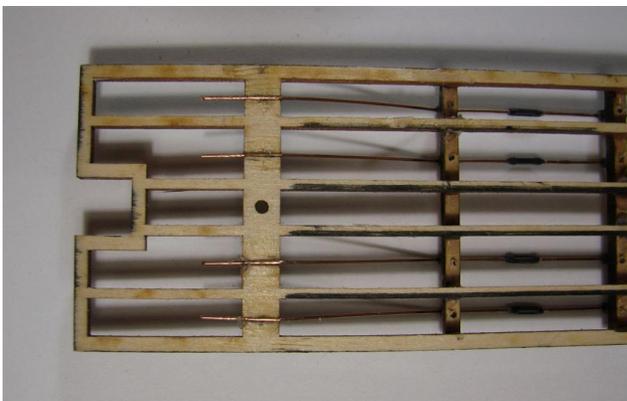


Now take the four, 4" long pieces of .020 dia. wire in the kit for the trussrods. You need to bend each of these to fit the queenposts and over the top of the frame bolsters. You can make a bending jig or simple use flat face pliers. Lay one wire into the queenposts and with a black marker, mark the 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.

Next, insert the wire in the queenposts and over the bolster tops 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.



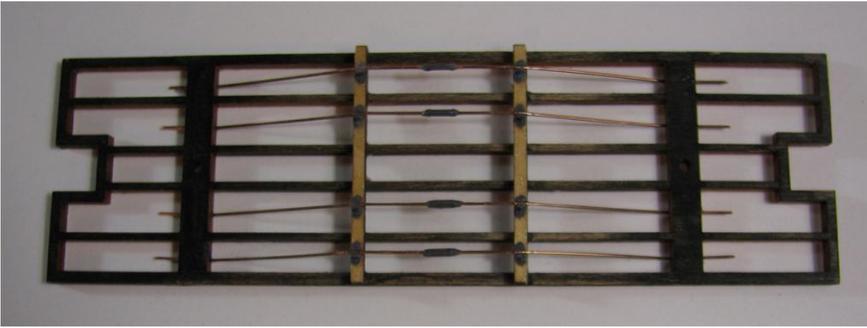
Put the rods back into the queenposts and over the bolsters, one at a time and hold them



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. If the rod moves out of the queenpost, that means they are over bent and should be flattened so they will remain in the QPs,

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. Do not apply too much glue to the TB or it will fill in the center.



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.

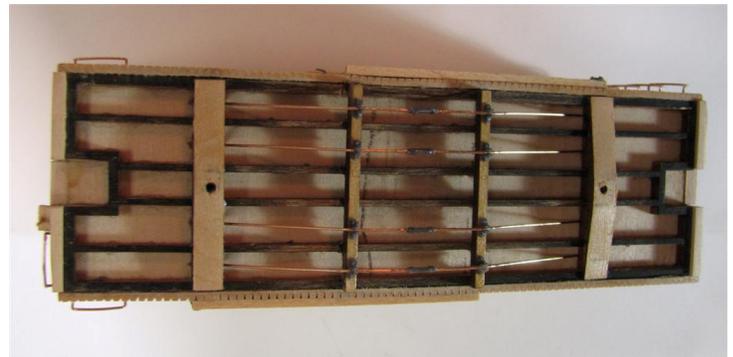
You can now glue the floor to the top of the frame. Make sure all edges are flush and do not overhang the frame, except at the doorway opening. You can sand it if it does.

## **OUTSIDE BRACES**

The braces should be glued to the sides and ends before assembly and the grab iron holes drilled through the braces.

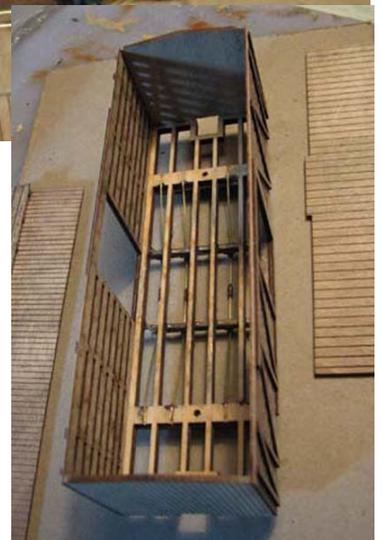
The kit includes stripwood for the vertical and diagonal braces. You will need to cut them to the correct length before assembly. There needs to be vertical braces glued over the rows of grab iron holes and where the laser marks are on the sides and ends. Also a vertical brace on each side of the door opening. Diagonal braces should be cut to the correct length & angle after the verticals have been installed and then glued in place between each vertical brace.

Now drill out the grab iron holes through each brace, from the inside of the sides and ends, using the laser holes as a guide, with a #76 (.020") drill.



## **SIDES & ENDS**

The kit has two sides and two ends which are cut to fit the frame. Glue the sides and ends to the frame and floor assembly. The bottom of the sides and ends should be flush with the

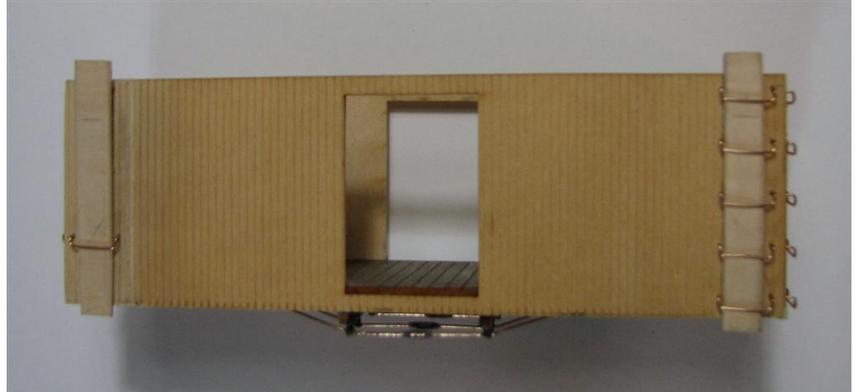


bottom of the frame. I like to glue one side in place, then the two ends, gluing the corners together, and then glue the other side to the frame and ends. Try to keep everything square as you do your glue up.

I've added the grabirons both ways; before the sides assembly and after and I think after assembly works better. Your choice.

**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 dab more CA to the outside after assembly.



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 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 in the corners if you don't trim them.

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 weight to meet the NMRA HO

specifications. I have a lot of sheet lead left over from home improvement jobs and roofing work but it is also available at lumber yards. You may have other favorite weights or methods. I cut a piece of the lead to fit inside the stockcar end. Then slide it in place and glue the mating joint with sufficient wood glue to lock the weight in place.

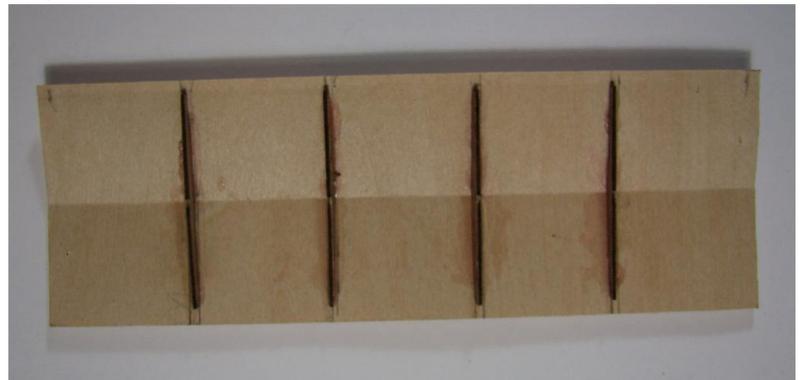


It was at this time I noticed the sides had a slight ripple to them (I had used older parts for this build). If you notice this with your kit, add an inside top brace, from some scrap wood.

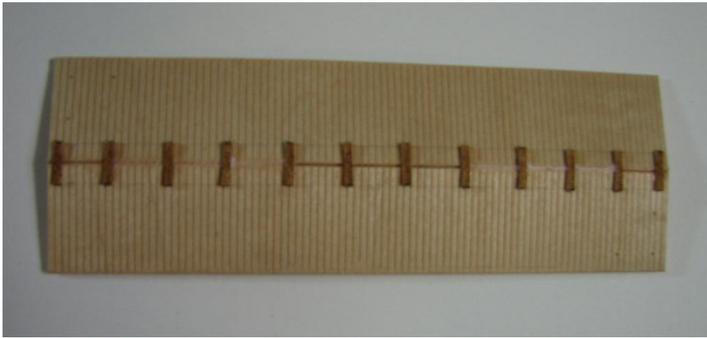
## **ROOF**

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, watch for wood grain deflection.... 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 truss so when gluing you don't get it out to far that it will hit the sides(s).

I like to tape one edge of the roof, upside down, to my table to hold it when gluing the trusses. I then apply a bead of glue on the flat underside for one end 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 the other end truss in the same way. After set, I fold the roof to meet the other edge of the truss. If it looks OK, I put lines of glue down and bend the roof to the trusses, letting it dry (holding with clamps at the truss ends). 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. If necessary, the ends of a problem truss can be cut back slightly.



Next, layout the top of the roof for the walk supports. These are about 1" 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.

An option that I also like is to glue the supports to the 3 walkway pieces and THEN install the assembly on the roof.



Now, install the corner roof grabs 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

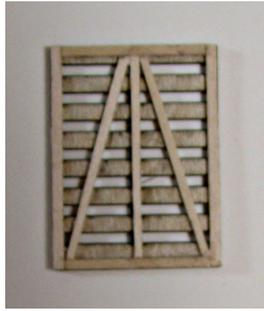
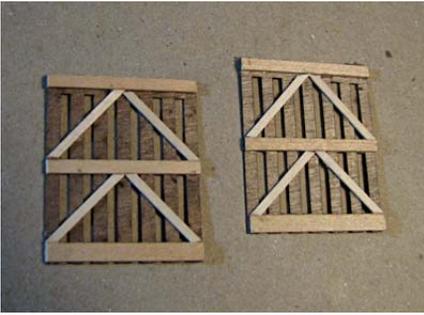


ends and place the roof down. Make sure the reveal is equal all the way around under the roof edges. Adjust as necessary and hold down with rubber bands. Do not put them on too tightly as it may warp the roof or sides.

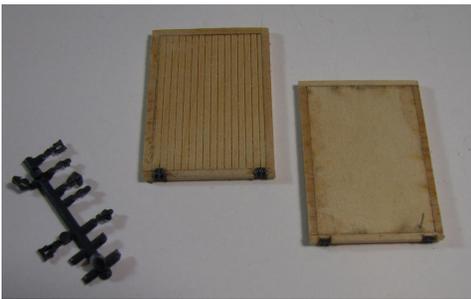
Now add the three walk boards to the roof. Apply glue sparingly to each roofwalk support and place the boards down, one at a time, keeping them aligned with the support edges and straight.

## **DOORS**

The current kits include a door option; either vertical or horizontal boards. Choose which pair you prefer and apply a frame around the door edges from the stripwood in the kit.



After gluing the trim, next is to add the hardware included in the kit. This is from Grandt and I wasn't too familiar with the items and how or where to apply them. I checked quite a few photos and believe I have ended up with a fairly accurate representation. I cut small notches in the top of each door trim to accept the roller hangers. I then used a small drop of CA applied to the notch and dropped the hanger into place. Next, apply the latch to the edge of the door. Photos are from the boxcar assembly which should be the same or similar.



Now apply the door guides to the sides of the car. The top guide should be applied first, under the roof overhang. Hold it in place and put one of the doors up to it to make sure the door covers the opening properly. If it looks right, glue the top guide in place with the 1/16" side glued to the side and the 3/32" projecting out (to match the door). After the glue sets, place a door on the side, and up to the top guide. Place the bottom guide on the side, against the door bottom. If it looks correct, glue it in place, using the door as a spacer at the front and rear of the guide. If you do this like I explain, the door will be movable when you're done (sliding in a friction fit). Just make sure to remove the door while the glue dries and wipe any excess glue off the door bottom. You may also want to mark which door goes on which side in case they are slightly different sizes.

Once the guides are dry, put the door in place and mark the latch opening location on the side, then drill a small hole in the side, for the latch dog handle. Use a drop of CA to glue the handle. Also glue the door stop at the end of the bottom guide.



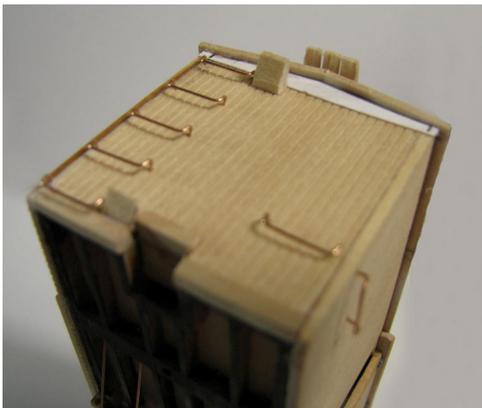
## **END DETAIL**

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 glue the end beam and NBWs in place at the correct height.

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 do as I did (my roof was too short) and use a piece of card stock or manila file. Cut to size and glue in place. If you have braces already going up to the roof, they could be trimmed and removed.

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 third 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.

Slide the brake shaft through the holes in the blocks and apply CA to the shaft. Slide the brake ratchet and then the wheel onto the shaft and apply CA to hold.

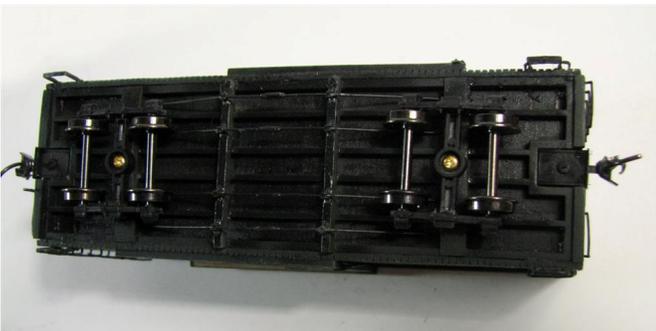
## **FINISHING**

I chose to paint my car after assembly. This was not the best choice and my future cars will be painted before assembly.

But in this case, I removed the doors and placed tape on the flooring. Then I put paper towels into the openings to prevent paint from getting inside. I added scotch tape strips to the door guide edges so paint would not build up and prevent the doors from sliding. I first primed the car using a can of WalMart gray. This is inexpensive and works well because there are no added fillers in the paint to hide details.



After that dried, I used the airbrush to paint the car. I sprayed the doors separately, taking care not to get paint on the running edges. After the paint dried, I removed the tape and scrapped any paint from the door guides, testing the doors for fit. I added a little A&I stain to the door guides to cover the new wood look. 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. Now add your trucks and couplers.



Finally, add a road name board to each side of the car. You can also add number boards or whatever lettering is appropriate for your railroad. And add any weathering touches you'd like. You're now ready to move those cows and pigs to market or bring some horses

out to the farms on your layout.

And don't forget to send me a photo of your finished car to add to the gallery.

I try to keep costs down to make these kits affordable to you and doing these assembly instructions here is just one part of that. If you note an error or have an improvement, let me know.