Building the CGW 2017 Chicagoland RPM Mini-Kit

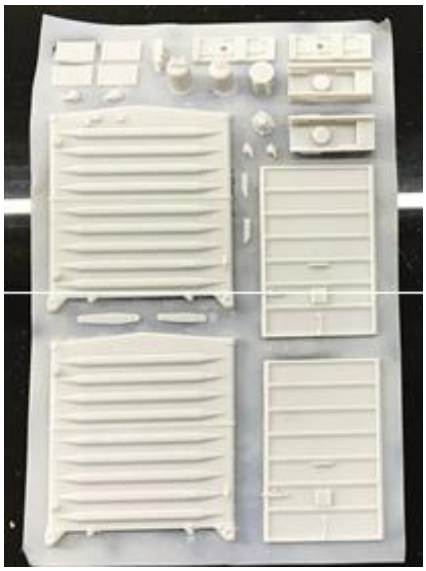
by George Toman

Please Silence Com Devices

2017 Chicagoland RPM Mini-Kit

This special kit was made possible by the efforts and generosity of several manufacturers and individuals.

Ron Sebastian of Des Plaines Hobbies donated the basic 1937 AAR Boxcar bodies, Frank Hodina and Jason did the 3D modeling and patterns in HO, N, S and O . Aarjon Gjermundson made the molds and did the castings. Ted Culotta revised the draft artwork provided by Kason Kliewer and had the Decals printed by Cartograph in Italy and of course Mike Skibbe.

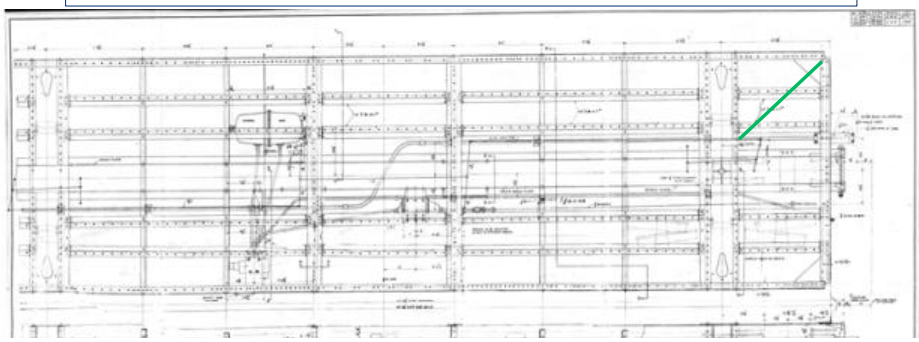


HO Scale Resin Parts showing PS Carbuilders Ends with 4-5 corrugations

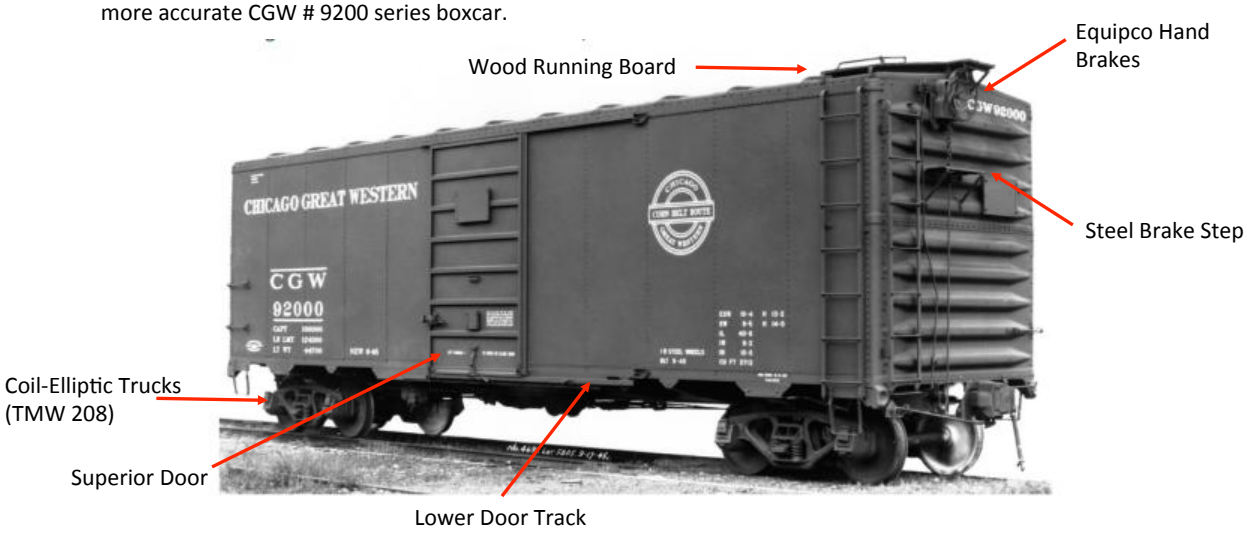
This project started with a bit of research on this CGW 9100 Series Boxcar. After reviewing the General Arrangement Drawings included in the 2017 Chicagoland RPM Attendee Program, I noticed the underframe on the 1937 AAR carbody did not match. The drawings showed four Z stringers running between the bolsters and ends vs the diagonal braces and 4 Z stringers running bolster to bolster. Truck centers were also longer than the typical 30'-8 ½ " center at 30'-10 ½". Below in the following chart is information provide by Ed hawkings on the Z stringers and correct sizes. Note that the center Z's are 4" vs the others being 3". Some diagrams and photos are reprinted from the 2017 RPM Program with permission from Mike Skibbe

Z Stringer Info from Ed Hawkins

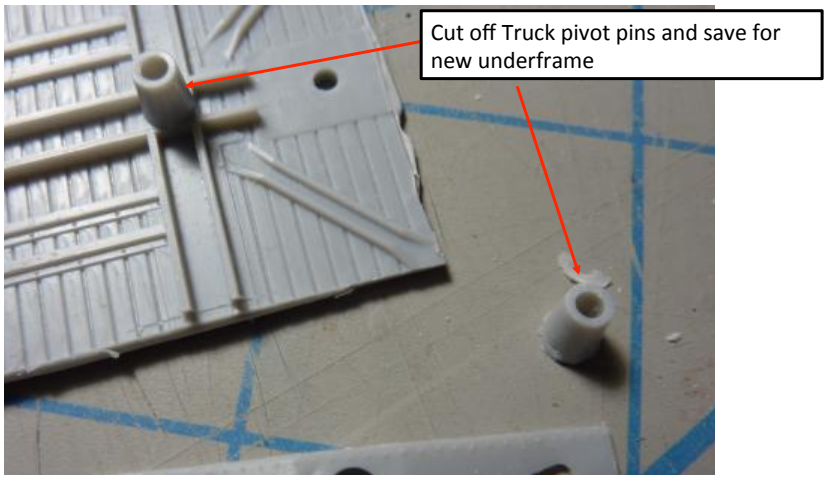
Between the crossbearers: 4 per car - 4" Z, 1/4" x 6'-0 1/2"
Crossbearers to bolsters: 8 per car - 3" Z, 1/4" x 11'-3"
Bolsters to ends: 4 per car - 3" Z, 1/4" x 4'-2 5/8"



With this information I made the decision to scratchbuild a new underframe. Also I noticed that the lower door track on the 1932 AAR carbody was not like that used on the protoype. This prompted me to build a new lower track from styrene. The information that follows show the steps and techniques to build a more accurate CGW # 9200 series boxcar.

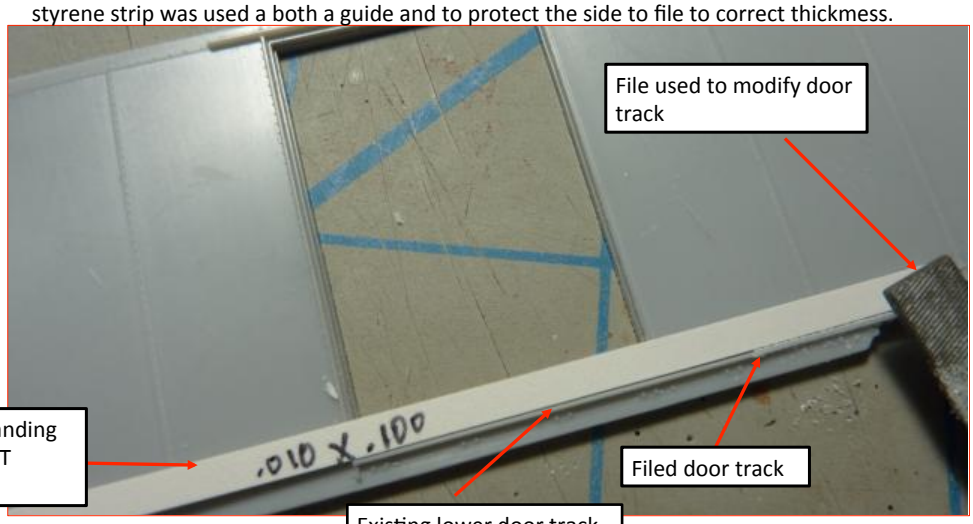


In constructing my version, as I was cutting the floor out I also cut the ends from the sides at this time leaving me only two car body sides. Below in the picture you see the bottom cut out and the Bolster truck pins saved for the new styrene floor. I used a fine blade Micro Saw too cut apart sides, floor and ends.



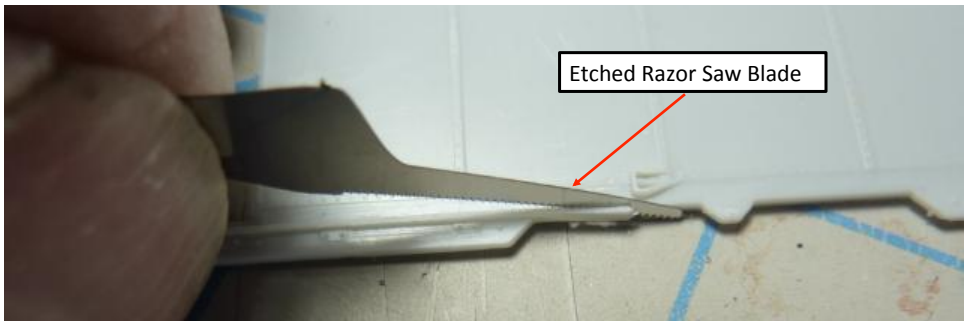
Modifying the Car Body
Lower Door Track

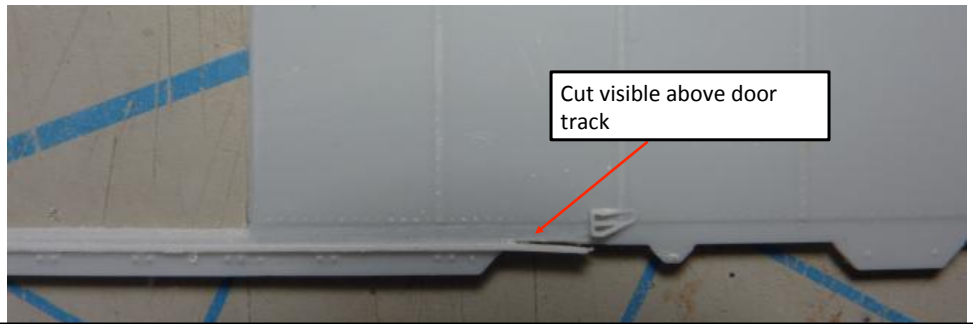
The Lower Door Track was filed down in how far out it stood from the sides. A .010x.100 styrene strip was used a both a guide and to protect the side to file to correct thickmess.



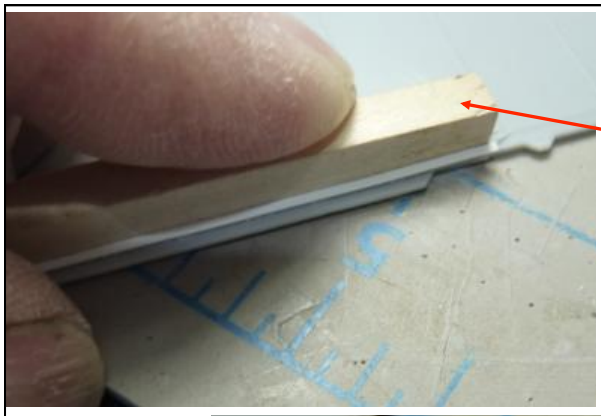
Lower Door Track filed / sanded to .010 thickness

Cutting the lower door track with a razor saw blade to create opening between lower sill and track



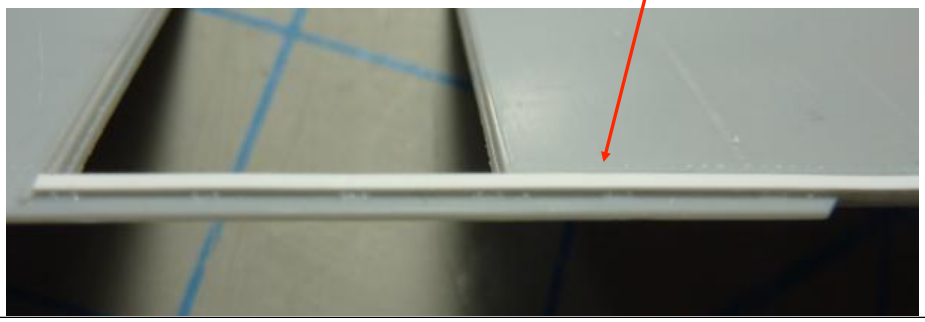


Gluing New Lower Door Track

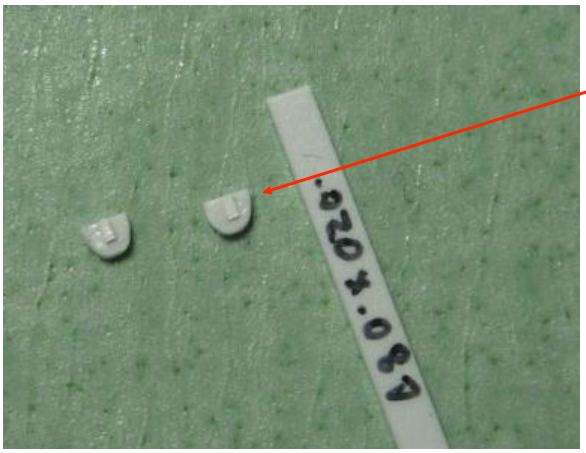


Using Scrap Square Wood Block as stop to position and glue lower styrene .010x.040 track

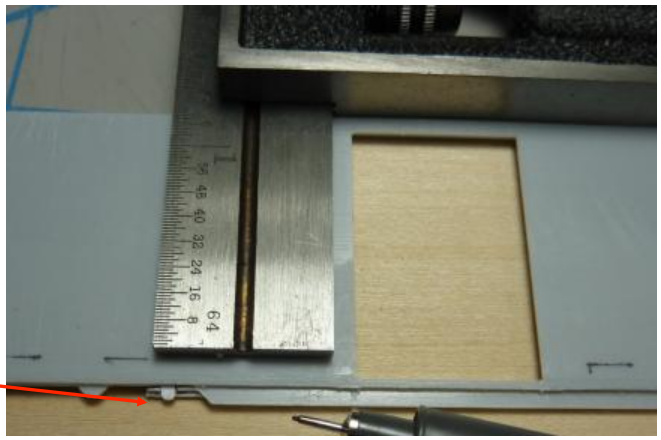
Lower Track in place and glued



Making Lower Track supports

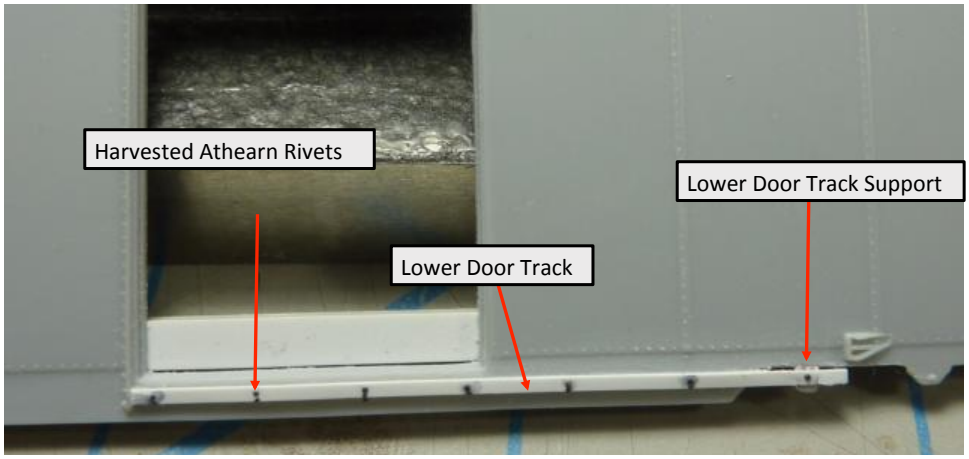


Lower supports cut and filed to round shape. A .010 strip is glued as a spacer.

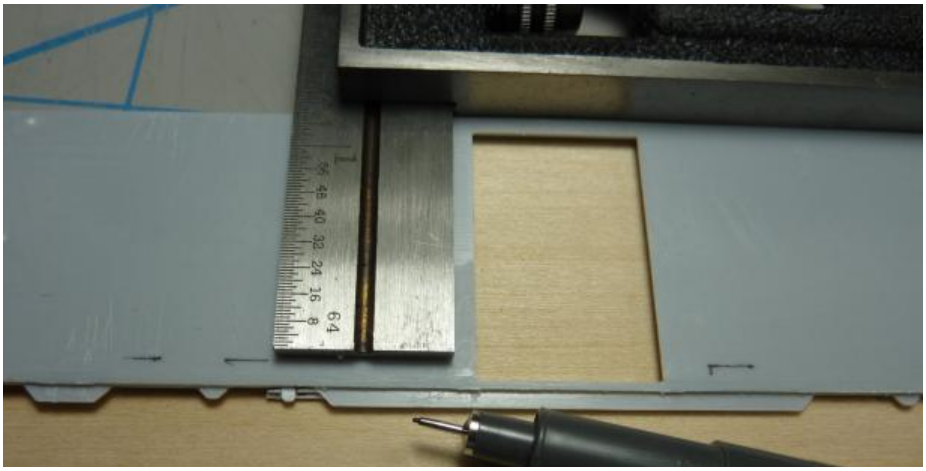


View from back side of with track support glued in

Lower Door Track and Support in place



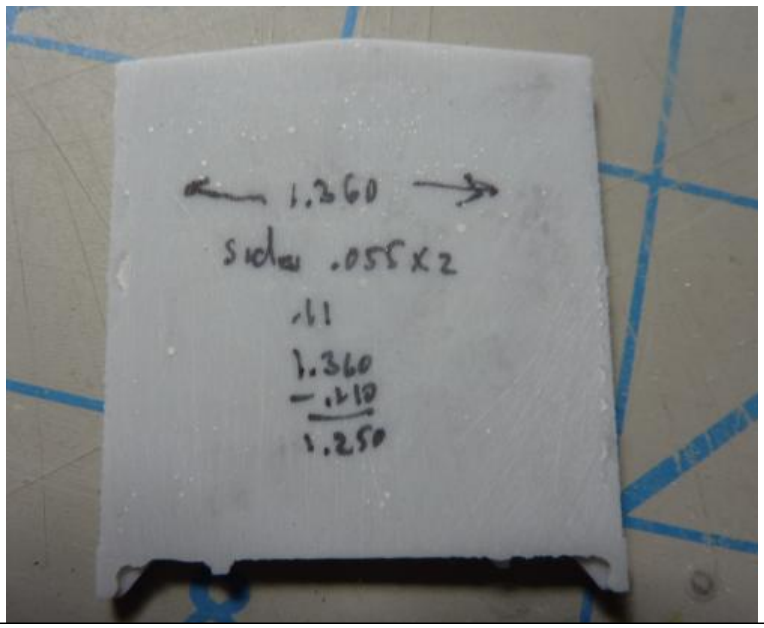
Marking the inside of car side for styrene floor supports with a small Machinist Square



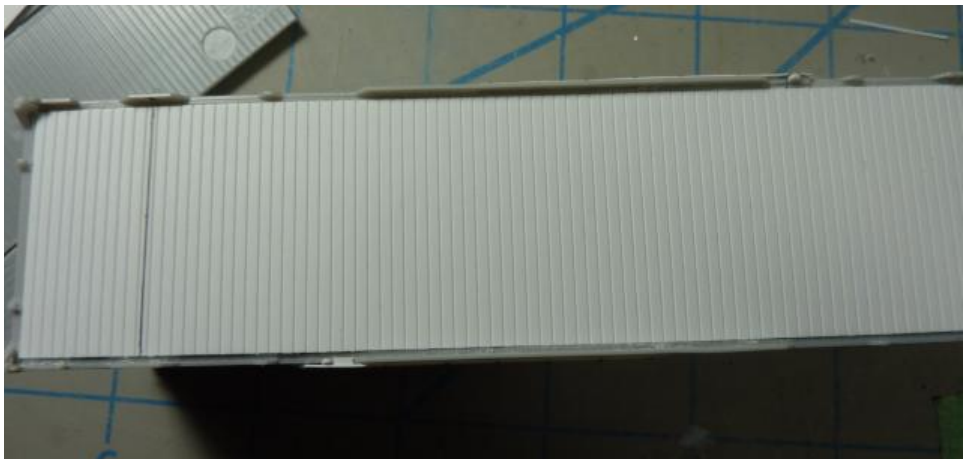
Next step was to assembly side and ends to form carbody and then build a new floor, but first I glued in some styrene bracing as seen below. I used .125x.125 for the floor & . 188x.188 for the corners.

.125x.125 strip glued at bottom for new .040 scribed floor.

Backside of New Resin Carbuilders End with Measurements to build new Carbody.
Floor needs to be 1.250 wide x length of Car side cut out and trued up

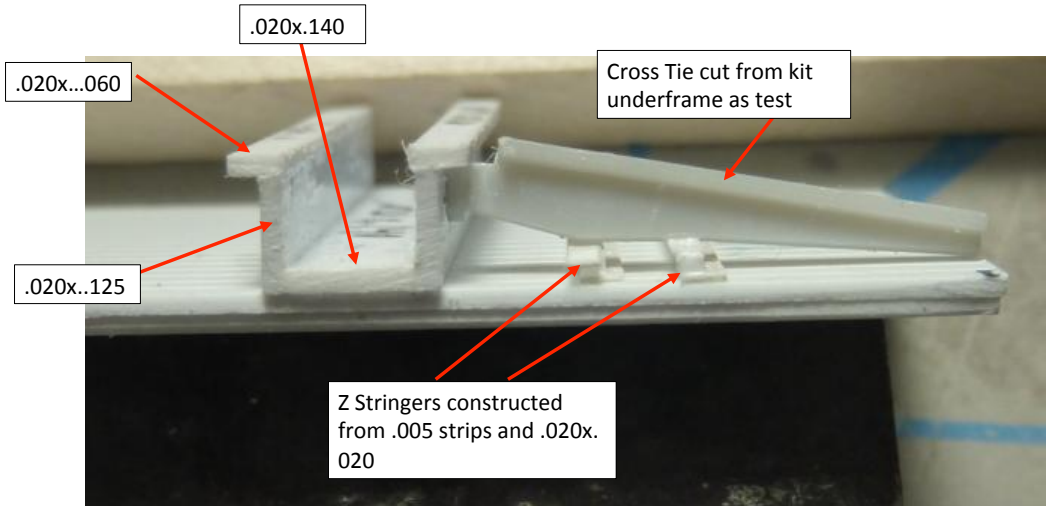


Car sides attached to Ends with thin Tamiya Glue. Floor was cut from .040 thick scribed sheet with .060 spacing to fit inside body and test fit.
Do NOT Glue Floor at this time.

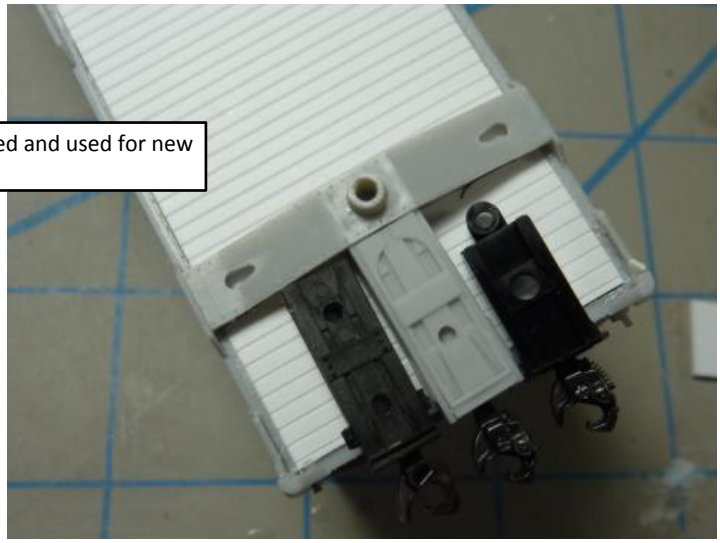


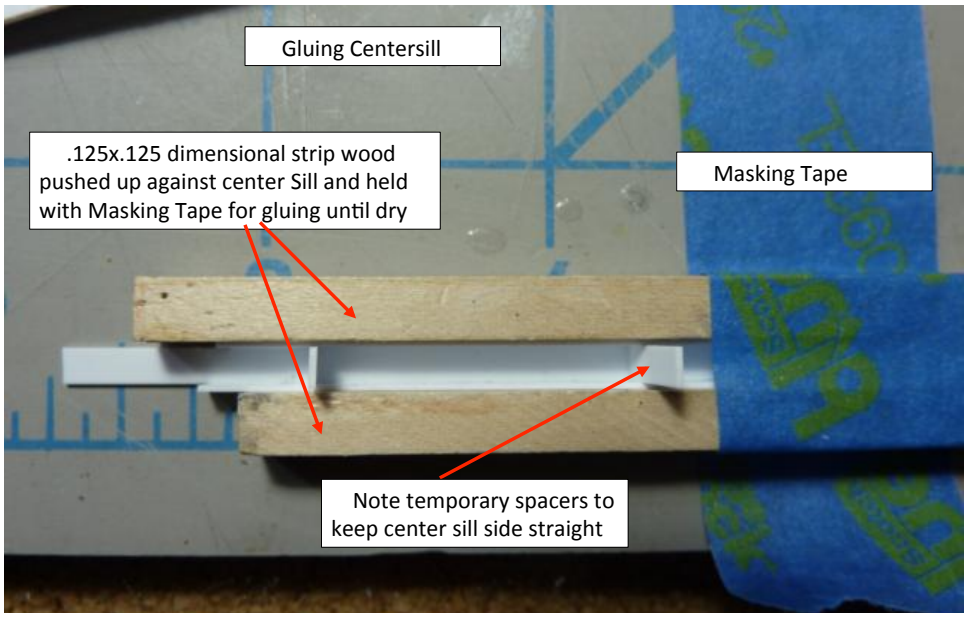
Construction of Proof of Concept Floor with Z Stringers and Crossties

Use dimensions from General Arrangement and Kit Parts to determine needs. I went thicker (.020) for attaching brake parts that are pinned with wire

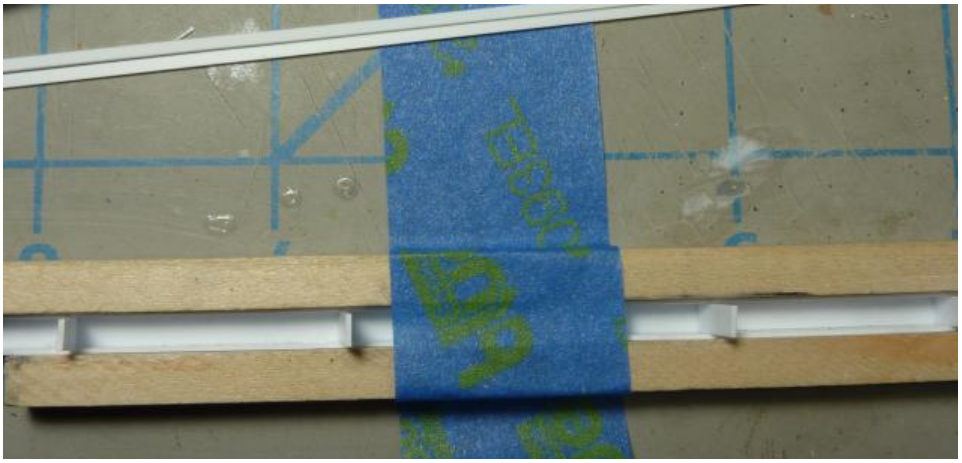


Choice of coupler boxes
Left to right Accurail Scale Box, Resin Car Works Semi Scale, Kadee Scale

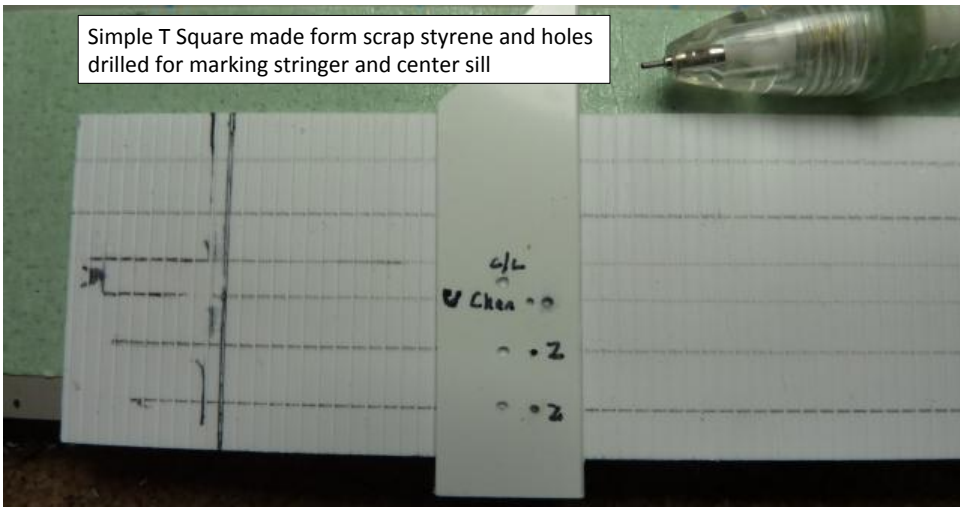




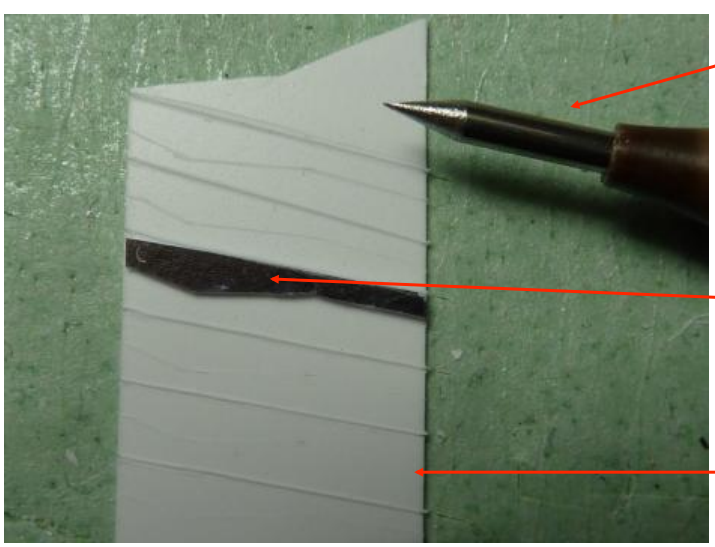
Constructing the Center Sill in a simple gluing jig



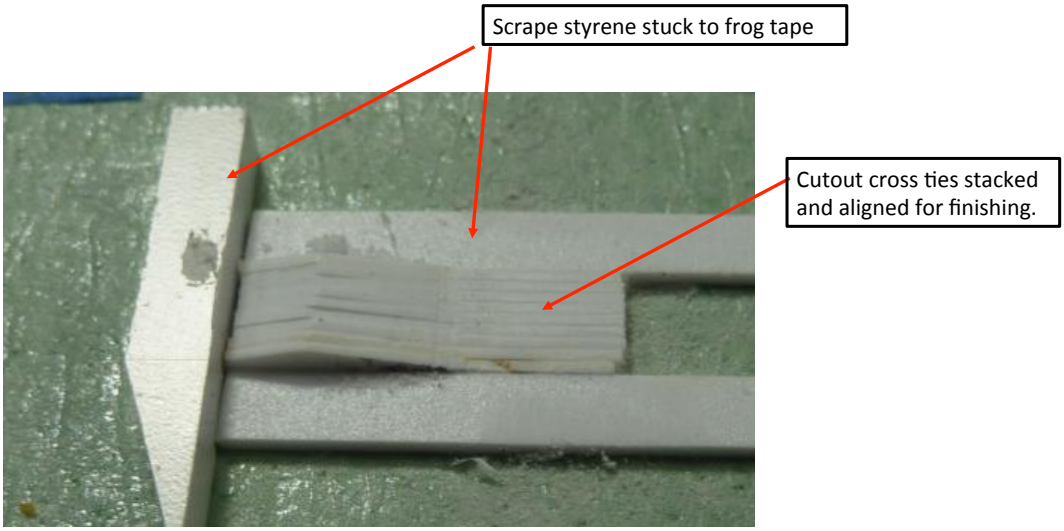
Using a piece of styrene to mark Center Sill, Z stringers and bolsters



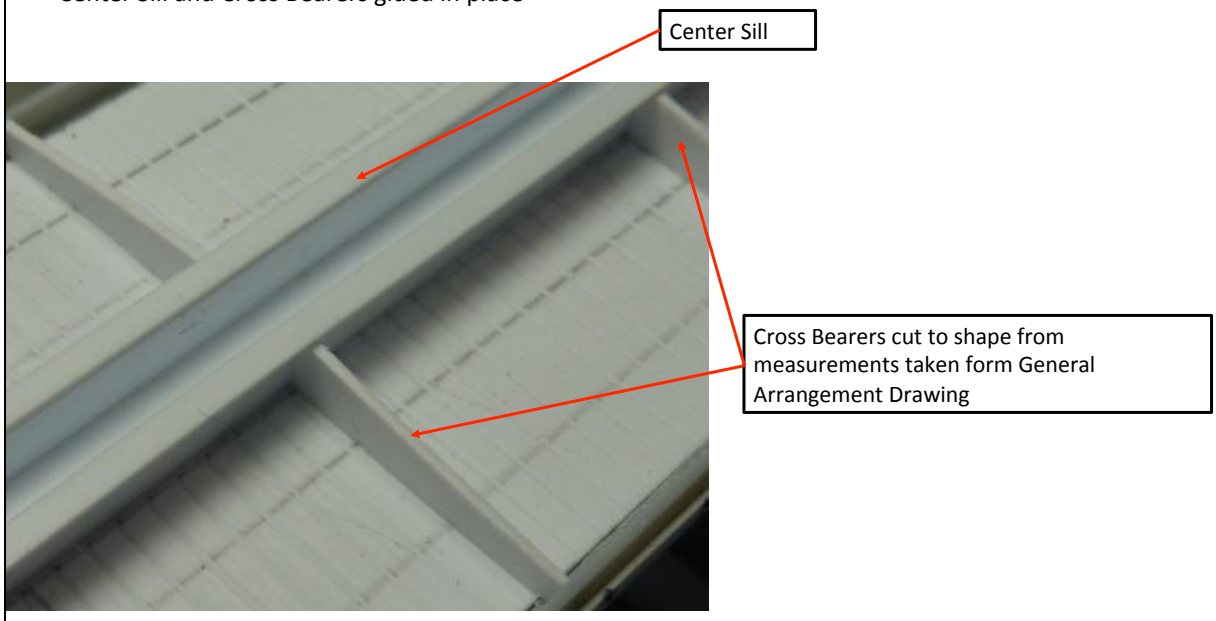
Scribing styrene pattern onto .015 styrene sheet for Cross ties.



Making a sanding fixture using Frog Tape and scrap styrene to final sand crosstie shape.

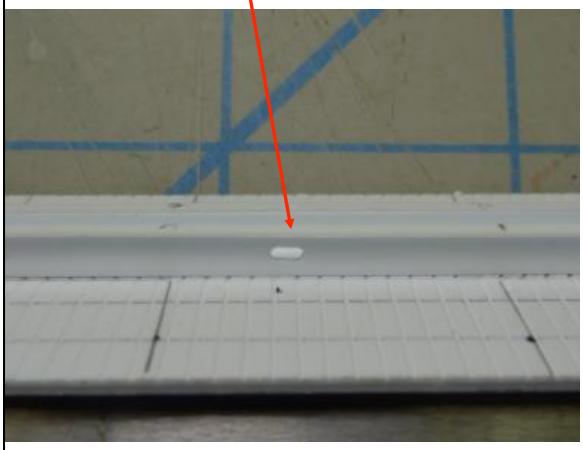


Center Sill and Cross Bearers glued in place



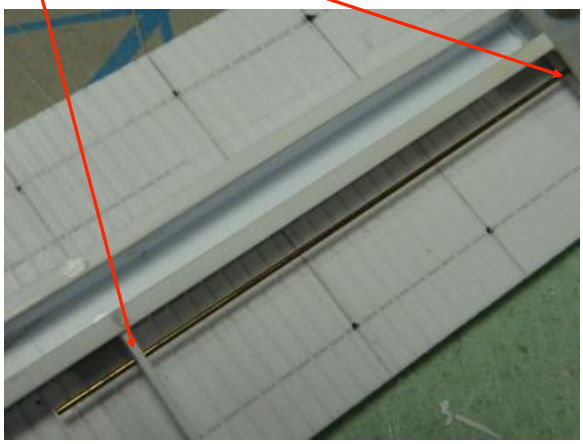
Cutting Centersill for airline and drilling holes in cross bearers and bolster for air line

Center Sill(Hole made by drlling two holes and cutting center)



Cross Bearer

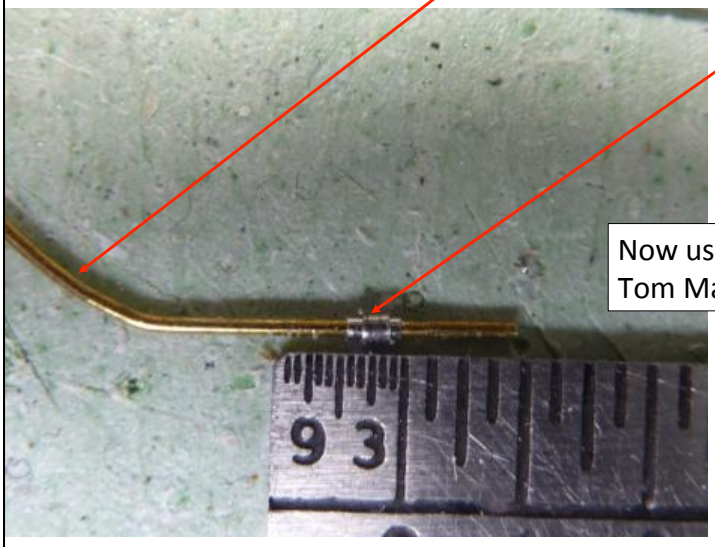
Bolster



Measurements taken of General Arrangement Drawing

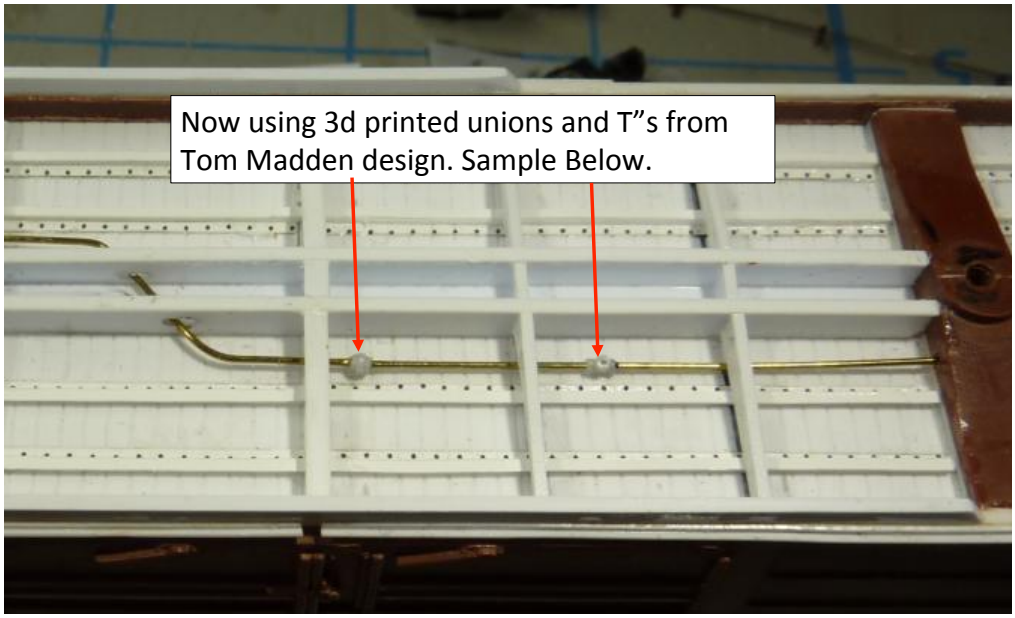
Telescopic tubing used to build airline union

.019 Air Line

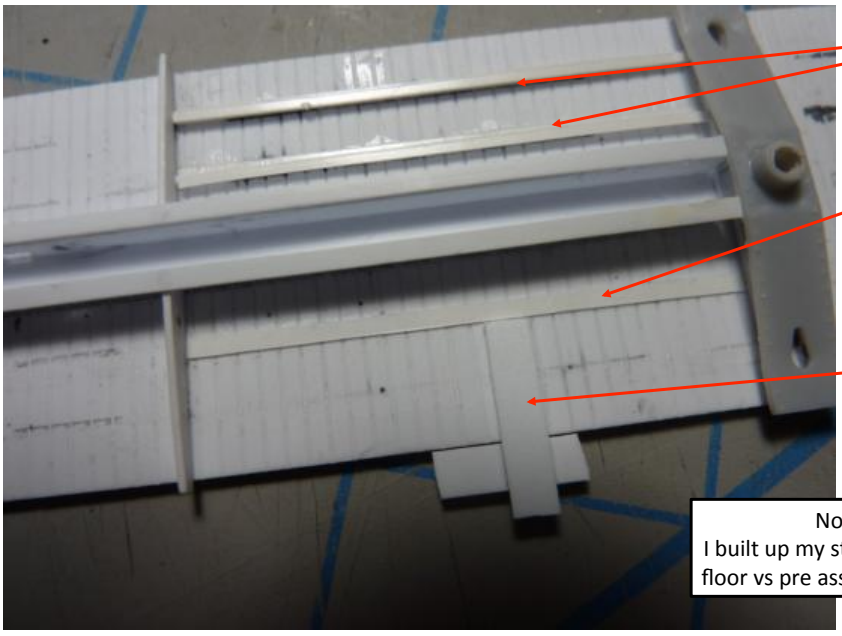


Telescoping Stainless Steel Tubing to make pipe union

Now using 3d printed unions and T"s from Tom Madden design

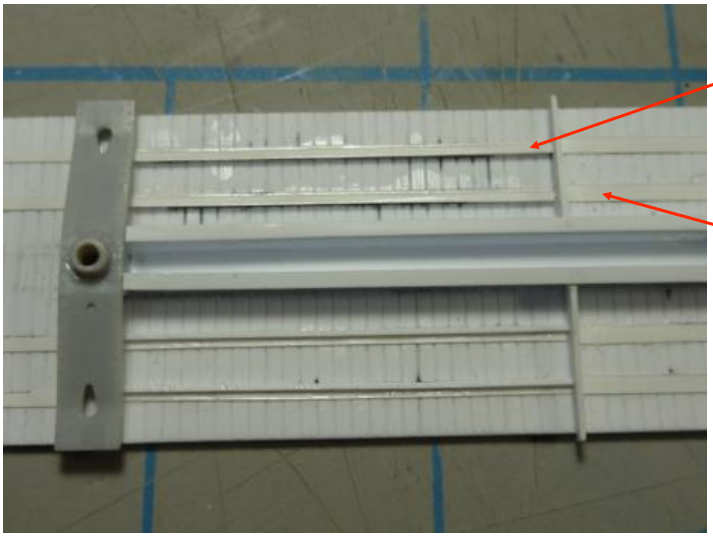


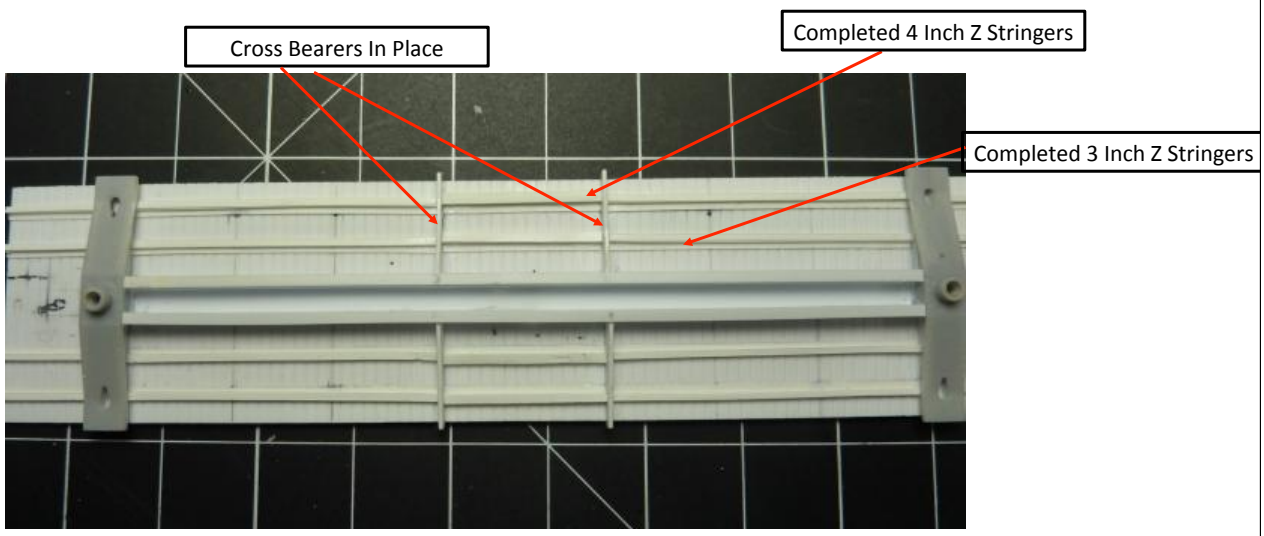
Using a styrene T Square to make placement of Z stringers



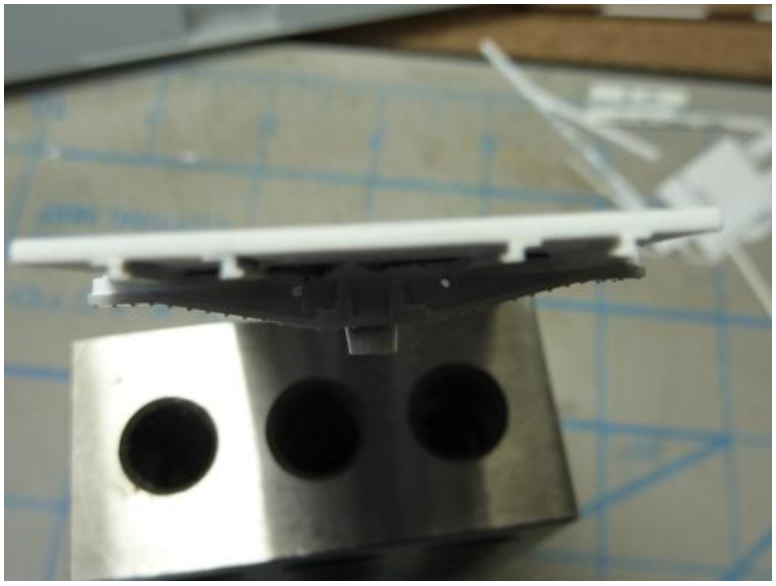
Note 3inch Z Stringers Bolster to Cross Bearer and 4 Inch stringer Cross Bearer to Cross Bearer

Note: Stringers were built up on bottom vs pre assembly

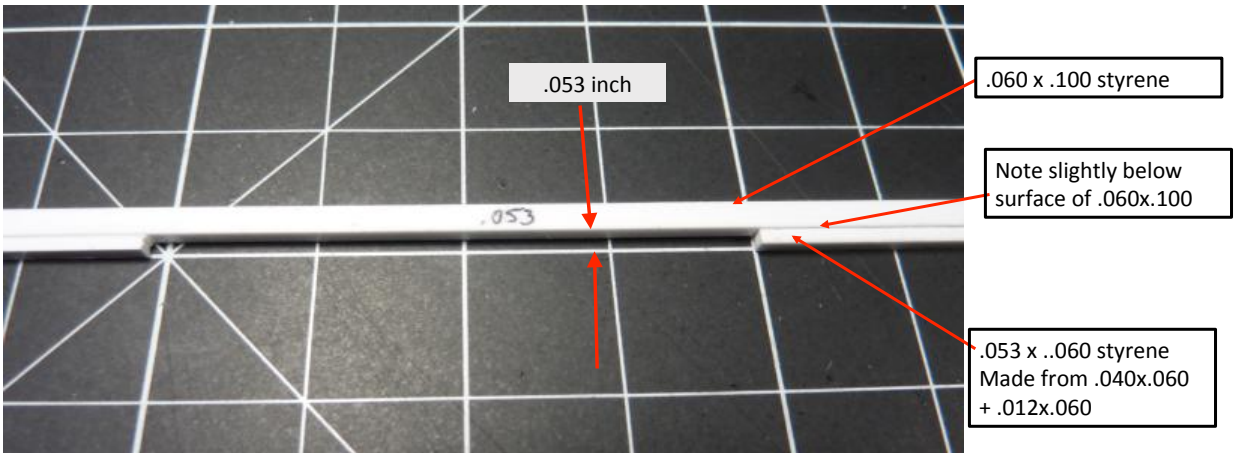




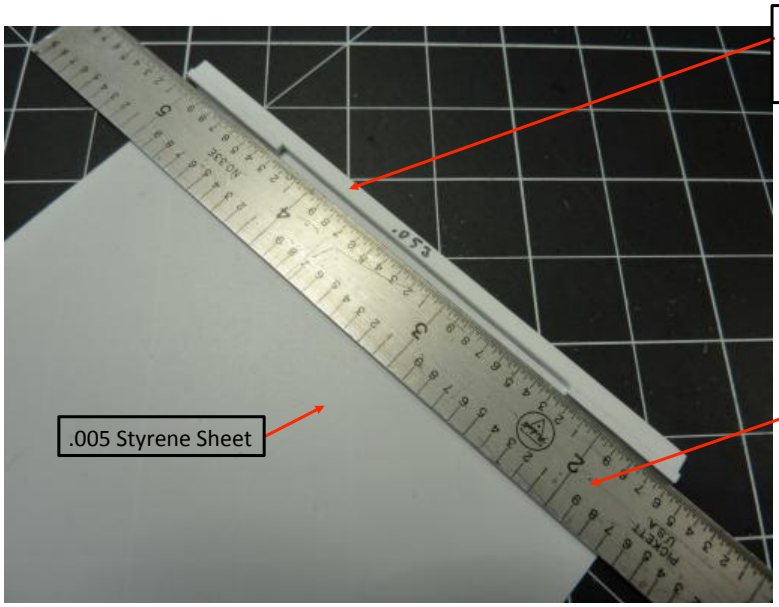
End View Floor showing 3” Z Stringers



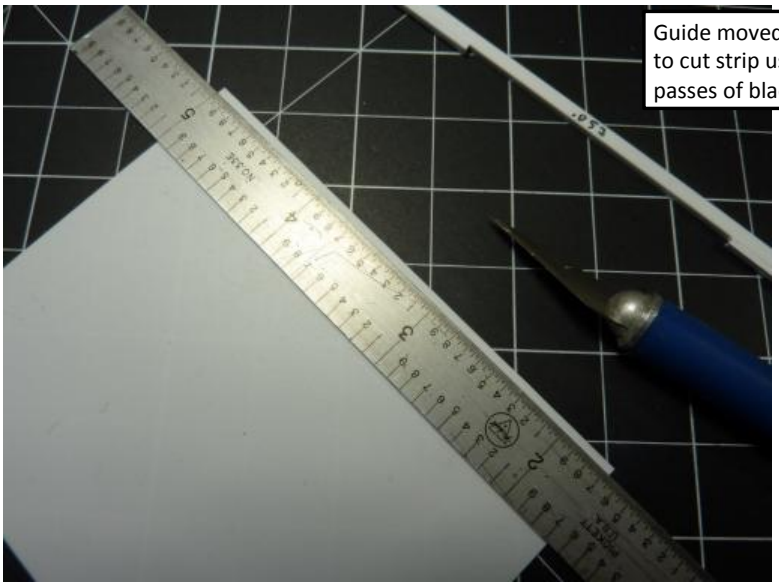
Cutting small custom widths of styrene with Homemade Guides Sizes of styrene are a suggestion only. I use scrap that I have for heavier pieces. Below is a cutting guide to cut .005 styrene to .053 wide



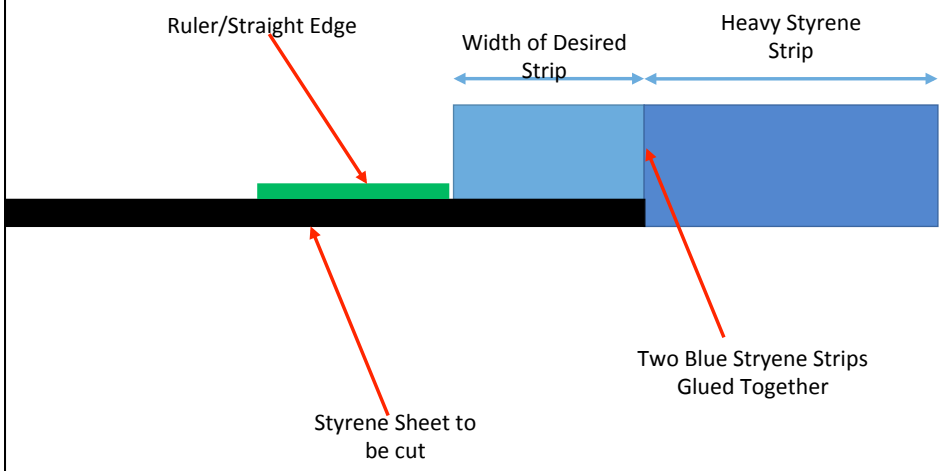
Using fixture to cut strips



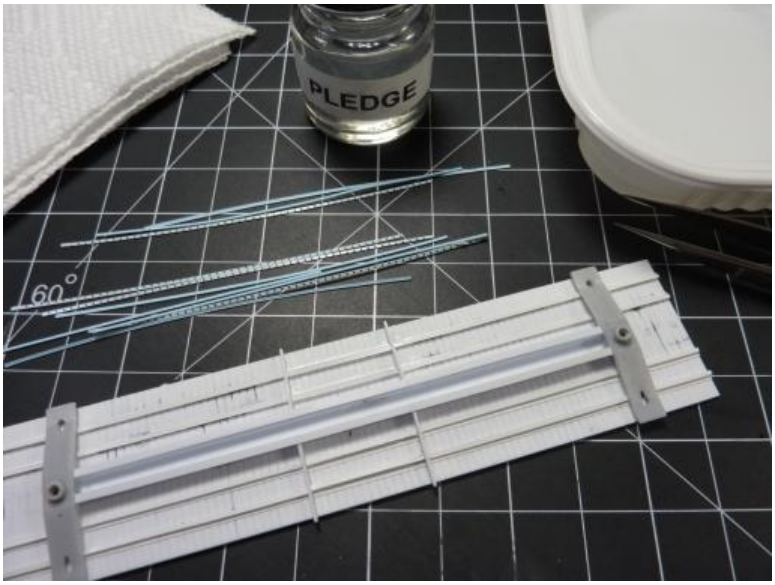
Cutting Small Styrene Strips



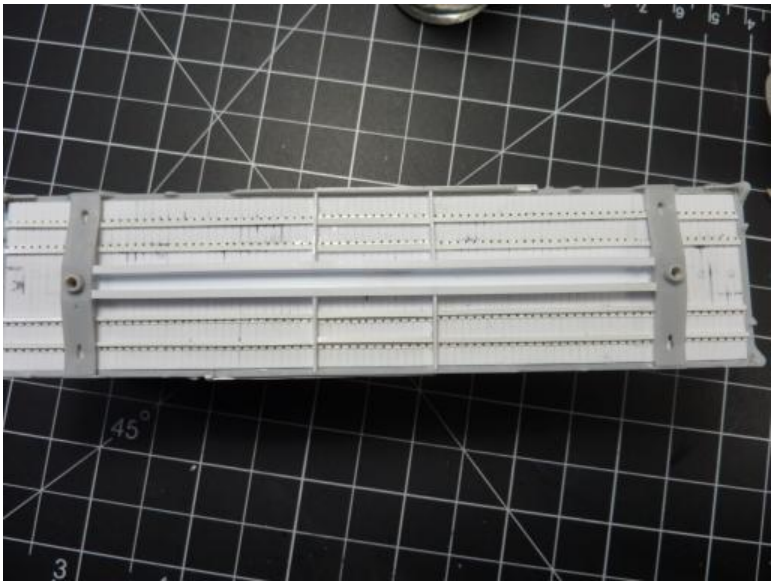
End View of Strip Cutting Guide



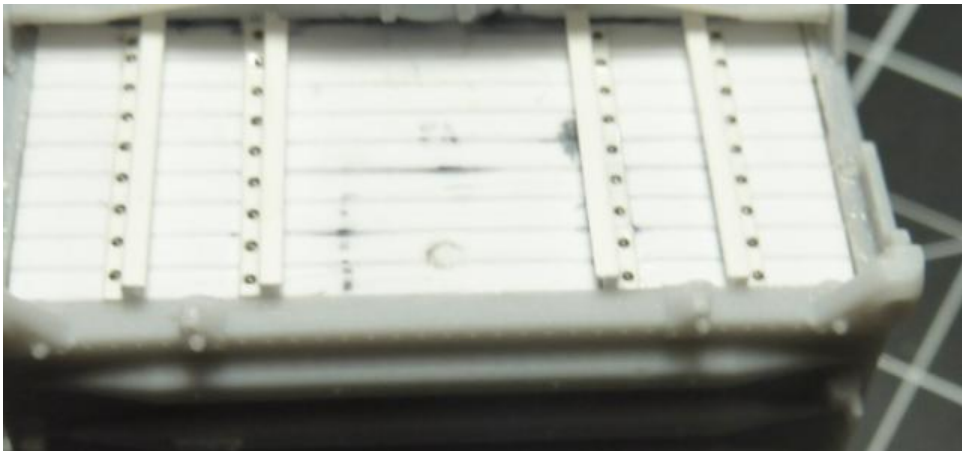
Attaching rivet to Z Stringers with Pledge/ Future



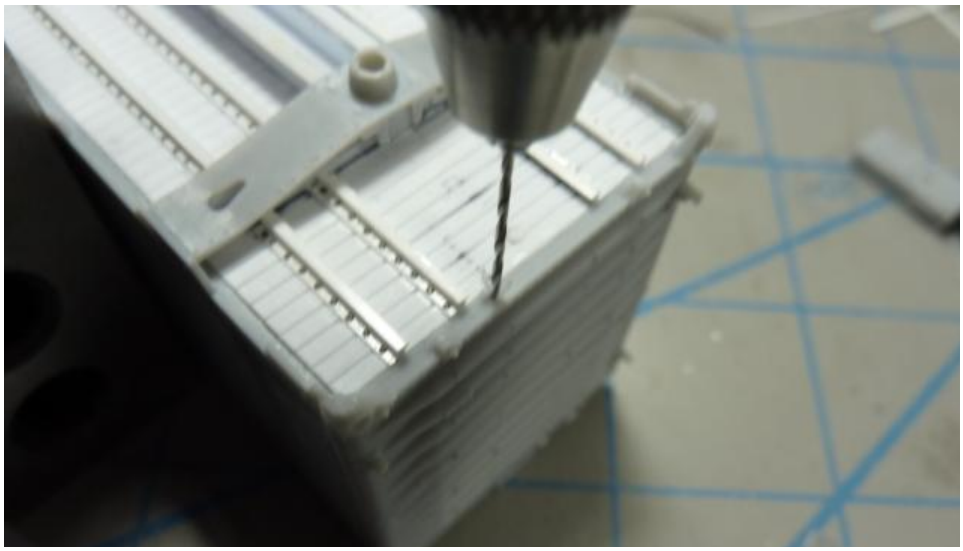
Micro Mark Rivets in Place with Pledge



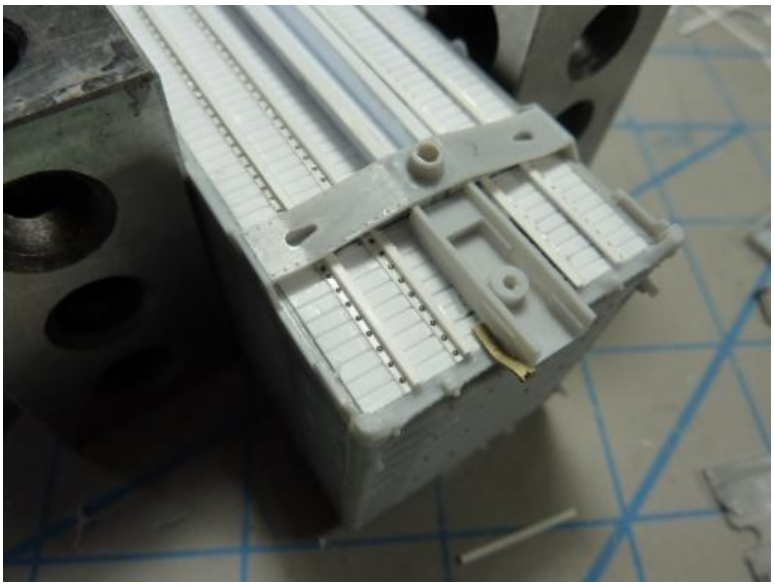
End View Showing 3 inch Z stringers



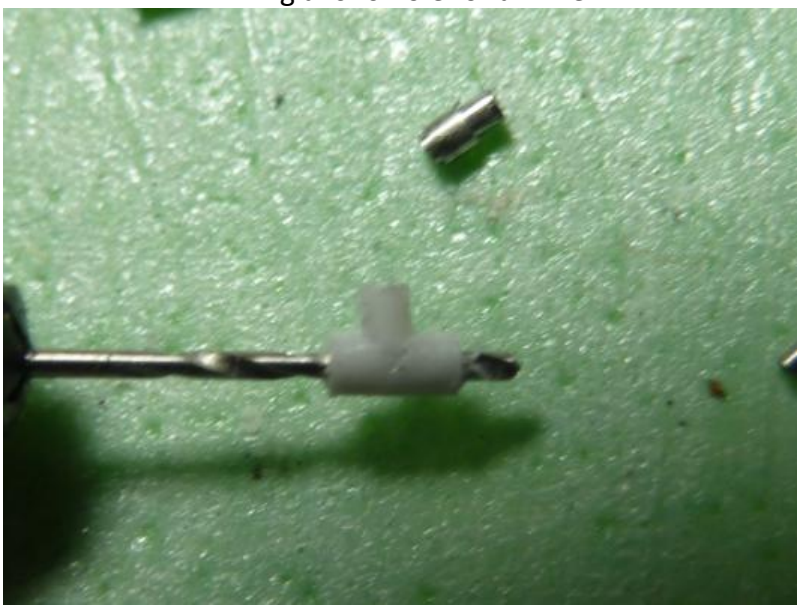
Drilling Hole for Precision Brass Angle Cock Bracket



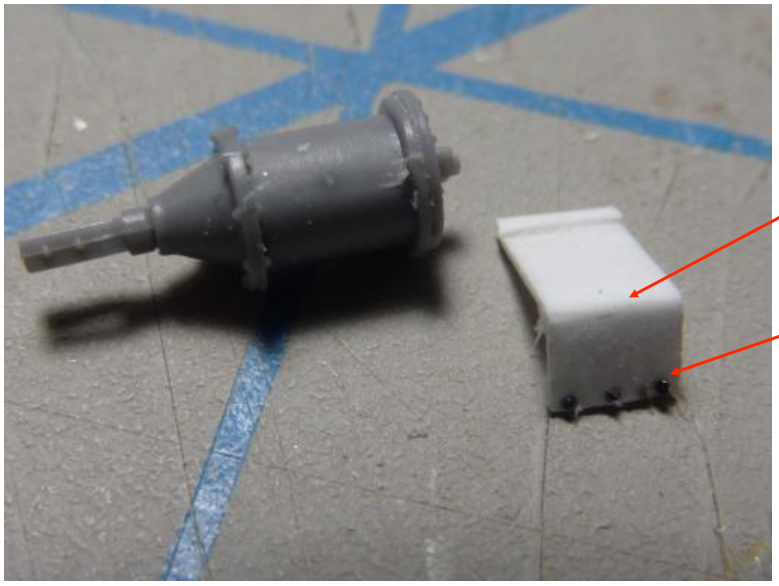
Presision Angle Cock Bracket and RCW Coupler Box



Making a Air Line T Pipe from .040 styrene rod
Drilling a .020 hole for air line



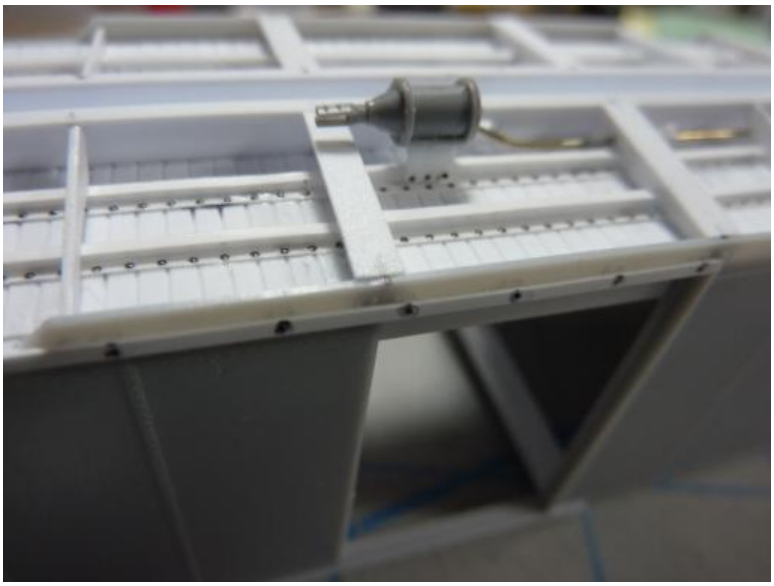
Tichy Brake Cylinder and Bracket



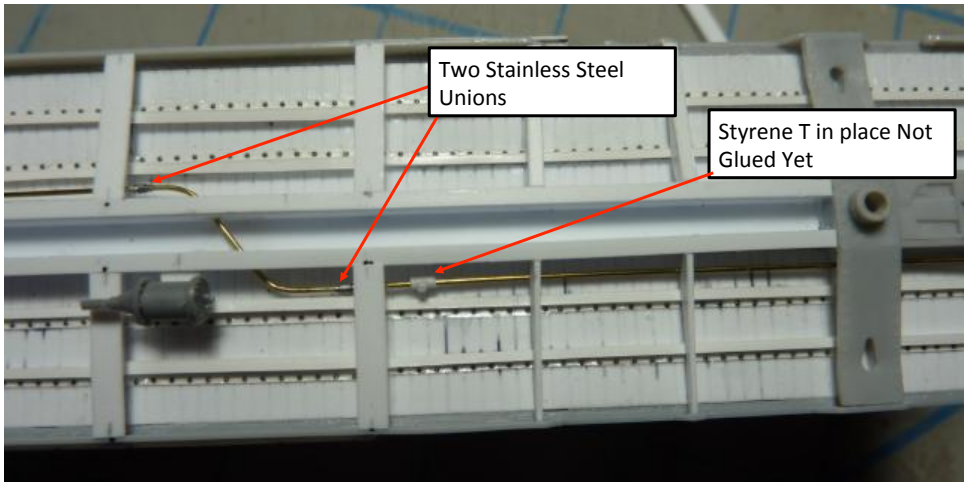
Styrene Support made from Styrene using dimensions from General Arrangement Drawing. Note radius corner

Harvested Athearn Rivets

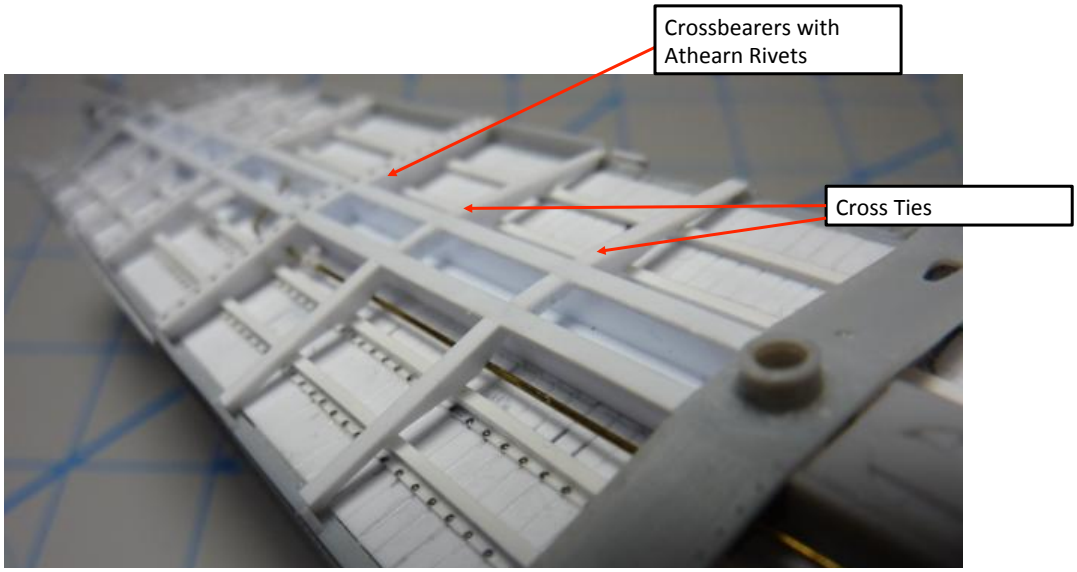
Mounting of Brake Cyclinder



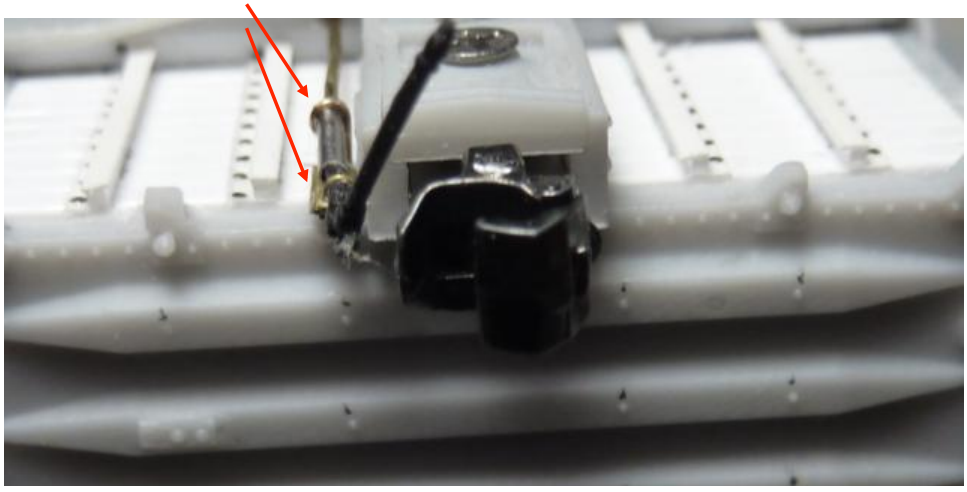
Air Line in place using three pieces of .019 wire and Stainless Steel Unions Train line was made of 3 pieces and joined by Unions. Since this project I am using 3 D Printed T's and Unions from Tom Maddens design and printed at Shapeways.



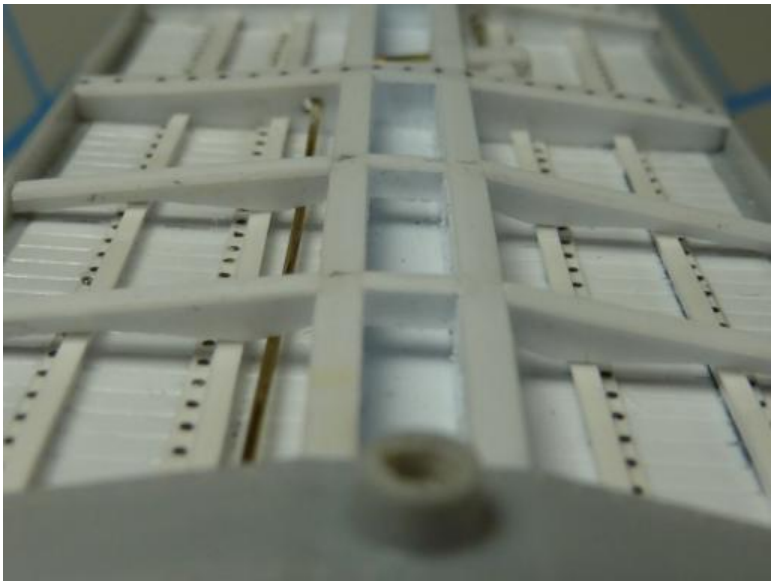
Underframe Ready for rest of Brake Parts



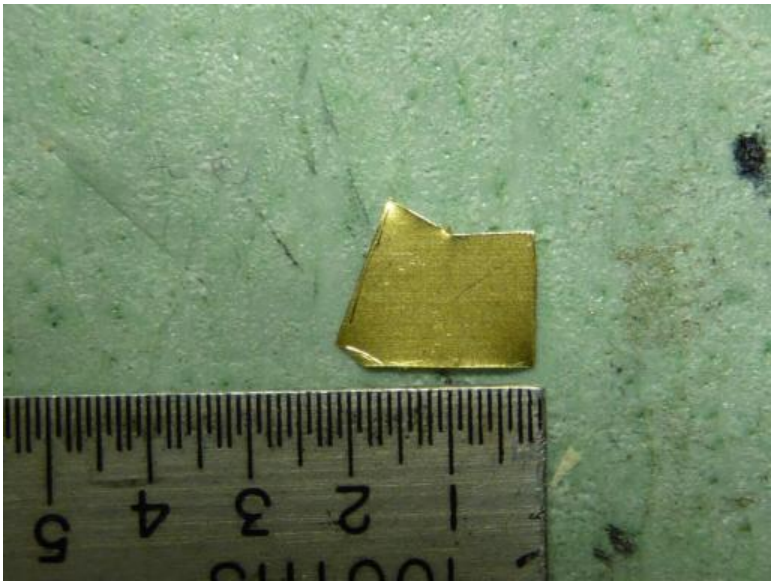
End view showing air hose mounted on Precision Bracket and RCW Coupler Box Note Stainless Steel Tubing. I am now using Albion Alloys Brass Tubing with a .7mm OD and .5mm ID to join .019 train line and Moloco rubber air hose



End View

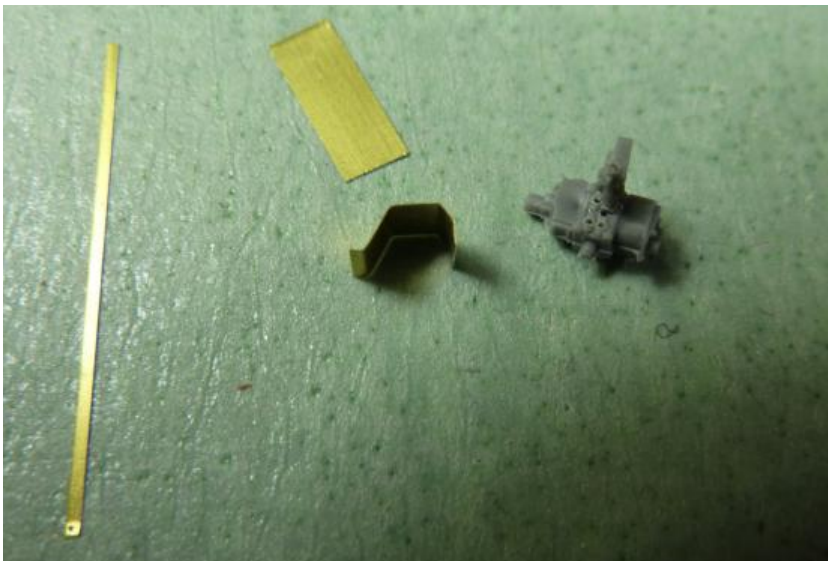


Making Support Bracket for Reservoir form .005 brass

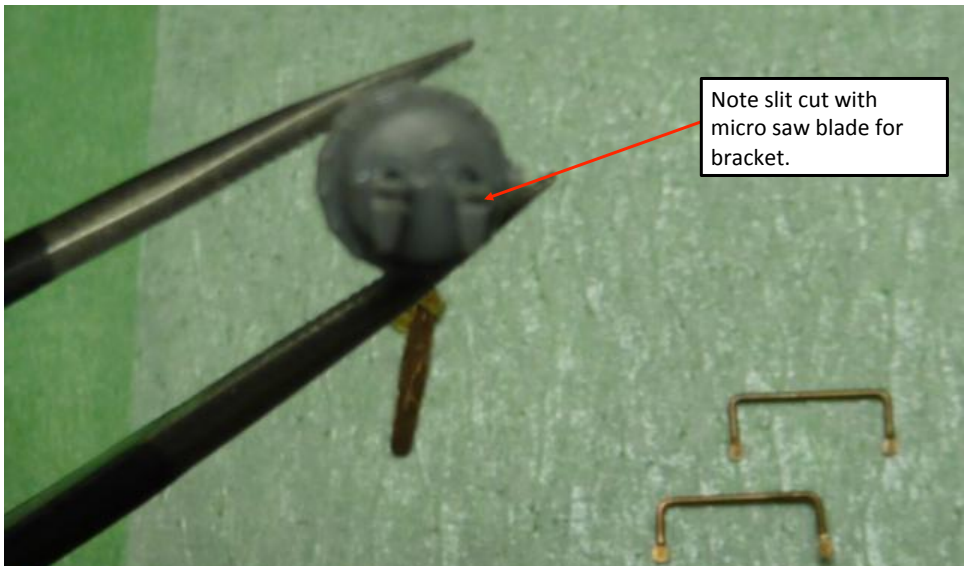


Yarmouth Brake Clevis mounted to custom bent brass pivot.
Note: support rods is drilled and pinned

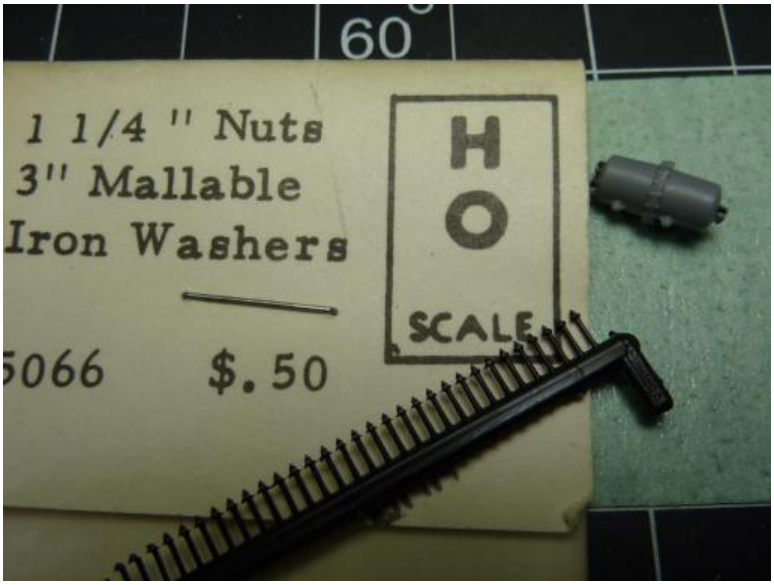
Brass Mounting Bracket for 3 way valve. Measurements from General Arrangement Drawing



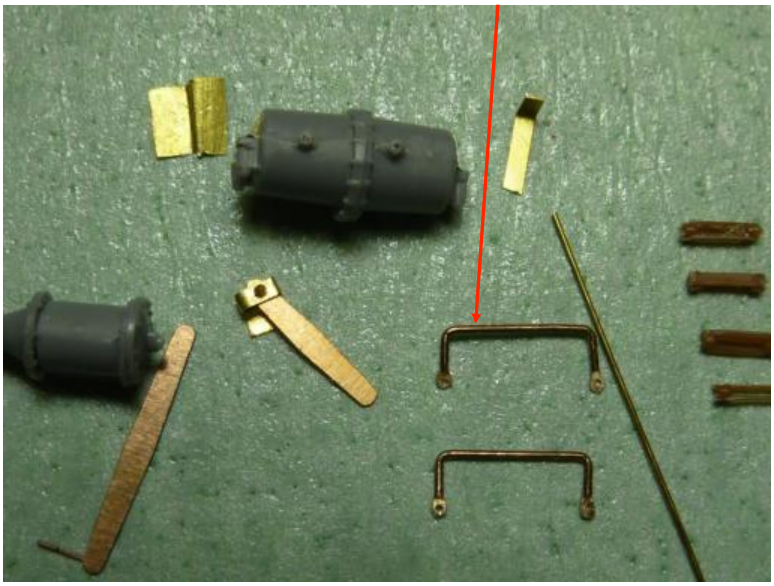
Tichy Brake Reservoir had slits cut for brass mounting bracket.
Slits cut with Micro Saw from UUM-USA



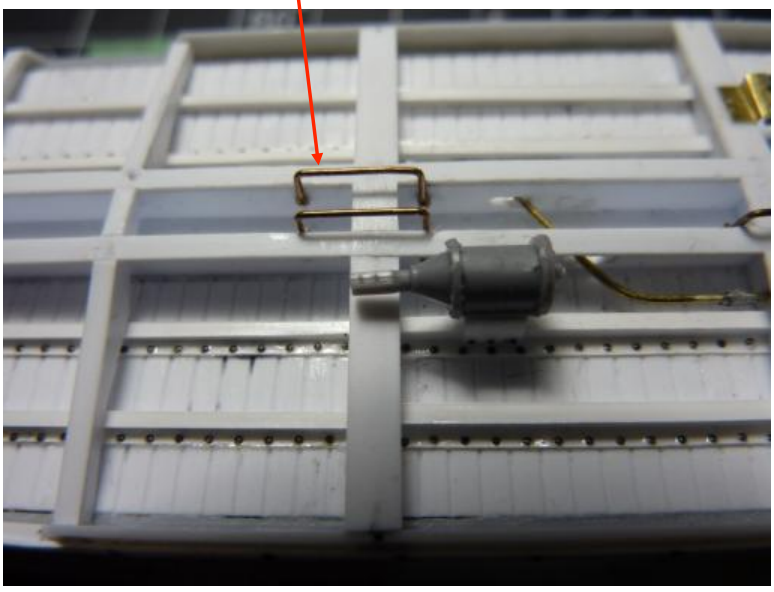
Grantline Nuts used for mounting



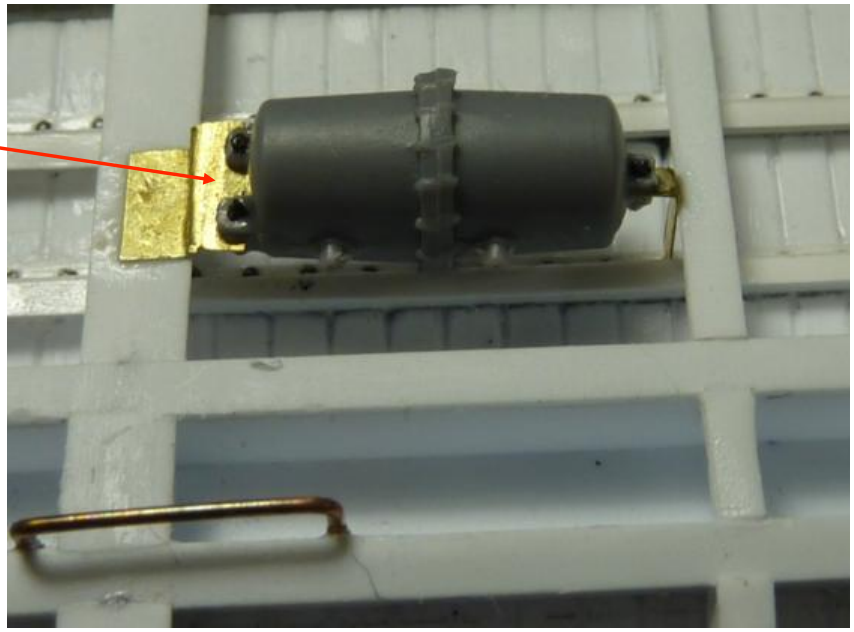
Brake Parts Ready for installation Brake Hangers made from .125 brass wire with ends crimped and drilled for .010 wire pins

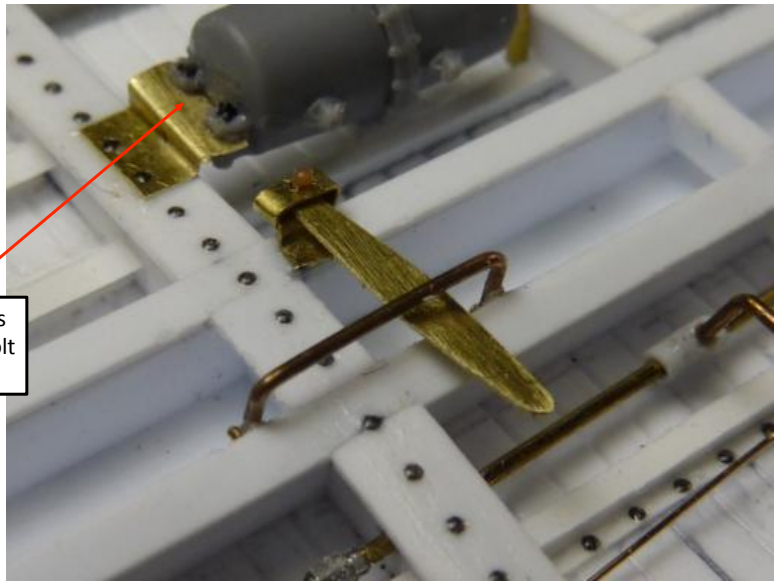


Brake Hangers mounted and pinned to inside of sill as per General Arrangement Drawing



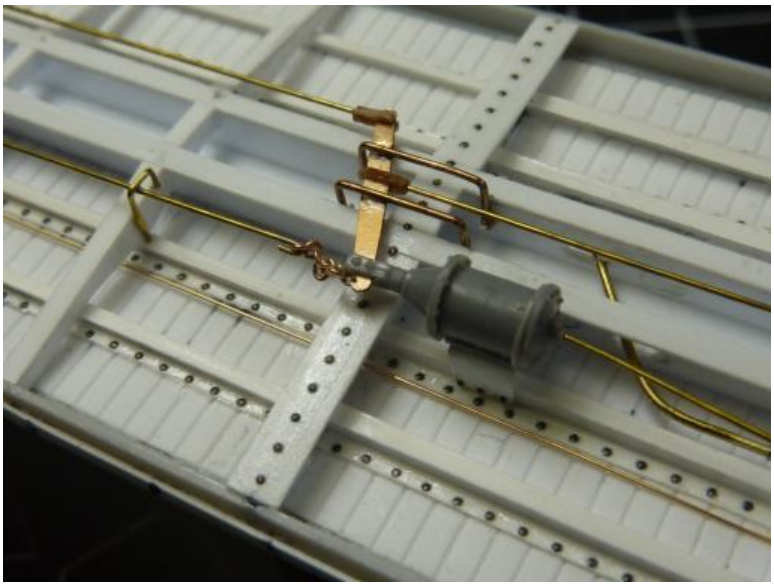
Tichy Reservoir mounted using slits cut with Micro Saw and Grantline NB detail





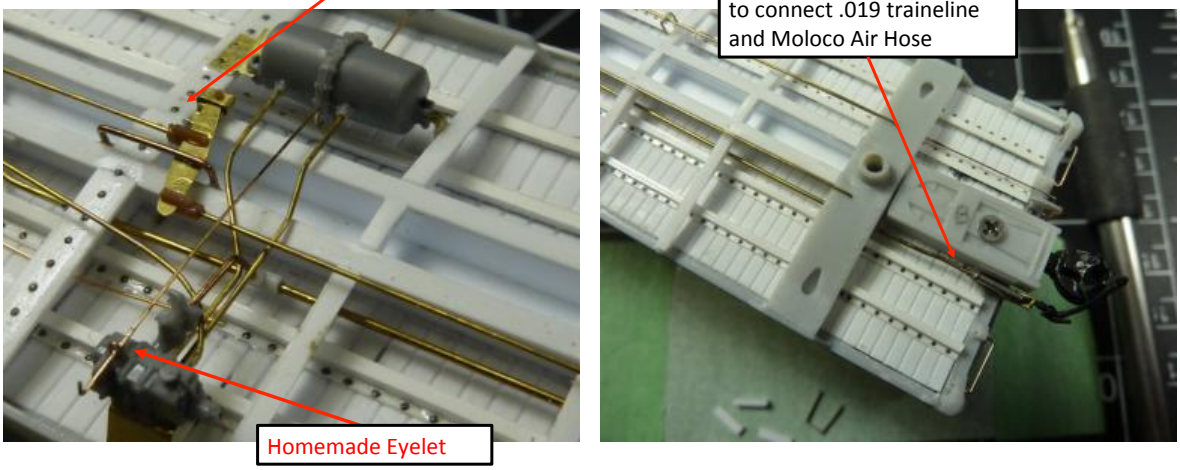
Notice Reservoir slits and Grantline Nutbolt detail

Yarmouth Brake Lever added and 40 link per inch chain attached

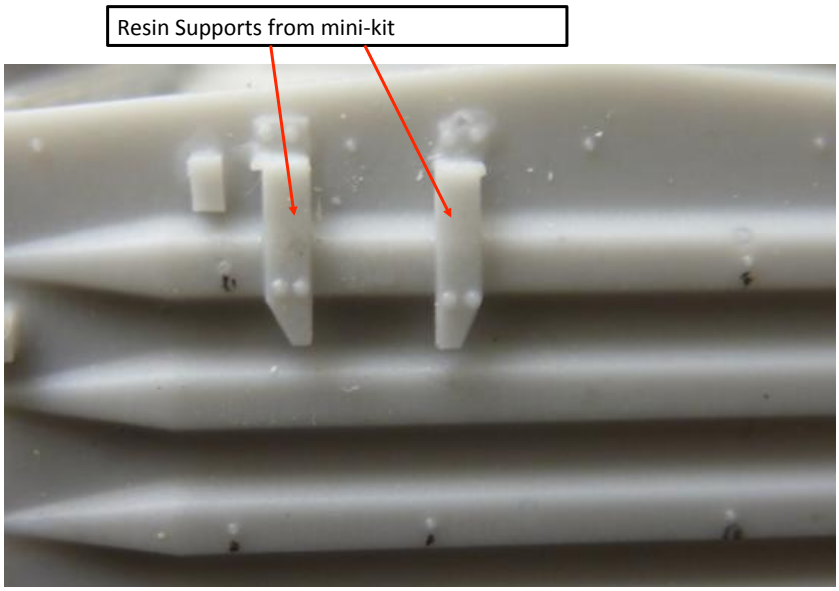


Making Small Brass Eyelets from #34 magnet wire (.006 diam) I scrape off enameled coating off a length of magnet wire and twist around the shanks of a drill bit the size I want the hole to be. Apply small amount of flux and solder with tiny amount of solder. Drill a number #80 hole for eyelet

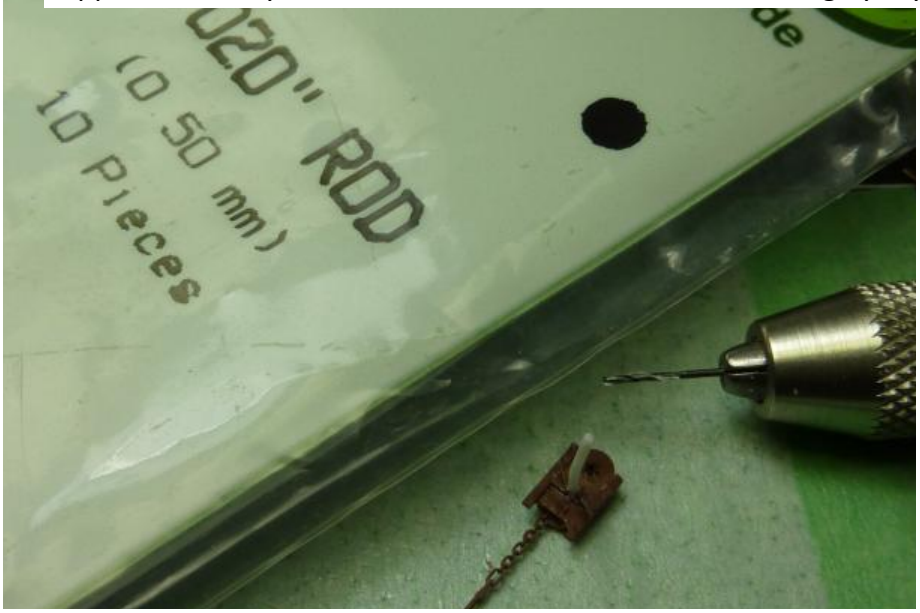
Underframe detail complete and Micro Mark Resin Rivets Applied



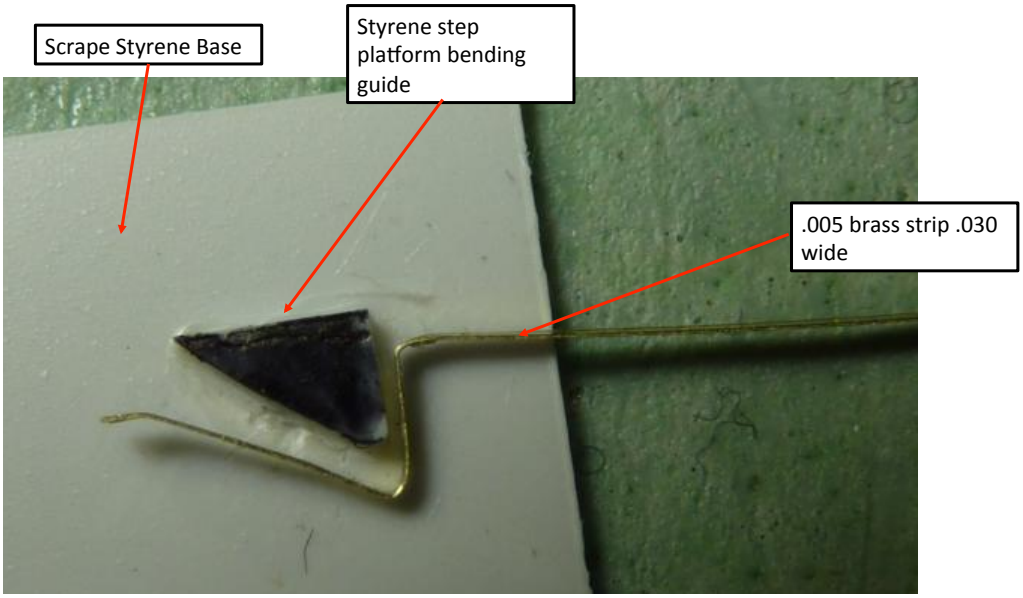
Brake wheel Housing Resin Supports attached



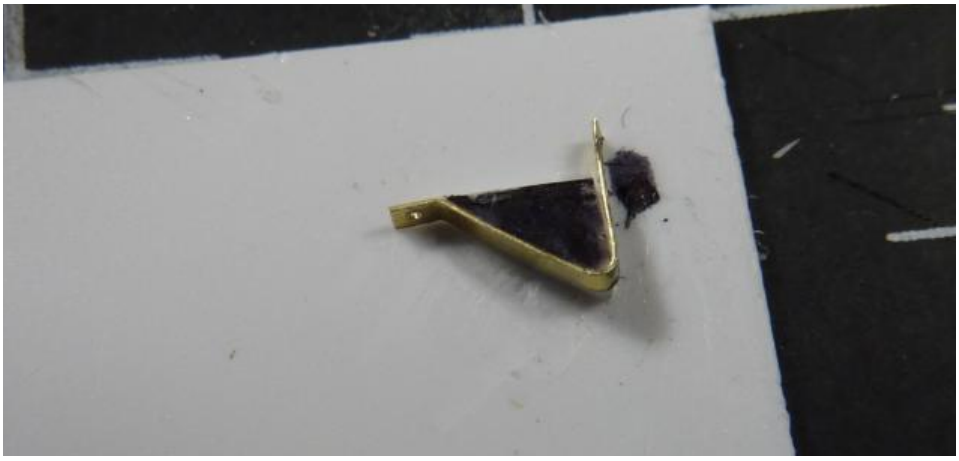
Drilling backeside of Kadee Brake Wheel Housing for a styrene rod for mounting. Rod is dipped in thin styrene cement and forced into hole. Let toughly dry



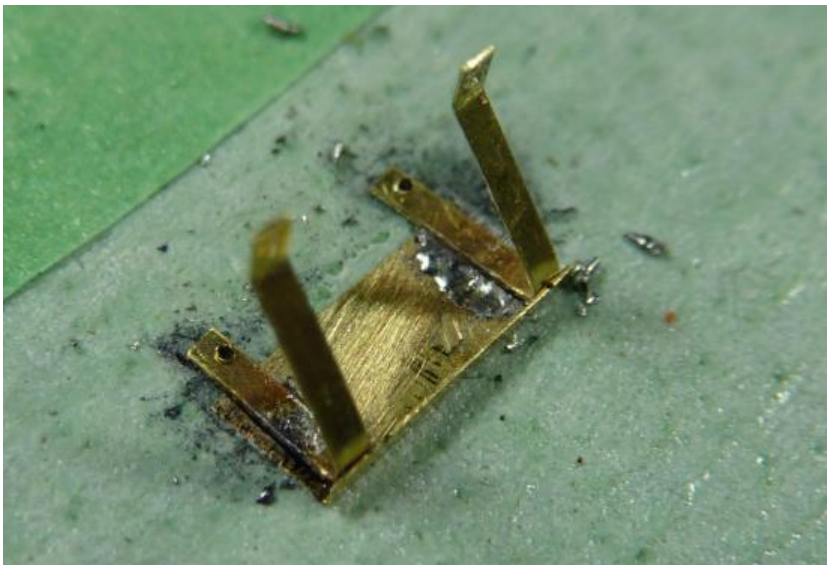
Forming brake step platform brackets from .005 brass



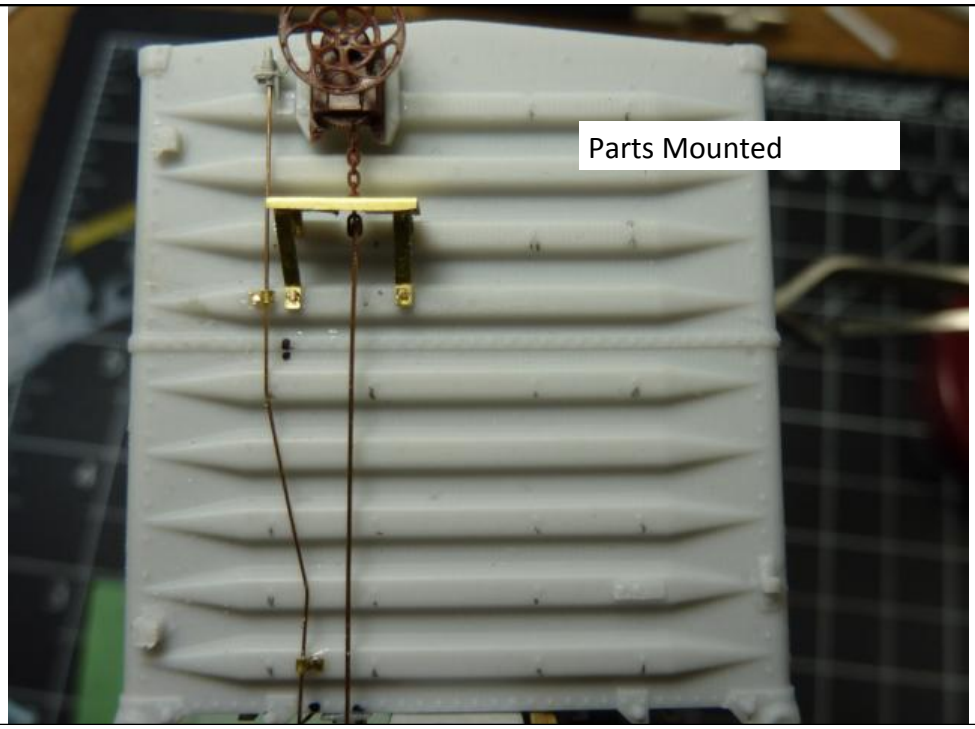
Platform support bent to shape and mounting holes drilled

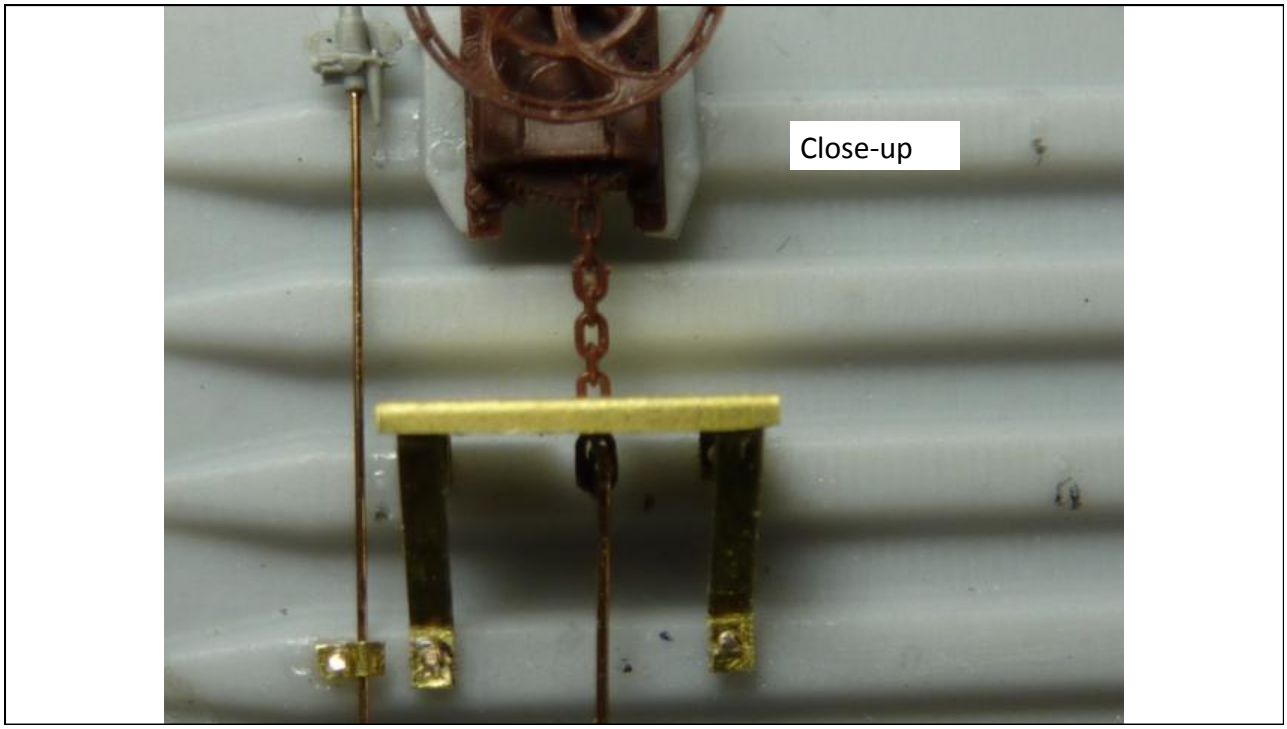


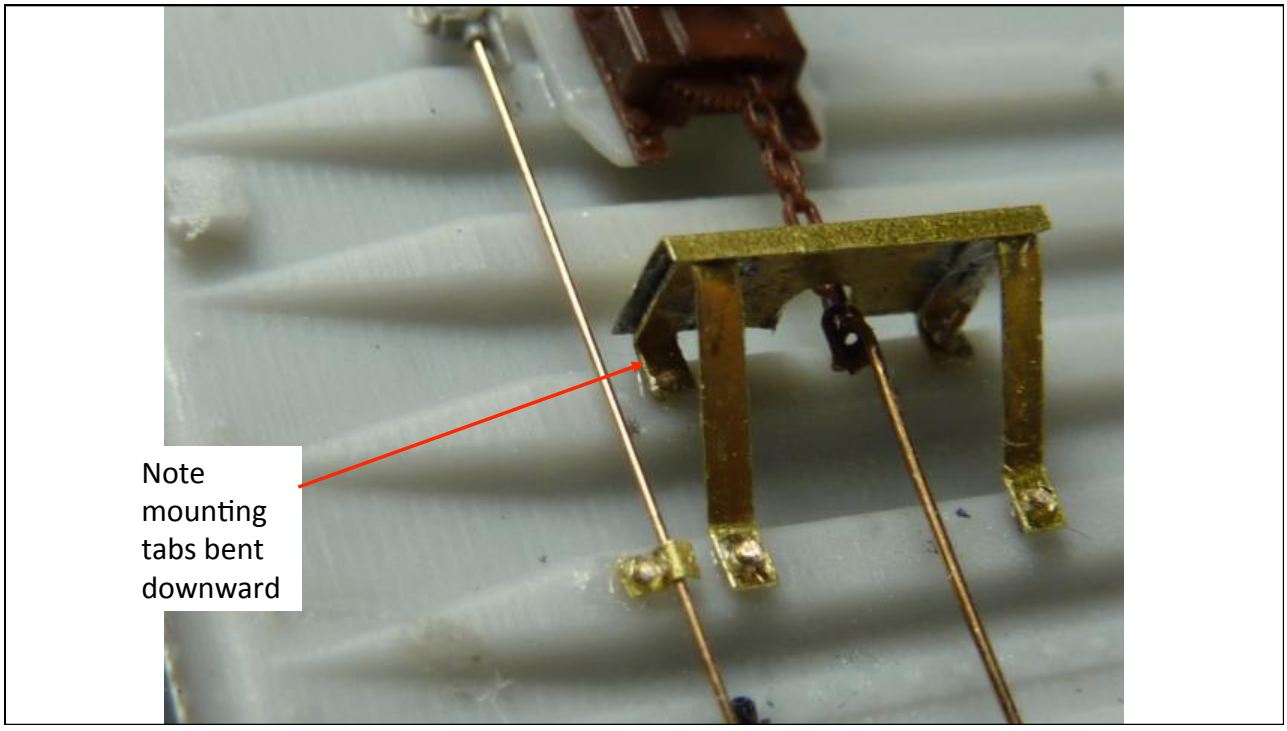
Step Platform soldered to mounting brackets



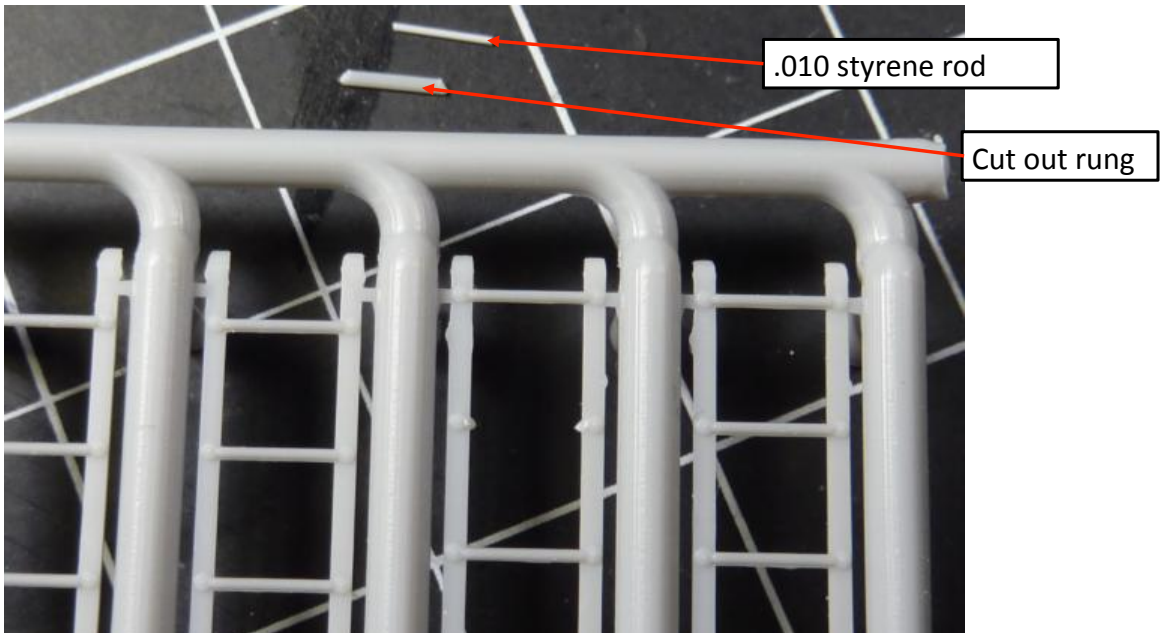
Relief Valve Mounting Bracket formed from .005 brass



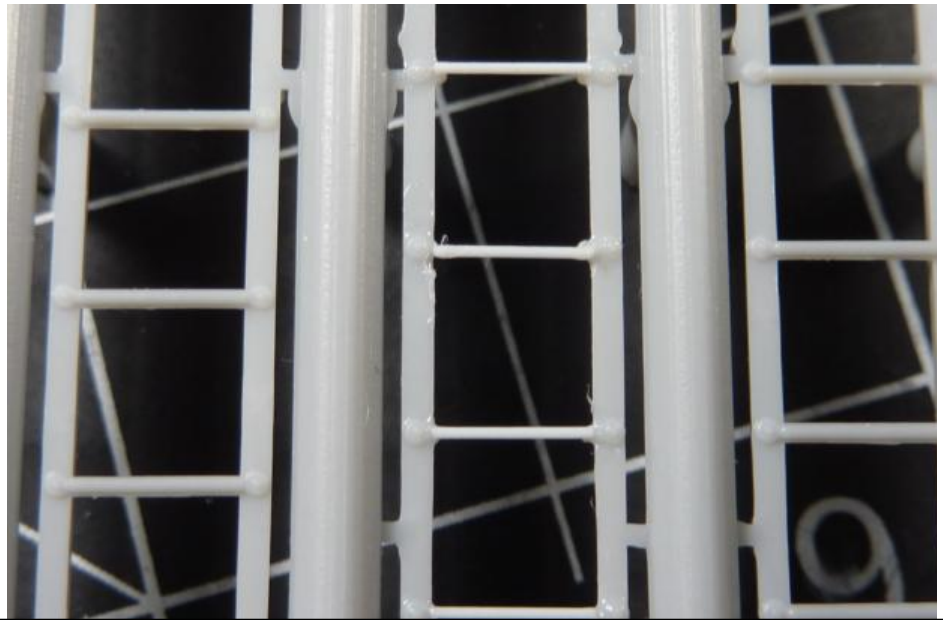

Close-up


Note mounting tabs bent downward

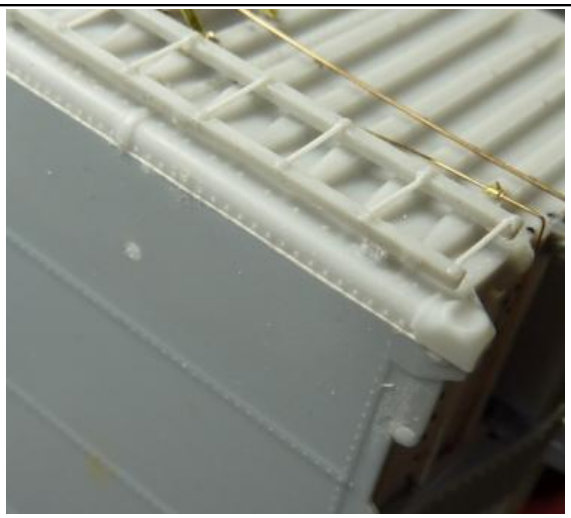
Bill Welch Ladder Modifications cutting out old rungs and replacing with .010 Styrene Rod



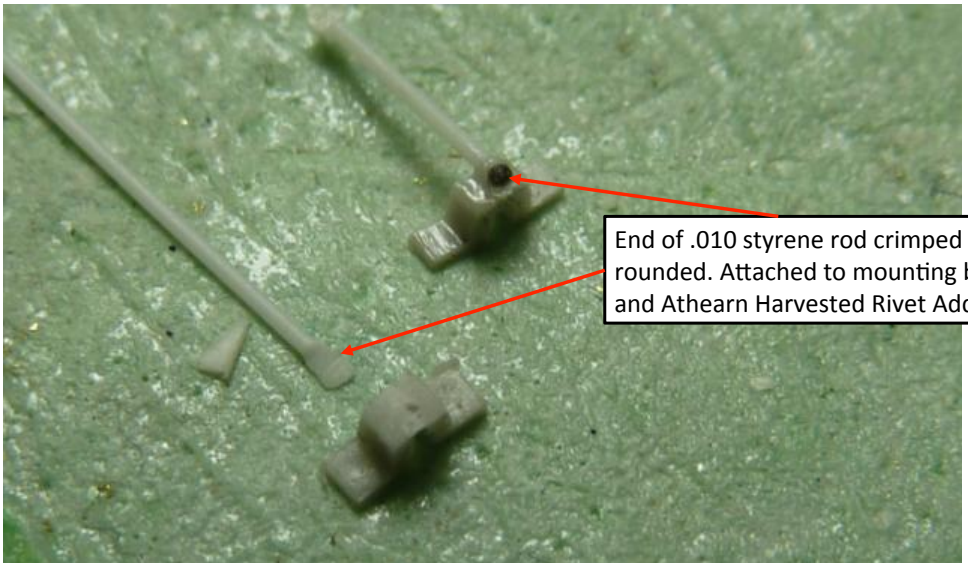
Completed Ladder in center



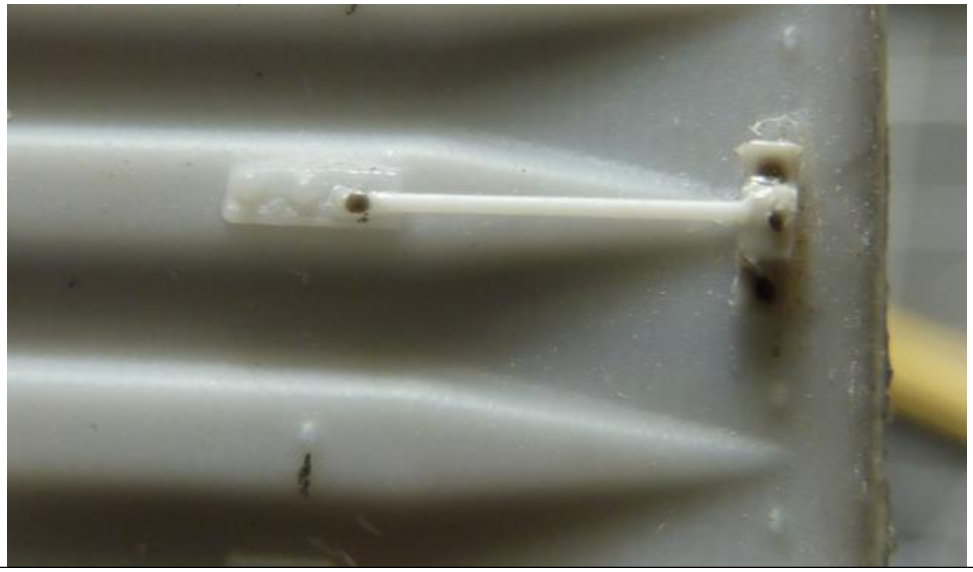
Trial Mounting on car side& end



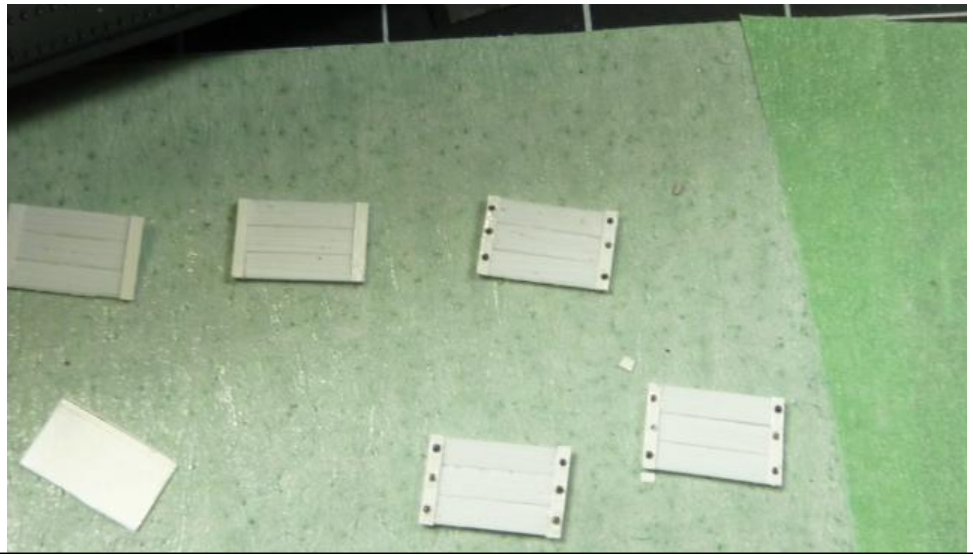
Modifying Side Grab Iron to fit on End



End grab iron attached in place

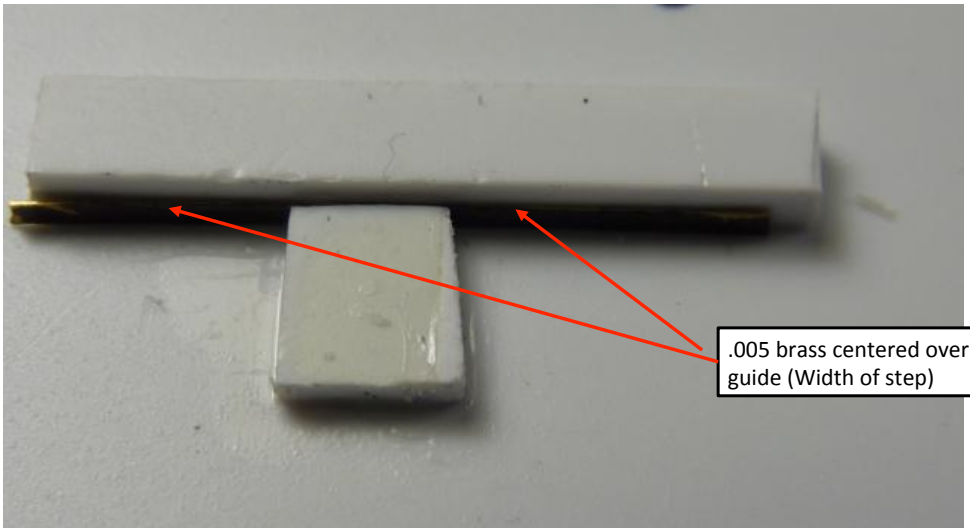


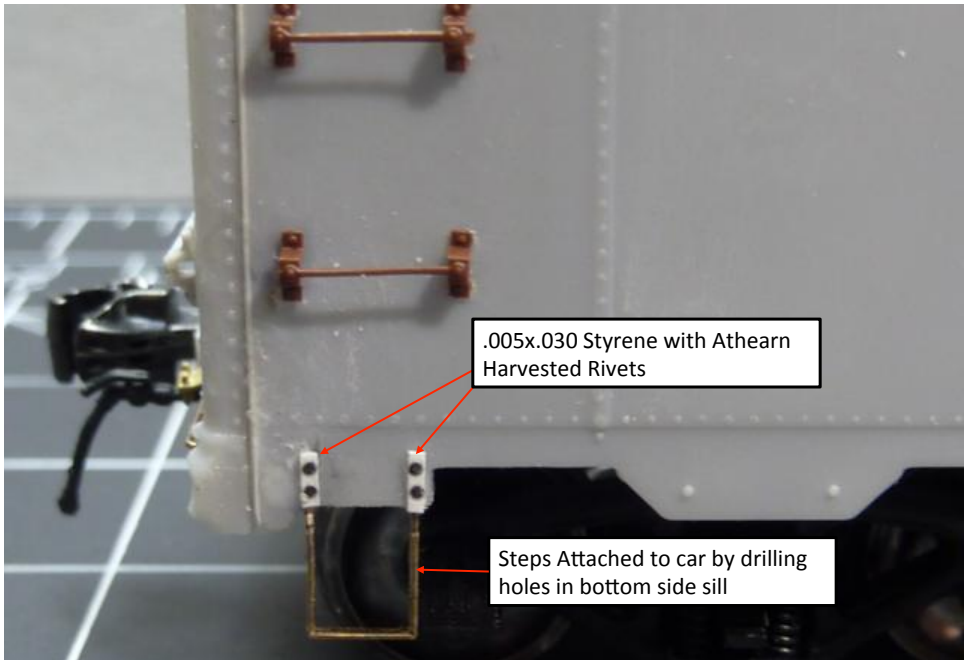
Bill Welch method of building boards. .010 styrene mounted to .005 base and Athean harvested rivets



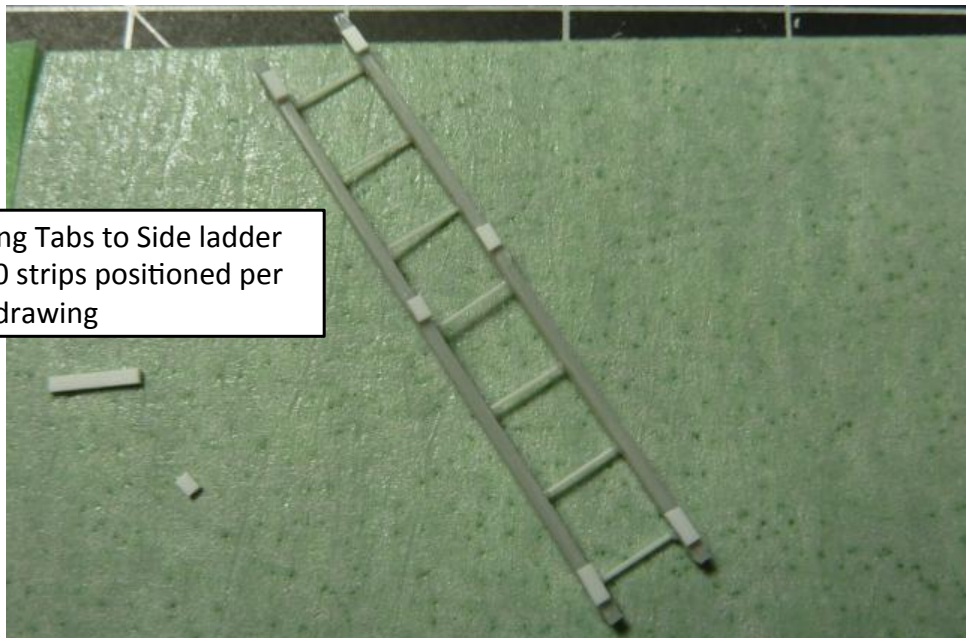
Stirrup bending guide from scrap styrene. Dimensions from General Arrangement Diagram

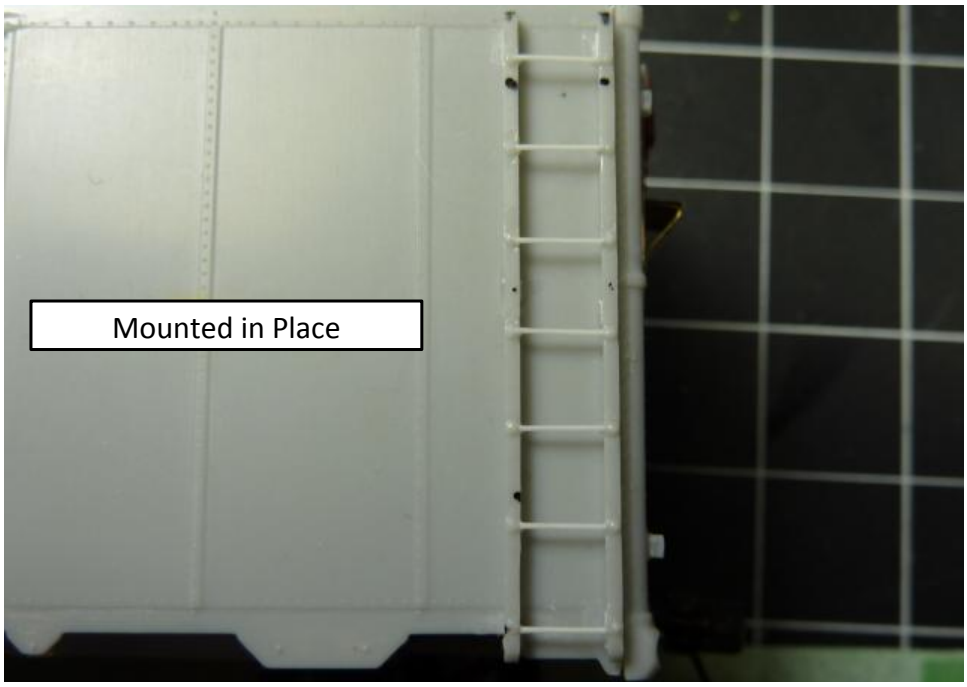
Bending Stirrup



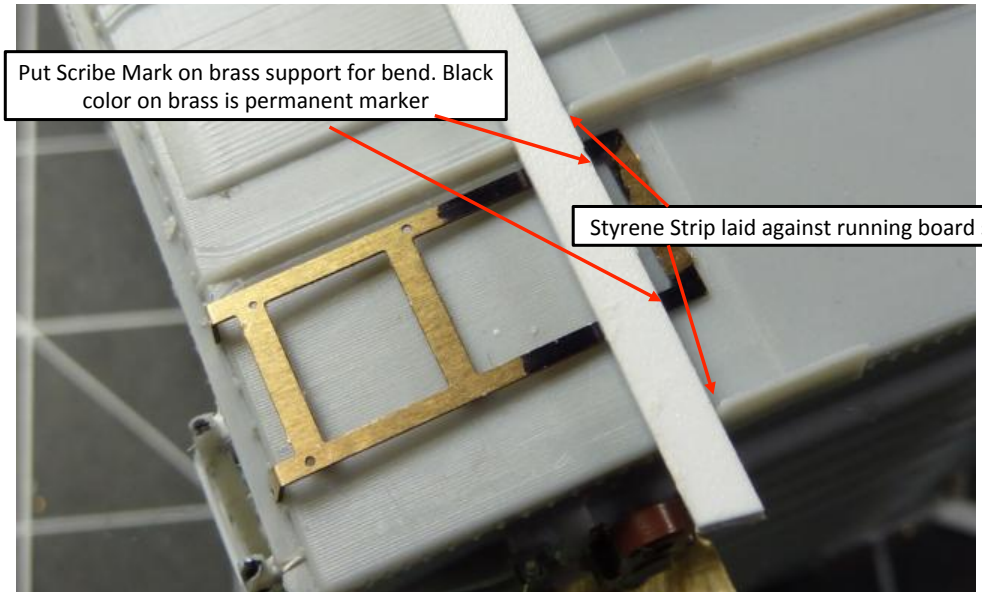


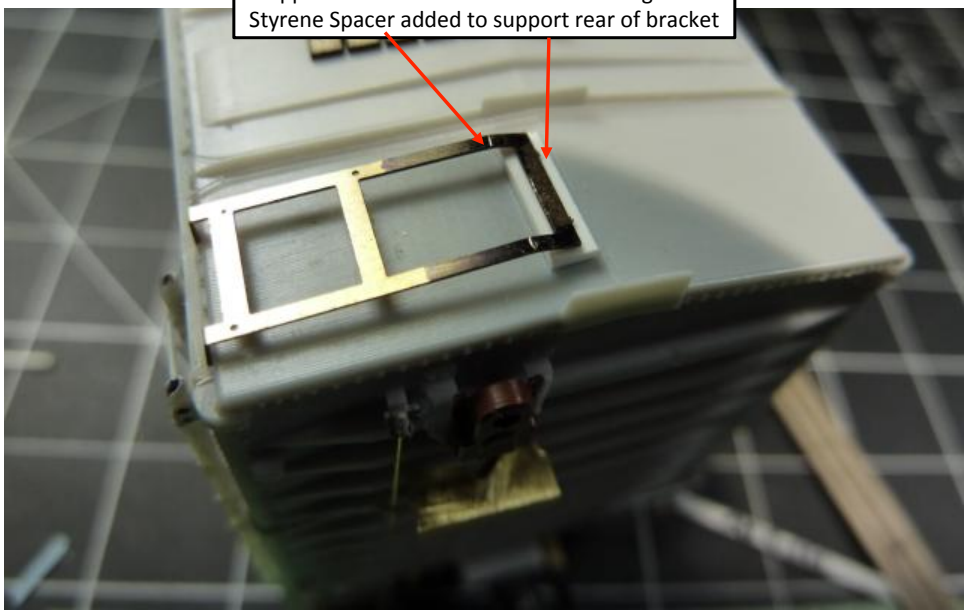
Gluing Mounting Tabs to Side ladder stiles .010x.030 strips positioned per drawing



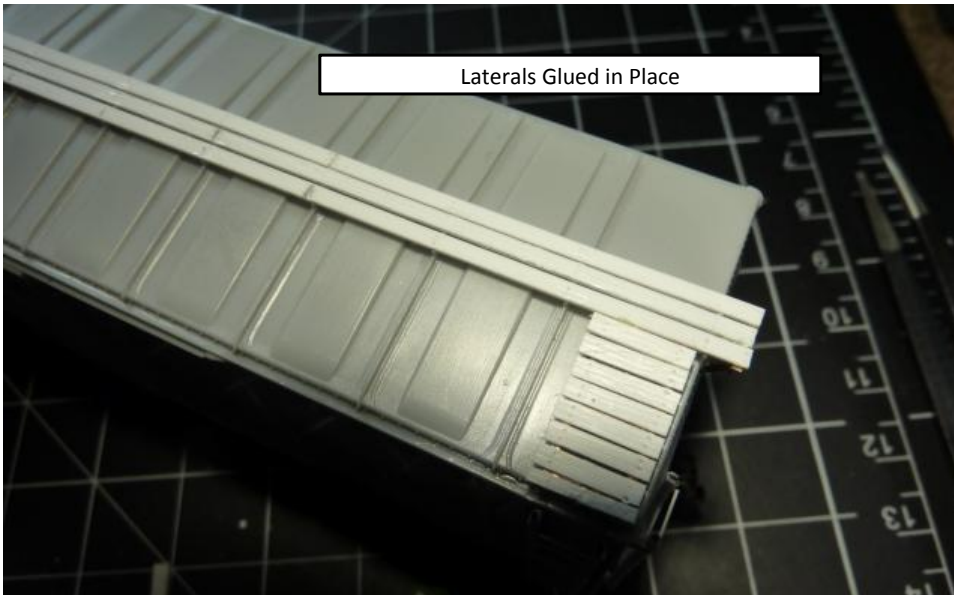


Modifying Yarmouth Models Etched Lateral Support Bracket

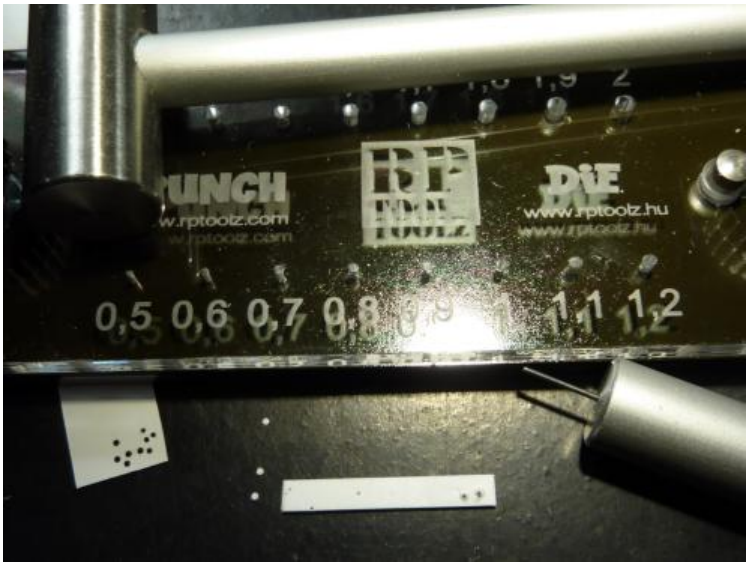


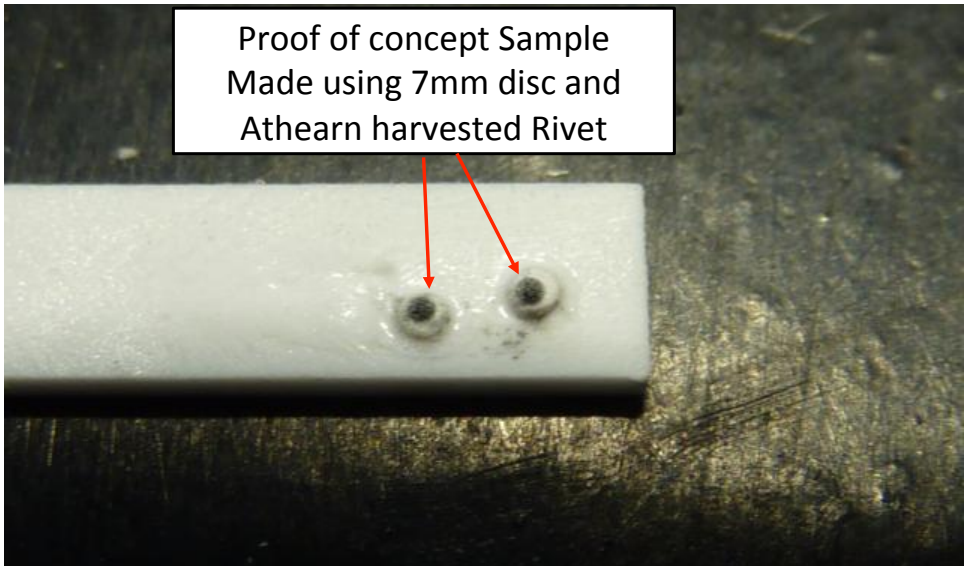


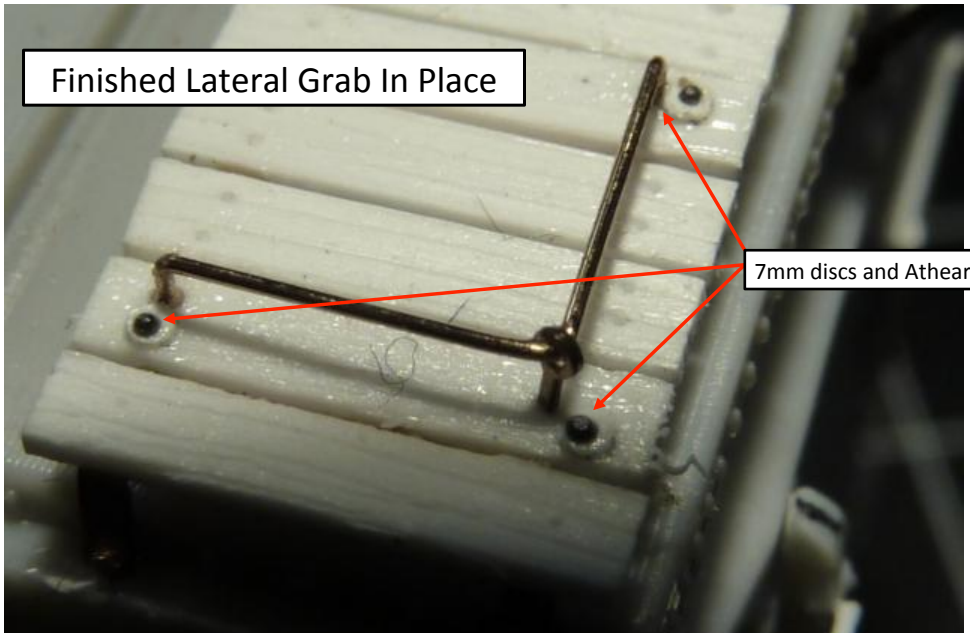
Styrene Running Boards Glued in place with spacers as a guide.
I used .015x.060 strips and .010 spacers
Individual boards scribed and Bolts Holes put in using scribe



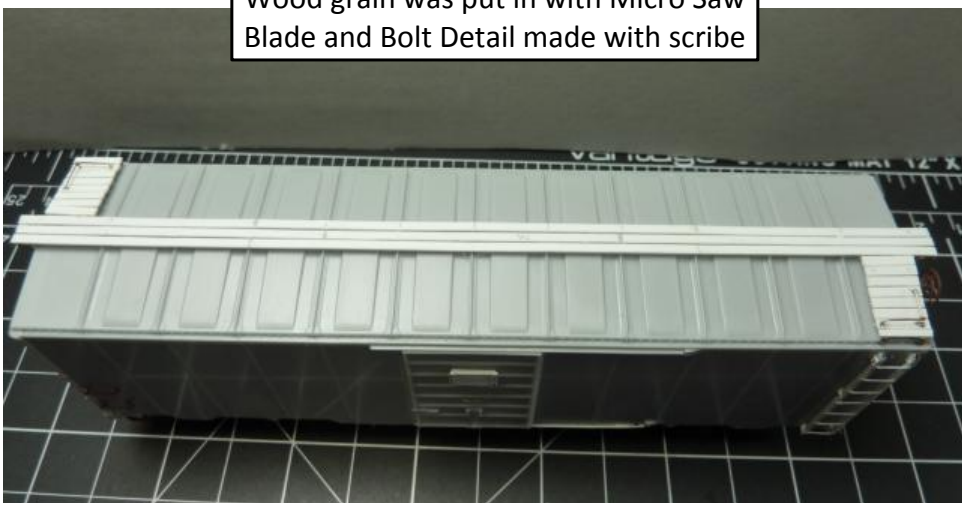
Making round 7mm discs for grab iron detail Using RP punch!
Idea from Ted Culotta

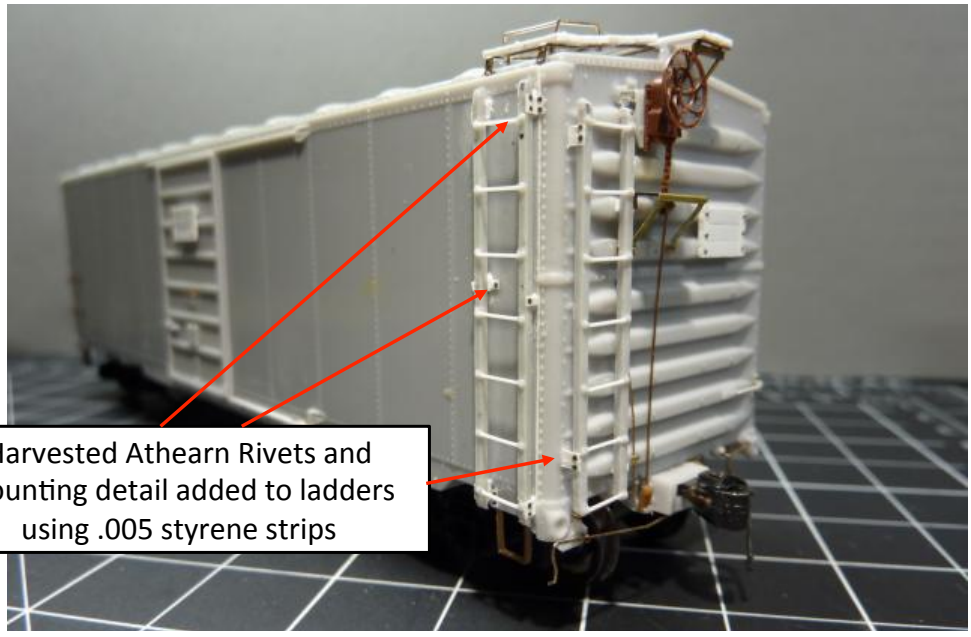



Proof of concept Sample
Made using 7mm disc and
Athearn harvested Rivet

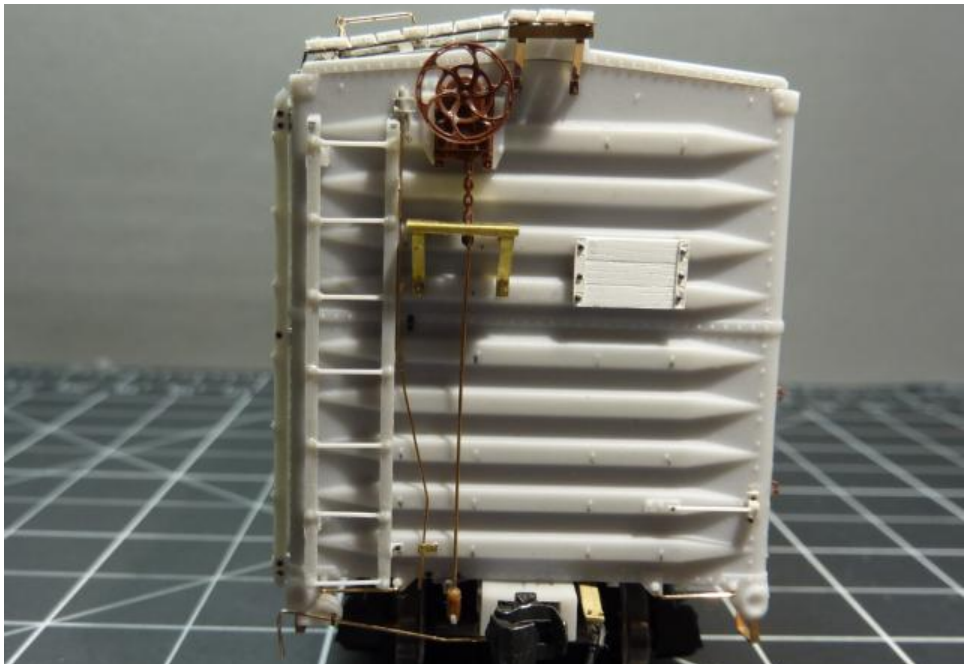

Finished Lateral Grab In Place
7mm discs and Athearn Rivets

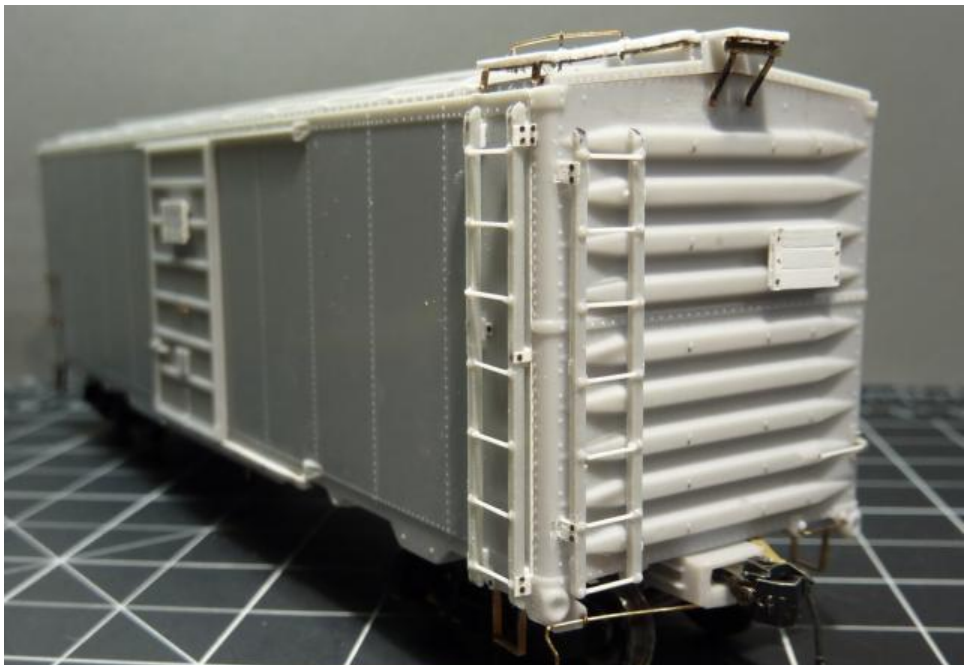
Finished Roof
Wood grain was put in with Micro Saw Blade and Bolt Detail made with scribe

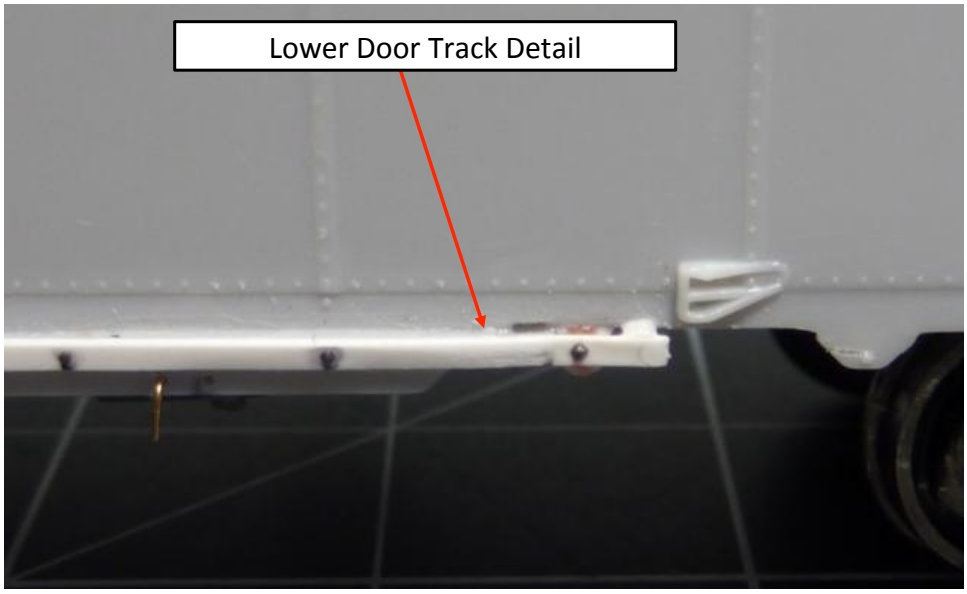


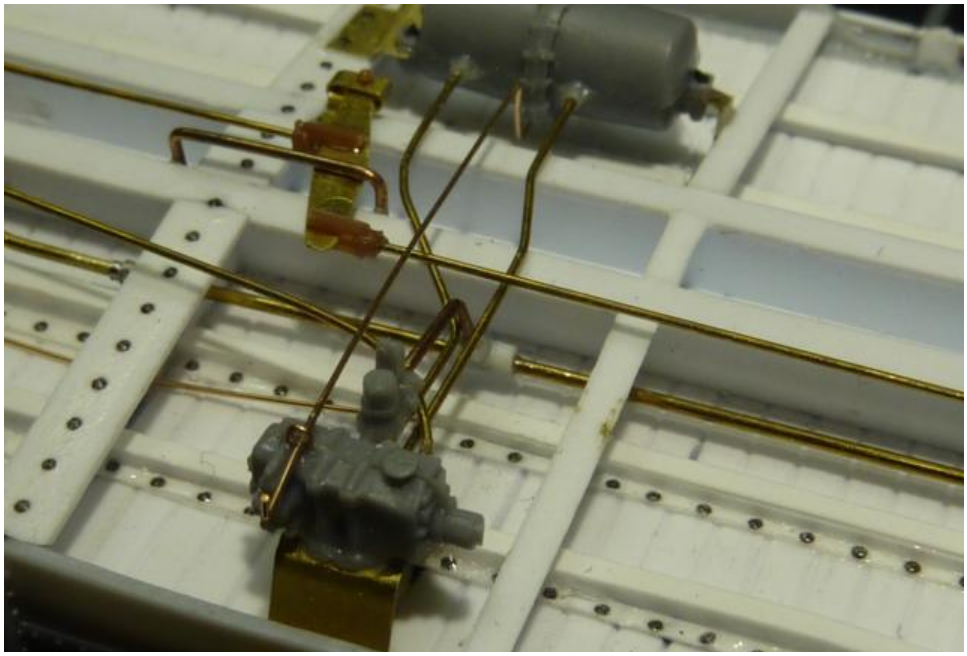


Harvested Athearn Rivets and mounting detail added to ladders using .005 styrene strips

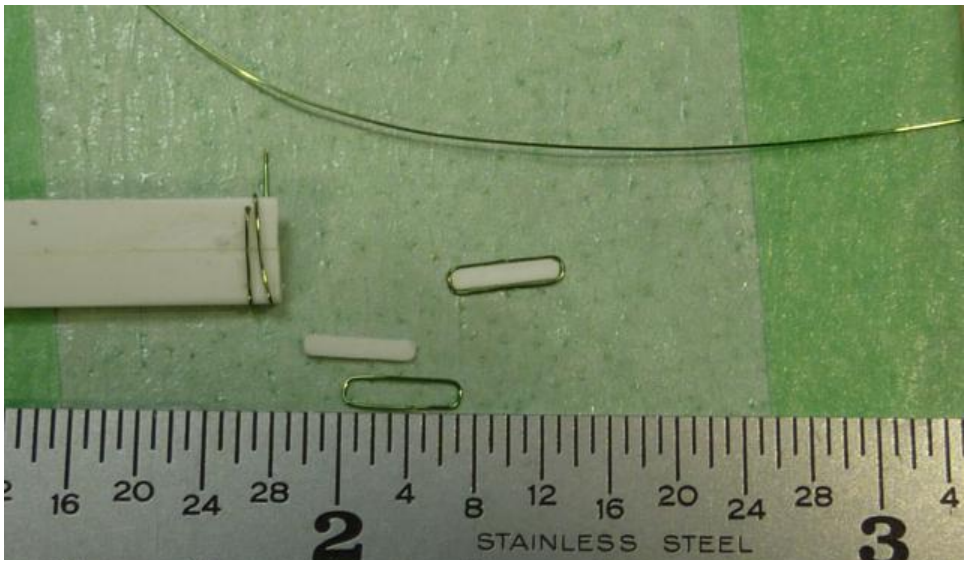


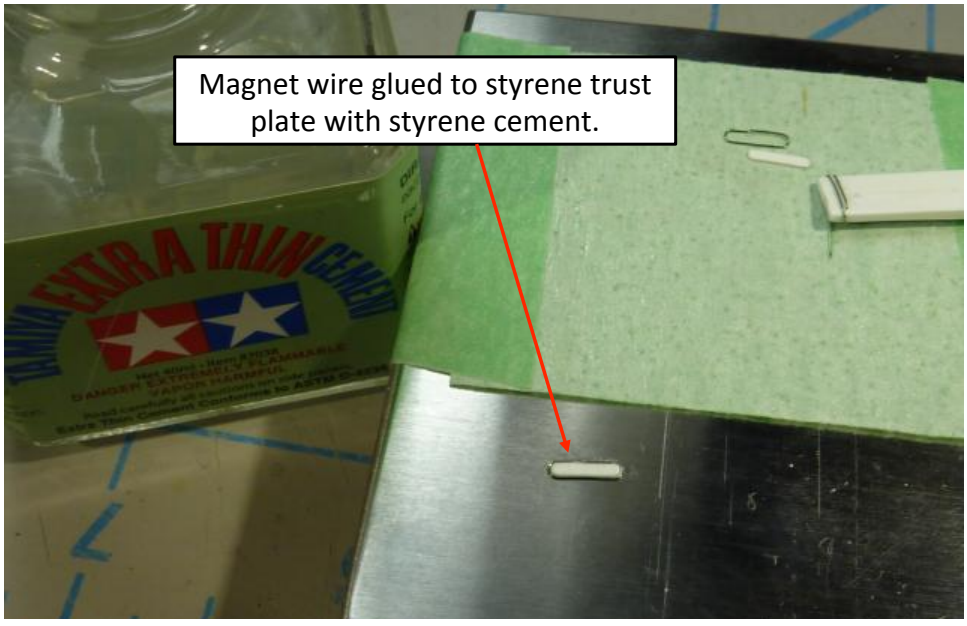


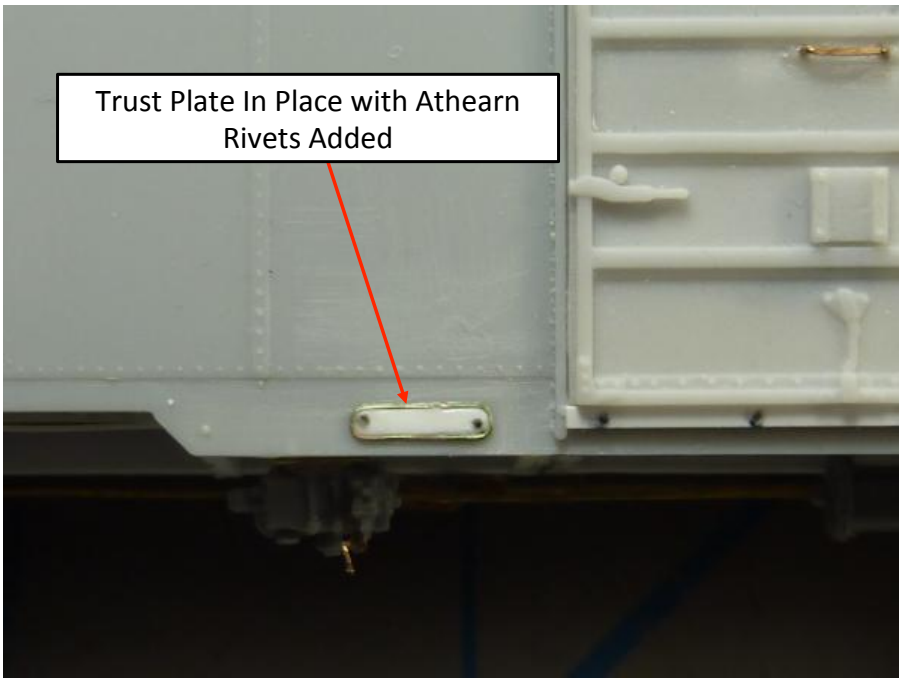

Lower Door Track Detail



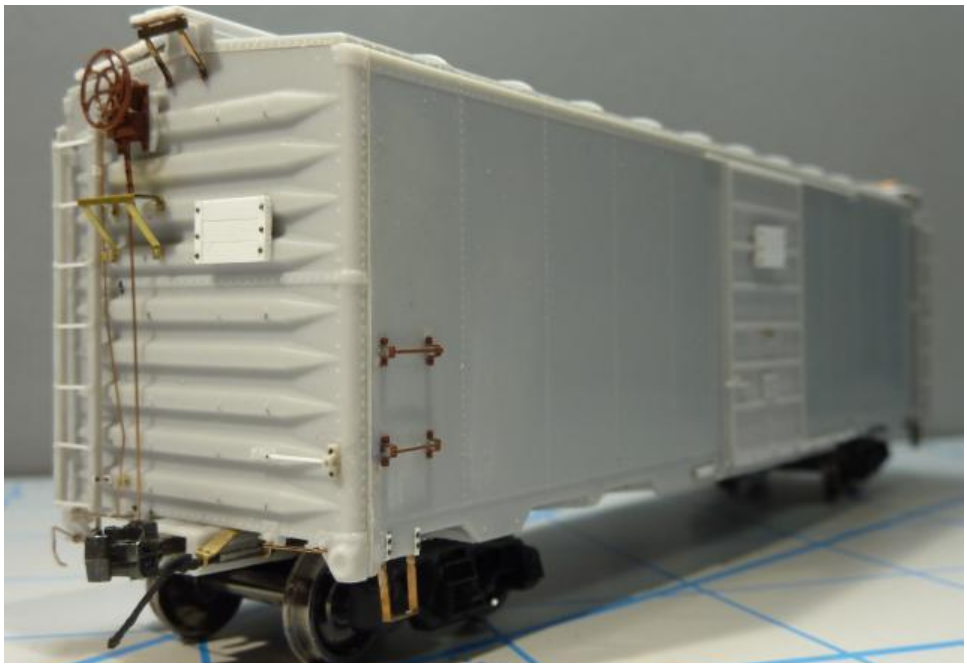
Making a Trust Plate from Magnet Wire and .010 Styrene






Trust Plate In Place with Athearn Rivets Added


Completed Ready for Paint



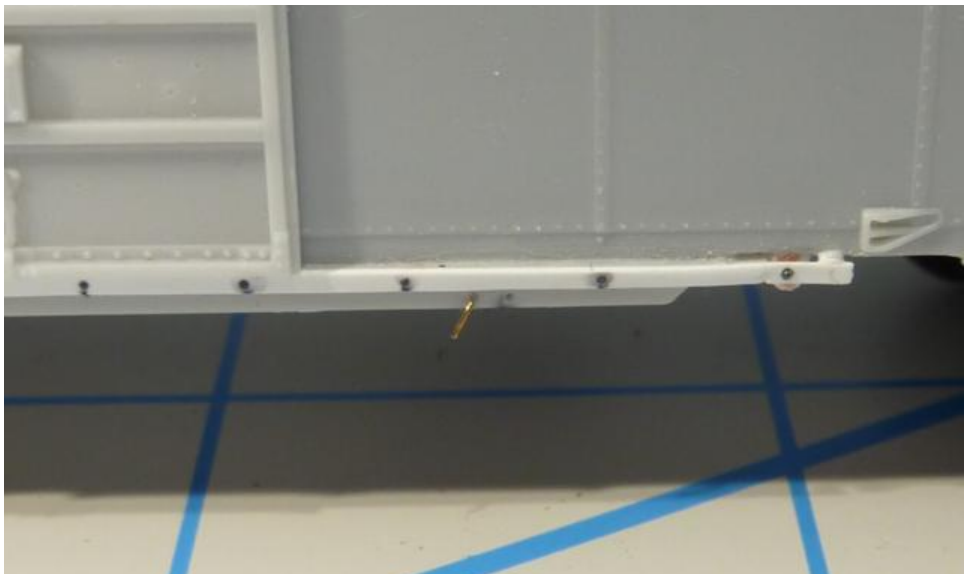


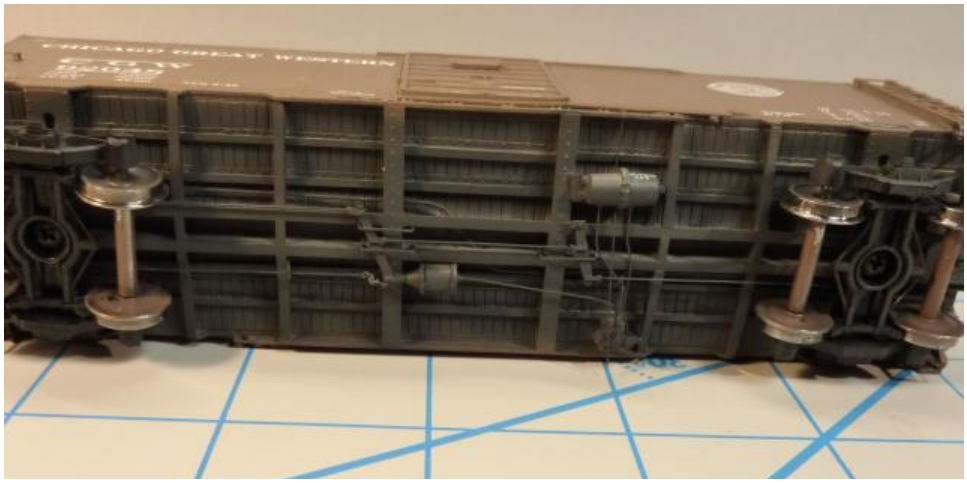
Photo Gallery Painted


CGW92048


CGW92048


CHICAGO GREAT WESTERN
C G W
92048


CHICAGO GREAT WESTERN
C G W
92048



OOPS!
Ed Hawkins said
This car should of had a black
cement coated roof and unpainted
running boards

The CGW 91000 & 92000 series box cars built by Pullman-Standard were painted as follows. The data comes from the original P-S bills of materials. While there are no paint samples available, the paint names help to define the hue by comparing to the paint names of ACF cars in which paint samples were taken during the same 1940s time period.

Lot 5771, 91000-91099, built 9-44

Sherwin-Williams or PPG Freight Car Paint - exterior sides, doors, ends (50 cars each)
Texaco black car cement - roof, underframe
Black paint - trucks
White stencils

Lot 5805, 92000-92149, built 9-45

Glidden or DuPont Quick Drying Freight Car Paint - exterior sides, doors, ends (75 cars each)
Black car cement - roof, underframe
Black paint - trucks
White stencils

The color for the 4 paints would reasonably match a medium red-brown such as Tru-Color Paint TCP-188, 193,197 (they are the same). This color was commonly used by numerous railroads in the mid-1940s-1950s, such as SP, Seaboard, NP, MP, NYC, WP, IC, RI, RDG. The color is for a new car and does not take into account any "scale factor" or subsequent weathering effects.

The Pullman bill of materials for paint specs start by instructing "Laps & Joints" of the roof and underframe to receive car cement. The car cement was Texaco black car cement.

Later instructions denote one coat of car cement on the underframe as well as one coat "Stibloy" and one coat of car cement. Also one coat of black paint on the trucks. The sides and ends were to receive either Glidden or DuPont Freight Car Red (75 cars each). No mention is made about painting or not painting the running boards. (I don't know what "Stibloy" was, but it's relatively unimportant since it was covered by the car cement. It may have been a primer coating so that the car cement would adhere better to the galvanized roof sheets

The running boards were installed before the cars were painted & lettered, and it's highly unlikely that the running board was masked in any significant way. My interpretation is that the running boards & latitudinals were to be left unpainted. But having said this, it would seem reasonable to me that the workers would be allowed to have "a small amount" of the car cement overspray on the running boards that would not be considered by the customer as objectionable. This is particularly true for spraying the saddle-mount locations under the running board, as the workers went about their work to spray the entire roof surface.

The running boards were "mixed grain" Douglas Fir, or alternatively an equal grade Yellow Pine. Each car used the following boards to assemble the longitudinal part of the running board:

3 - 1 1/8" x 5 3/4" x 17'-1"
3 - 1 1/8" x 5 3/4" x 14'-5 1/4"
3 - 1 1/8" x 5 3/4" x 11'-0 1/4

Car roof repainted with Vallejo Black Gray and Running Boards weathered for a more natural wood look.

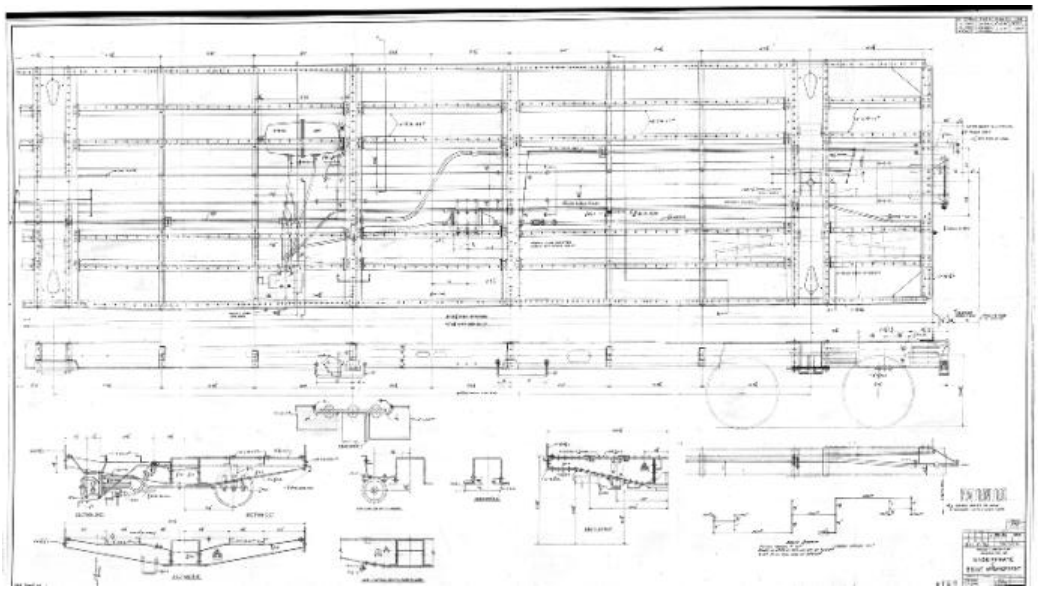

CHICAGO GREAT WESTERN
CGW
92048
CGW92048

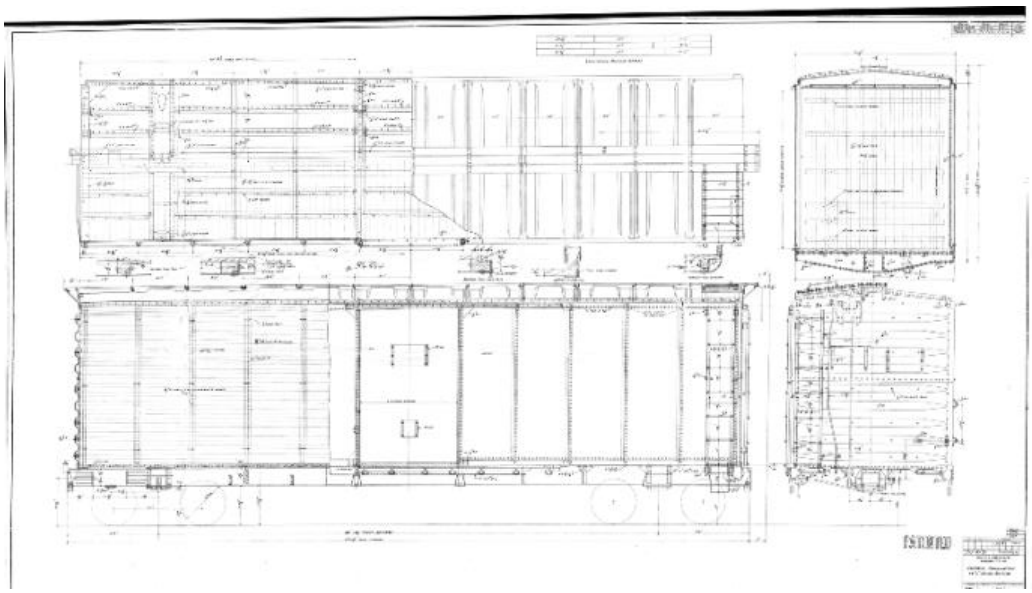

CHICAGO GREAT WESTERN
CGW
92048
CGW92048

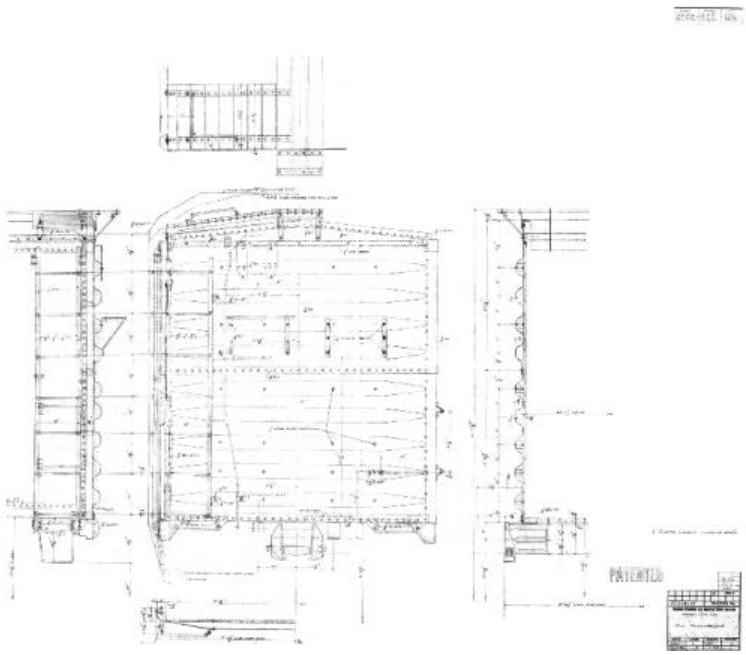
Resources Available at the

Chicagoland RPM Website on the Forum

https://www.rpmconference.com/







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The End