Baltimore & Ohio I-1 Caboose

S Scale Kit 4050 (narrow platform)

Pilot Model

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B&O Class I-1 Cabooses

The class I-1 cabooses were the first 8-wheel system standard cabooses produced on the Baltimore & Ohio Railroad. The cars were constructed between 1913 and 1918 with most being built at the B&O shops at Washington, Indiana. These 24 foot cabooses were numbered in the series C-5 to C-399 and C-1615 to C-1624 with not all numbers being used. A total of 303 were built.

As built the cars weighed 34,600 pounds and rode on Arch bar trucks. These cabs had wood bodies with steel underframes. One-inch diameter rods helped to secure the body to the underframe. At the time of their construction they were the top of the line caboose on the B&O, replacing older 4-wheel bobber cabooses that had come into disfavor. Throughout their life the I-1 cabooses could be found all over the B&O system.

During the 1930's a total of 57 cars were transferred to the Alton Railroad and eventually they were sold with the Alton. Several more cars were transferred to the Baltimore & Ohio Chicago Terminal Railroad and were renumbered to B&OCT caboose series numbers.

Photos indicate that over two dozen cars had no cupolas in later years. These cars were used in yard service on the B&OCT and also were used in specialized service such as trains which operated under tight clearance tipples south of Grafton, and in yard service.
Throughout the years various modifications were given to cars in the class including upgrading the trucks to have cast side frames, replacement of side grab irons, changes to cupola window awnings, brake upgrades, removal of underbody tool box, addition of roof ladder grab irons and step and end platform modifications.
By 1960 remaining B&O cars totaled 109 with another 17 in service on the B&OCT.

During the 1960s several cars were refurbished with plywood sides which resulted in window eliminations. The window eliminations mimicked those given to I-5 family cars modified in the early 1960s.

In 1970 the cars were assigned C&O/B&O class C-1. The last car from the class was retired in 1977. Over the years 23 cars are known to have been preserved by private owners. Another six are believed to have been acquired by private owners but their locations have not yet been uncovered. Some were likely moved to hidden locations for use as cabins. Today, preserved cars can be found in 8 states.

Class I-1 cabooses shared physical characteristics with classes I-1A, some I-2 and most I-3 cars

compiled by B&O caboose historian Dwight Jones

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 Rev.1

For more information on these cabooses refer to this publication:

Baltimore & Ohio Cabooses---Photos and Diagrams by Dwight Jones, published by TLC , 1998

Cabooses of the Baltimore & Ohio, by Robert Huber published by B&OHS, 1994
C&O/B&O Cabooses, Display and Private Owner Cars, volumes I, II, III, IV , by Dwight Jones, published by B&O Caboose Publisher

For more information on the Baltimore & Ohio Railroad I suggest joining the Baltimore & Ohio Historical Society.
:

Baltimore and Ohio RR Historical Society
ATTN: Membership
P.O. Box 24068
Baltimore, MD 21227-0568
or **http://www.borhs.org**

A Few Notes on Building this Kit

This kit will build into a B&O I-1 caboose having either four pane or single pane windows, a standing seam roof and with the orignal style steps. Other versions are available with the later wide platform and vertical steps A third version is available without a cupola.

While basic construction is simple and straight forward, be sure to read and understand all the instructions before starting construction. There are a lot of parts (over 250), so take your time, you will be rewarded with a model you can be proud of.

The following pages contain the step by step instructions. After studying them, you may be more comfortable doing some of the steps in a different order.

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Some Suggested Tools

- **Modelers Knife with several No. 11 blades**
- **Small square**
- **Pliers and flush cutters for cutting and bending wire**
- **Pin vise and assorted drill bits**
- **Tweezers**
- **Small screw drivers** - flat blade and Phillips
- **Serveral medium sized rubber bands**
- **Sanding Block -** any flat material with sandpaper attached
- **Glue** - I suggest using a carpenter's wood glue, a medium viscosity CA type and a five minute epoxy.
- **Soldering equipment** - the photo etched steps, ladders and the platform railing can be either glued or can be soldered.
- **Airbrush and or paint brushs**
- **Paint of your choice**

I recommend that you *prime* and paint all parts before assembly.Remove paint where necessary before gluing. Page 4 shows one of the schemes used between 1941 and 1955. Refer to the books listed and photographs for earlier and laters schemes

I use **Dupli-Color**® red filler primer number ***FP102*** that I buy at an auto parts stores. I also use a maroon **3M** scuff pad ***03193*** to smooth the surface after applying priming. I typically use two coats waiting about 10 minutes between coats and rubbing down the paint between coats. The advantage of this primers is unlike the typical clear wood sealers, you can see it and It makes a good surface for all types of paint.

Paint Schemes

1913 - 1916
Body - Red
Roof - Freight Car Brown
Windows/Doors - Dark Green

1916-1941
Body - Freight Car Brown
Windows/Doors - Dark Green
Handholds/End Railings - Black
Ladders - Black

1941-1955
Body - Bright Red (Devil's Red)
Windows/Doors - Dark Green
Handholds/End Railings/Step Edges - Black, after Oct.

1945
Ladders - Initially Black, after Oct. 1945 - Yellow
Smoke Jack - Black or Silver
Underframe - Black

1955-1965
Body - Bright Red (Caboose Car Red)
Windows/Doors - Dark Green (or Red - check photos of specific Car you plan to model if possible)
Underframe - Black

Caboose Photo Gallery

B&O C-156 - Freshly outshopped from the B&O shops at Painesville, Ohio, in late 1939, C-156 shows little modification from its as-built configuration. The underbody tool box has been removed and ladder grab irons have been added to the roof.

Photo from the Dwight Jones / Paul Dunn Collection.

B&O C-278 - Last refurbished and painted at the Washington, Indiana, shops in June 1957, C-278 exhibits the 1955 to early 1960s lettering scheme. The car rides on Andrews trucks and exhibits the modified steps and end platforms which became standard on the B&O. The car also has the newer side grab irons and single-piece cupola window awning.

Photo from the Dwight Jones / Paul Dunn Collection.

B&O C-383 - was last repainted at B&O's Du Bois, Pennsylvania, shops in August of 1953. This car exhibits upgraded trucks, and side grab irons and ladder roof handholds have been added, although it still retains is coach-type steps.

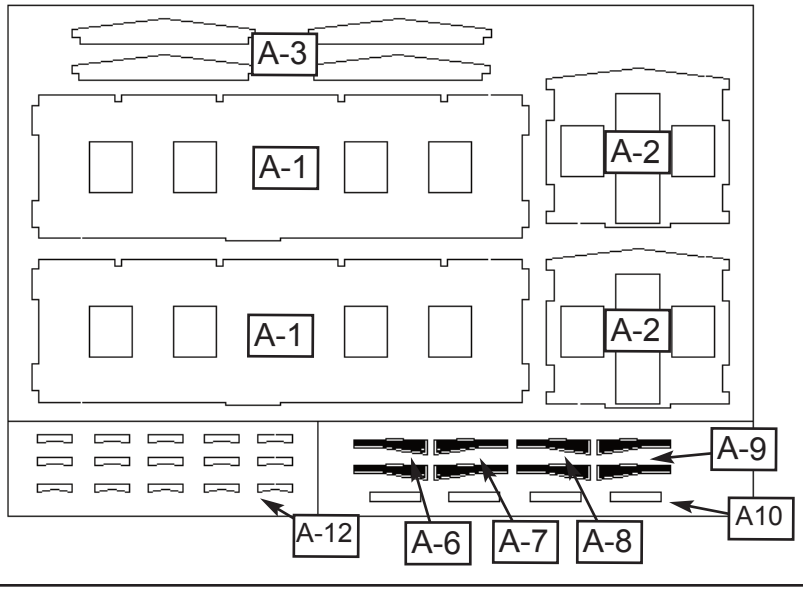
Photo from the Dwight Jones / Paul Dunn Collection.

B&O 422 - Noted photographer Joe Collias caught this I-1A in E.St.Louis, Illinois on September, 1963 soon after being shopped in Washington, Indiana. This caboose shows the dimensional similarities of the I-1's and I-1A's

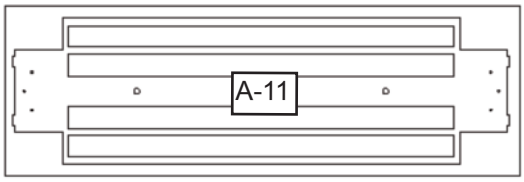
Photo by Joe Collias

PARTS LAYOUT

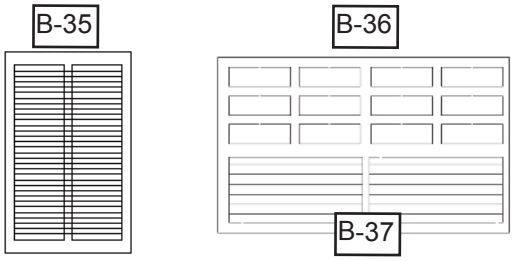
(Not to Any Scale - Sorted by Material Type)



1/16” Plywood Parts

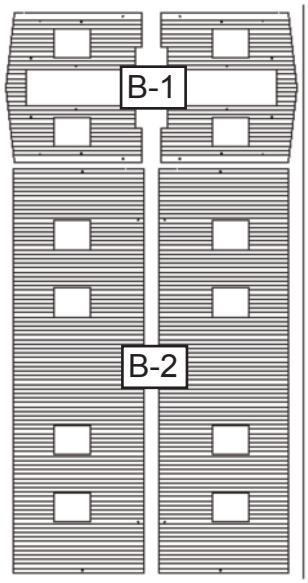


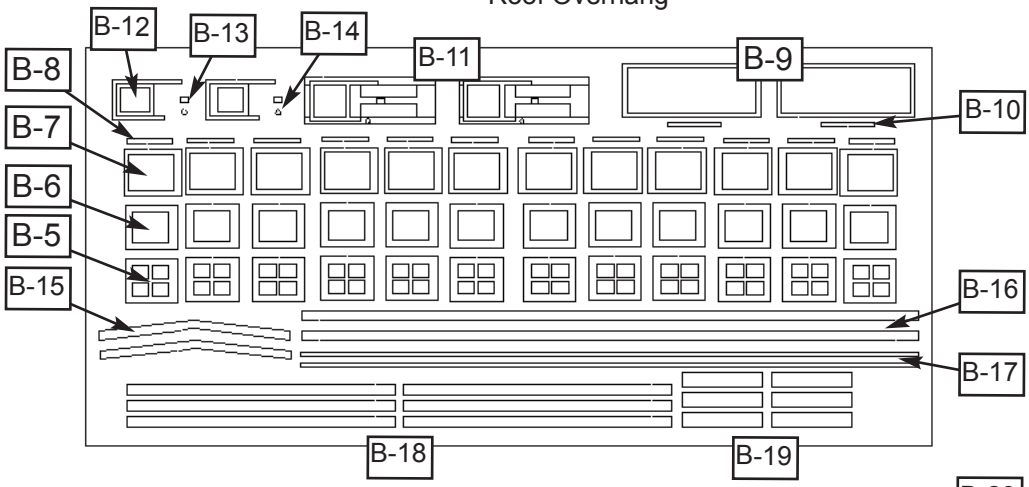
Step Treads



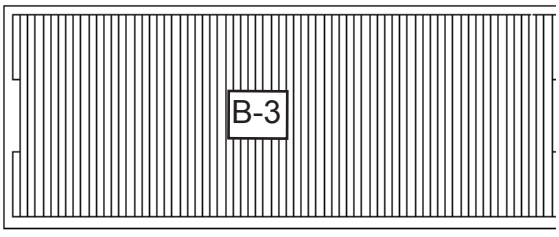
Roof Overhang

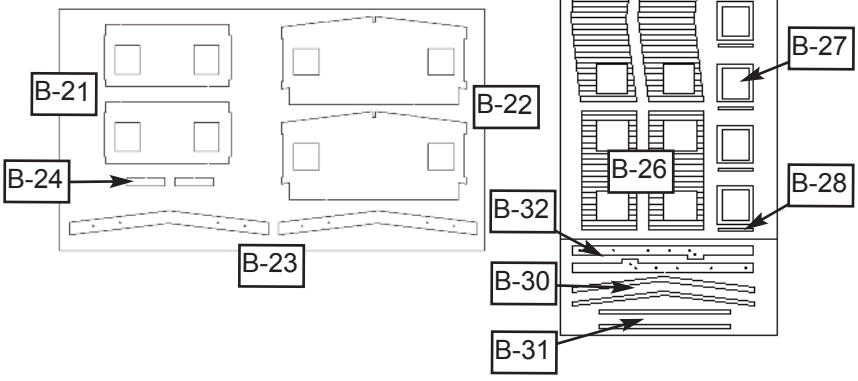
Platform Deck

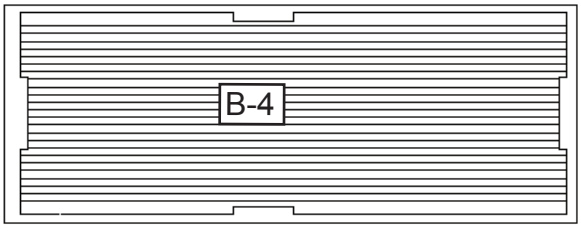


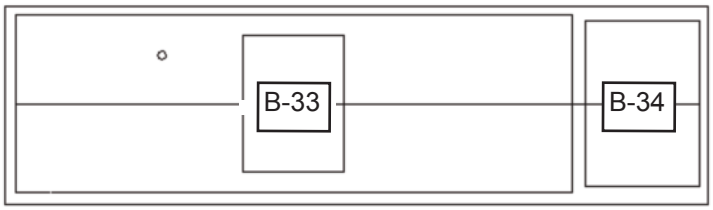


1/64” Plywood Parts

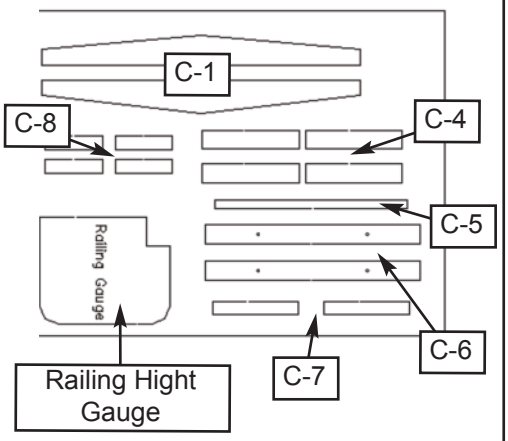


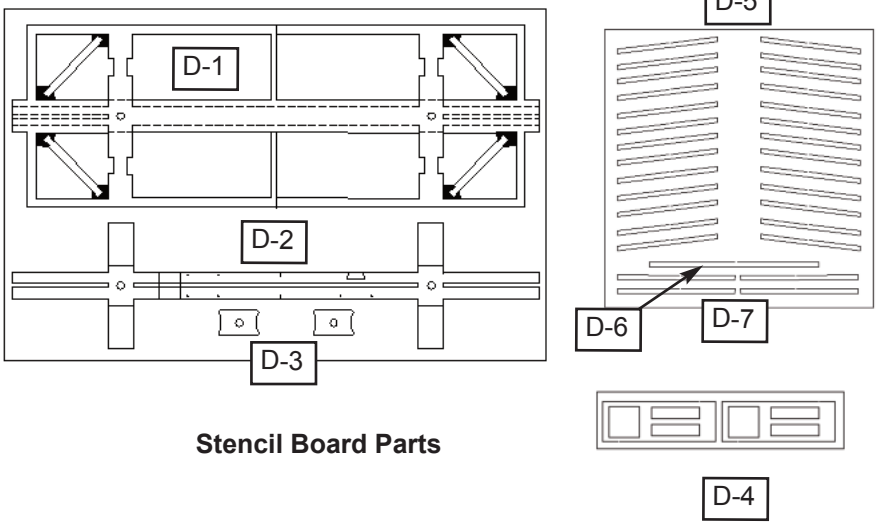






1/32" Plywood Parts

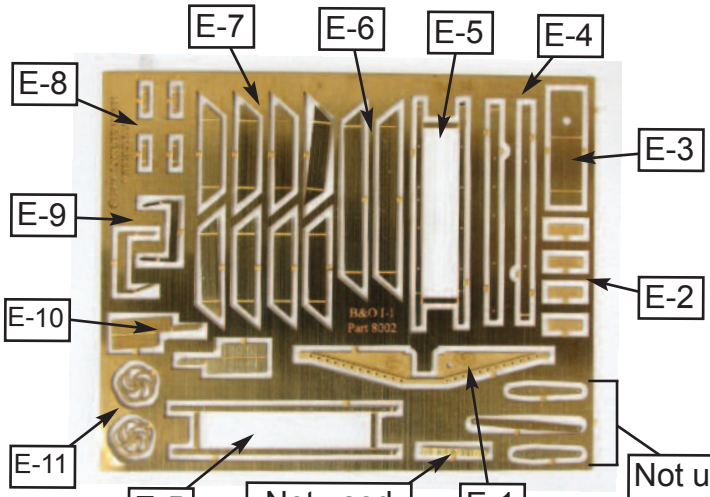




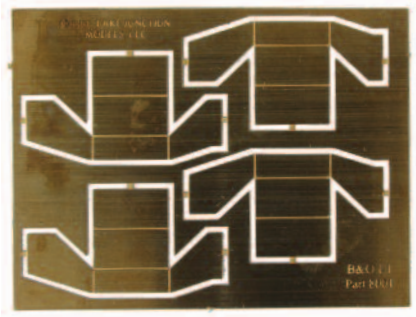
Stencil Board Parts

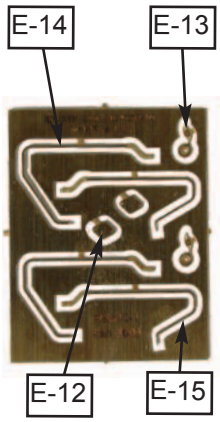
Photo Etched Parts

Place etched sheets on a hard surface and clear all small holes with a No. 78 drill.

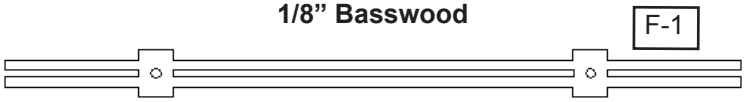


Steps





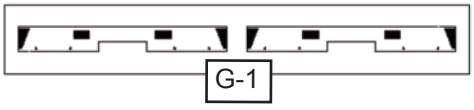
1/8" Basswood



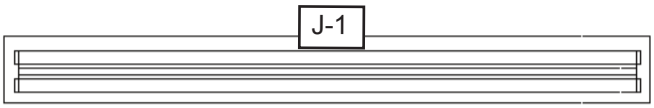
Polyurethane Castings

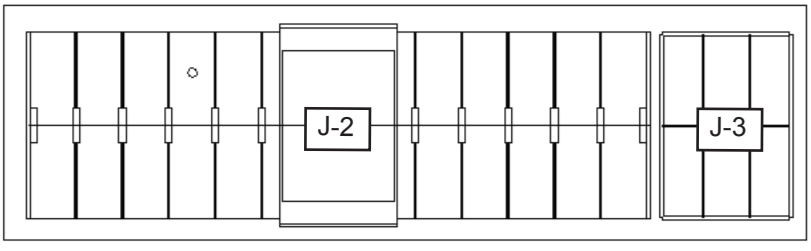
0.015" Brass wire not illustrated (4 pieces)

5/64" Basswood

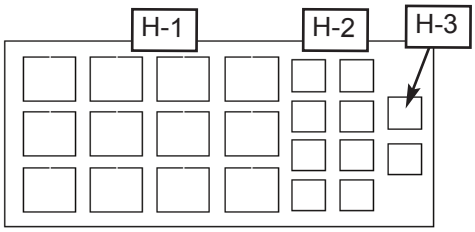


Roofing Material



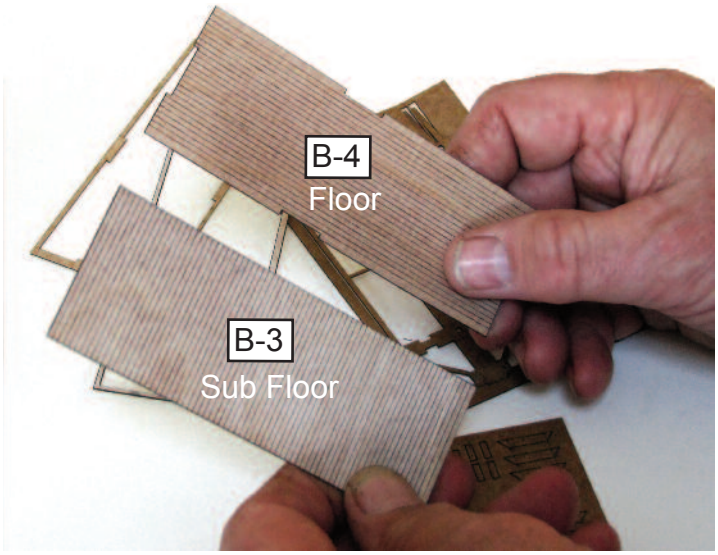


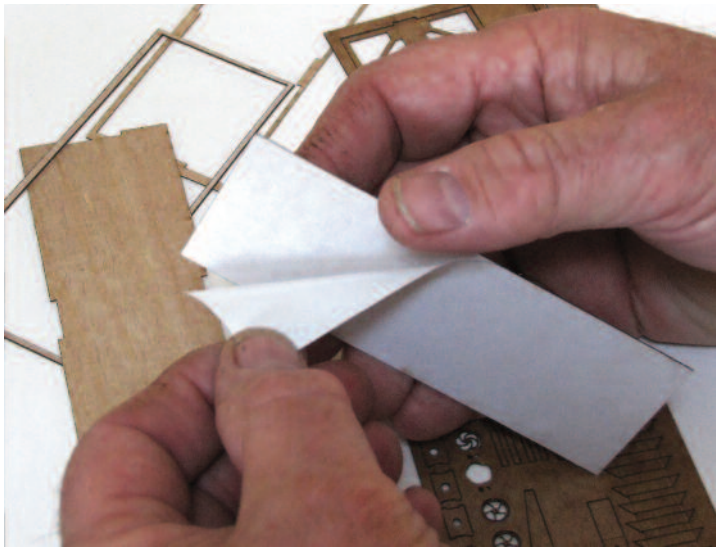
Window Glazing Material



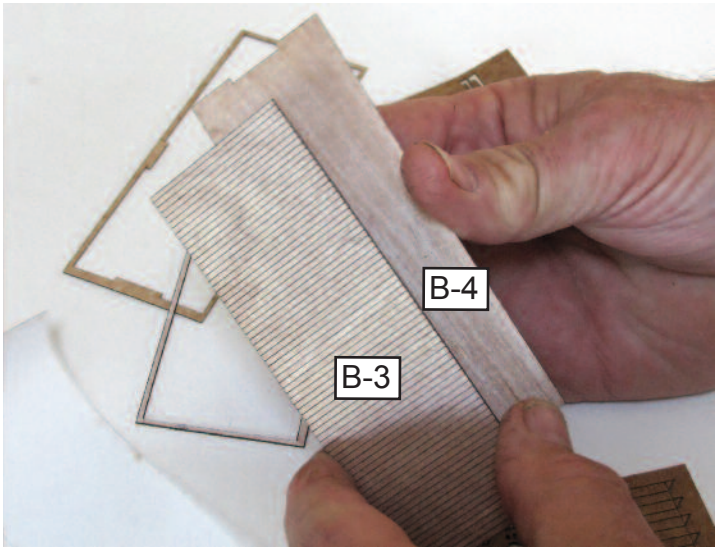
Underframe Assembly

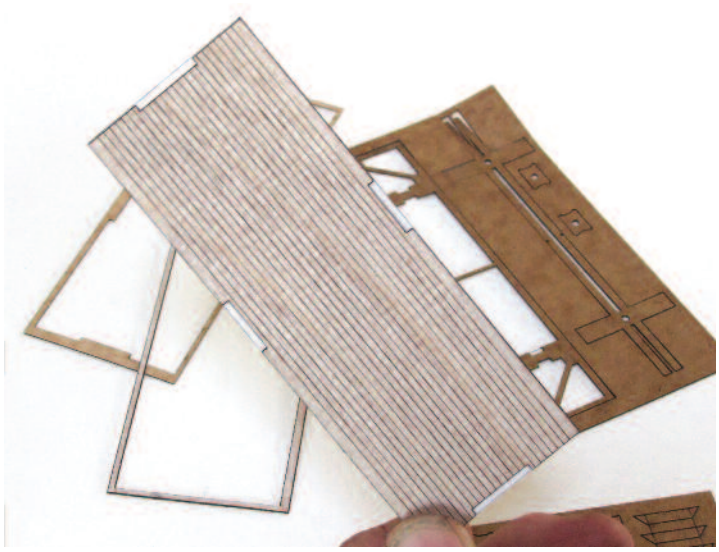
☐ **1**. Begin assembly with the floor **B-3** and **B-4**. Remove the backing paper from **B-3**.



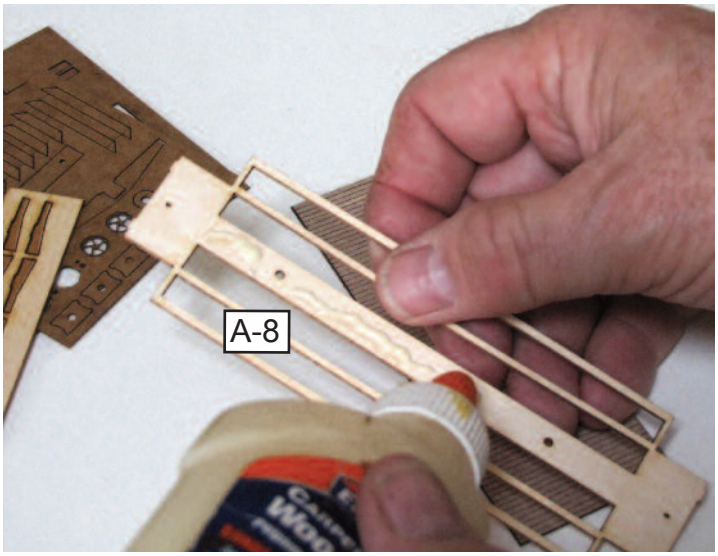


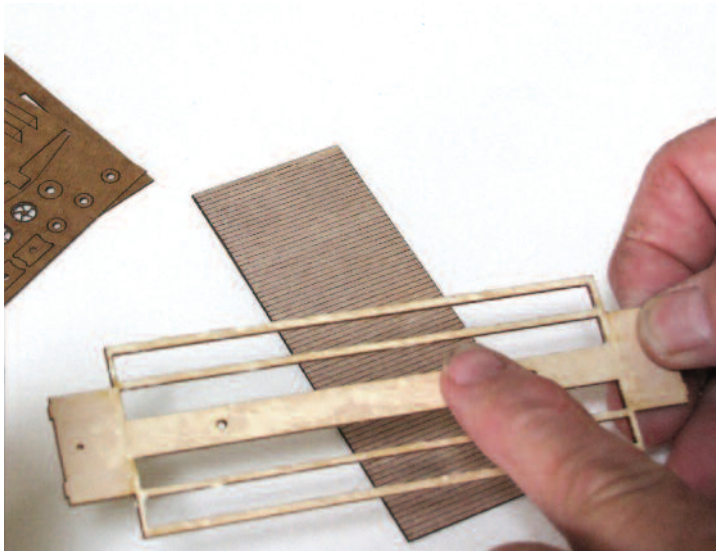
☐ **2**. Align the two parts and press together. Keep the edges flush.



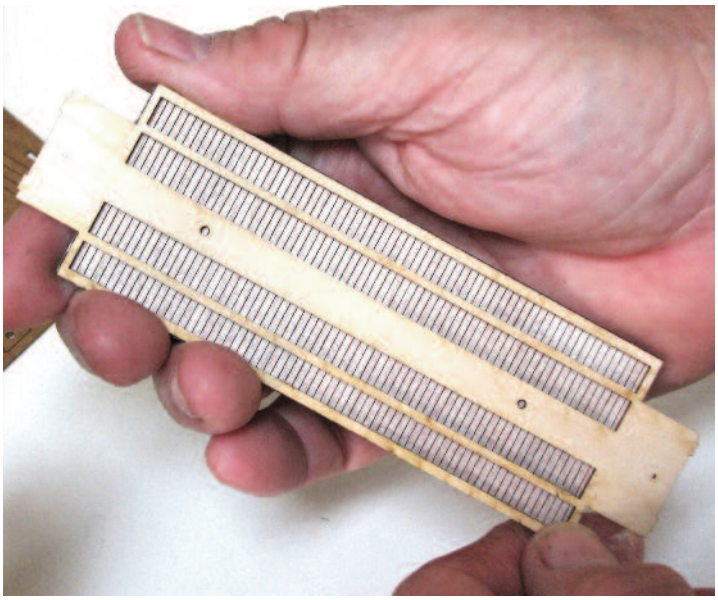


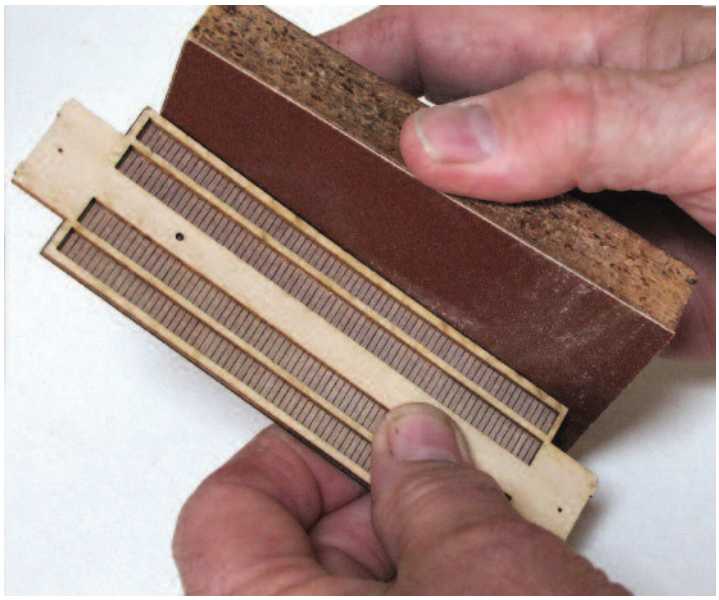
☐ **3**. Next I use my finger to “dab” the glue and spread it on underframe **A-8** (below). The laser tends to make oblong holes on the side facing the lens. I like to place that side up and glue the floor to it



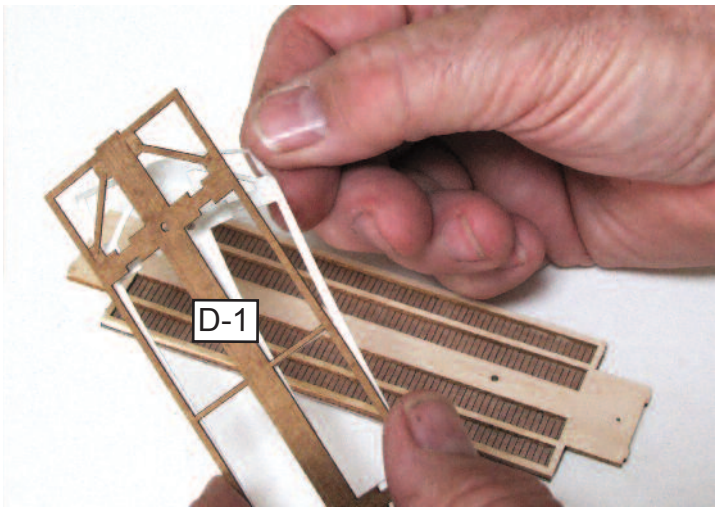


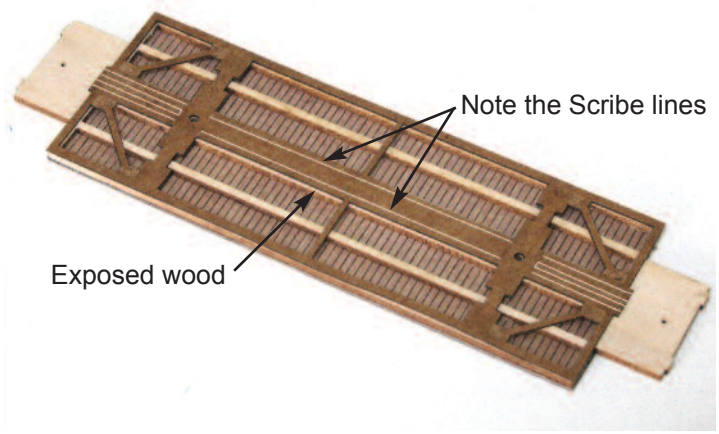
☐ **4**. Carefully align the floor on the frame and weight it down to insure that it stays flat. When dry use your sanding block to remove any over hang.



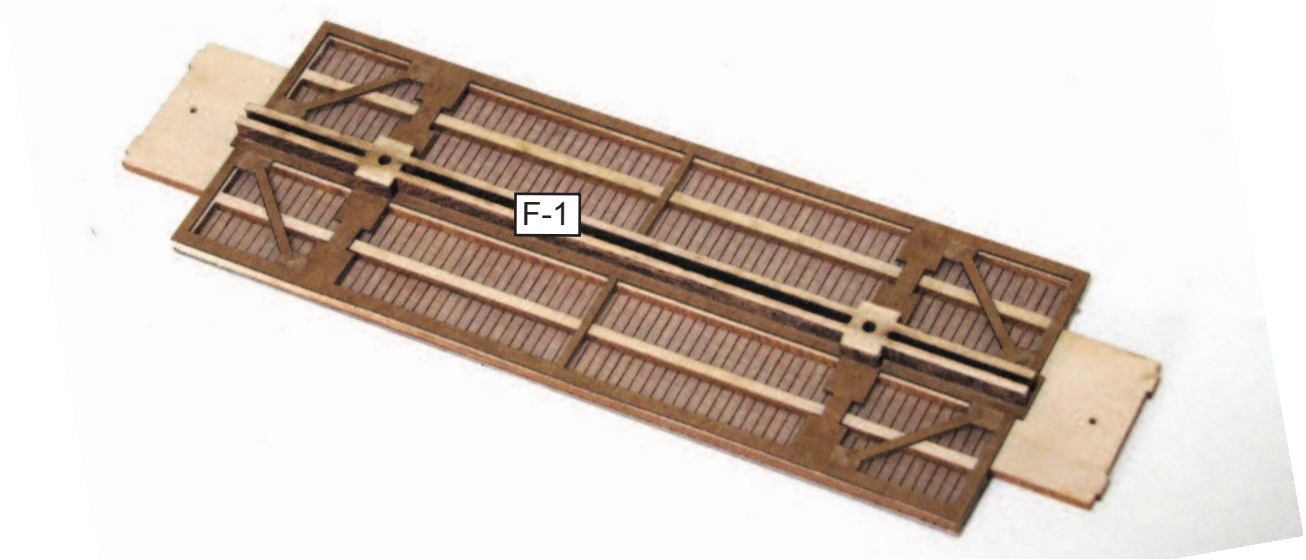


☐ **5**. Remove the backing from **D-1** and align on the frame. There will be a small strip of the frame exposed on each side of the of the center sill area.

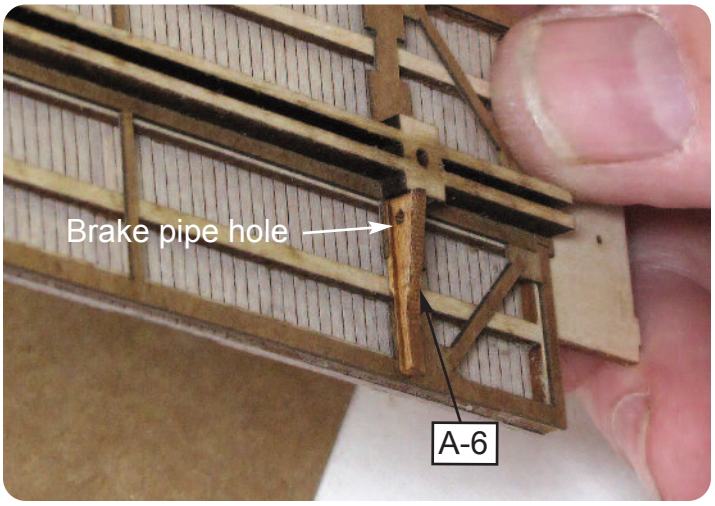


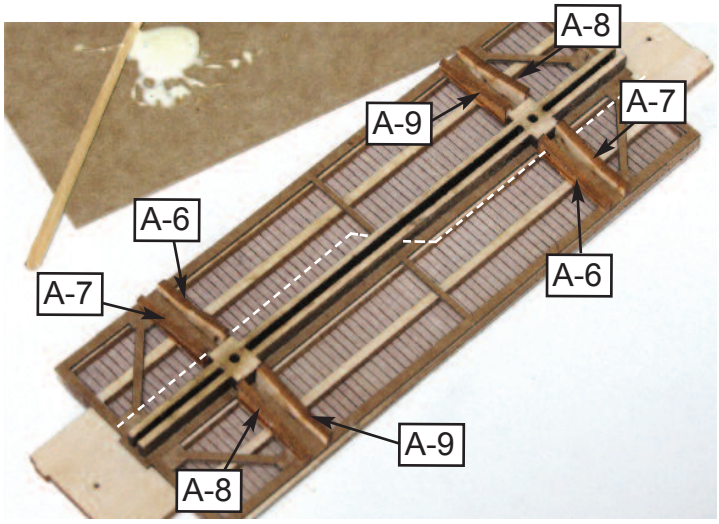


☐ **6**. Glue the center sill **F-1**in place. Use the scribe lines on **D-1** as a guide.



☐ **7**. Next glue the body bolster flanges **A-6, A-7, A-8** and **A-9** in place as shown. The flanges are to the outside. Note to that the **A-6** and **A-7** have a hole in them for the brake pipe to pass through. Make sure to keep the parts vertical.

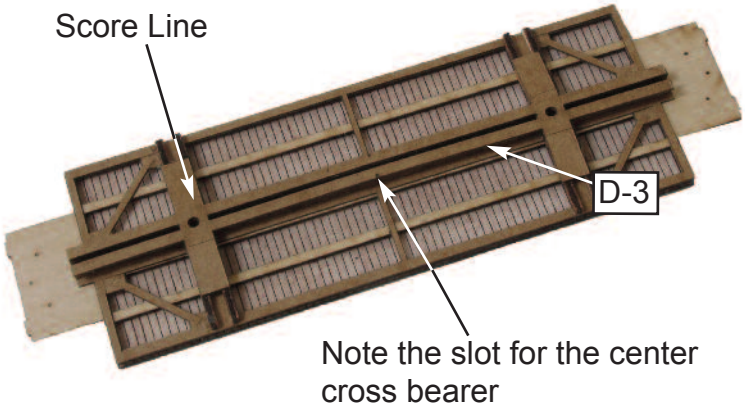


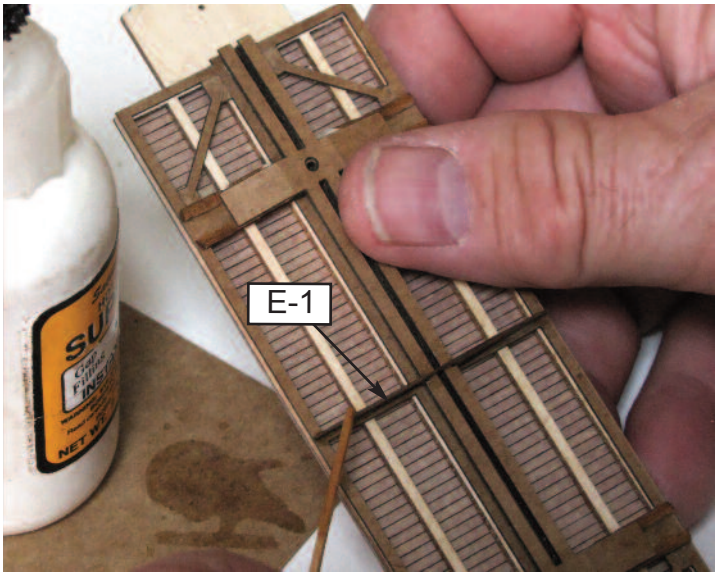


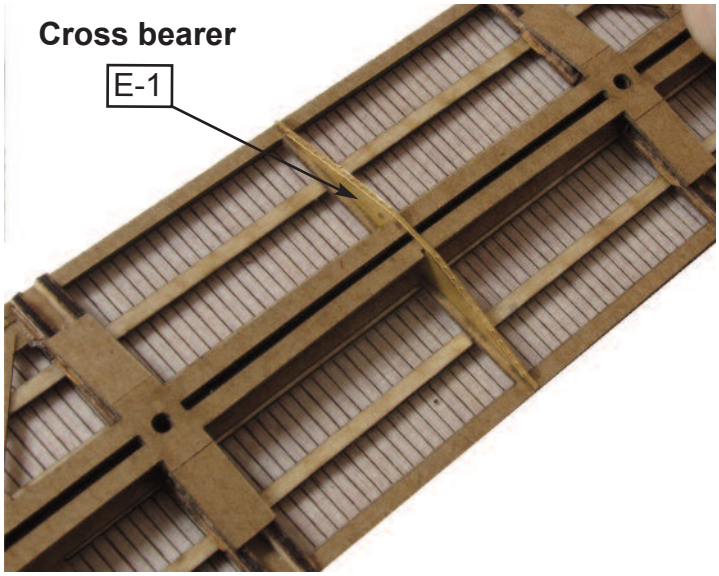
☐ **8**. **D-3** represents the top flange for the Sill including the tops of the body bolsters. There are score lines that allow these plates to be bend down to make installation easier. Bend them now.

☐ **9**. Remove the backing paper and align **D-3** on the center sill. Press the top bolster plates down on **A-6** thru **A-9**. Use a small amount of CA glue on the underside to lock them permanently in place.

☐ **10**. Locate the cross bearer **E-1** and glue in place.

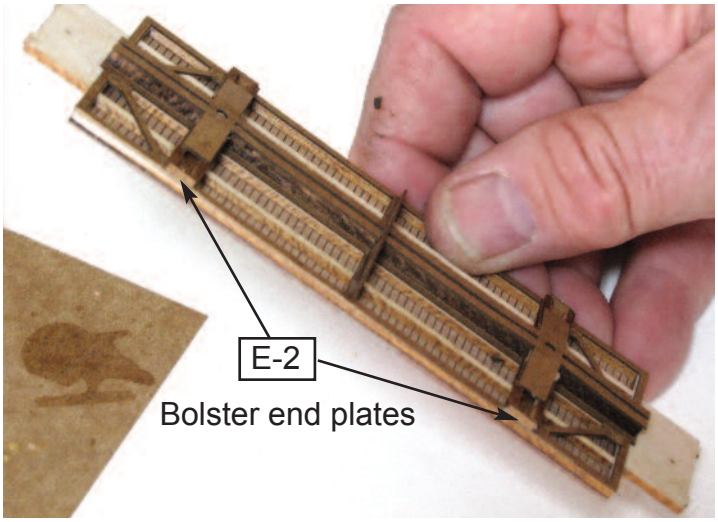


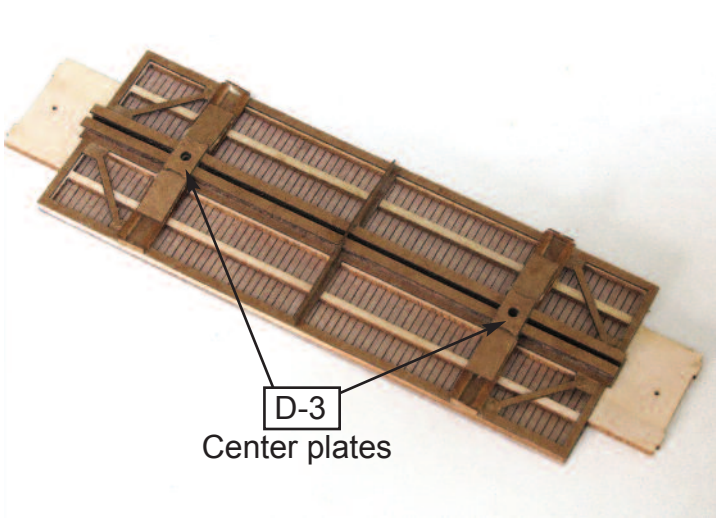




☐ **11**. There are four etched end plates **E-2** for the body bolsters. Glue them in place with CA glue.

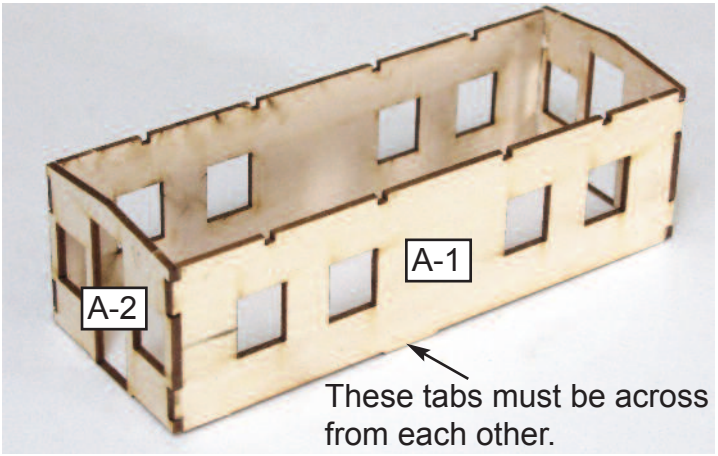
☐ **12**. Remove the backing paper from center plates **D-3,** align with the holes in the center sill and press into place.

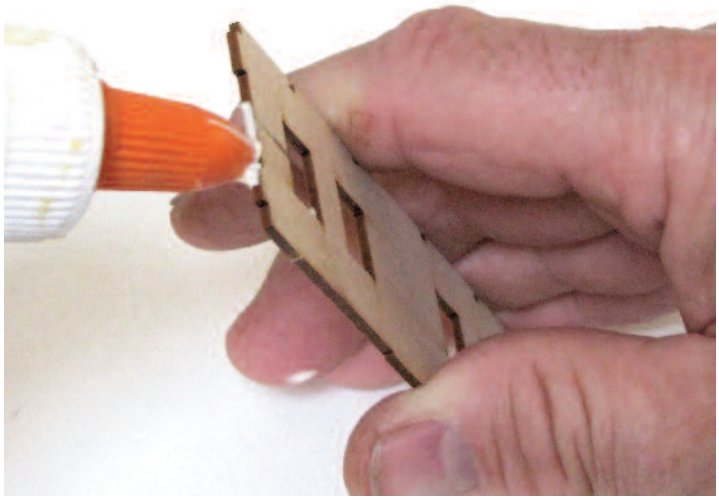


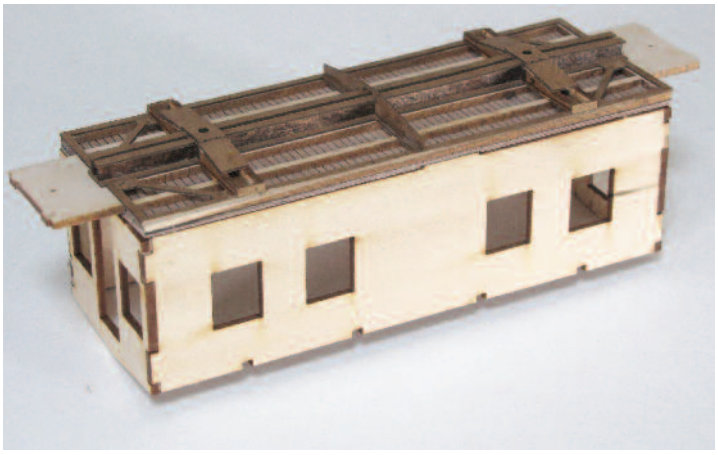


Basic Body Assembly

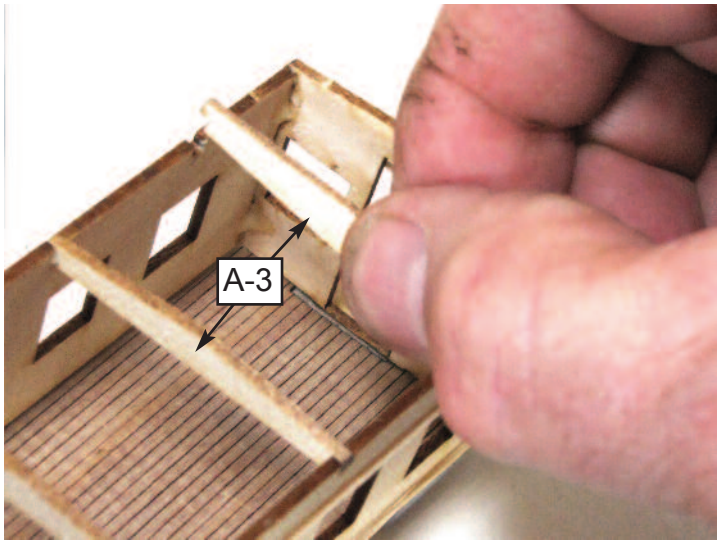
☐ **13**. Apply glue to the edges of the ends and walls and form a box. Make sure the tabs on the bottom of the walls are both on the same end.

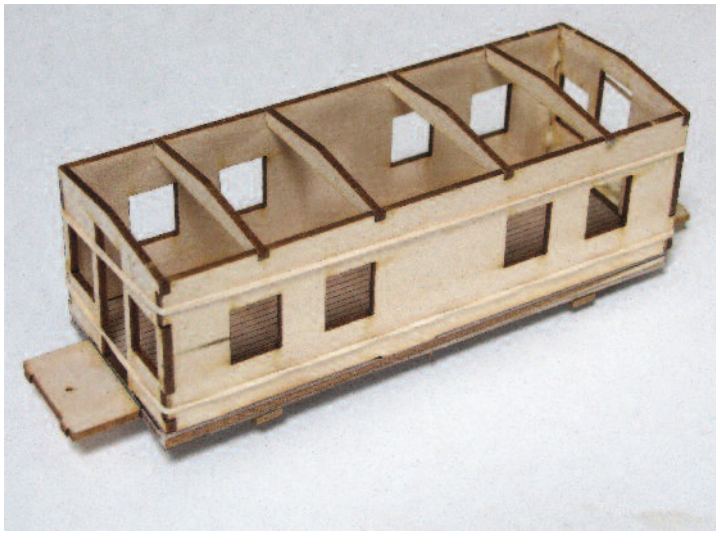




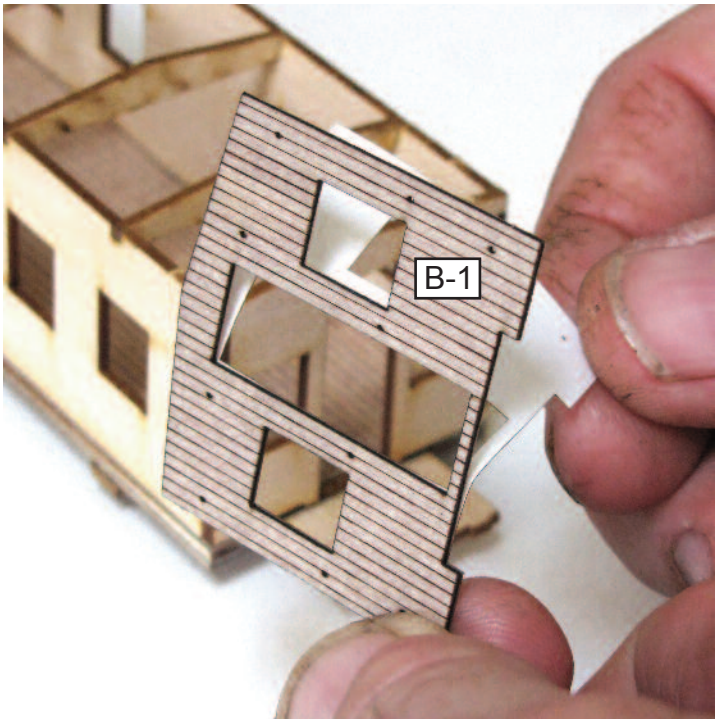


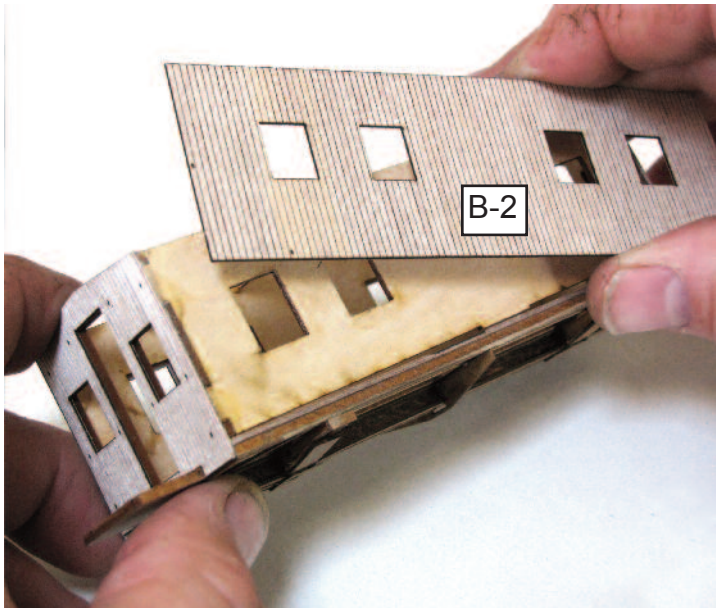
☐ **14**. Use the floor to help keep the body square, *but do not glue it to the sub-walls*.

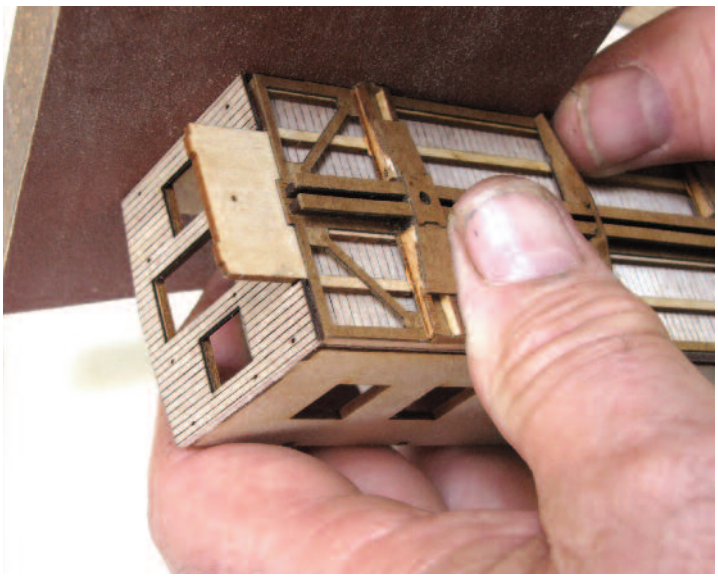




☐ **15**. Glue the roof supports **A-3** is place and set the body aside to dry.



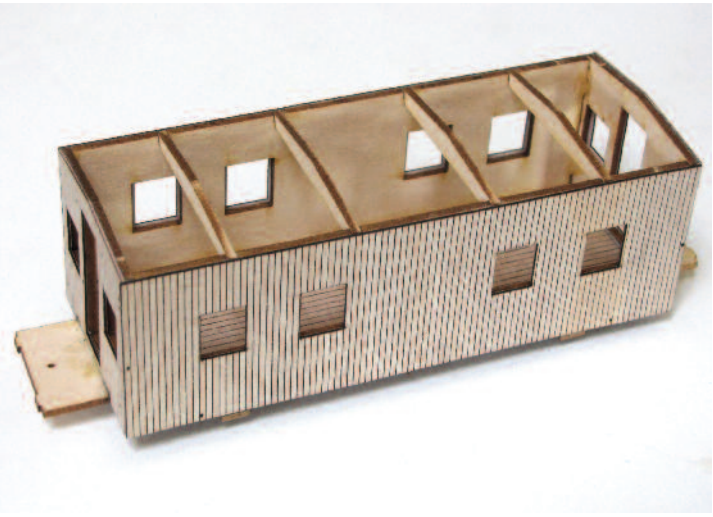


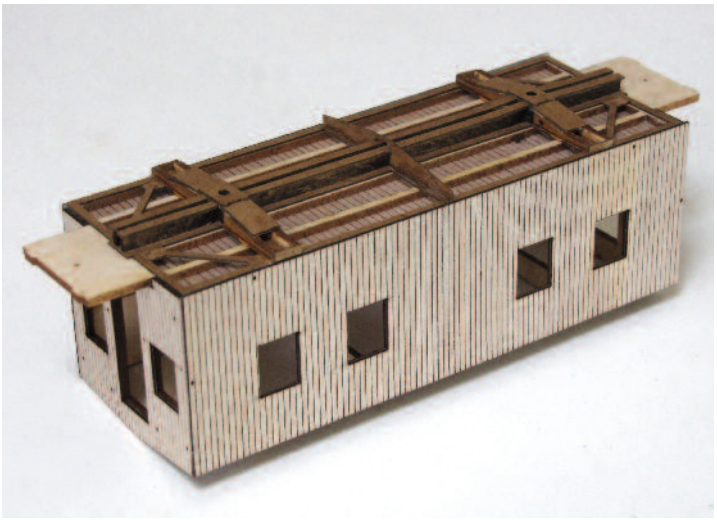


☐ **16**. Remove the backing from end **B-1**. Align with the top and sides of the basswood body and press into place. Repeat for the other end. sand off excess material on the sides.

☐ **17**. Repeat the process for the two sides **B-2** and again, sand off any excess material.

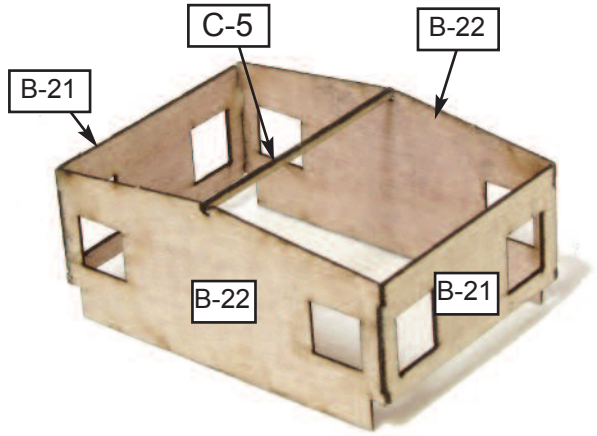
Note: The sides are probably stuck to the floor at this point. To remove the floor gently press out on the walls from the inside and at the same time pressing down on the floor at one end. When it comes loose press down on the other end to completely remove the floor from the body.

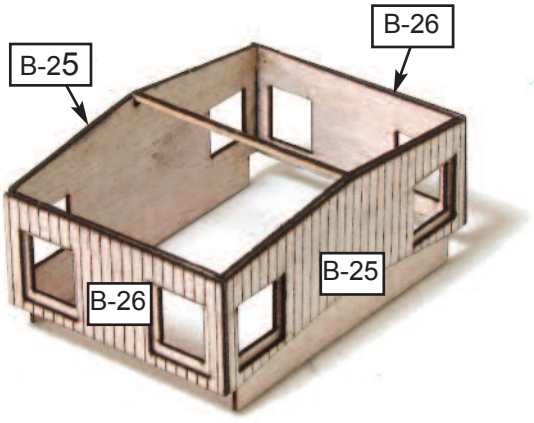




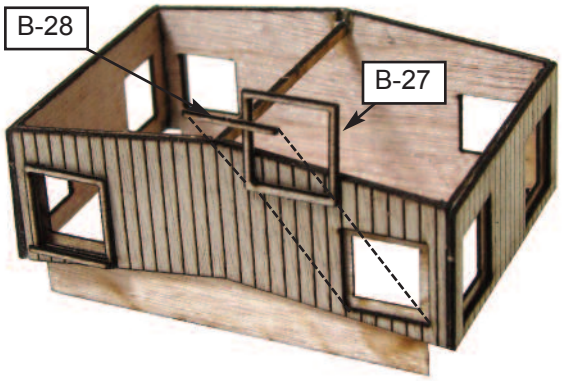
☐ **18**.The completed body shell should look like this.

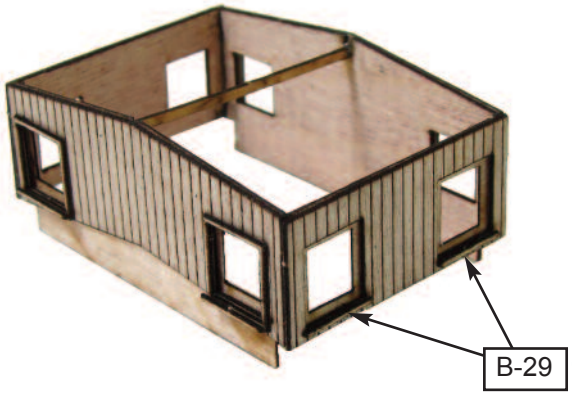
Cupola Construction



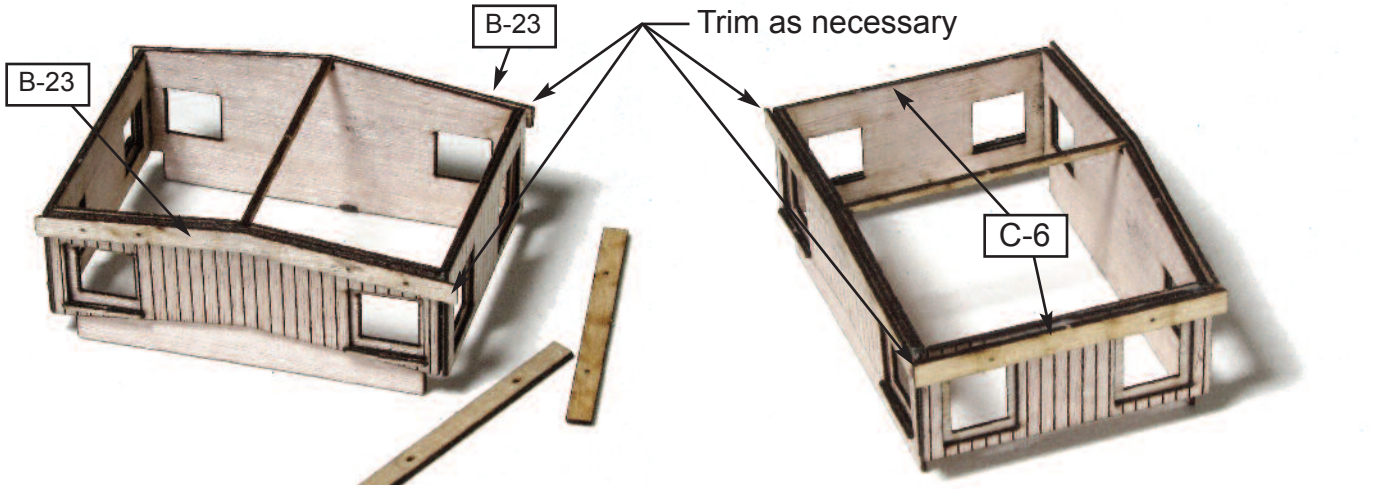


☐ **19**. **B-21** and **B-22 are** tabbed. Glue the four sub walls together and allow to dry. Use a square to keep the corners at 90°. Remove the backing from the two **B-25**'s and apply one to each end. Keep the top flush. Sand any excess on the sides. Add roof ridge support **C-5**. Add **B-26** and again sand off any excess material.

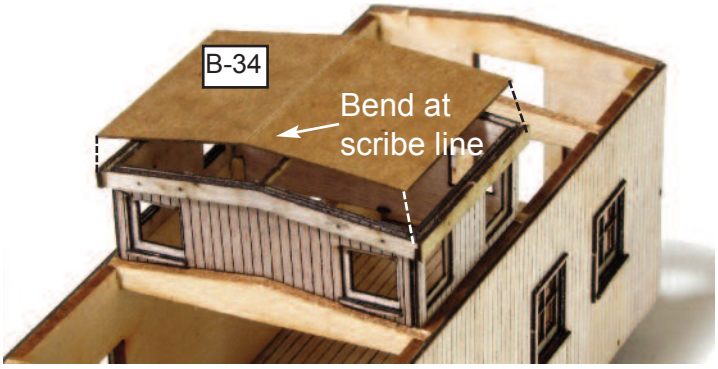




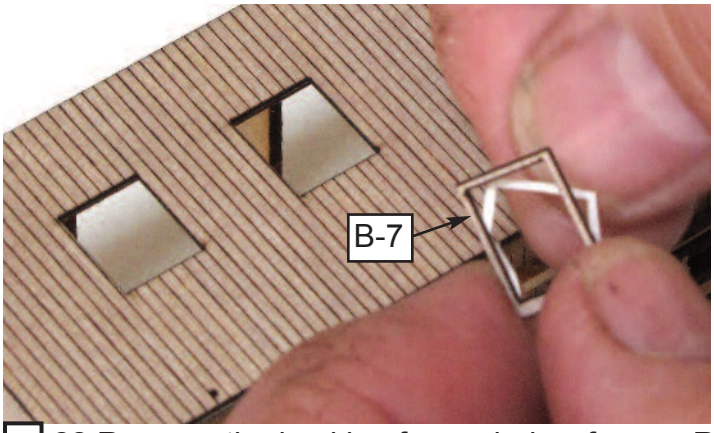
☐ **20**. **B-27**'s are the end window frames. Remove backing and apply. The inside edges of the trim should be flush with the inside edge of the siding opening. **B-28** and **B-29** are sills. Add as shown. When positioned, add a small amount of CA glue with a toothpick to lock them in place.



☐ **21**. Glue **B-23** to the top of the ends. Keep the top flush (as I didn't above right) - trim excess. When dry add the side pieces **C-6**. Again, remove excess. Sand the top flush then glue the cupola roof B-34 in place. I like to set the main roof on the body, add the cupola and rubber band until dry.



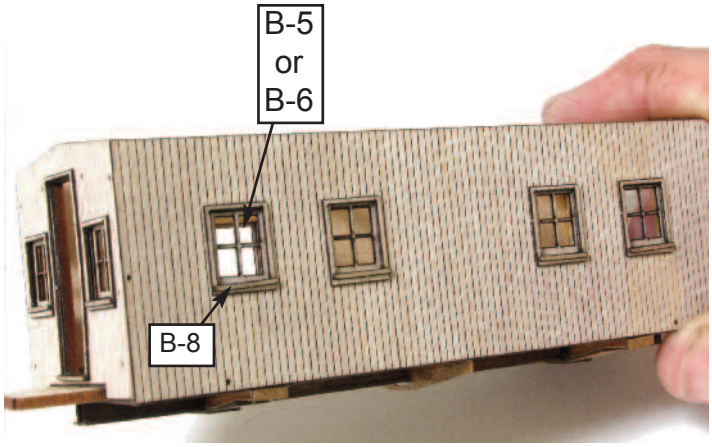
Adding Some Detail



☐ **22**.Remove the backing from window frames **B-7** and apply as shown above. The inside of the frame should be flush with the inside of the opening in the siding.

☐ **23**. Apply the door frames **B-9** in the same way. Refer to the photo on the next page.

☐ **24**. Next add the window and doors sills **B-8 and B-10**. Once I have all the sills in place *and horizontal* I like to take a toothpick and apply a small amount of **CA** glue on the top edge where it touchs the window frame, to lock it in place, This works for other small detail that might move later also.

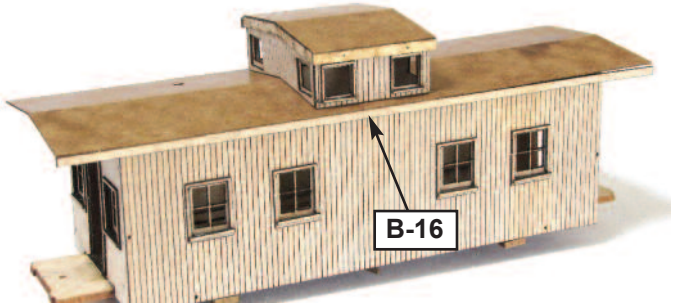


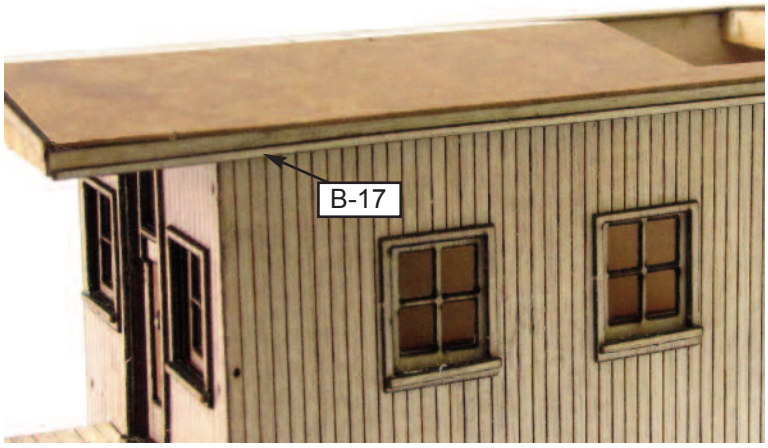
With the sills in place you should have something that looks like the above photo. Use window sashes **B5** or **B-6**. Add the glazing **H-1** by removing the backing paper and pressing in place. Insert them from the inside.

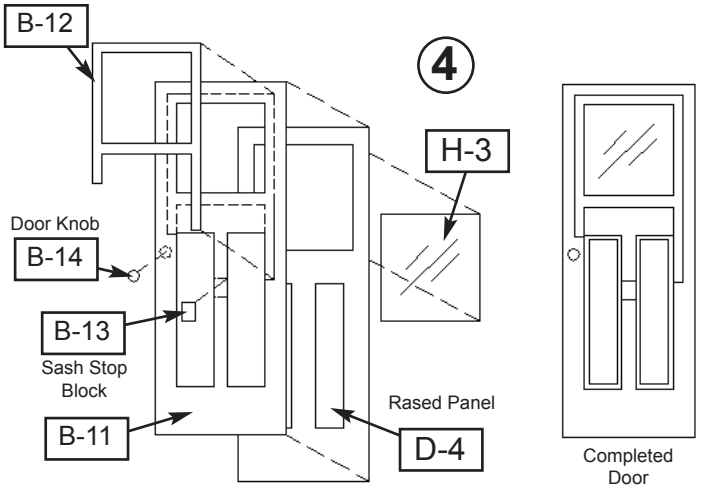
☐ **25**. Assemble the door as shown above right and insert it into the opening from the inside of the body. It should be flush with the back of the sub walls. Sand as necessary and glue in place.

☐ **26**. Put the roof and cupola back on and remove the backing from the letterboard **B-16** and apply. It is applied flush against the roof even at the top of the sides and even with the end of the overhang of the roof.

☐ **27**. With both letterboards in place glue the roof on. Again use the cupola to center the roof.

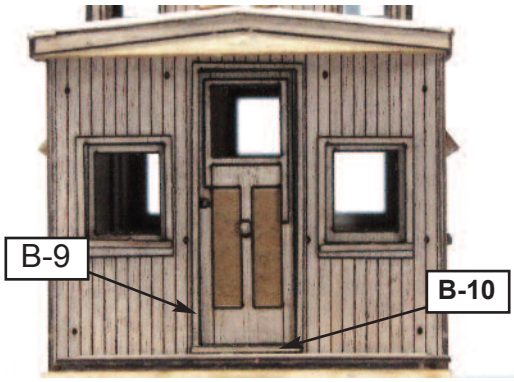






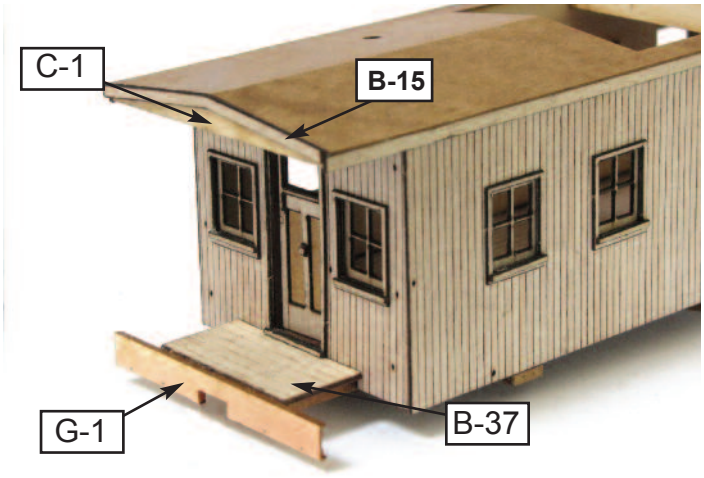
Door Assembly

Assemble the door parts in the order shown above



Use rubber bands to hold the roof until it is dry.
Check the letterboard is still tight against the underside of the roof.

☐ **28**. If your trying to model a specific caboose, refer to photos as some caboose have this drip cap at the bottom of the letterboard and some don't.



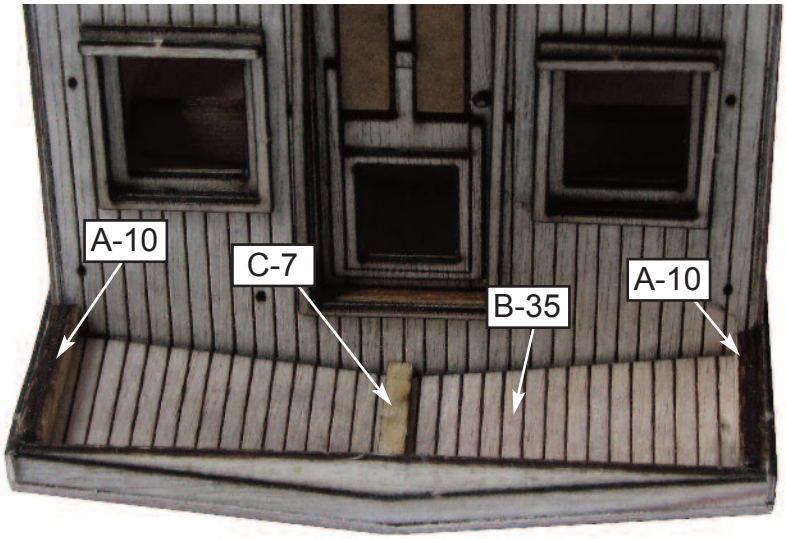
☐ **29**. When the glue is dry add **C-1** to the underside of the roof end and between the letterboards. then glue **B-15** flush with the top of the roof and even with the letterboards.

☐ **30**. Glue the platform decking **B-37** in place. Leave an equal amount of over hang on each side.

☐ **31**.Now add the end sills **G-1** to each end. Make sure they are plumb and 90° to the platform. Two minute epoxy would be a good choice for this joint.

☐ **32**. Before installing the platform ceiling **B-35**, first do a test fit to be sure it isn't to wide. It should fold slightly at the center as this line is cut deeper. Trim as necessary and then remove the backing paper and press into place.

☐ **33**. There are three more parts that go on the underside of the roof overhang. **C-7** goes on the center of the roof and the two **A-10**'s go against the letterboards as shown in the photo below.



Roofing

Now t*his next bit is a little fussy so don't rush it. If things go awry use a hand hair dryer to gently heat the glue on the roofing material to loosen it.*

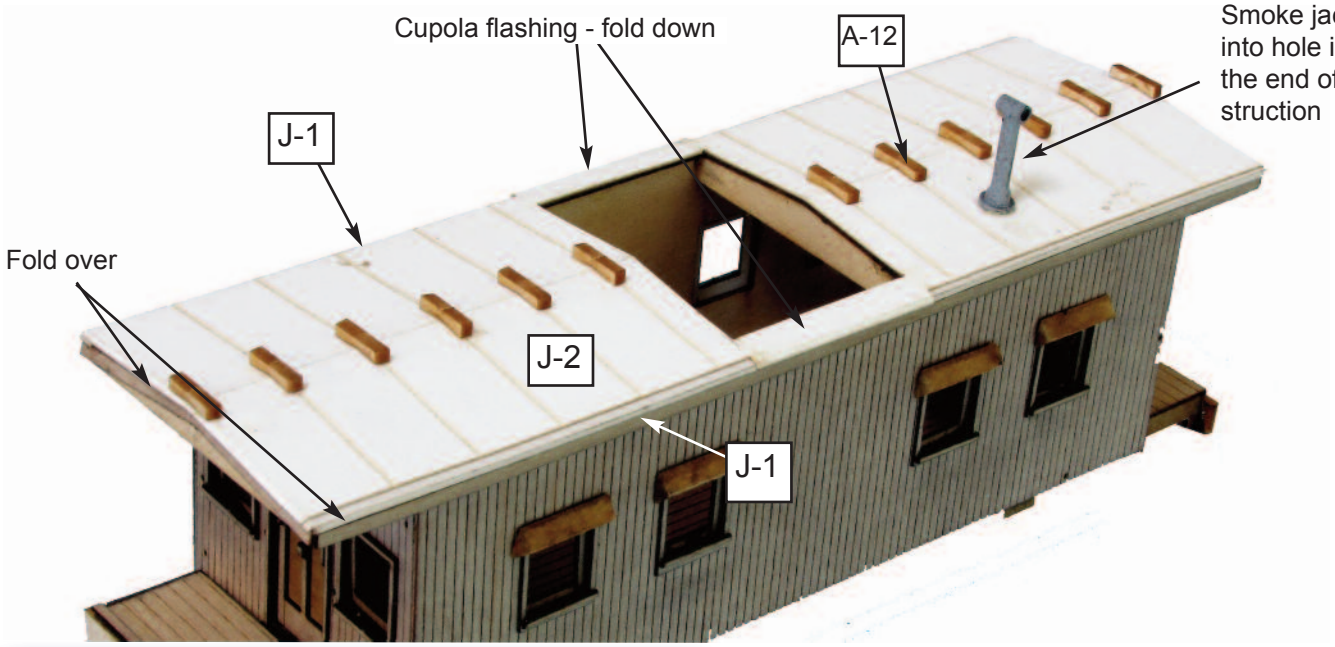
☐ **34**.First make sure the edge of the roof is flush with the letterboard and the end trim.

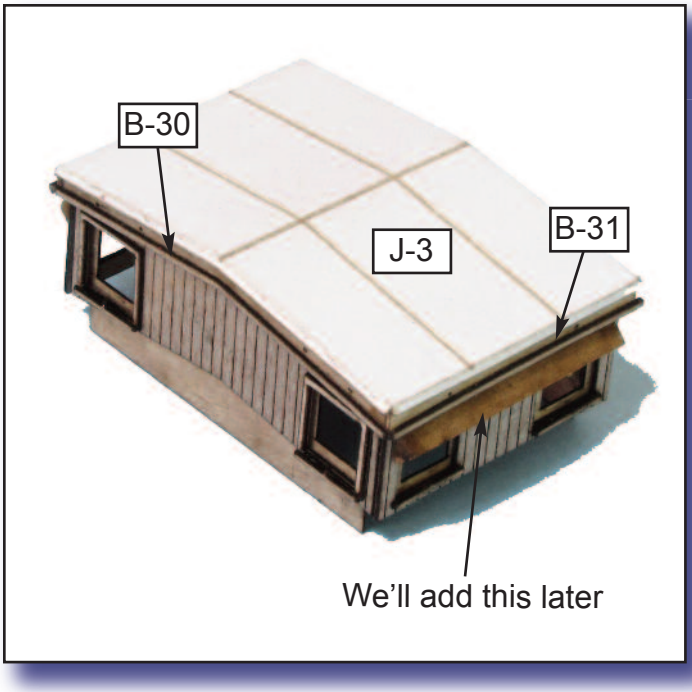
☐ **35**. Remove the backing paper from the roofing that runs along the edge of the roof **J-1** and gently bend it along the scribe line and then position it lengthwise on the roof. The scribe line should fall on the edge and over the ends. When you're satisfied, press in place.

☐ **36**. With **J-1** in place remove the backing from roofing **J-2** and fold slightly along the center scribe line. Apply the roofing to the roof being carful to keep the center line centered on the roof and an equal overhang on each end. When you're happy with it, press in place.

☐ **37**. Glue the running board saddles **A-12** in place next. Attaching the ones on each end first and then using a straight edge will assist you in keeping them in a straight line. When dry, use a sanding block to gentlely sand the tops of the saddles flat.

Pretend you don't see the shades over the windows. If you put them on now, you may damage them during the rest of construction - been there, done that. Notice that this photo shows the wide platform caboose with vertical steps.



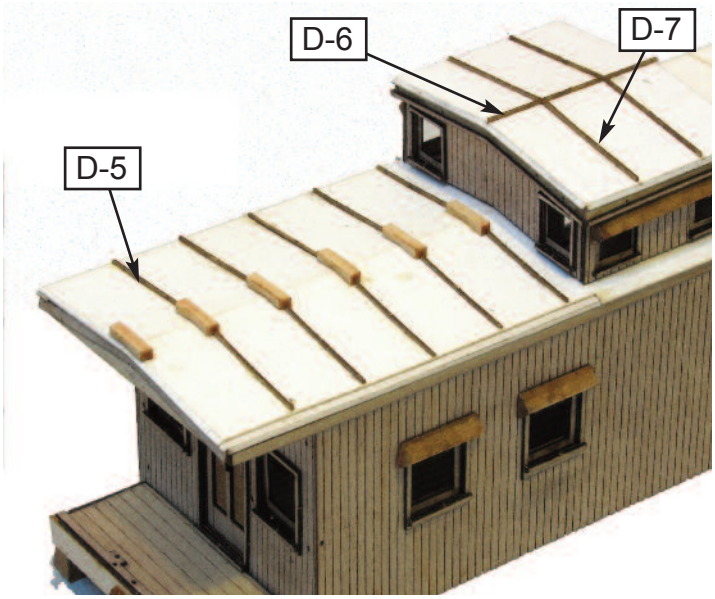


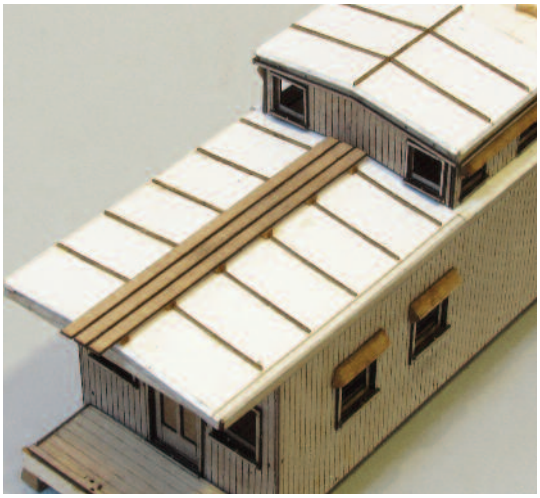
☐ **38**. Add the trim **B-30** to both ends of the cupola, and trim off any excess material, then apply **B-31** to both sides. Again sand off any excess and also make sure the roof is flush with the trim. *Note*: Some photos show that this trim was not on all cabooses.

☐ **39**. Remove the backing from cupola roofing **J-3** and carefully center it on the cupola roof as shown in the above right photo. When satisfied with the portioning, fold the edges down and press in place.

Now it's time to install the roof seams. Take your time with these. Note that there is a bevel on the ends to match the slope of the roof. Make sure that you have them oriented correctly when you glue them in place.

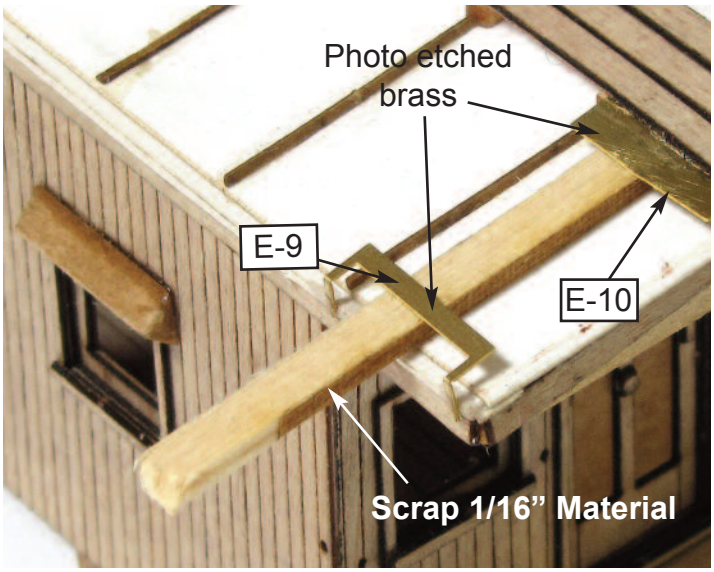
☐ **40**. The **D-5**'s are used on the main roof and **D-6** and **D-7**'s for the cupola. Glue all the seams in place in the locations indicated in the photo at right. Butt the **D-5**'s tight against the saddles and make sure they are standing vertically. **D-6** runs from the front edge of the cupola roof to the rear edge. the four **D-7**'s are butted against it. I used CA glue applied with a tooth pick for this step.

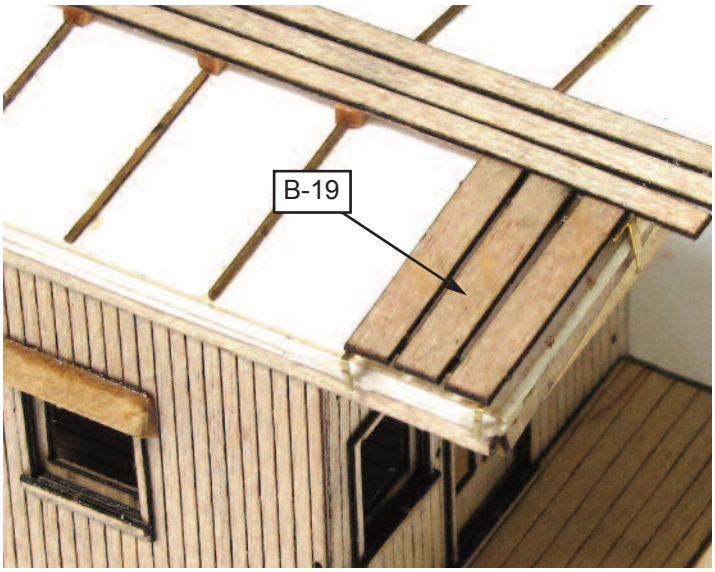




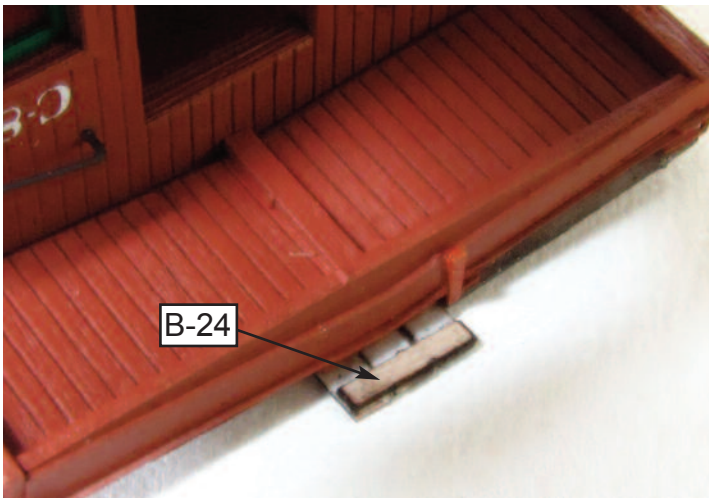
☐ **41**. Add the running boards **B-18** next. I like to add the outside ones first and center the remaining one between them. Allow about one scale inch between the cupola and the end of the running boards. Make sure they are even across the front.

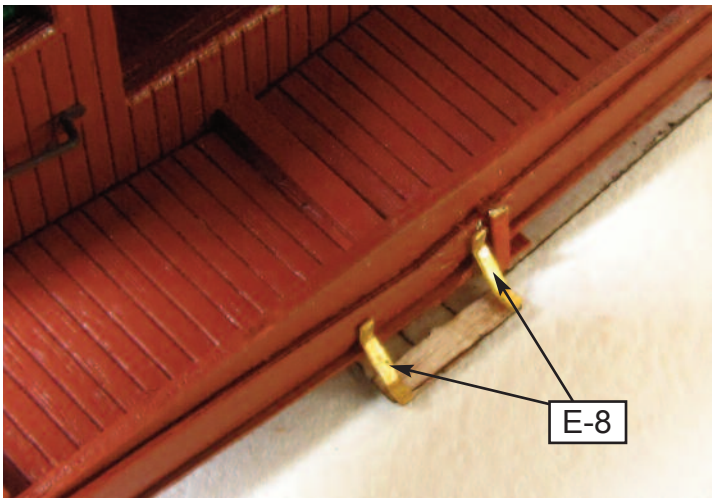
☐ **42**. Remove **E-9** and **E-10** from the sheet of etchings. Bend the strap leg down at 90 degrees and make a slight bend in the large portion to approximate the angle of the roof. **E-10** can be slid under the main running boards and pressed tight with a pair of tweezers. Bend the legs of **E-9** over to match the slope of the roof. Slide a scrape piece of 1/16" basswood with one end tappered slightly under **E-9** and **10** as shown at below and glue in place as shown with CA glue.





☐ **43**. When the glue has set up add the three lateral running boards **B-12** as shown above. Press in place. Remove the scrap of *1/16" basswood* and repeat for the other end.

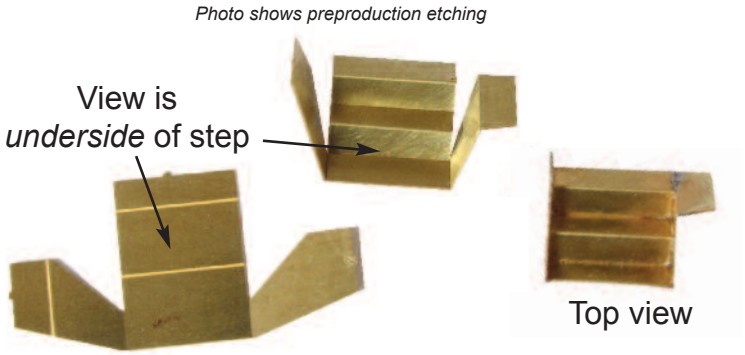


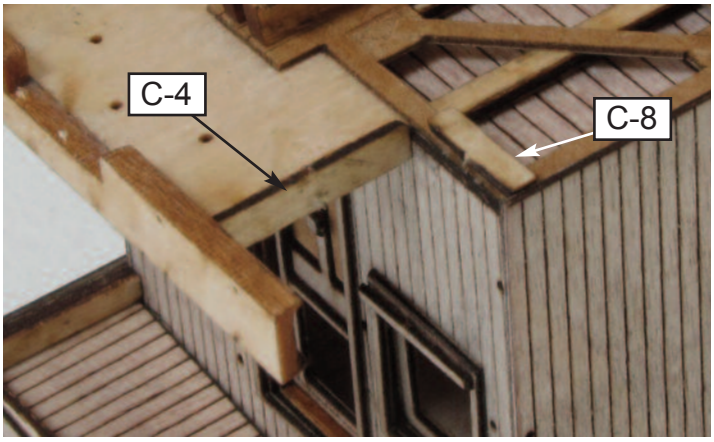


☐ **44**. Remove part **B-24** from the sheet of 1/64" plywood and press in place as shown above right at the end of the running boards. Then remove two **E-8**s from the brass sheet and bend the two ends at a 45° angle towards the scribe line. Refer to the photo above left and glue in place on **B-24** and the end of the roof. Repeat for the other end.

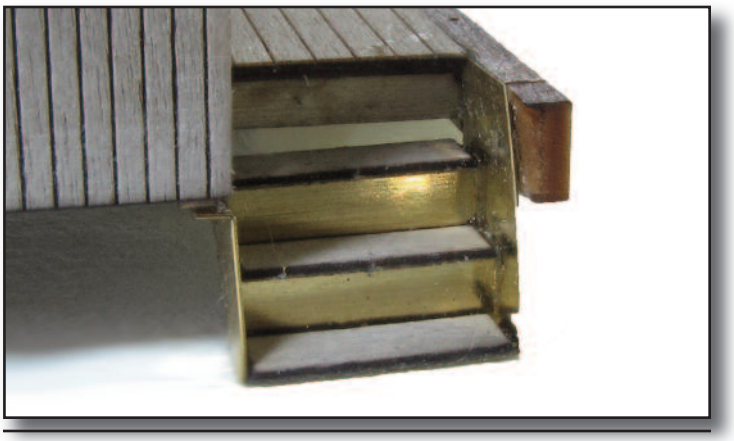
Assembly and Instalation of the Steps

☐ **45**. Remove a step from the fret and fold as shown in the photos below. ***Always bend toward the etched lines***.You can either solder it together, use 5 minute epoxy or CA glue. The bent down tab will be glued to the underside of the caboose frame. Make up two left and two right. When finished prime the surfaces with paint and apply the finished color. When dry add the step treads. Unless modeling a newly painted caboose the treads can be left unpainted to represent worn surfaces.

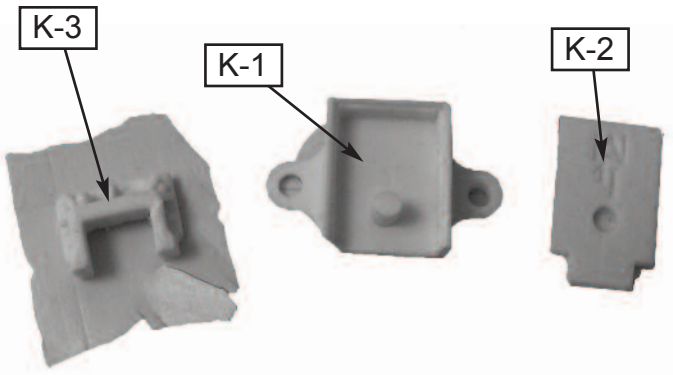




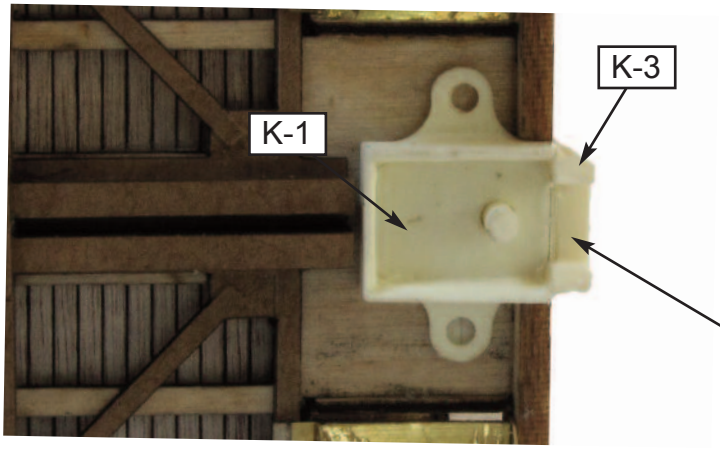
☐ **46**. Glue filler piece **C-4** and spacer **C-8** as shown above and then glue the steps in place. The edge of the step side should be flush with the front edge of the angled area on the end sill. Be sure to remove paint from glue surfaces.



Draft Gear Assembly

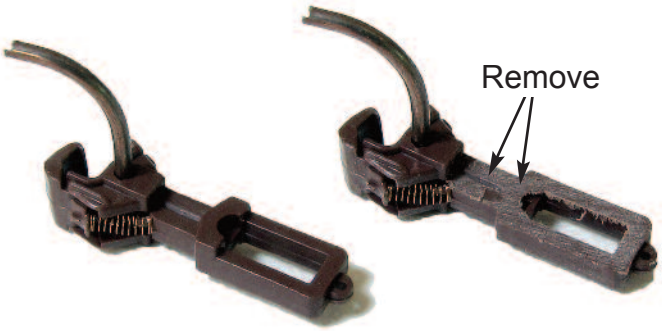


☐ **47**. Clean up the coupler draft gear box, cover and the striker plates. Use a sanding block and sand the backside of each casting until the casting flash is removed. This will also get each part to the correct thickness.



This edge flush with the floor of the draft gear box.

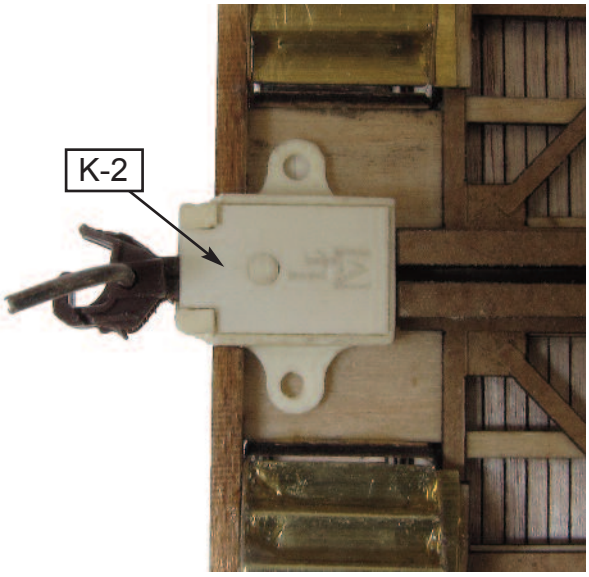
☐ **48**. Glue the draft gear box in place. This is another place where I prefer to use 5 minute epoxy. Place a small amount on the bottom and set in place. Be sure that the front edge of the box is flush with the outside face of the end sill. Sand and fit as necessary. Note that the ears on either side of the draft gear box may be removed or alternately small screws may be used in place of the epoxy to hold the box in place. Once the glue has dried epoxy the striker plate in position as shown in the photo above.

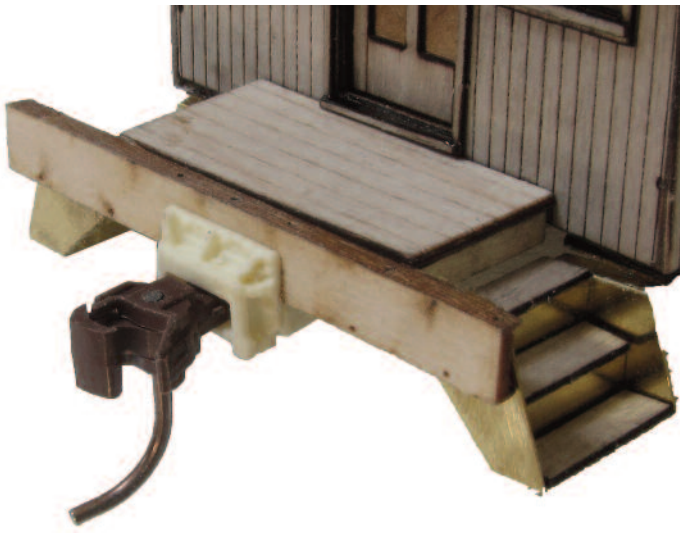


Kadee® Couplers #802 Black #808 Brown

☐ **49**. It will be necessary to remove the projection from the bottom of the Kadee® coupler shank. Remember the object is to remove the plastic, not the ***end of your finger***, so be careful. The result should look something like the photo at left.

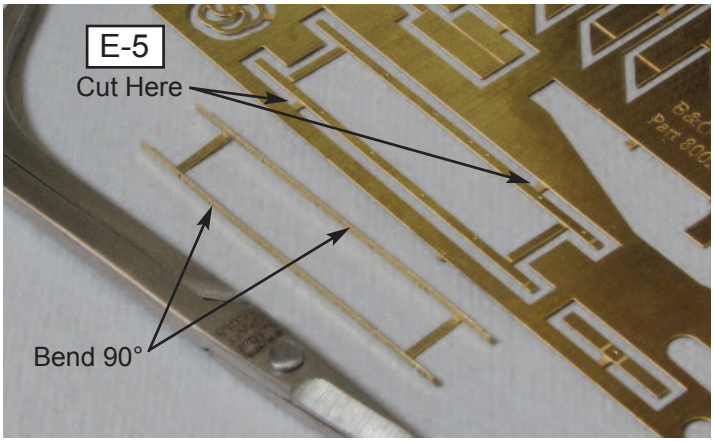
In fitting the coupler to the draft gear box you may need to sand off some more of the shank thickness to allow the coupler to swivel and slide in the box.

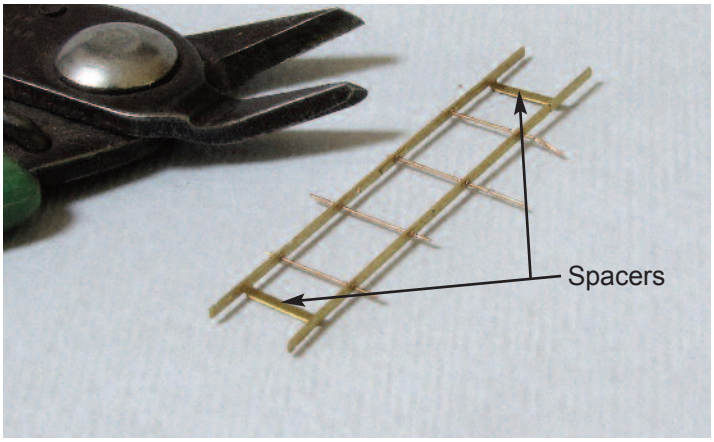




☐ **50**. Fit the spring and coupler in the draft gear box per the Kadee® instructions and add the cover plate **K-2**. Make sure the couplers moves freely, if not sand the cover plate thickness down until it does. Tack glue in place so that it can be removed if necessary later. Repeat for the other end.

Ladder Assembly





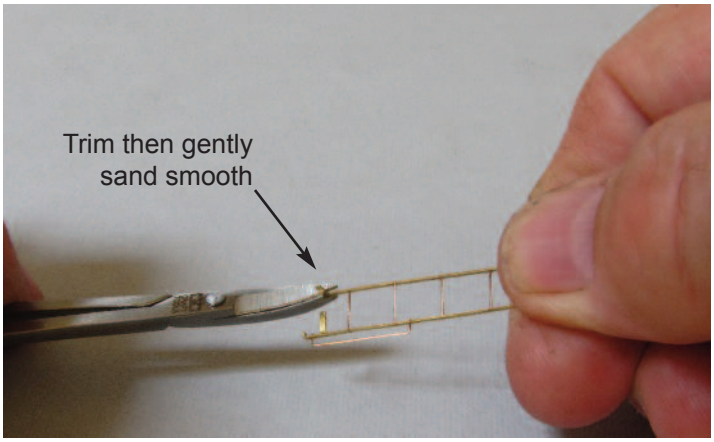
We'll tackle the ladders next. These parts will be fragile until assembled, so be warned. Ream out the holes with a No. 78 drill before removing from fret..

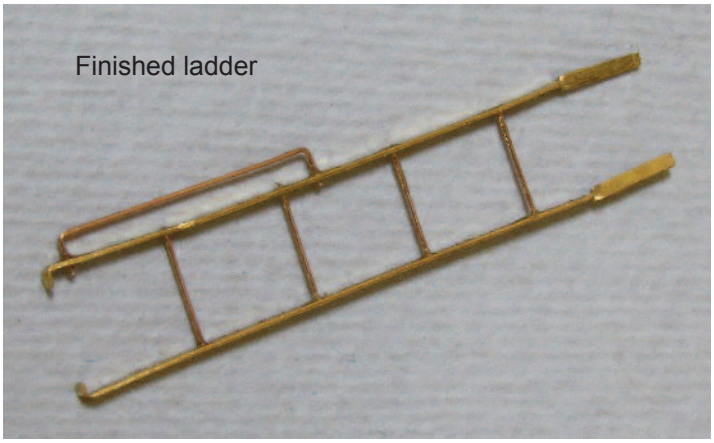
☐ **51**. Remove the ladder from the etchings sprue with scissor made for this or lay the sheet on a hard surface and cut the tabs holding it to the sheet with a modelers knife. Be very careful not to bend the side rails out of shape.

☐ **52**. Use pliers to bend each side rail 90°. Bend towards the etched lines on the two piece that hold the rails the proper distance apart

☐ **53**. Cut four pieces of 0.015" wire approximately 3/8 to 1/4" long. Using tweezers to hold a piece by the end, gently slide it in one side, across to the other leaving some wire projecting out from both sides.

☐ **54**. Using a scrap piece of wire or a toothpick, apply a small drop of CA glue to the inside and outside of one of the ladders rails or solder.





☐ **55**. When all is dry, make sure both rails are straight and glue the rungs to the other rail. When dry use flush cutting pliers to snip off the excess wire as close as possible to the rails. I then use a sanding block with medium sandpaper to ***gently*** sand them flush.

There is a vertical hand hold on the ladder. Bend a piece of 0.015" wire as shown on the template and glue in the two holes. There should be approximately 2-3 scale inches between the side rail and the grab iron. Trim any excess wire.

☐ **56**. Bend the bottoms of each vertical 90° to the inside.

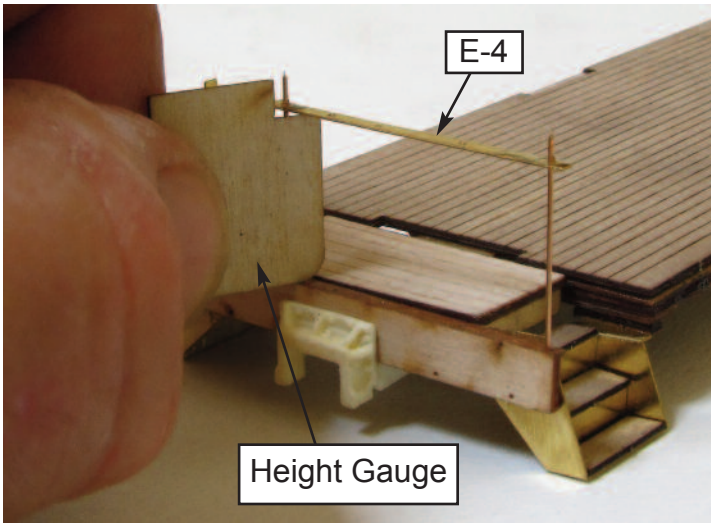
☐ **57**. We now need a "twist" in the top of each side rail. To do this I use two pliers with one just below just above the scribe line and the other side. Twist 90° to the inside of the ladder. Repeat for the other leg.

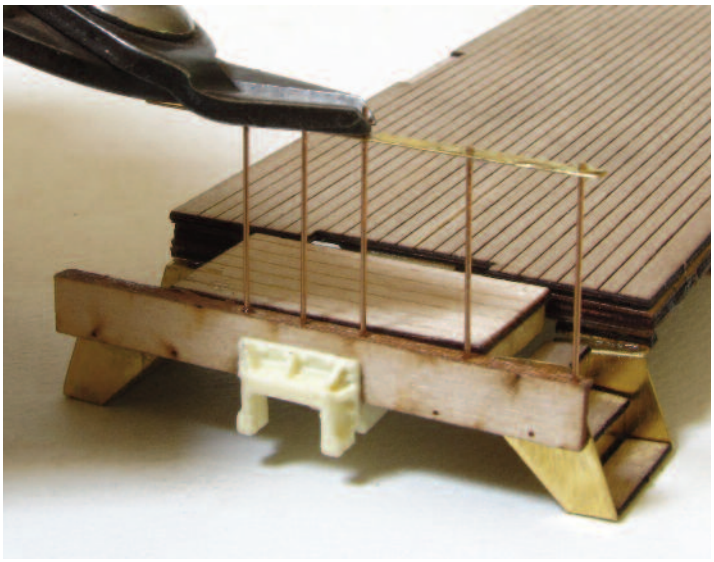
☐ **58**. Repeat for the other ladder and lay them aside for the moment.

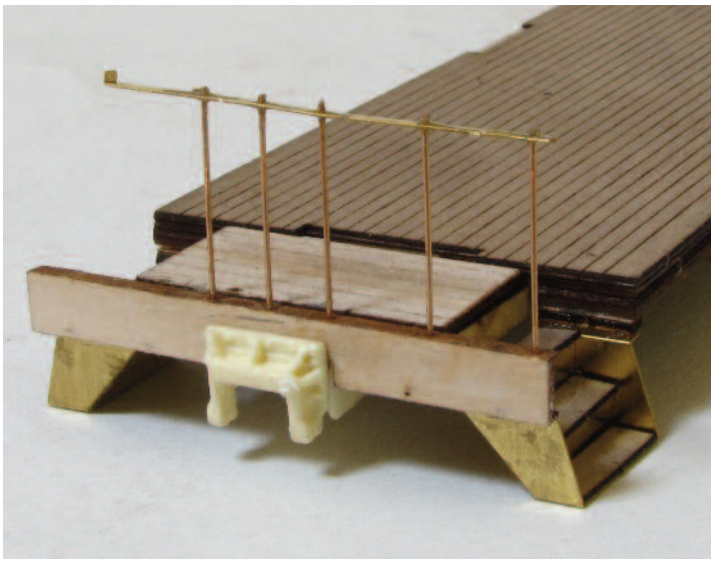
☐ **59**. Remove the end railing from the sprue and clean up the tabs. Ream out all the holes with a No. 78 drill bit. Then bend the end up 90° towards the fold line, this will attach to the ladder later.

Cut 5 pieces of the 0.015" wire to 3/4 to 1" lengths. Install two of these pieces in the outer holes on the end sill and glue to it. Slide the railing onto these piece and using the gauge provided, glue or solder in place.

☐ **60**. Slide the other three pieces down through the railing into the sill and again glue or solder.

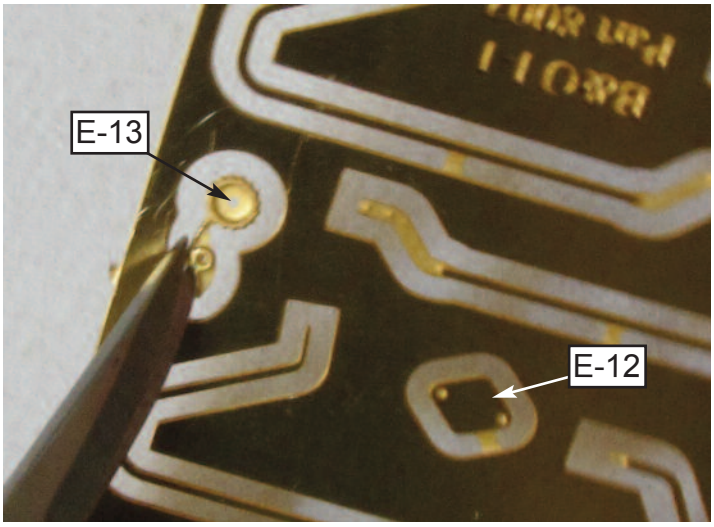


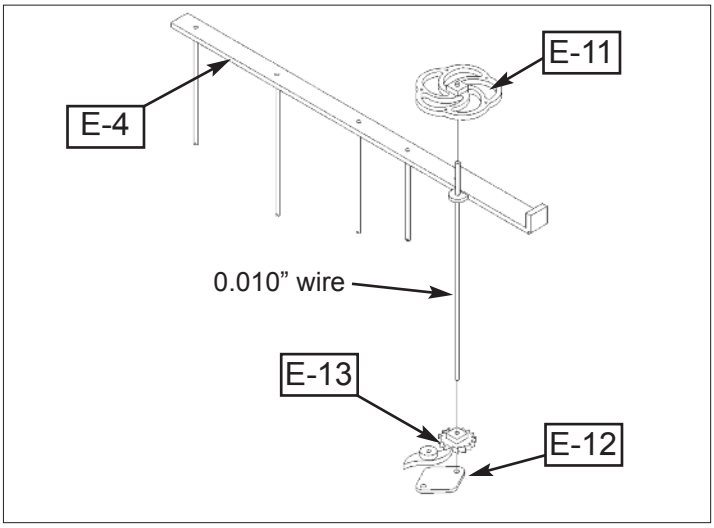




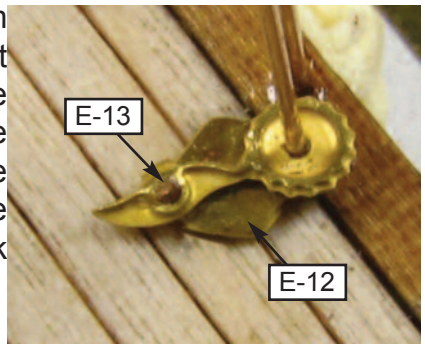
☐ **61**. Use flush cutting pliers to remove excess wire. Leave a short piece above the railing to represent the nuts that hold the railing in place. When you are finished, it should look like the photo above right.

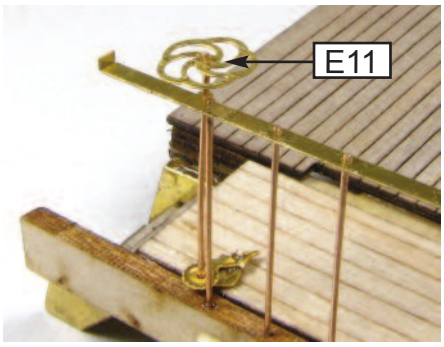
☐ **62**. Next cut the pawl/ratchet **E-13** and base platform **E-12** from the 0.015" thick brass sheet. Ream out the holes . Slide a short piece of wire through the base plate and the pawl and a 1" long piece of wire through the gear and base plate. Apply glue or solder to the base plate and pawl and trim the wire flush both top and bottom. Leave about 1/32" projecting from the bottom of the base plate gear and glue.





☐ **63**. Slide the wire up from the bottom into the bracket that holds the brake shaft to the railing. Put a drop of glue on the bottom on the base plate and slide the short piece of wire projecting form the base plate into the brake shaft hole in the deck. The ratchet and pawl should look something like the photo above left.



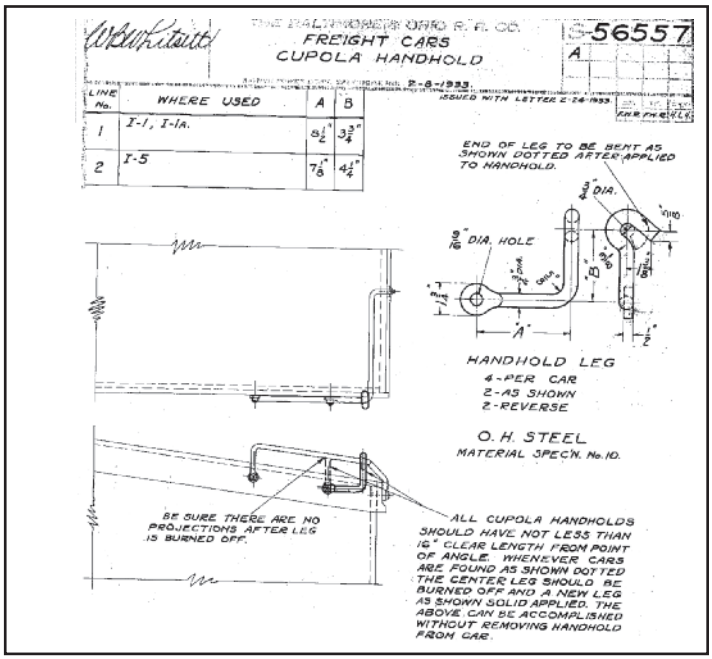


☐ **64**. Cut a brake wheel from the fret and clean the area around the tab. Ream the hole for the 0.015" wire and slide over the end of the wire. I used a piece of 1/16" material as a spacer above the railing and glue or solder the wheel. Trim the excess wire from the top of the wheel.

☐ **65**. Repeat for the other end of the car.

Bending the Wire Grab Irons

☐ **66**. *Cupola Grab Irons* -While you can make the various grab irons in any order you wish, I like to start with the hardest first and get them out of the way. Without a jig, I've found it easiest to bend the cupola corner grab irons in place. I first make a 90° bend leaving the end about 1/16" long, I then put that end of the wire in one of the holes on the side of the cupola and use my finger to start the 45° bend over the roof. I remove the wire and complete the bend. I then mark off approximately 4 scale inches and make a 90° bend in the direction I want to go. Reinsert the wire in the hole and using a pair of pliers, I next make another 90° bend running parallel to the cupola end. That done, I again use the pliers to bend the wire down in alignment with the hole closest to the center of the cupola. Using a scrap of 1/32" material, I then mark where the last bend will be and remove the wire from the cupola. I make the bend and check the fit by temporarily installing it.



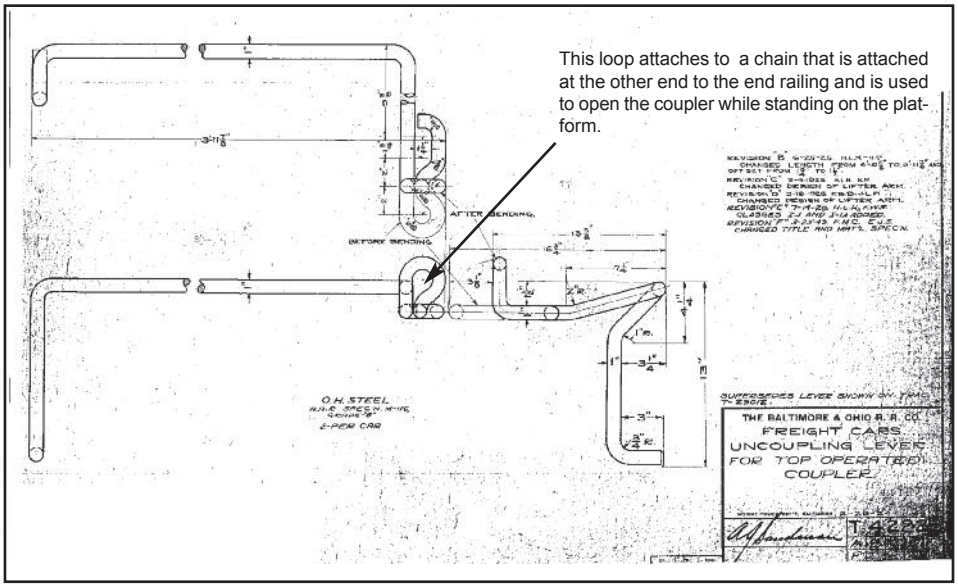
☐ **67**. You have a couple of options in making the short support with the eyelet. You could just ignore it and bend a piece of wire to the appropriate shape and cut it off just below the horizontal grab iron, then glue or solder in place. The other way is to make your own eyelet. The more you make the better looking they become. I take a piece of wire and using my pliers bend in over 180°. I then take a piece of 0.015" wire and slide it against the bend. Gripping both pieces of wire (it's a little tricky) I squeeze the bent wire just below the inserted wire until they actually overlap each other and look something like the yellow ribbon decals you see on automobiles. I then use my wire cutters and clip off the excess wire and do some minor tweaking. This done I now make necessary bends to finish.

☐ **68**. Remove the cupola grab iron, slide the eyelet on and reinstall. One down, three more to do.

Above is an example of gluing the wire to the grab iron.

Example of a hand formed eyelet.

☐ **69.** *Uncoupling Lever and Mounting Eyes* – The railroad drawing at right shows the dimensions for one of the two major types use on the I-1. The other type is an AAR standard device. I have include a drawing showing the dimensions of this lever should you chose to use it. With either you will need to bend up your own eyelets to support them. These can be made the same as those for the cupola grab irons with the exception of the "extra" bend

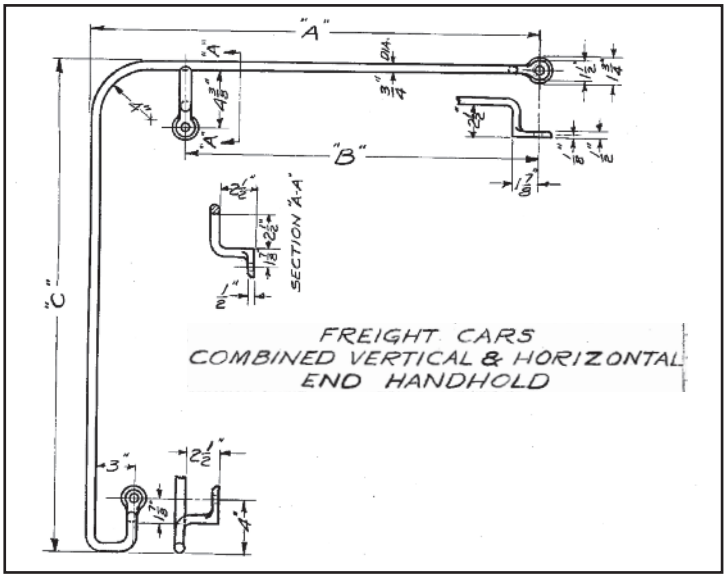


☐ **70**. *Side Grab Irons* – Anything from a dowel to a modelers knife about ½" in diameter can be us to bended the side grab iron used on these cabooses after it's adoption by the B&O. Make a 90° bend in a piece of 0.015" wire approximately 1/8" of an inch long. Hold this bend end parallel to the handle and gently bend the wire around it. Stop often to check your progress. You are trying to achieve a scale 3'-4" radius. You can check how close you are by holding the wire up to the side of the caboose and seeing how it lines up with holes in the side. When you are satisfied, make another 90° bend and cut the wire leaving another 1/8" tail. Make two left and two right. When mounting them, I do it with the floor removed. Insert the tails into the two holes and use a scrap piece of 1/32" material between the body and with grab iron as a spacer. Glue the wire in place with a drop of CA glue applied with a piece of scrap wire or the end of a toothpick. Apply a drop to the inside too. Using flush cutting pliers, trim off the excess wire at the bottom so that the floor will slide in place.

☐ **71**. I have no information on the earlier “L” shaped side hand holds used at the time these cabooses were built. Using photographs as guides you should be able to create what looks reasonably close. Note that this version also has a support on the upper 1/3 of its length. - Refer to the photo of 156 on page 3 as a guide.
Center distance should be a scale 1’-7”.

☐ **72**. *Platform Grab irons* – These are the ones above the end windows and are made by bending the wire 90°, measuring 2’-4” and then make .another 90° bend

☐ **73**. *L Shaped Grab Iron* – These and the cupola corner grab iron are the most difficult to make by hand. Refer to the drawing. A very narrow nose pair of pliers is necessary to be able to bend the short horizontal section at the bottom. You will probably have to settle for making it round. The rest is just taking your time and trial and error.



☐ **74**. *End Beam Grab Irons* – Bend up four grab irons the same as you did for the end grab iron previously. The difference being that the center to center distance should be a scale 1’-7”.

☐ **75**. *Platform Grab irons* – are made by bending the wire 90°, measuring 2’-4” and then make another 90° bend.

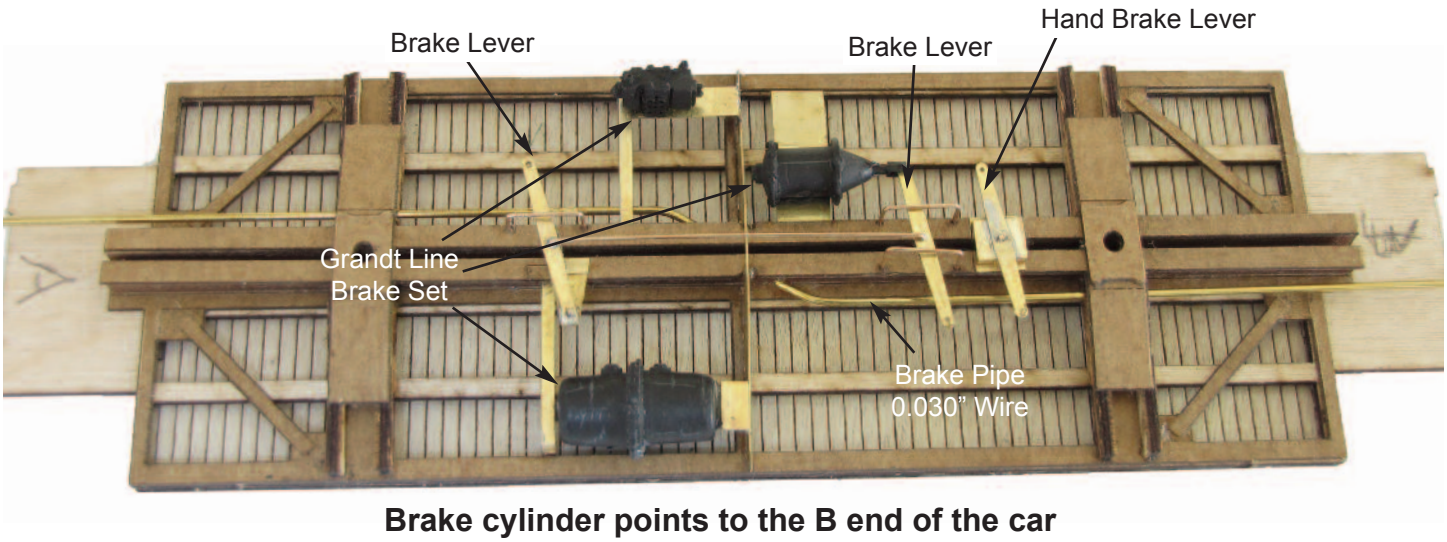
☐ **76**. Attach the trucks of your choice. Arch Bar, Andrews and what appear to be Bettendorf trucks were used. A pair of 2-56 screws have been provide for your use in attaching them. Use a coupler gauge to check the height of the coupler and use thin washers between the body bolster and truck if necessary to rase them to the correct height.

☐ **77**. Large hex nuts can glued to the floor for weight. Total weight of the car and trucks should be somewhere between 7 and 8 ounces.

Installing the Brake Parts

Overview - Detail drawings of the I-1 brake layout have not been located. There is a drawing showing the size and length of brake rods and levers. A separate set of etched parts No. 8005 is available to furnish the necessary levers and mounting brackets for those wishing to detail the underside. The bending jig No. 5003 will assist in bending the main brake rod and lever hangers as well as the grab irons.

Basic Brake Component Layout



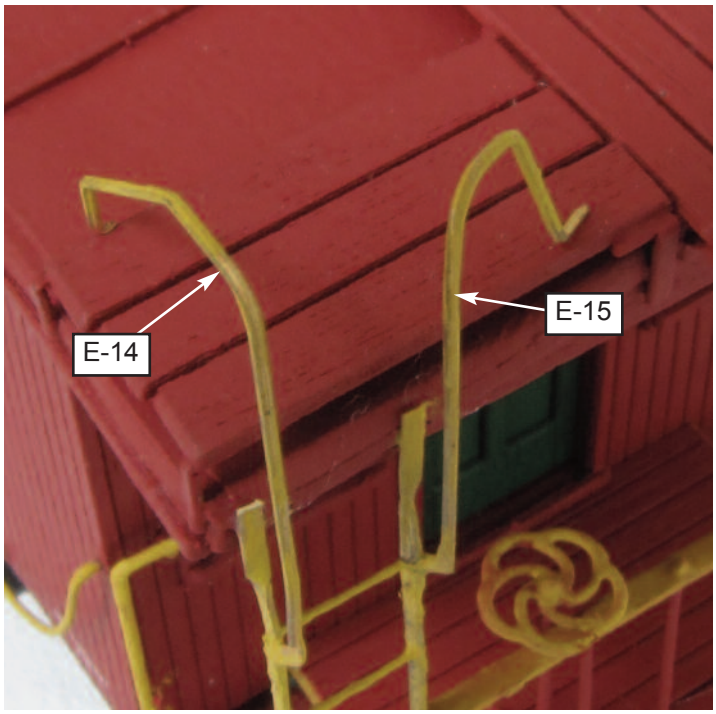
Brake cylinder points to the B end of the car

☐ **78**. *Brake Pipe* - Use a 0.030" diameter piece of wire (not included) for the main air brake pipe that passes from one end of the car to the other. This pipe runs from the right side of the coupler 3" from the centerline of the frame to approximately 12" before the center cross member at which point it makes a 45° bend and passes through a slot cut in the center sill through to the other side. Both ends are a mirror image of each other. Because of the process I used to manufacture the center sill, I was not able to cut this slot. You can either bend the wire and cut it where it intersects the center sill or you could drill a slightly larger hole through the center sill at a 45° angle on each side of the cross member.

☐ **79**. *Brake Lever Hangers* – Three brake hangers are needed to hold the levers in place. There are laser cut holes in the center sill flange where they are located. Bend these hangers using the same method as described for the end grab irons. They should be approximately 1'-6" between centers and when glued in place should project down about 9" below the center sill flange.

Ladder Extentions - the Last Step

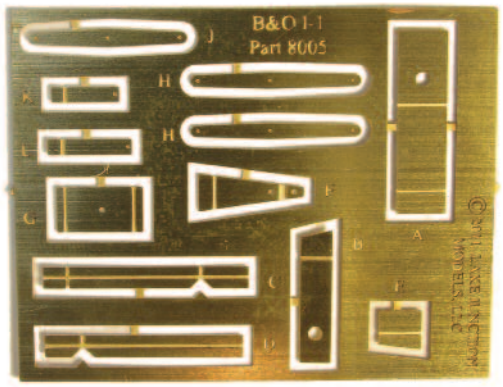
☐ **80**. The ladder extensions **E-14** and **E-15** should be the last parts to be added to prevent damage to them while handling the model. Again you have the choice of soldering or gluing them to the sides of the ladder. My technique is apply a dot of CA glue to the flatten portions of the extensions. Using pliers hold them in place until the glue sets.



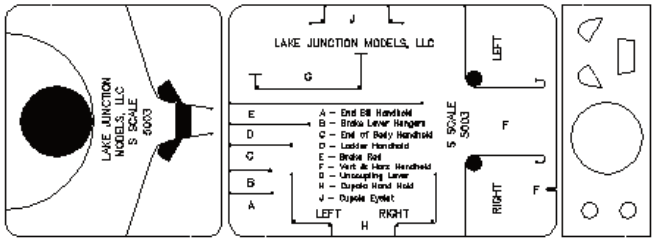
Notice the angle of the right hand extension. I used my pliers to bend the top (curved) part before gluing.

An advantage of gluing is that should you need to remove the body from the floor in the future, you should be able to remove the extensions by carefully prying them loose, loosening the top of the ladder from the roofing and remove the body from the floor.

Other Baltimore & Ohio S Scale Kits by Lake Junction Models, LLC



Detail Brake Set No. 8005
for B&O I-1 with AB Brakes $12.98



Bending Jig No. 5003
for B&O I-1 $9.98

Standard 16' x 30' Freight House
No. 4026$38.98 available Nov 2011

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No. 4019 $29.98 available Nov 2011

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Whistle Post	6040 (6)	$4.98
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