

## IV. Kitbuilding

I have omitted information on ready-to-run (RTR) two truck freight cars and passenger equipment because Bachmann trains are the primary source and the reader is probably already familiar with what is available; there is no need to reproduce the Bachmann catalog.

Granite Creek Enterprises also offers RTR two truck cars and a look at their website will reveal current models ([www.granitecreek.us](http://www.granitecreek.us)).

Instead, I have focused on the three methods of creating cars: kitbuilding (this chapter), kitbashing (Chapter V), and scratchbuilding (Chapter VI).

### What Is A Kit?

A kit is a collection of parts and a set of instructions which describe how to assemble the parts. The parts may be made from various materials such as wood, resin, brass, or plastic. The instructions may be text, drawings, photos, or a combination of all three.

Not all kits provide all of the parts necessary to build a complete or functioning model. A common practice in model railroading is to omit the trucks and couplers. This reduces the cost of the kit and lessens the financial responsibility of the manufacturer who does not have stock these parts. But this leaves the modeler with the problem of which trucks and couplers to use and how and when to mount them on the car because the instructions usually only focus on building what is in the package, not on how to make the car a part of a train.

“Detailing” is the addition of details to give the kit a more realistic appearance. Research is done to discover what details were on the prototype and then these parts are purchased or made and added during construction.

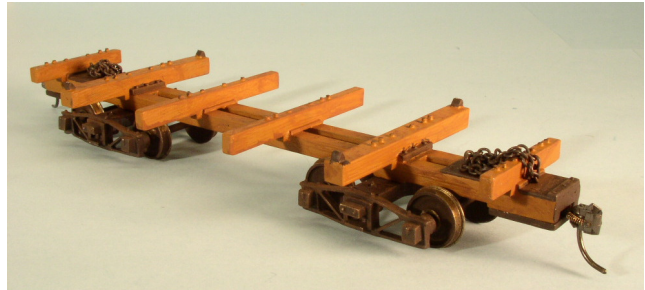
### A Survey of Three Kits

The three kits presented below show the variation of kit design and complexity.



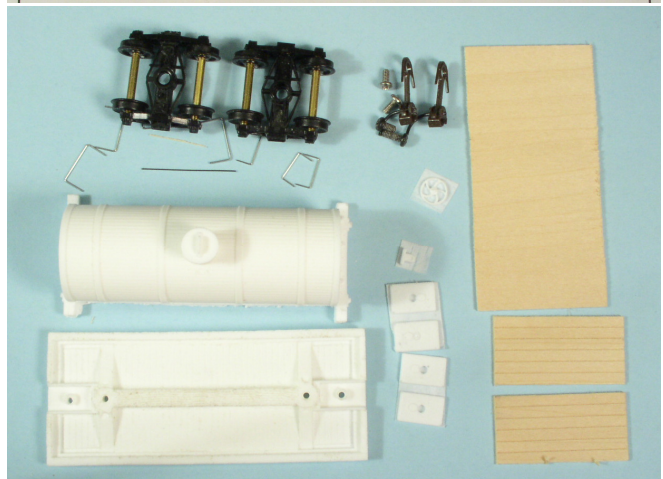
### Alan Curtis Models—On30 25ft. Log Car Kit

This kit contains thirteen parts. The eleven body components are cast in metal and two screws are included for the draft gear covers. Trucks and couplers are not included. Kit assembles easily with CA glue.



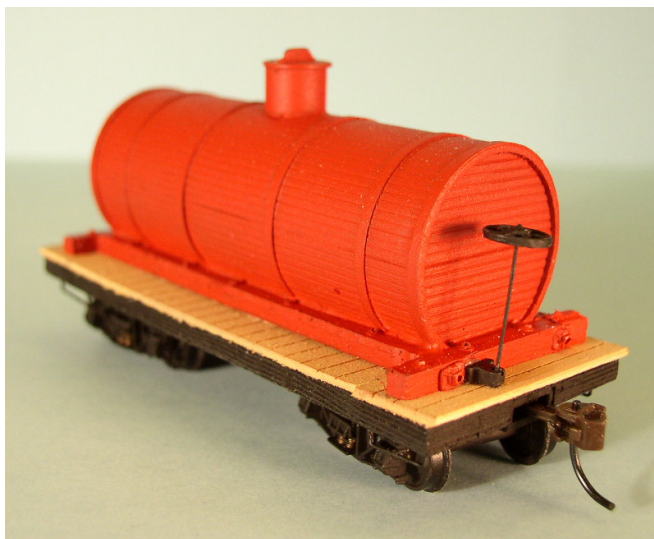
Completed log car kit with Alan Curtis Models Archbar Trucks, Northwest Shortline Wheelsets, Kadee HO couplers, and Builders in Scale chain. Car body is painted flat brown and the trucks and a few details painted rust.

### Rio Grande Hobbies—Porter Wooden Tank Car Kit



Body, floor, and brake wheel are cast resin, the floorboards are scribed basswood sheet. Stirrups and brake staff are wire. HO trucks and HO couplers included.

Test fit all the pieces of the kit starting with the trucks and couplers. Install them and check for proper operation. Test fit the floorboards to see if they need to be trimmed. Test fit the tank to see that it sits flat on the floor. Assemble the brake wheel and staff and fit into ratchet/pawl detail. Once the fit is good, remove all parts and paint as desired. Assemble with CA glue.

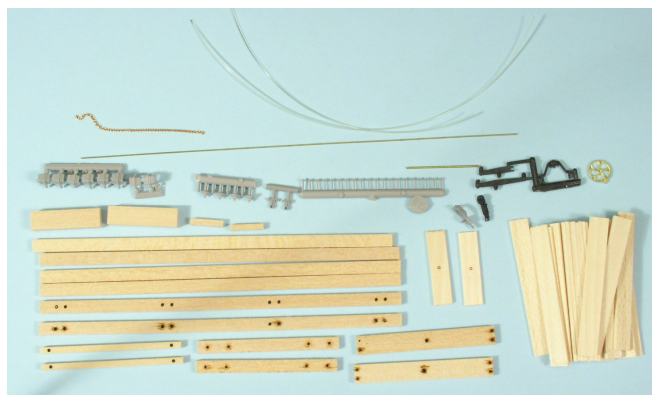


The finished car. Tank is painted red, underframe and brakewheel are black. Scribed floor was not painted.

### Evergreen Hill Designs—On30 Shop-Built 20' Flat Car Kit

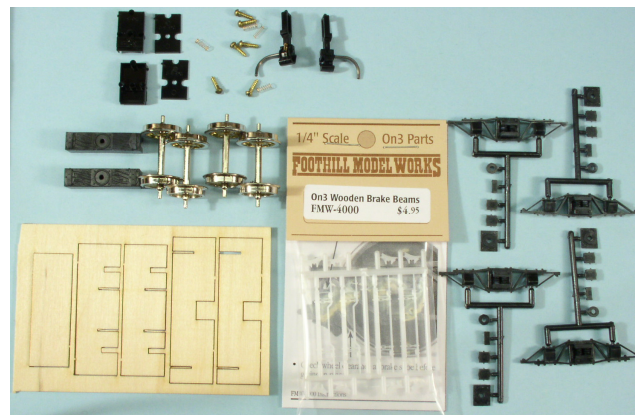


This kit is available in On3 or On30 versions, the difference being in the spacing of the wheels on the axles. The car includes On3 couplers which are at On3 height. HO couplers can be added by the modeler if the car is to be used in a train with smaller HO based cars.



This kit follows in the tradition of realistic board-by-board wood kits. It has a lot of parts and will take longer to construct than simpler kits.

Parts of the flatcar body. Main body is made of basswood, details are plastic and brass, brass wire is included for the brake staff and the grab irons. The dots on the wood pieces are holes to mount the details--a nice feature of this kit.



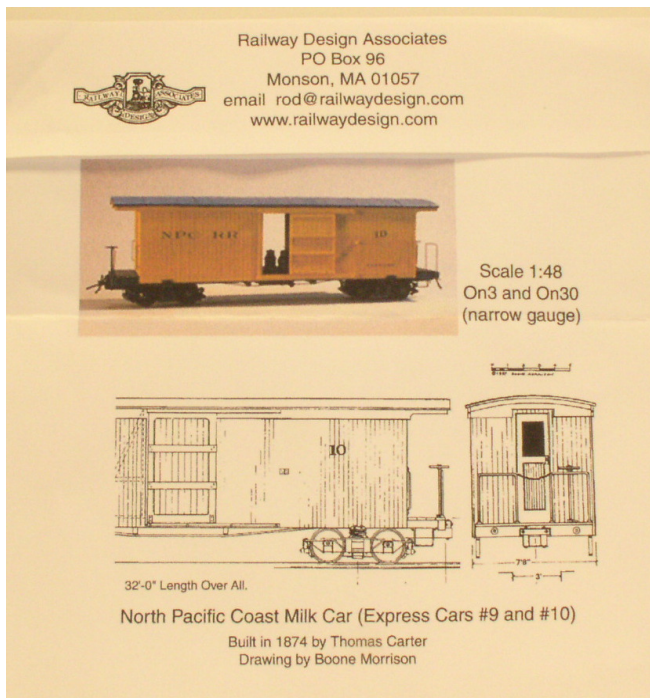
Trucks and couplers. Kadee On3 couplers and draft gear are shown at the top. The trucks come disassembled but a wood jig is supplied to make assembly easy. The wheelsets are nickel silver. Sideframes, bolsters, and brake detail are plastic.



Completed car painted light green with dark brown details for contrast. Floorboards stained with flat tan enamel.



## Building and Detailing a Railway Design Associates North Pacific Coast Milk Car Kit



### Parts List

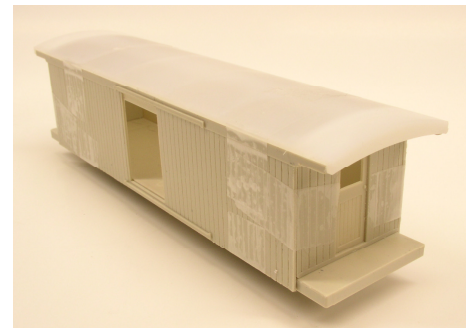
RDA North Pacific Coast Milk Car Kit  
Alan Curtis Models Arch Bar Truck Kit  
#AC-O-02  
(4) Jay-Bee HO 40" wheelsets #109  
(2) Truck Screws: wood screws #1 X 3/8"  
(2) Brass Washers #1  
(1 pr) Couplers: Kadee #5  
(4) Queenposts: Grandt Line #68  
Stirrups: 18# floral wire 6"  
(64) Floorboards: 1" X 6" X 8' (cut as needed to fit)  
Interior Bracing: .060 and .080 square styrene  
(4) Door Guides: .030 X .100 X 2 7/16"  
(the kit pieces were too short)  
(2) Doorknob: track nails  
(2) Grandt Line Brake Wheel #94  
Builders In Scale Chain 2 pcs. 12 links long  
Builders In Scale Tarpaper #261  
Weathered Red  
Republic Locomotive Works #241  
Sn3 decals  
Schomberg Barrels #113 and Sacks #151.



The kit does not include trucks and couplers so I chose Kadee HO #5 couplers, Alan Curtis Models Archbar Truck Kit, and Jay Bee #109 40" HO wheelsets.



Products used for detailing: Evergreen Scale Models styrene, Builders In Scale Tarpaper, Grandt Line Brake Wheels, and Schomberg Scale Models barrels and sacks.

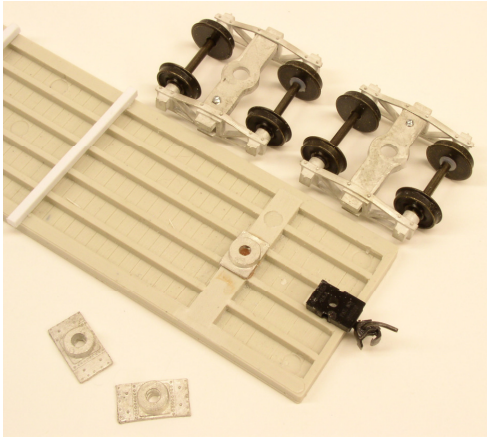


### 1. Dry Fit the Pieces

Use plastic nippers to cut the body and chassis parts from the sprues, then clean up the cuts, rough edges and flash with a razor knife, file or sandpaper. Fit these together with transparent tape. Check for a proper fit without any gaps at the joints. This process also helps visualize the model and can lead to ideas about adding details. Once the fit looks good, remove the tape and take the body off of the underframe.

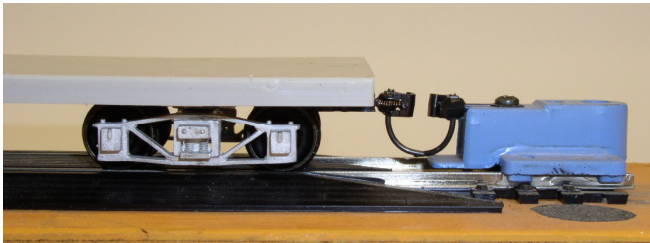
### 2. Setting Up the Trucks and Couplers

Trucks and couplers are the foundation of a good running train car. They should be mounted as soon as possible so that any special requirements for their operation can be accommodated with ease. Always design and build around the hardware.

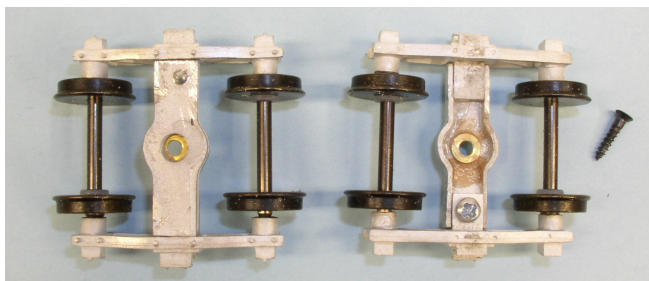


Components used for set up: the underframe with a Kadee #5 temporarily mounted, the two choices of body bolsters, and the trucks.

The instructions show that the couplers attach directly to the underframe. Smooth out the coupler mounting area and CA glue a combination of lid, coupler and draft gear in place. Do not use styrene cement as the coupler will not be able to be removed. Do both ends; a good idea in the event the underframe is thicker on one end or that the trucks have their bolsters at different heights.

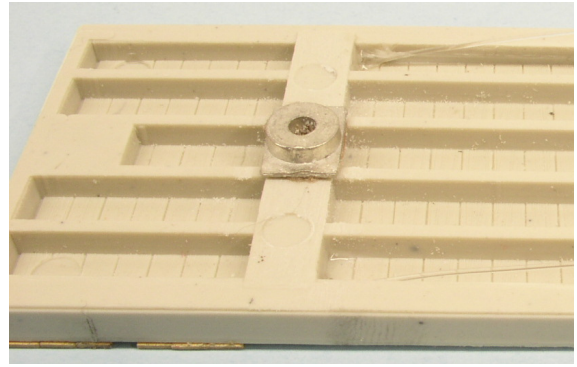


To determine which body bolster to use, assemble the trucks, set them on a section of track and set the underframe on them at the bolsters. Use a Kadee height gauge to check coupler height. Though not shown, the couplers are too low. Here the thin bolsters are set in place and the height is correct.

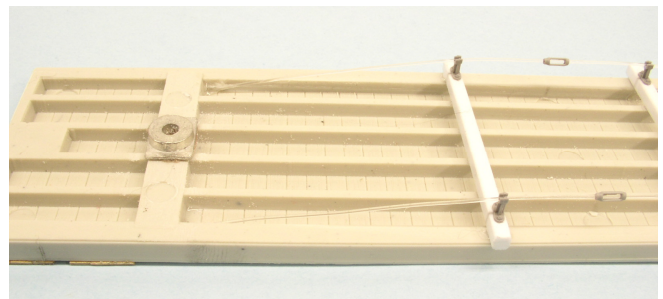


The holes in the truck bolsters are too large to hold the small wood screws. Glue a brass washer on the bottom of the bolster using CA and Walther's Goo.

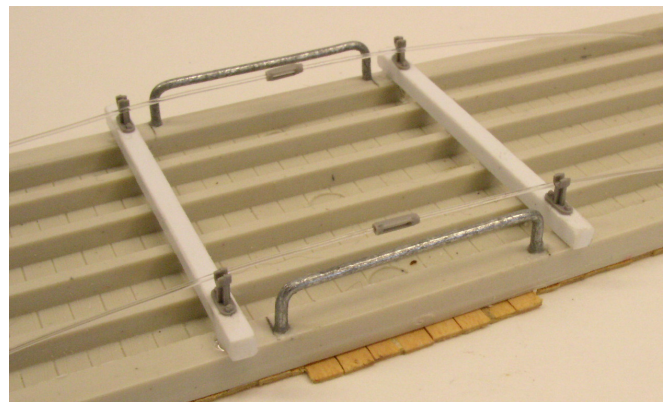
### 3. Building the Underframe



Remove the cast on details on the bolster and glue on the thin bolsters with Walther's Goo.



Glue on the beams per kit instructions. Grandt Line 5" queenposts are added and then the trussrods and turnbuckles are installed.



The stirrups are made from 18# floral wire. Measure in .060 from the beams and drill the side sill with a #56 drill. Bend the stirrups to fit the holes and then make sure that they are parallel with the underframe and they don't hang below the queenposts. CA glue in.

### 4. Mounting the Trucks

Drill the short body bolster and underframe and mount the trucks. Make sure the wheels don't hit the underframe.

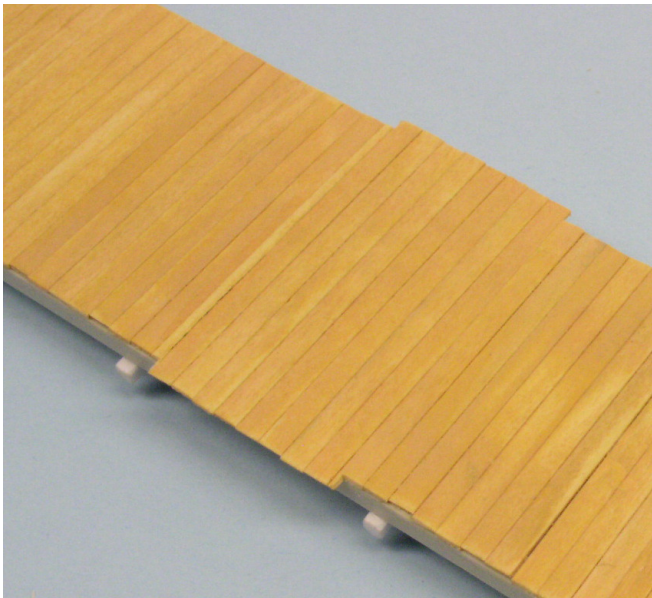


## 5. Floorboards

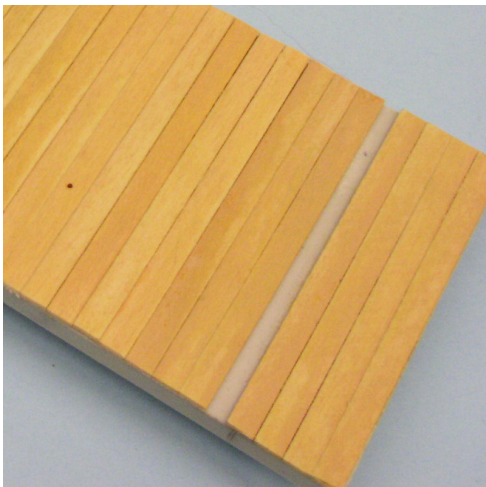
Do not use the two scribed styrene pieces that come with the kit. Center the body on the underframe and mark the locations of the side doors. Remove the body.

Cut the majority of floorboards the same width as the underframe. The boards at the side doors should extend to the outside of the siding. Boards were stained with Floquil Fruitwood.

Attach the floorboards with styrene cement. The cement melts the surface of the underframe creating a thick paste, which gets into the grain of the wood. Since it dries hard, it holds the floorboards in place.



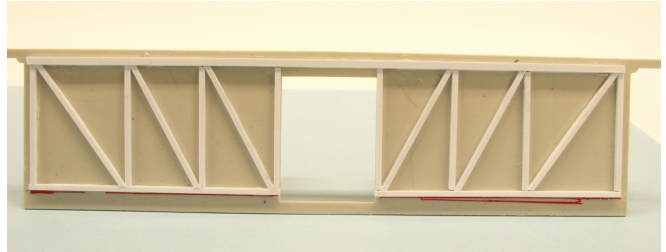
Boards should extend over the sides at the side doors. Be sure to keep the boards straight across the width.



The space shown can be left as is or another board glued in on its side and trimmed off.

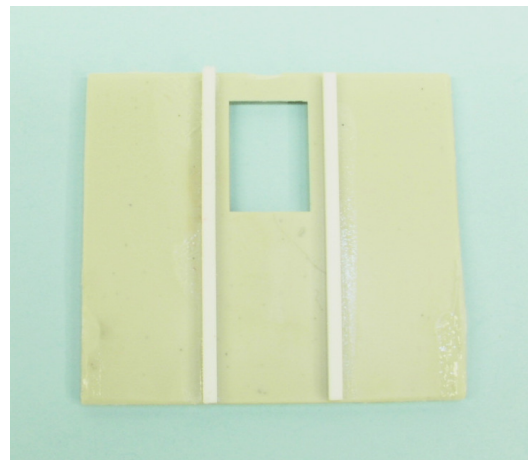
## 6. Interior Bracing

The interior bracing gives the car a bit of detail when looking through the side doors. If the doors are to be shut, the bracing can be omitted.



.080 square stock is used for the top runner. Put the roof in place on a side and then glue a strip to the side, directly under the nubs on the roof.

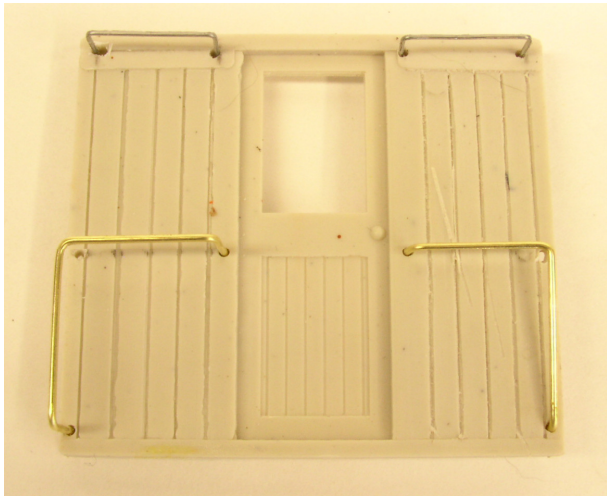
The remainder is .060 square stock. Fit the side to the underframe and glue the bottom runner onto the side. The runner should sit on top of the floorboards and go across the side door opening. When dry, trim out the door area. Add uprights at the door opening and at the ends where the ends fit in. Note that ends glue between the sides, so keep the end uprights pulled in, the thickness of the ends. From the door upright, measure over 3/4" and install the next upright, then measure over another 3/4" and install the last upright. The remaining space between uprights is larger than the other two. Cut and fit diagonals. Do both sides.



On the ends, only two uprights are added at the location of the door frame.

## 8. Grab Irons

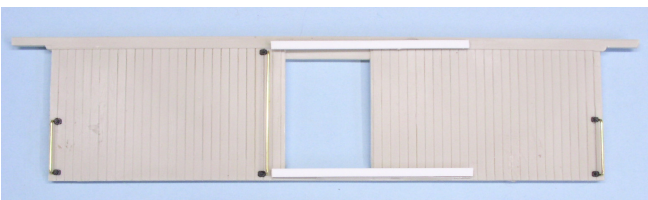
Ends--the upper grab irons are made from the staples which come with the kit. Put one on each side of the door, even with the top doorframe and centered.



Sides--the vertical grabs are mounted at the same height as the vertical section of the L shaped grab irons on the ends. Lay the end up to the side and extend the line across onto the side. The large grab iron is the length of the door and centered on a board. The door guides in the kit are too short and are replaced with four more made from .030 X .100 X 2 7/16" styrene strips.



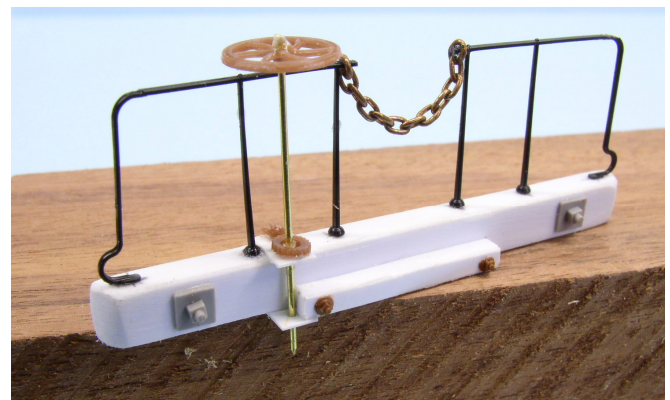
Top: to locate the lower rails, draw a line across the bottom of the center door section. Drill a hole on this line on the door frame and in the center of the outside board. Go straight down the outside board to within 1/16" of the bottom and drill the third hole. Bend the wire to fit in the door frame and bottom holes. Use a straight piece of wire for the remaining hole. Bottom: glue the NBWs up against the wires. The doorknob is made with a track nail.



Doors--the door grab irons are made with a staple. Drill holes in the corners of the door panels, insert the staple and then glue on two NBWs. When all of the grab irons are installed and the glue dry, cut off any protrusions from the backside.

#### 9. End Beams

Sand to remove the sharp corners. Cut the handrails from the sprue but make sure to leave a stub on the horizontal bar for the chain to glue to. Build per kit instructions.



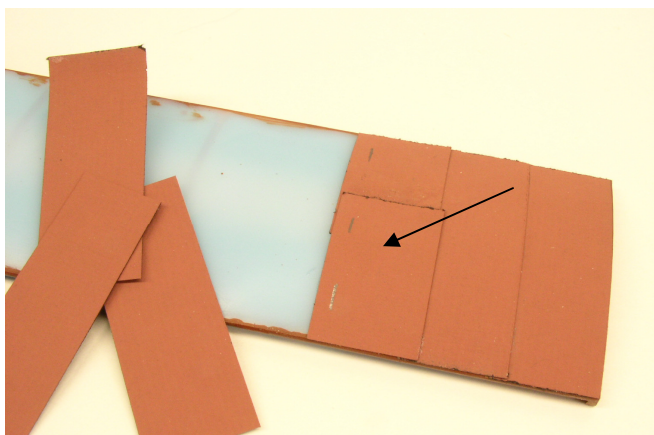


The brake wheel is only located on one end of the car and is on the right, but I added two wheels and put them on the left. Stack the two staff brackets and the ratchet/pawl assembly and drill all three. Insert the staff and use styrene cement to attach the upper and lower brackets to the end beam. The ratchet/pawl glues onto the top bracket. Once this is lined up, CA glue the staff and then the brake wheel.

Cut a piece of chain 12 links long. Bend the end link on each end until it is round. Slip this over the stubs on the railing and secure with CA. Do one and let set and do the other. Be sure the chain hangs down.

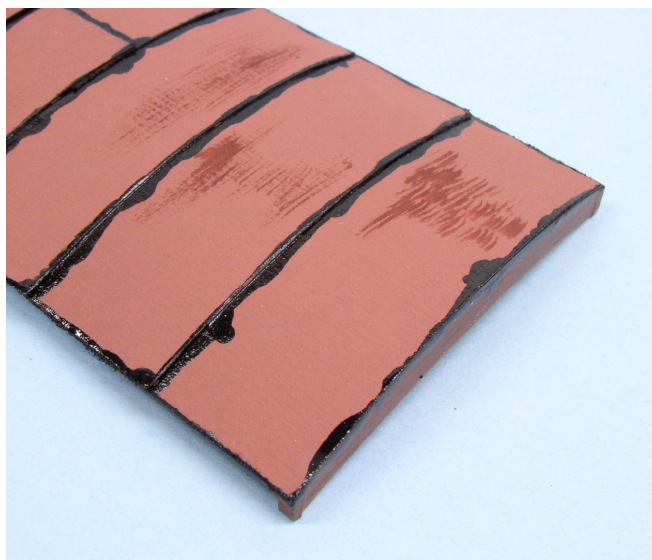
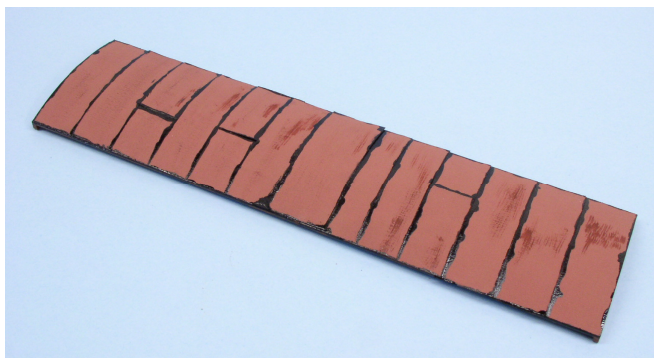
#### 10. Roof

The edge and the eaves of the roof are painted Floquil Southern Freight Car Brown.



Cut the tarpaper to 3/4" width and the proper length to fit across the roof. CA was used to glue it down. Leftovers from cutting were used as spliced pieces. The overlap is .100, measured with a strip of styrene (mark shown at arrow point).

I started at each end and met in the center, but it can also be installed end to end.



Thick Gloss Black paint was dabbed on the seams to represent tar. The brown paint was dry brushed onto the paper to break up the solid color.

#### 11. Load Details

The sacks are painted with acrylic brown and weathered with black and light brown. The barrels are painted dark brown.



#### 12. Assembly and Painting

The underframe, endsills, and trucks are painted Testors Flat Gray. The interior is Model Master Turquoise. Coat these well and let dry, then assemble the body on the underframe. The exterior sides, doors and ends are painted with a 50/50 mix of Floquil Daylight Red and Daylight Orange. All grab irons and stirrups are Gloss White. When thoroughly dried, decals were added.





Car without roof showing interior detail



View looking through side door



3/4 view

Full side view

