

THE **S** **RESOURCE**
SCALE

NEWS, REVIEWS, INFORMATION TO USE

February/March 2016
Volume 2 # 3



**Working With Glass
What's on Your Workbench**

**Kit Bashing An Unusual Gondola
Some Layout Ideas with Roy Meissner
Adding Heap Shields to Your Hopper Fleet
Shows, Meets and Much More**

Published Bi Monthly

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February/March 2016

Volume 2 No. 3

Welcome to the online *S Scale Resource* magazine. The magazine is presented in an easy to use format. The blue bar above the magazine has commands for previewing all the pages, advancing the pages forward or back, searching to go to a specific page, enlarging pages, printing pages, enlarging the view to full screen, and downloading a copy to your computer.

Front Cover Photo

Jan Burdzinski's Foss Junction Railroad. See [Editorial page](#) for more information. Photo by Brooks Stover

Rear Cover Photo

Bill Bartlam's Surrey Valley Railroad handles both scale and hi-rail equipment. Photo by Brooks Stover

Bill Of Lading

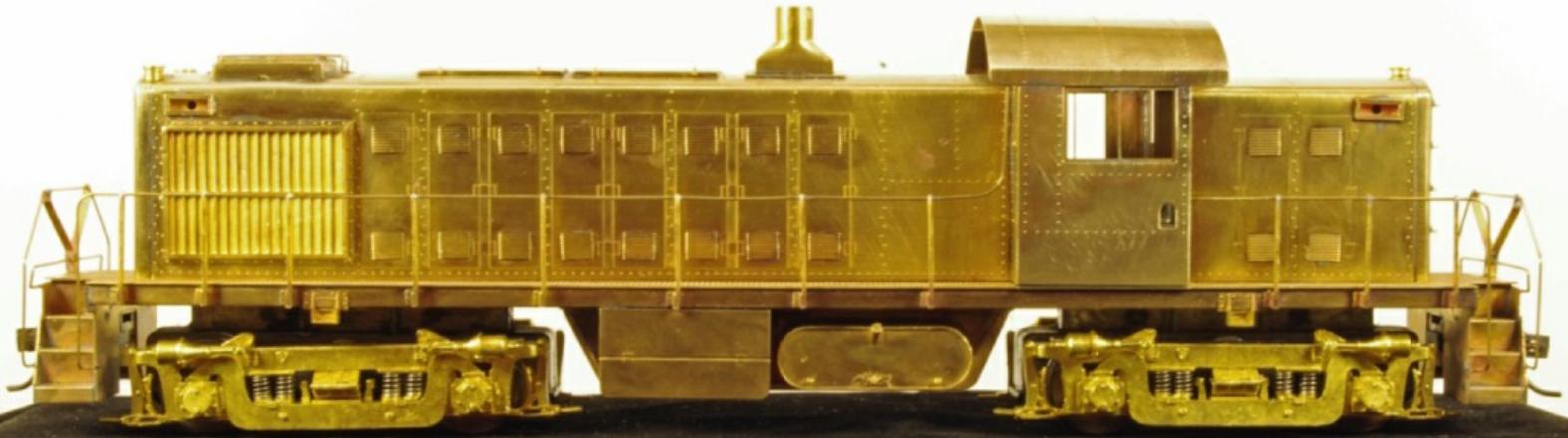
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The Model Railroad Resource LLC publishes *THE O SCALE RESOURCE* and *THE S SCALE RESOURCE*. Be sure to look at both of our magazines. There are many articles in our magazines that are not scale specific and will be of interest to you. Click the magazine title in this announcement to see the magazine.



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From the Publisher's Desk



As I write this, Dan and I are getting ready to attend the premier East Coast Model Railroad Show, the Amherst Railway Society Railroad Hobby Show, January 30-31, 2016 in West Springfield, Massachusetts. We hope everyone survived the “Blizzard of 2016”, and are thanking our lucky stars that the show is this coming weekend, not last. This will be our first time attending the show, and everyone says we will not be disappointed.

The show is always well attended, and, per the website “Commercial vendors and hobbyists will sell model railroad equipment, photos, slides, video tapes, books and other railroad memorabilia. New and antique railroad items will be on display and for sale. Major national manufacturers and publishers will attend this Show which was rated number one of the top three in the nation in a recent Model Railroad Industry Association manufacturer's survey.” There are also layouts and clinics. So, if you're in the area, be sure to attend the show and make sure to stop by our table, Young Building, Section 90, Table N. We'll even have a token of our appreciation for the first several hundred people to stop by and say hello. There will be many other S manufacturers and dealers in the same area, including River Raisin Models and Des Plaines Hobbies, along with the NASG.

This month's magazine has some great kitbashing ideas from both Jim Kindraka and Glenn Guerra. Jim's article explains how to add hopper shields on hopper cars, while Glenn's article walks you through modeling rivets and weathering on gondolas. The featured layout in this issue is courtesy of Roy Meissner. He began the construction with a mock up model, and has incorporated some wonderful aspects into his layout. I'm sure you will enjoy reading about it.

Finally, we have included an article about cutting glass that was previously published in *The O Scale Resource* by Daniel Dawdy on cutting glass. You may be asking “Why have they put an O Scale article in an S Scale magazine?”. Simply put, the technique applies to all scales, and we wanted to let you know that there are some great non-scale specific articles in that magazine as well.

We hope to see many of you in West Springfield. For those of you that can't make it, we'll have a recap in the next issue, so stay tuned.

Happy Reading & Happy Modeling,

Amy Dawdy

Cover Photo:

Jan Burdzinski has nearly completed his S Scale Foss Junction, an industrial switching layout. The 21' x 12' layout represents the Bay City, Michigan area circa 1947, with much of the equipment painted and decaled for the Detroit & Mackinac RR. Jan's track is Shinohara code 100 flextrack, while he builds his own turnouts using fixtures by Fast Tracks. See Jan's great modeling work this summer as part of the NASG National Convention.

Rear Cover Photo:

Bill Bartlam's Surrey Valley Railroad handles both scale and hi-rail equipment, and presents a freelanded view of the Appalachian Mountain region. His layout is another one that will be open to visitors at the NASG National Convention in August.

Photos by Brooks Stover.

NEWS YOU CAN USE

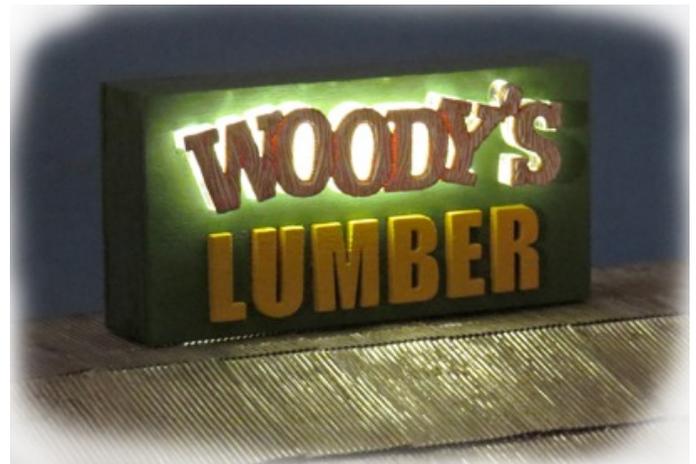
[EastWest Rail Service](#) announces Woody's Lumber Yard. It is typical of many privately owned lumber yards that existed in the United States up until the late 1970's. The Warehouse has open sides to provide customers with an easy access to the lumber, and large sliding double doors at each end to allow the lumber inventory to be replenished when delivered from an adjacent rail line. There is also lighting over each door to allow for late evening work. The roof is corrugated metal. When fully assembled, Woody's Warehouse measures 8" W x 7-3/4" D x 3-5/8" H.



Woody's Office resembles many small field office buildings. Its primary function is a shelter for customers to order materials or equipment and make



payments. The office kit can be built as a standalone facility or it can be built to become part of the Warehouse. The kit includes Grandt Line windows and doors as well as glazing. Like the warehouse, the office has a metal corrugated roof. The Office footprint is 3 1/2" W x 3 1/2" D x 2-7/8" H.



Woody's Sign is a 3 dimensional, lighted billboard that acts as a beacon to landmark the location of Woody's Lumber Yard. The kit includes a custom lighting module that has six bright LEDs to attract customers. The name "Woody's" is engraved with a wood grain and is mounted on a acrylic backing to allow the LEDs to also light up the word "Lumber". When assembled, the sign measures 2-3/4" W x 1" D (at the raised lettering) x 1-3/8" H.

All three kits can be purchased separately or together. Easy to follow, step-by-step instructions are on CD and provided with each kit.

Introductory prices are:
Warehouse kit - \$62.00
Office kit - \$25.00
Sign kit - \$19.00
All Three Kits - \$96.00

To view additional images of Woody's Lumber Yard and download a copy of the assembly documentation, visit www.eastwestrailservice.com.

[Pre-Size Model Specialties](http://www.pre-size.com) announces a new tunnel portal for double track. This is their second double portal and is wider (7-1/8" opening) to allow for curved tracks. It is in the "broken face granite block" series along with single portals, bridge piers, abutments and retaining walls. Check out their line of S scale cast resin scenery products on their website at www.pre-size.com.



[James Bester from Model Tech Studios LLC](http://www.modeltechstudios.com) has a new Steam Shovel. This S Scale Built Up Steam Shovel design is super detailed inside and out, all the way down to the tracks, boiler and winch system. It comes fully built up and nicely weathered to show years of use. The best part is that it's LAYOUT READY.

Approximate dimensions: 7" Long (back of cab to shovel extension can vary a bit) x 2.25" Wide.

Note: Color scheme/detailing can vary slightly as these are Hand Finished by our Studio Artists....LIMITED PRODUCTION in S SCALE...Made in the U.S.A. Also, be sure to check out their S Scale detail parts.



The S Scale Resource February/March 2016

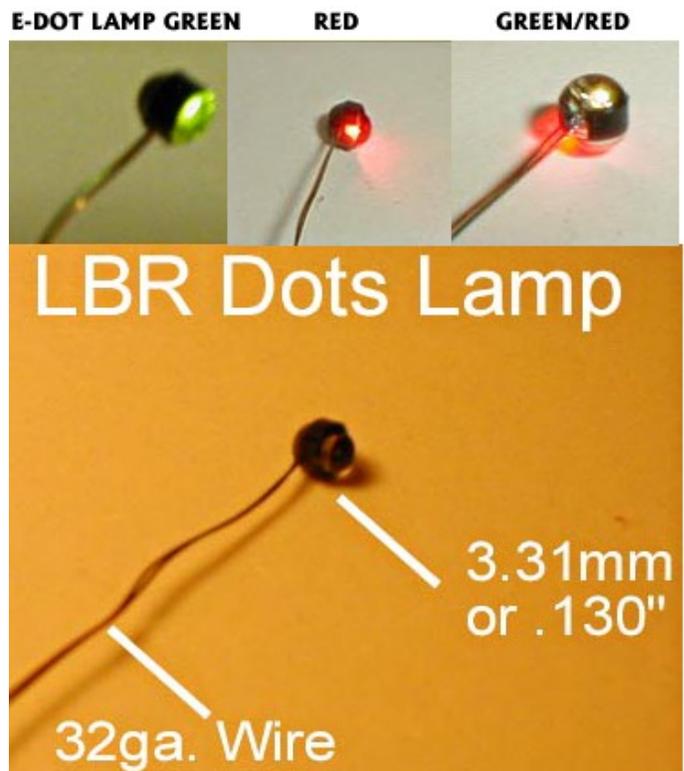
Factory Style Roof Vents, 3 Pack Variety Pack of Factory Style or Industry Style Rooftop Vents for S Scale Detailing. They come all rusted up to look old



for you as well! If you're ready to detail your S Scale Buildings, look for these and all the S Scale details at the [Model Tech Studios LLC](http://www.modeltechstudios.com) on-line store.

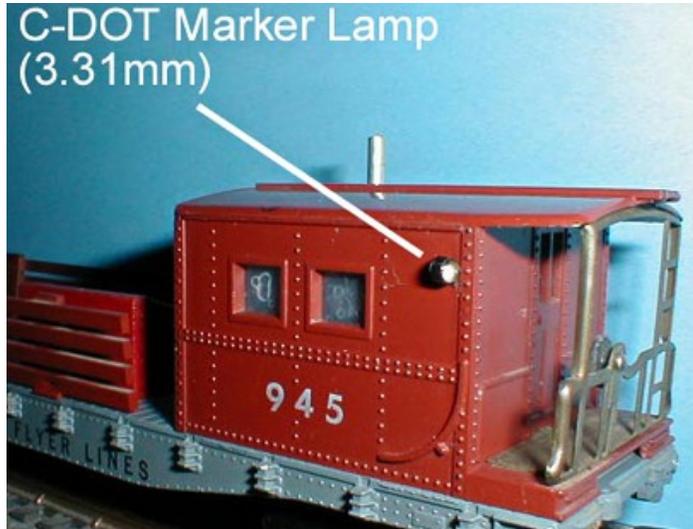


Dave from [lbrenterprisesllc.com](http://www.lbrenterprisesllc.com) sent in some new lighting products which will work in many scales. The newest product is called C-DOTS and are LED marker



lights for "O" & "S" gauge trains. Also, these same DOTS can be used in "HO" for headlights and reverse lighting.

Priced at \$5.50 - \$7.25 per pair with FREE shipping in CON US, they are an economical answer to other higher priced marker lights.



Colin Stewart sent some information on two new releases from Mike.Calvert. Here's a little background: the SW1500 is a reduction from the O scale version, the introduction of the stanton drive makes this process a lot easier as there is minimal reworking needed from an already proven design.

The kit has a number of cast parts including air tanks and exhaust stacks. The casting masters for these are in the final stages of preparation.



The U23B is a natural development from the previously released U18B as both locomotives share many common parts.

The pilot model U23B is painted as Penn Central 2765. Colin Stewart, builder of the the pilot model said, "Whilst doing some research, I discovered that PC had some U23B locomotives which were set up for long hood forward which was unusual. The 2765 was one of them. The locomotive still needs some work to complete, including air horns, ATC box (Bill Davis sells these), pilot details, windows, couplings etc. It also needed the number board numerals, which have been added too!"

The kits will be available latter in the year. Expressions of interest can be sent to [Mike Calvert](#) or [Colin Stewart](#). Prices are expected to be \$160 for the SW1500 and \$180 for the U23B.



The S Scale Resource February/March 2016

Are you an importer,
manufacturer or
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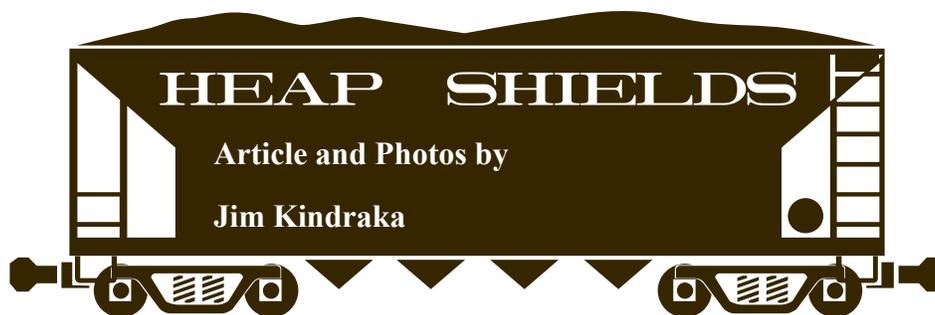
Tall

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The S Scale Resource

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At the S Scale Resource



In the period I'm modeling, several railroads installed peaked ends on their coal hoppers and some even had hoppers built with peaked ends. The peaked ends, or heap shields, would keep any coal that was mounded up along the car's center line from falling over the end of the car when a train's slack was run in or out. The shields additionally increased the hopper's capacity. A C&O 2-bay hopper's capacity increased from 2081 to 2344 cubic feet when heap shields were in place. I have always thought heap shields were an interesting feature, and decided to see if I could modify some hoppers with them.

Not all railroads used heap shields. My main modeling interest is the New York Central and they did not use peaked end heap shields on any of their hoppers. A quick review of *"Railway Prototype Cyclopedia"*, Volume 25, indicated that several eastern railroads that might interchange with the NYC did employ them; among those were the C&O, Clinchfield, NKP, L&N and NC&StL. Of main interest to me were hoppers from the C&O and NKP, both of which employed the shields on many of their cars. Adding a few heap shield hoppers to a 1940's or 1950's era coal NYC train could really add some interest. Another great resource I employed was a recent book published by the C&O Historical Society: *"Chesapeake & Ohio Freight Cars 1937 – 1946"*, by Shaver, Kresse and Parker. To a lesser extent, I also found an old article in the May 1978 issue of *"RMC"* to be helpful. Hopper cars with peaked ends have been written up in the modeling magazines many times so you can likely find other sources.

A word about the hoppers I used as a starting point. I wanted to model offset side hoppers and there is no exact model in S scale of either the A.A.R. Standard or the A.M.C. Standard 50-Ton Two-bay hopper. Both represent the design used by railroads when adding heap shields. I decided to use the American Models 2-bay offset hopper because it had the correct wheel base for the C&O and NKP A.M.C. Standard cars I chose. I added additional detail when finishing the car, but a couple of other issues about that design were left as "modelers' choice". During the project, I did discover the 4-bay offset hoppers also made by American Models were very close to correct for a C&O design so they were also used. In a usual tale of model project scope creep, a project to add "a couple" of cars with heap shields resulted in my modifying and building seven cars!

The C&O book, referenced above, documents that railroad's use of at least seven different designs of heap shields. Of those, three were applied to the flat top ends of existing hoppers, and four were built integrally into the hoppers end during initial construction or major rebuilding. I decided to work on three of those designs: 1) the angular or trapezoidal shield applied to existing cars; 2) the radial applied shield; and 3) the radial shield built integrally in the end of the car. I also used the project as a chance to use decal rivets for the first time. The rivets I used are from Archer, but there are other brands available that will work equally well. I have tried to tell the story of this project through all the pictures and their captions, but am happy to answer specific questions with readers via [The S Scale Resource](#).

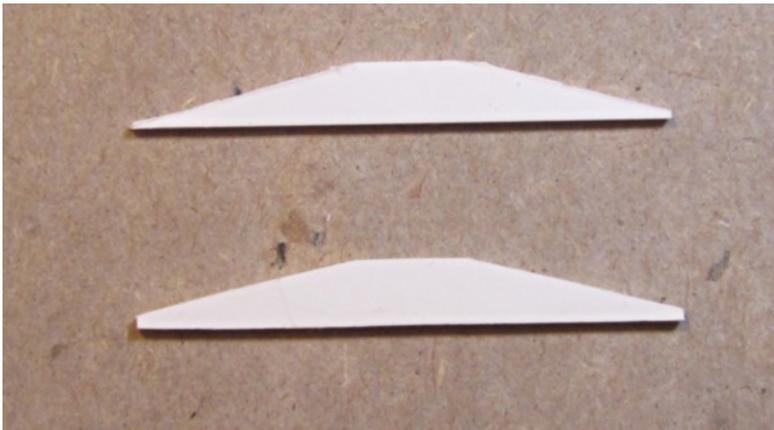


Photo 1: Start by measuring across the top of the car to make a template. I made one from 0.060" styrene, but you could use brass also. Actual railroad blueprints indicated that trapezoidal shields are 13" tall at the center and slightly wider than the hoppers bolster across the top. I constructed the vertical portion of the heap shield with 0.020" styrene cut to the trapezoidal shape using the template.

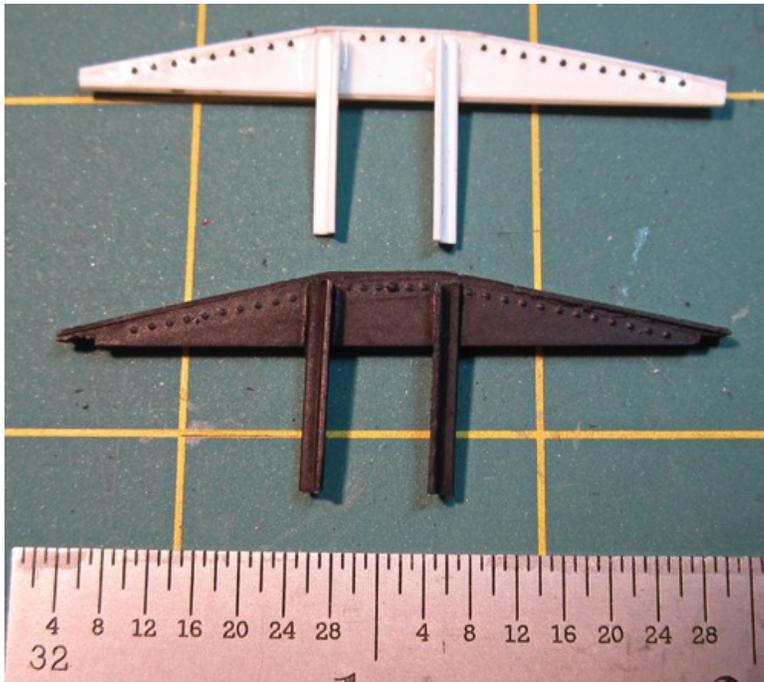


Photo 2: Pieces of styrene strip, 0.010" x 0.080" were glued across the top of the trapezoid shield to simulate angle bracing. The C&O attached the heap shields using vertical steel angle iron. These were simulated with 0.060" styrene angle stock cut to length and the decal strips then applied. I was skeptical about whether the decal rivets would have enough relief to show once painted so I tested a couple of my trial ends. Obviously, my concerns were not founded and the rivets look just fine painted.

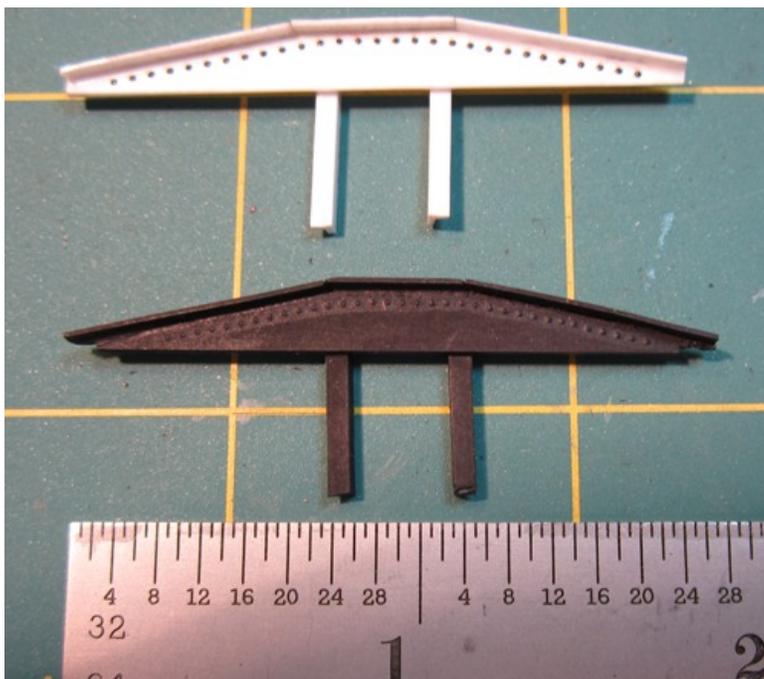


Photo 3: The shields should have rivet detail on both sides, especially if you do not plan for the inside portion to be covered by the hopper's load. These photos are of parts constructed as a test of the design and dimensions. The final shields were constructed and actually attached to the hoppers with ACC before the decal rivets were applied. It is a bit more tedious, but handling the rivets many times before painting can result in some of the rivets chipping off. The rivets I used came from Archer. That manufacturer has some great online videos showing how to apply their rivet product, and I would highly recommend watching the video and using their recommended techniques.

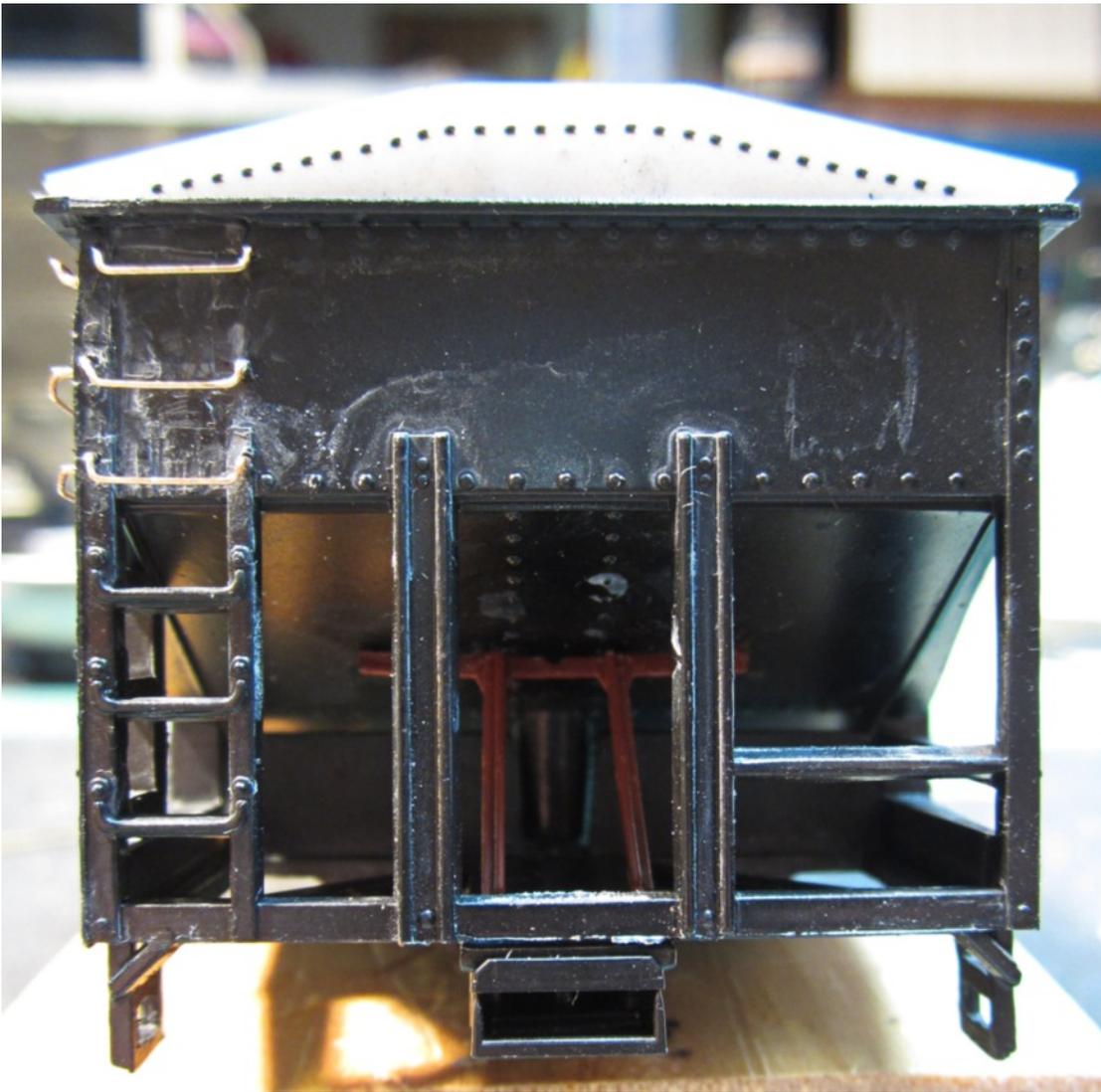


Photo 4: In this photo, the trapezoidal heap shield with rivets in place has been attached to the end of an AM 2-bay hopper. Work has begun carving off some of the existing cast on detail, along with adding commercial grab irons. Additionally, I added a hopper slope sheet support piece, the box car red "T" visible above the coupler pocket. This was scavenged from excess S Helper Service hoppers scavenged as detail parts sources.

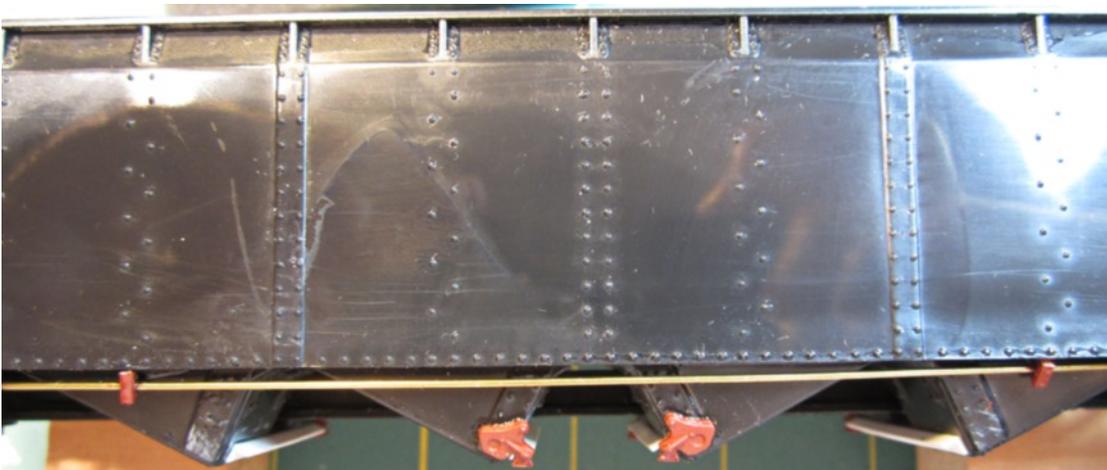


Photo 5: This shows some additional detailing of the 4-bay AM hopper cars. On the C&O, 4-bay 70 ton hoppers received only trapezoidal heap shields applied to their existing flat top ends. In this picture, I've attached the exterior brake air line, two of the four hopper door latches and pieces of styrene to tie the two hopper doors in each bay together so they open as one. This was a common practice many railroads used with their hoppers.



Photo 6: C&O 68970 is a completed 4-bay hopper with trapezoidal, or angular, heap shields applied. The prototype car was part of an order for 700 cars built by American Car & Foundry in 1928. With the heap shields, the car's capacity was 2968 cubic feet. The last of these class HT hoppers was retired in 1974.

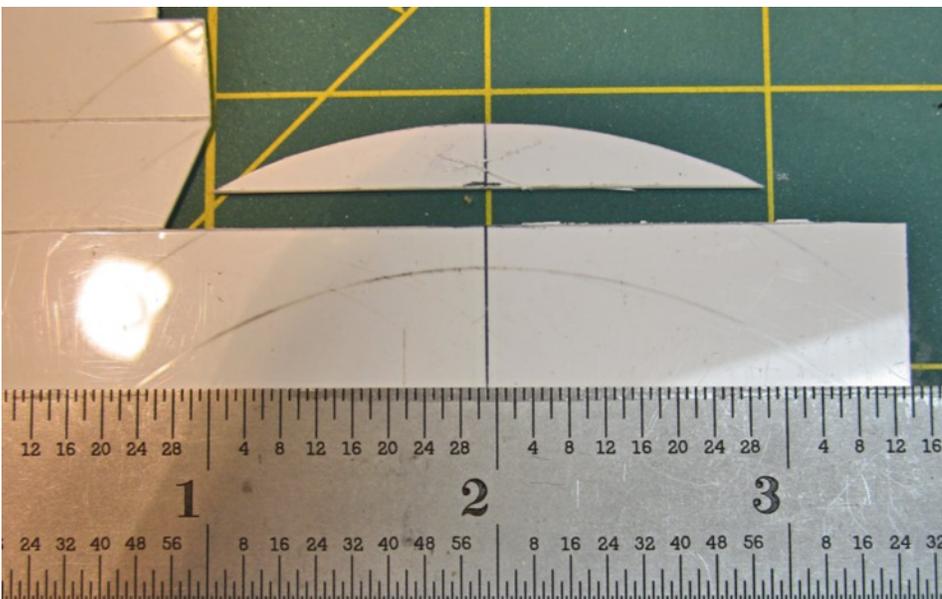


Photo 7: This is the initial layout for cutting radial ends for hoppers. I measured the width of the AM hopper across the top end. This was used to develop a circle with a cord 13 scale inches tall at the midpoint of the chord. I drew several of those partial circles and then cut them out carefully across the chord. All the work was done on 0.020" styrene.

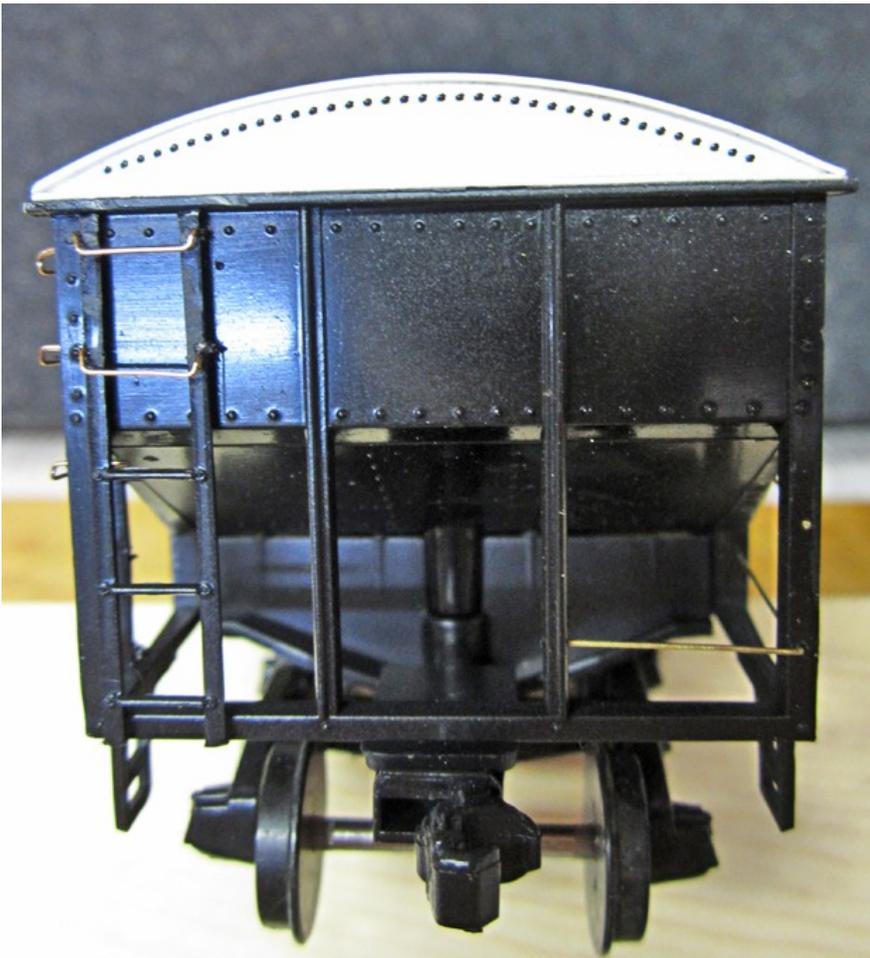


Photo 8: Since the radial heap shields were attached directly to the top of the car without any angle pieces for reinforcement, I glued a piece of 0.015" x 0.100" styrene strip across both the bottom and curved radius of the heap shield. These pieces are attached along their mid-line as the C&O used reinforcement on both sides of the radial shield. The piece along the bottom provided a wider, more secure surface for attachment to the hopper. Here is the final piece installed on an AM 2-bay hopper and the Archer rivets applied.

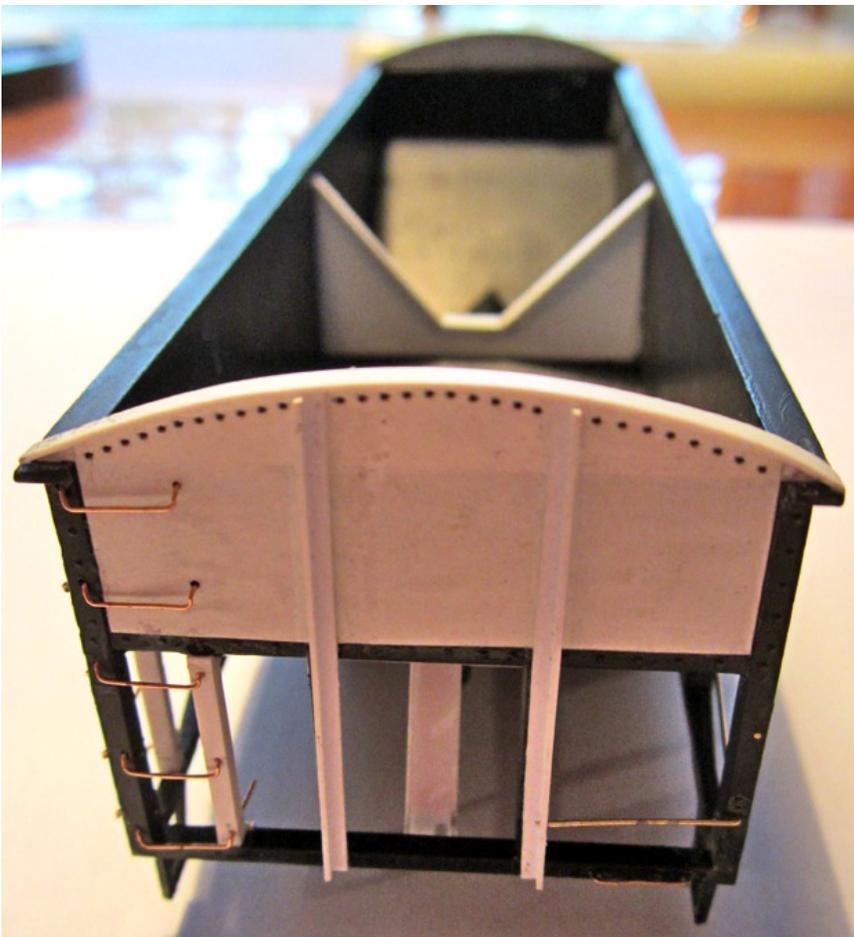


Photo 9: The final car has the radial heap shield integral to the hopper's end. The design was used by the C&O, the NKP and others. The first step was to carve away any angle bracing and end detail to obtain a smooth surface. On this model, I decided to do additional details so even ladder support posts were carved away and 1/16th square styrene was added to support hand rails. I cut the 0.020" radial end as previously described, but did not add the bottom cross piece. I glued the radial piece to a piece of 0.010" sheet cut to fit and laminated that for the end. I also added the 0.060" vertical angles on the end and built a more prototypical transverse brace for the hopper's center. In the photo, any white styrene is material added.



Here is a group of finished hoppers all with heap shields added sitting near the engine terminal on Chuck West's Des Plaines Valley layout. The group includes both 4-bay and 2-bay hoppers from a couple different S scale manufacturers, with both trapezoidal and radial heap shields added.



C&O 4-bay and CRI&P 2-bay hoppers, both with trapezoidal heap shields lead a longer cut of coal hoppers, some with additional radial heap shields around a curve on the Des Plaines Valley layout mainline. The DPV layout was covered in the [August/ September 2014 issue of the S Scale Resource](#)



Here are three different heap shield design cars painted and lettered on a siding on Chuck West's layout. The cars show the three different heap shield designs modeled by the author; from left to right: radial add-on, radial integral, and trapezoidal add-on. Some of the work the author did with Archer rivets is apparent on C&O 133475. The cars do indeed add a bit of diversity to S scale coal trains and are not a conversion requiring master craftsman skills. The project employed basic craft tools that should be part of any modeler's work bench, along with some time and thought to create – what are you waiting for?

Kit Bashing An Unusual Gondola

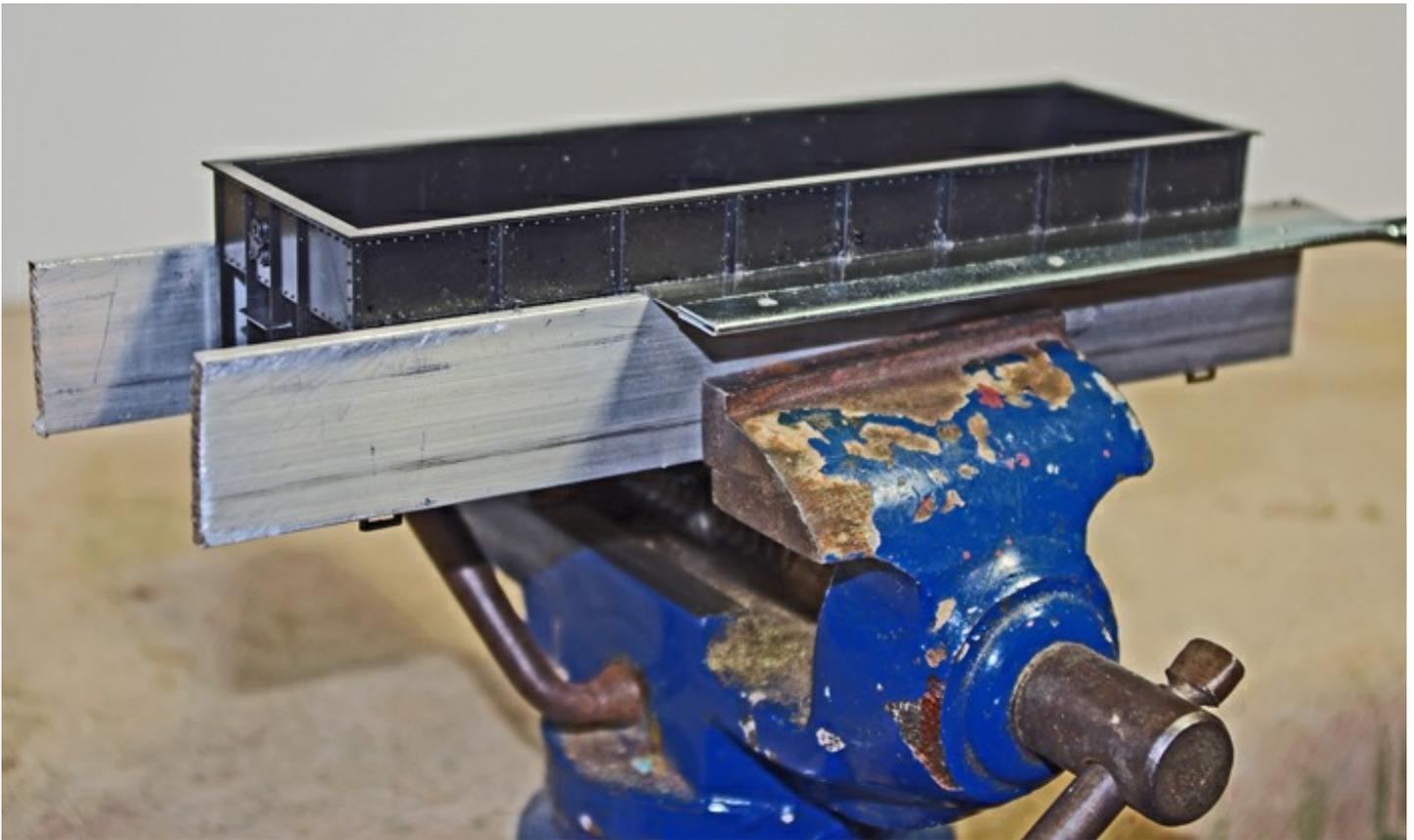


This photo originally appeared in the Spring 1983 issue of the North West Lines magazine which is the publication from the Chicago and Northwestern Historical Society. The caption credited the photo to Charles E. Winters and stated he took the photo in 1951. The car always looked like a good candidate for some kit bashing.

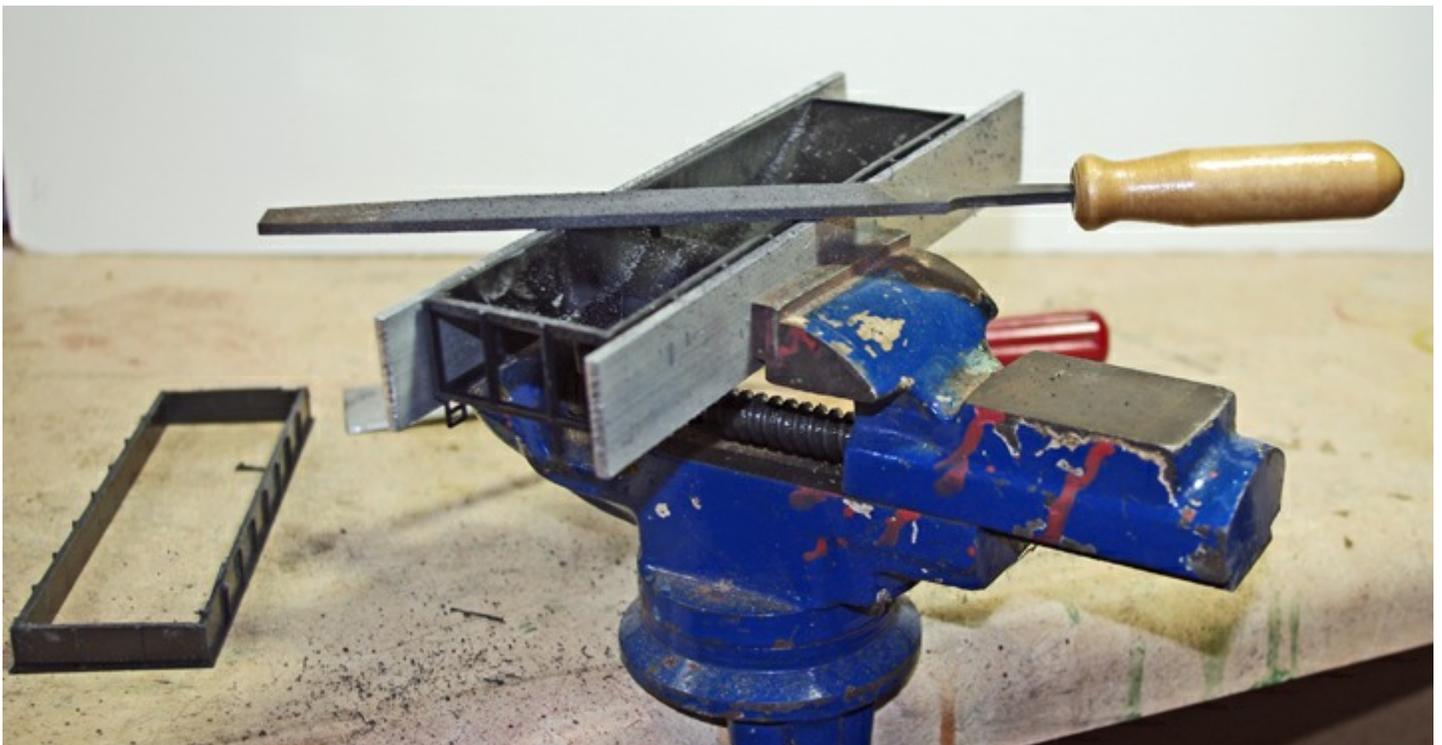
By Glenn Guerra

Jim Kindraka has been coming over to work on models, and I have been watching him make his extended top coke cars. This started me thinking of a car I have been interested in for a while. The Spring 1983 issue of the *Northwest Lines* magazine from the Chicago and Northwestern Historical society had an article about the Litchfield and Madison Railroad. In that article was a photo of an unusual car. The car looks like a chopped off hopper car, and according to the article, the railroad called it a drop bottom gondola. I looked in a 1954 equipment register and could not find the car number so it may be in company service and used for ballast. Since it looked like a chopped down hopper, I thought I would try to make one from a hopper car model.

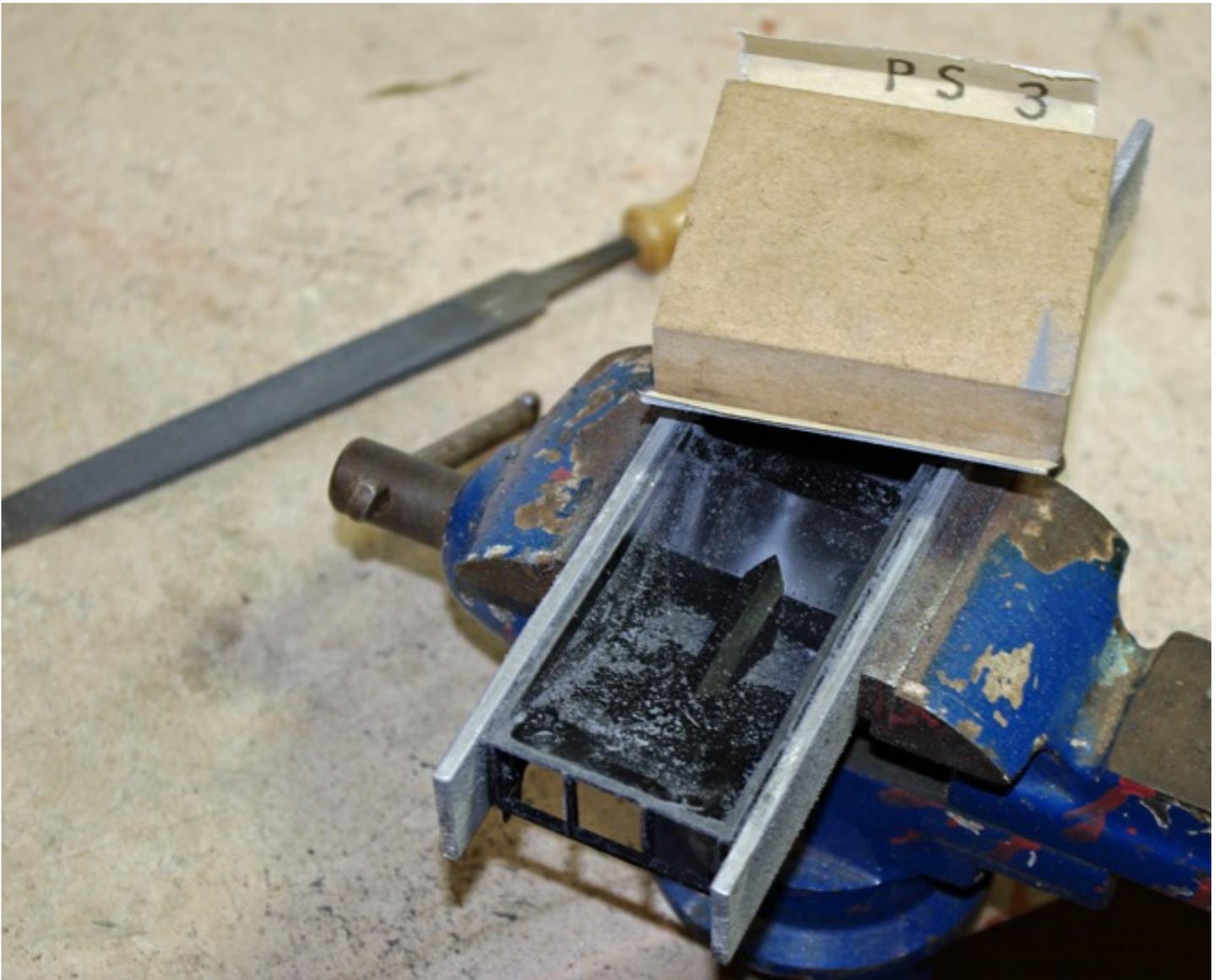
I started with an undecorated American Models two bay hopper car that I purchased at a show. It had the right number of hat braces on the side, and I thought it would be a good starting place. The first thing I wanted to do was to cut the sides down. Jim made a fixture to cut his sides down because he was going to make a few cars. In his case, the time spent making the fixture saved him time when cutting the models. Since I wanted only one, I didn't want to take the time to make a fixture. What I came up with was clamping the body in my small vice with a piece of aluminum bar stock on each side. I started by tightening the vice snug. Then I was able to wiggle the two aluminum bars to align them. I thought this worked well. It allowed me to locate both cuts on the car at the same time. Once I had the alignment, I tightened the vice. Next, I used the saw to cut the plastic body using the aluminum bar as a guide. You need to go slow and keep the saw perpendicular to the side of the model. The fine teeth of the saw will tend to clog, so you will need to wipe it clean after a few strokes. Cut only through the side of the model first. After I had both sides, cut I cut the end. It is difficult to cut exactly square to the side of the model; and if you try to cut halfway through the model from each side, there will be a good chance your cuts will not meet.



This was my set up for cutting the car body down. The aluminum bars act as guides for the saw. Snug up the vice and adjust the two aluminum bars so they are parallel and where you want the cut on the side of the car. Then tighten the vice and cut as shown. Don't try to cut half way through from each side. In stead cut only through each side and then cut in from the ends.



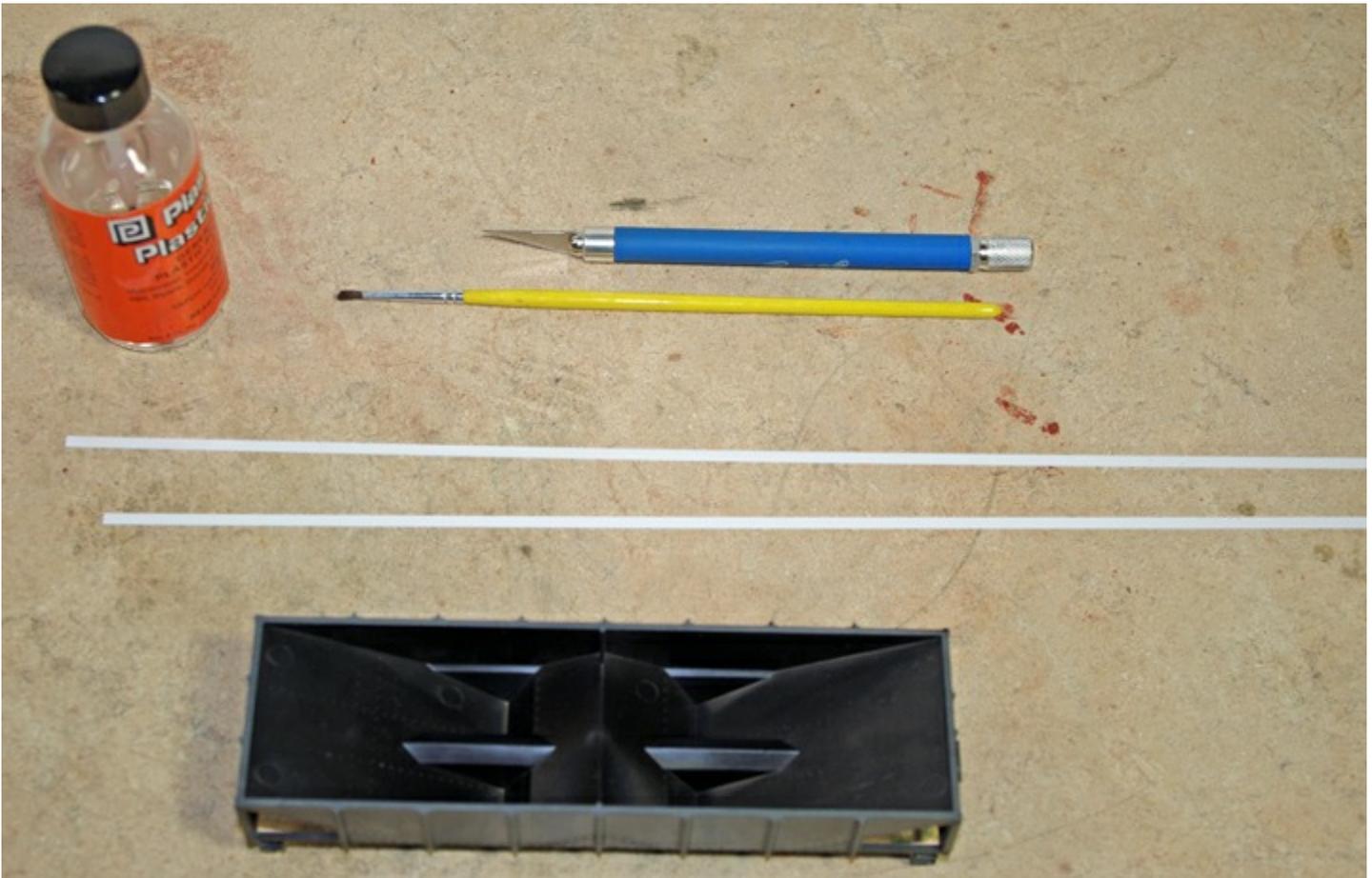
Cut the sides of the model first and then cut the ends. Then I used a file as shown to dress the top flat. The file worked good but did not give me the smooth surface I wanted



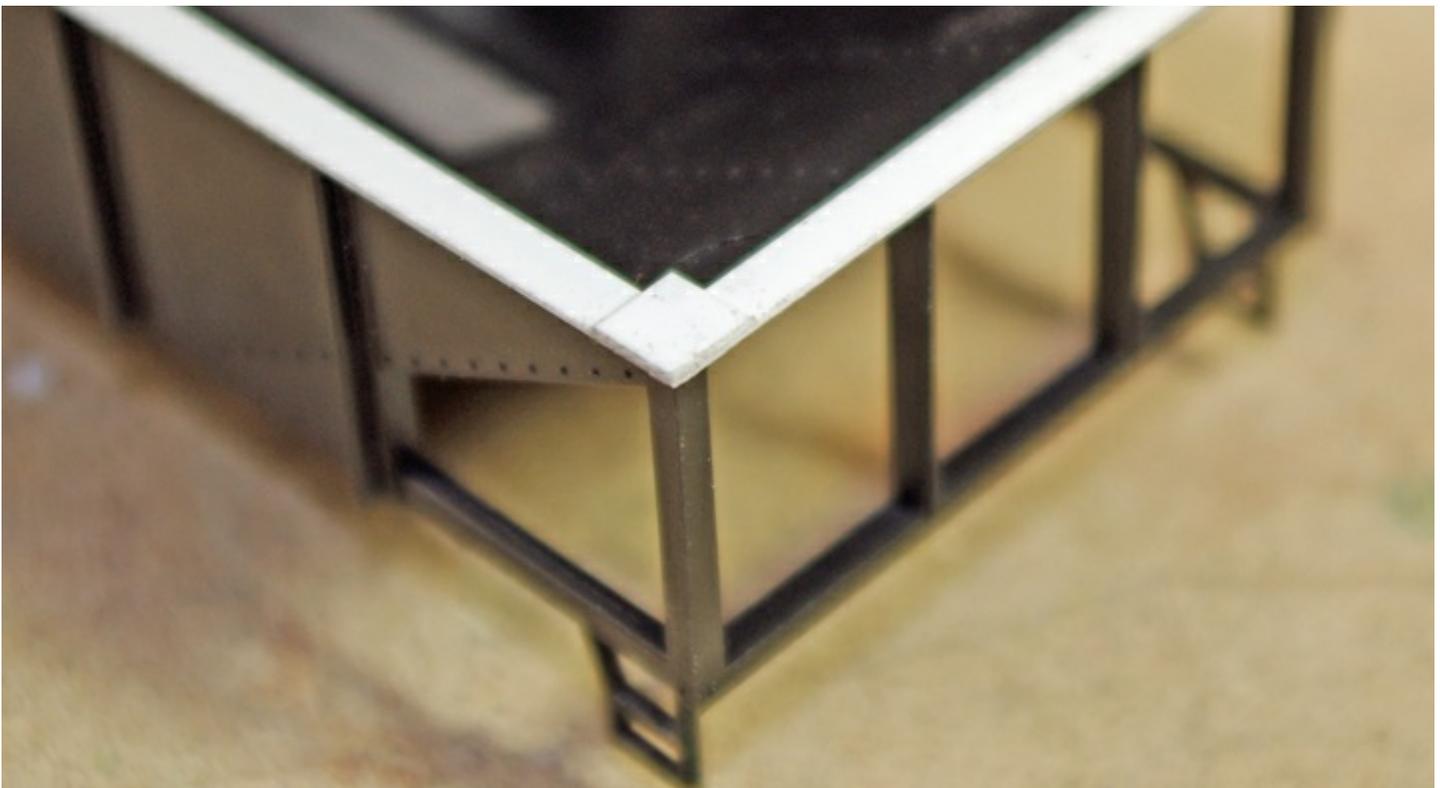
Once I had the body filed, I used some sandpaper wrapped around a block to smooth the surface. This gave me a flat smooth surface to glue the top flange on the model.

Once I had the top cut off, I used a file to dress the top of the model flat. I liked the file because it was flat and ridged allowing me to work off of both aluminum guides. The file was a little coarse, and the surface finish was not as smooth as I would have liked. The final step was to wrap some sandpaper around a block of wood and sand the body again using the aluminum bars as guides. For sandpaper, I use the white aluminum oxide paper that is used in car body shops. I used it when I was doing wood working also. You will need to go to an auto parts store or an auto paint store to purchase it. They may be reluctant to sell you a few sheets, and you may need to buy the whole package. This was fine for me because I used a lot, but you may not want to buy a lifetime supply. A good substitute is black wet dry sand paper. This is silicon carbide and will cut most anything. Wet dry sandpaper can be found at any hardware store.

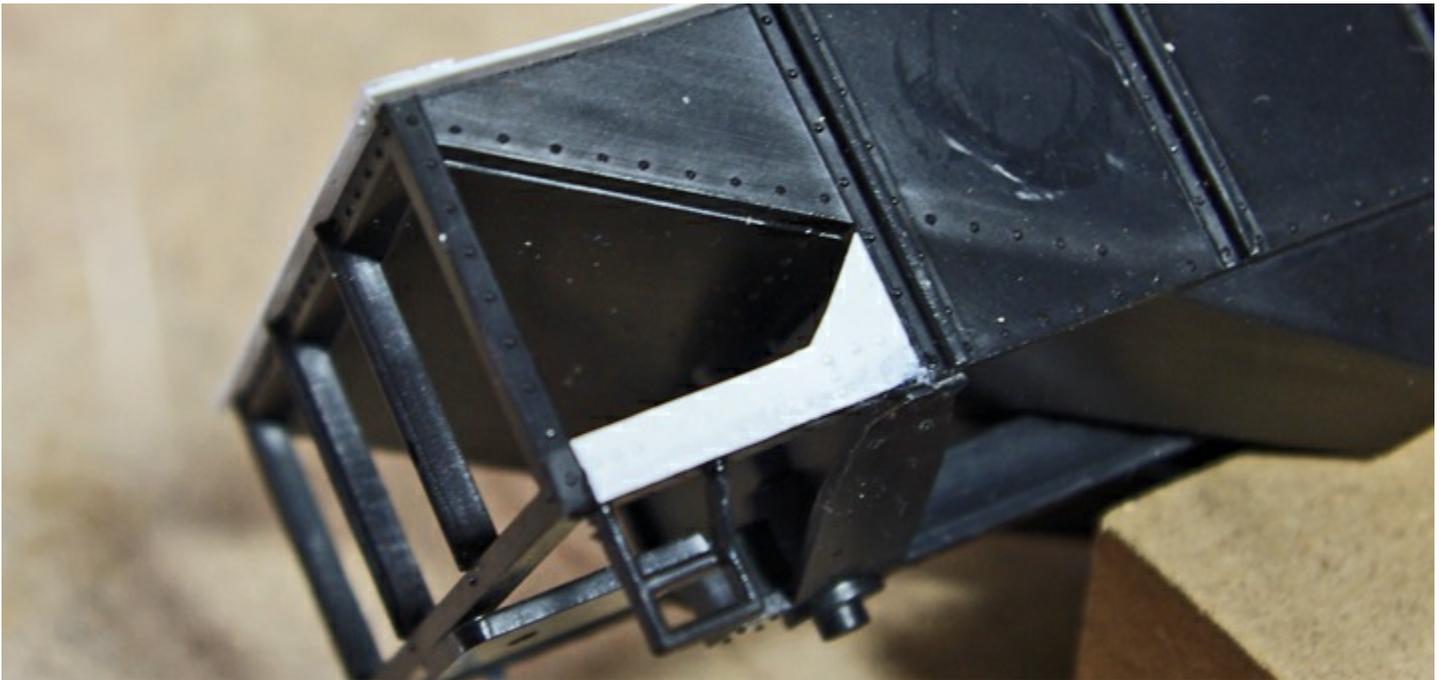
Once I had the body cut down, I used some strip styrene to make the flange around the top edge. I glued the sides on first and left them long so I could trim them later. Then, I glued the end pieces in place. When that was done, I trimmed the sides flush with the ends. I made some corner caps out of styrene, and just cut them square. After they were glued in place, I trimmed the inside edge with a sharp knife. I thought this worked better than trying to cut them to shape first and then trying to get them to line up on the model.



Next it was time to put the top flange back on the car. I glued the sides on first and left them long. Then I trimmed the ends to fit and glued them on. After that was done I trimmed the sides to length.



I glued a small square piece on the corners as shown and then trimmed them in place. I thought this was easier than trying to make them the right size first.



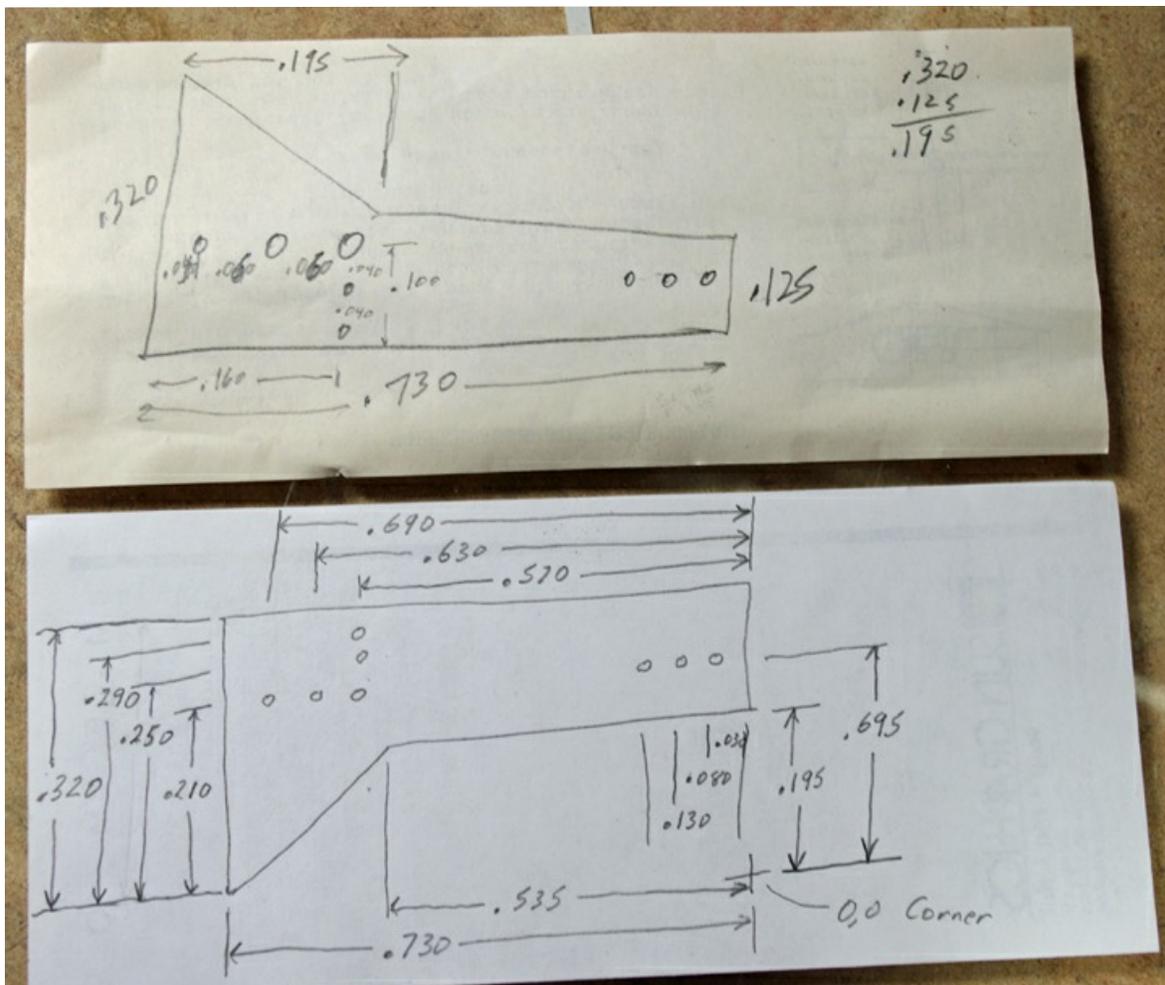
This is where the fun started. This was my first attempt at the side sheet extension. I made this out of .005" styrene. Notice how I melted the corner when gluing it. I am not good with thin styrene, and usually melt it like this. Also, the part was way too delicate to hold up under normal handling.

After looking at the photo of the prototype car a little closer, I noticed that the side sheet of the car continued all the way to the end sill of the car. The American Models car is a slightly newer and different design. In the photos, you can see the white piece I had to add. To do this, required some fiddling. My first attempt was to make it out of .005" thick styrene. I wanted to use the thin styrene because I wanted the hat brace on the side of the car to stick out past my piece. On the prototype car, this piece was part of the side sheet of the car and the hat brace was put on over it. The .005" styrene gave me the set back I wanted, but it was too thin for me to work with. I am not very good with thin styrene and tend to melt it with the solvent. You can see in the photo that I melted part of the corner. The .005" styrene was also too thin to stand up by itself and would have been trouble on the finished model. I had to try something else.

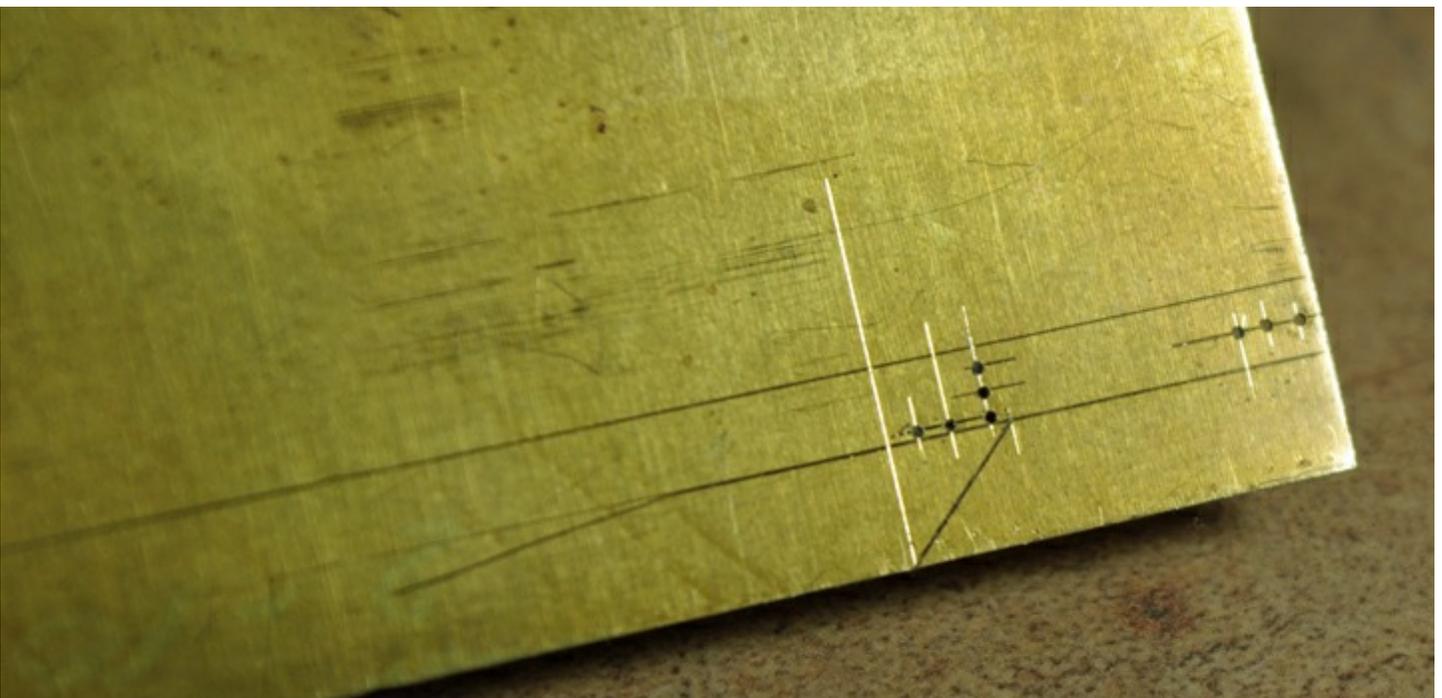
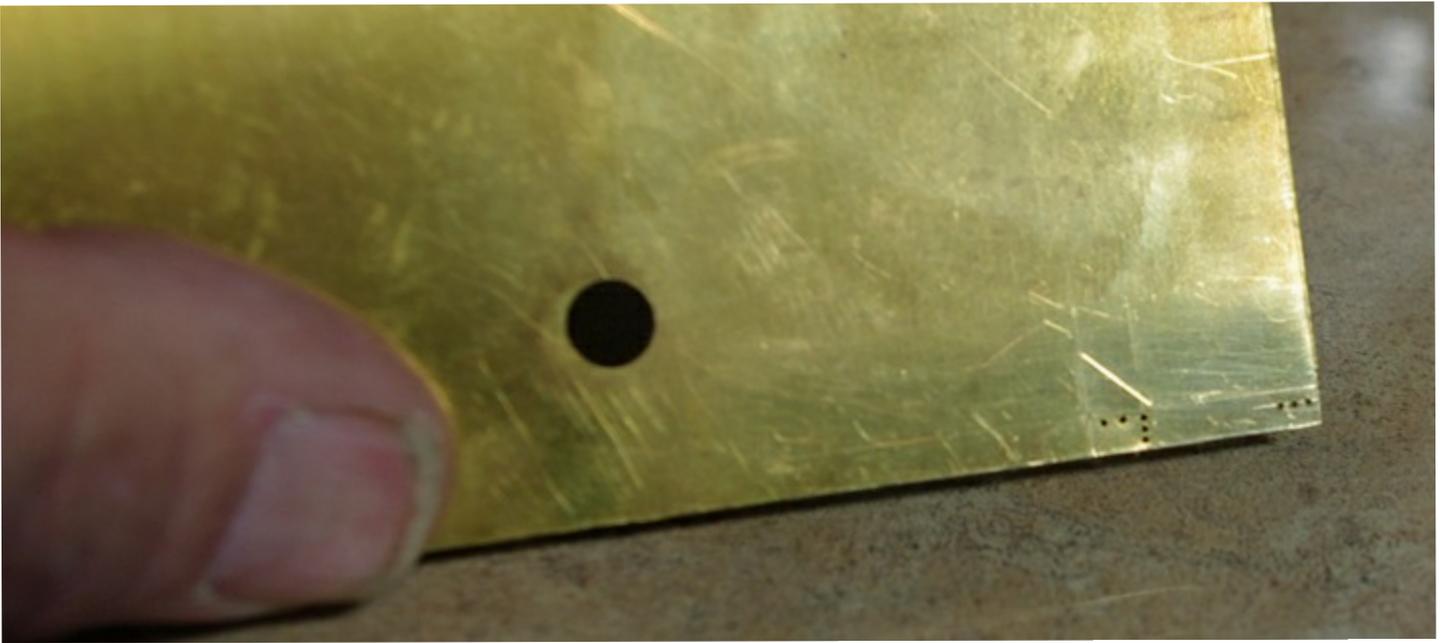
I decided that I would make the part out of .010" styrene, but now I needed to remove some material from the model to get the set back I wanted. To do this, I used the chisel blade for the hobby knife and scraped the side sill between the bolster and the end of the car. I made a cut right next to the hat brace. Then I chiseled up to the brace. However, as soon as I reached the first cut, the part would pop off the model. I scraped the side sill to flatten it. A little work with a #2 cut needle file helped in a few places. This worked well, and with a little fiddling, I was able to get the side sill flat and set back the amount I wanted. By the time I got to this step, I had given up on trying to save the plastic corner steps on the car and cut them off.

The next thing I wanted to do were the rivets on the side sheet extension. I remember my buddy, Bryce Sunderlyn, telling me he made rivets in .010" styrene for some patterns. He drilled the rivet pattern in .010" brass first. Then, he laid the styrene on the brass and shined some light through from the back side. You can see a white dot where each hole in the brass is. He would poke each dot with a sharp hard pencil to make a rivet. I had never done this, so I tried a few first to see how it would work. I had some 1/4" thick Plexiglas that I hung over the edge of the work bench. Then I put a light under it. This made a cheap light table. In S Scale, we would want our rivets to be about .010" tall which is why I used the .010" thick brass. I was impressed with how this worked. You need to be careful when poking the dot. As the light comes through the brass, the white styrene tends to diffuse it, making the dot larger. I found that you had to poke the center of the dot and not just somewhere in the dot to get the best pattern. Now that I had that figured out, I needed to make the final pattern.

I made a sketch of the pattern on a piece of paper first and then laid it out on the brass. See the photo of the sketches. The top photo is my first sketch. This did not work out well, and I made a new sketch as shown on the bottom sketch. Notice the orientation of the sketches. In the top sketch, I laid the part out as it would be on the car. I was able to make the rivet pattern on my parts with no trouble, but trimming the part to final shape was a problem. After a few tries, I gave up and made a new sketch. In the new plan, I would cut the shape in the brass, as well as, locate the rivet holes. Then, I would use the brass as a template to trim the part and to poke the rivets. In the bottom sketch, you can see this new layout. I laid this new pattern out on the brass and drilled the holes. Then, I used my nibbler to trim the brass. There are a few photos to show how the nibbler works. It nibbles out a small bit of the brass at a time. The best part is that it does not curl the brass like a sheet metal cutter would. You can see the final version in the photos. Next, I taped a piece of styrene to the brass and put it on my improvised light table to poke the rivets. Before removing the styrene from the brass, I trimmed the part as shown in the photo. An added bonus I had not thought about was the poked rivets held the styrene in place while I was trimming it to shape. Lastly, some of you astute readers are thinking that there is a left and a right to these parts and you are correct. The good news is I did not need to make a new brass pattern for the other side. All I did was turn it over and tape the styrene to the other side. By now, I was having some fun with this and decided to do the end beam next.

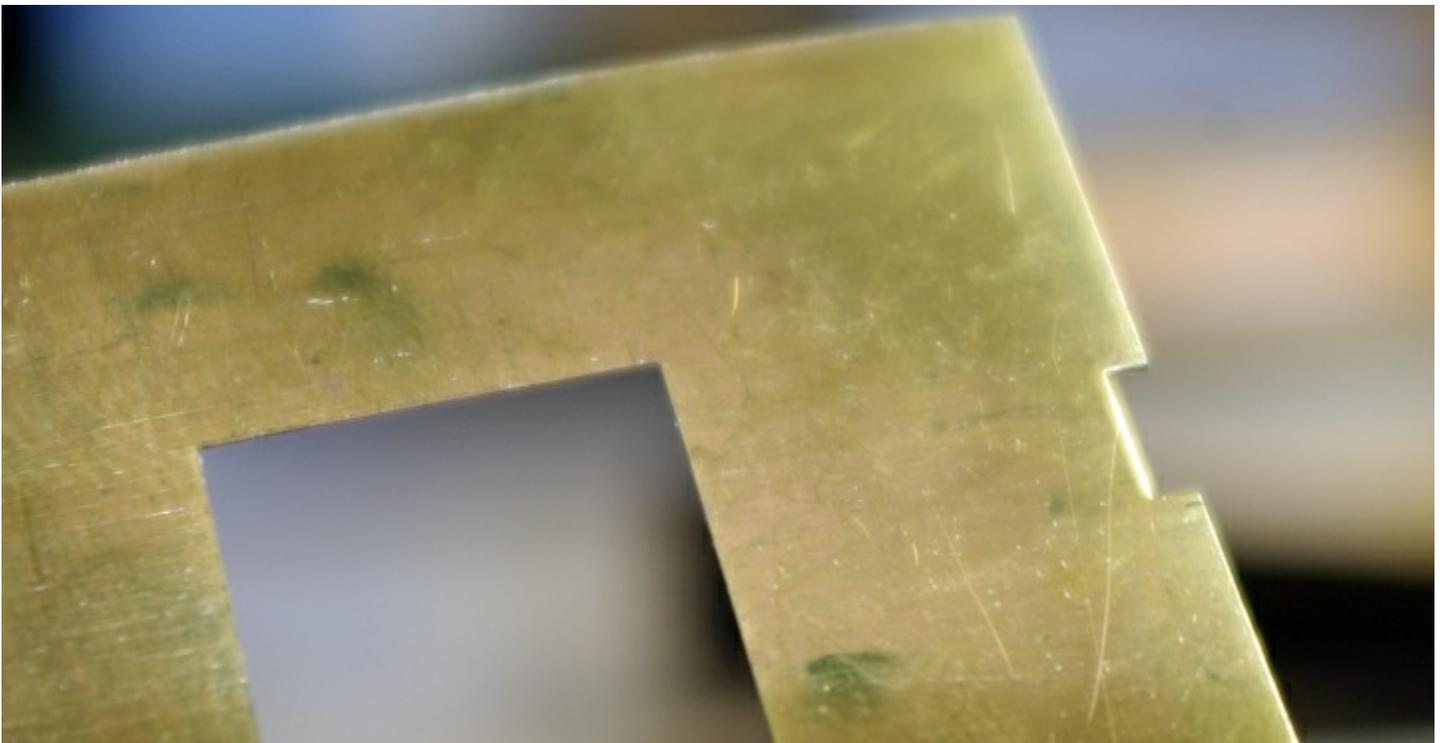
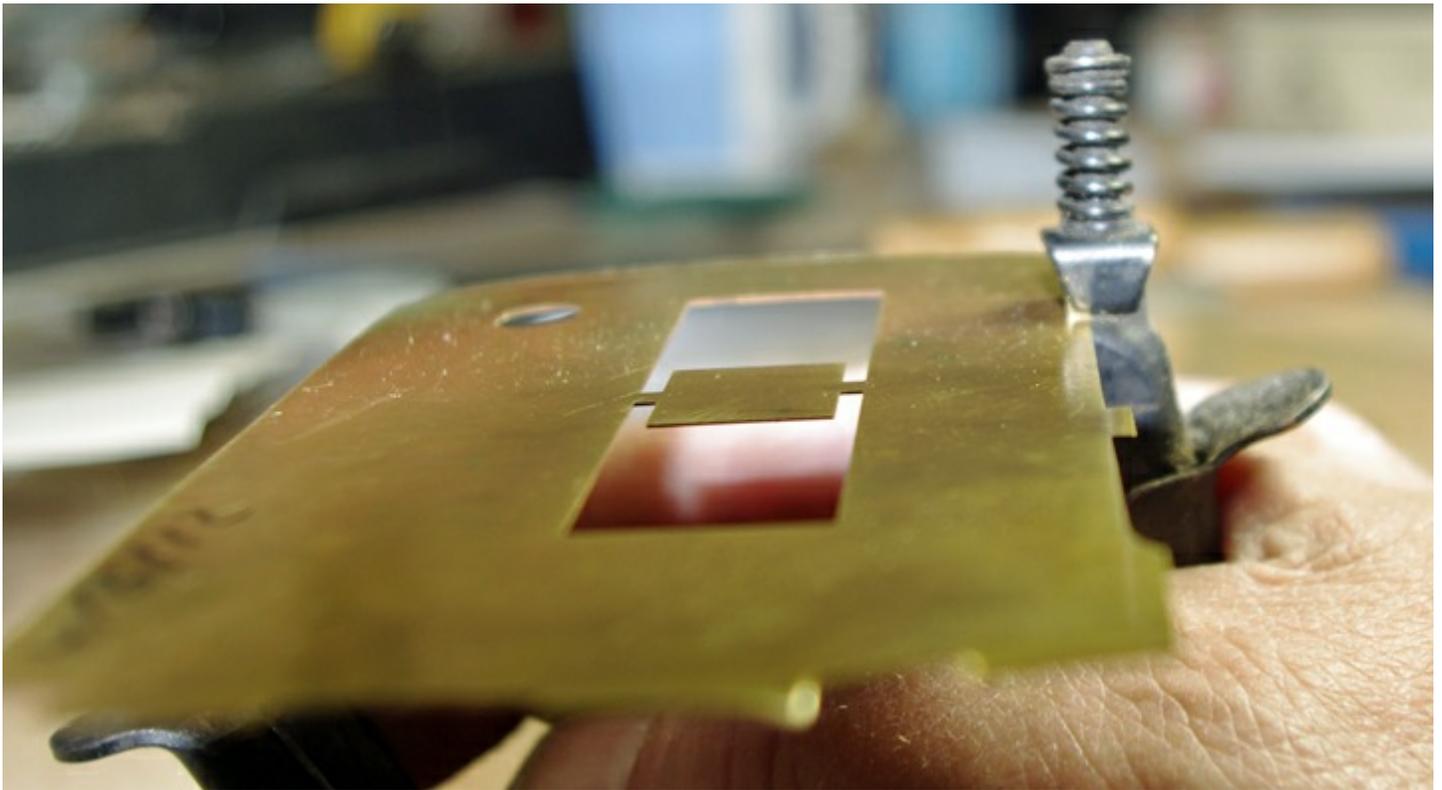


These are my layout sketches for making the side sheet extension. The top one is my first attempt. I laid it out as it would be on the car with the bottom of the sketch as the bottom of the part. I was in a hurry and did not think this through. As a result, I had some problems. One problem was how to trim the styrene part after I has poked the rivets. I decided to put this project aside for the day. Later, I came up with the idea of using the brass piece for poking the rivets and trimming the final shape. I made a new sketch as shown on the bottom sketch. Notice also that I dimensioned everything off of the lower right corner which I am calling 0,0. This is the proper way to do layout, and will make your layout much more accurate as I found out.

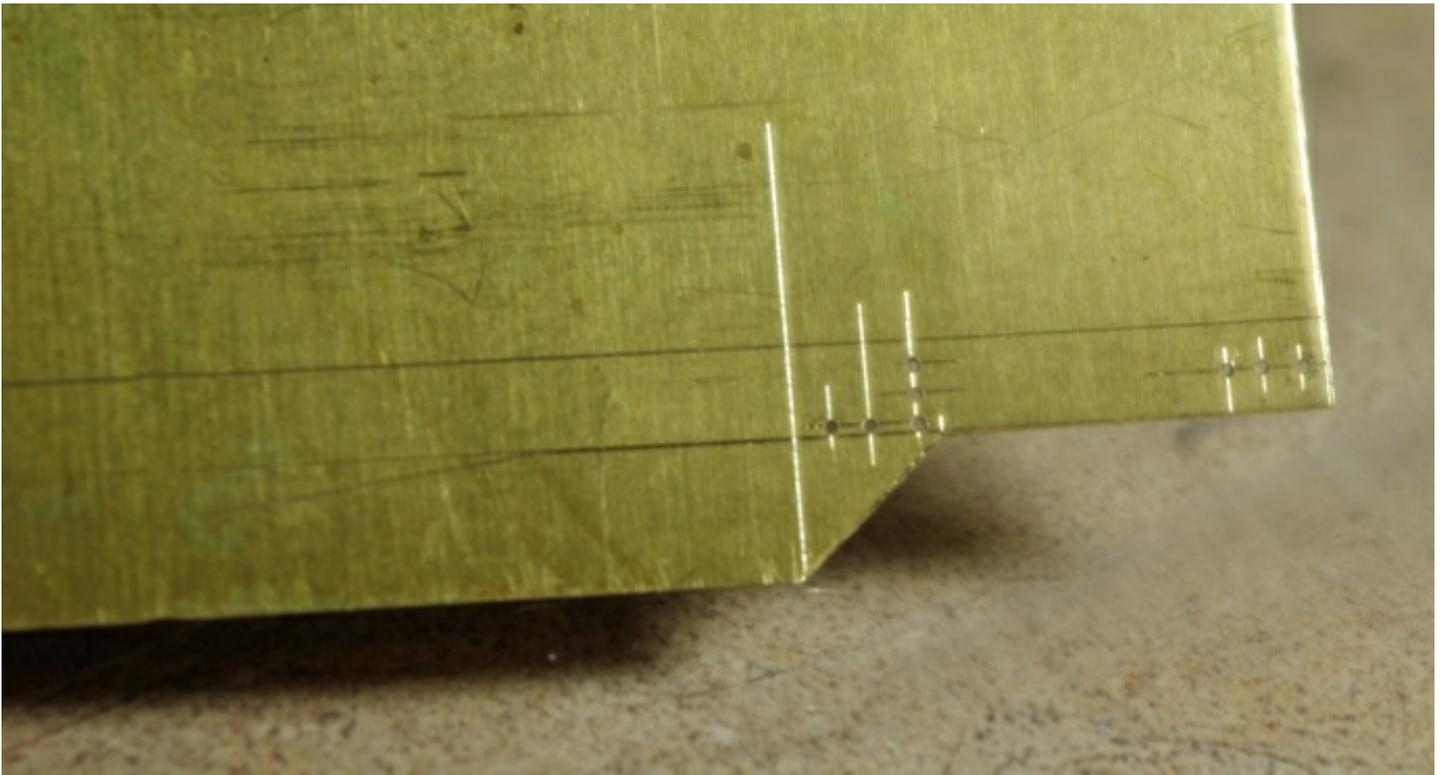


The top view is my first attempt at making the rivet poking layout. Notice how I made the bottom of the finished part the bottom of the fixture. My layout was sloppy, and I had trouble trimming the final part. I tried forming the part first before poking the rivets, but this did not work either. The bottom photo is my second layout. I did a better job, and oriented the layout so I could use the brass to trim the styrene after I poked the rivets. In this photo, I have not finished trimming the brass.

This car had a fabricated end beam with a lot of rivets, and I thought I would try making something that looked like it on my model. I used my new rivet making idea, and laid out a pattern for the end beam. I laid out a center line and started from there. When I was drilling the holes, one side came out spot on, but I started to wander a bit on the other side. Rather than start over, I tried poking one half of the end beam and then repositioning it to poke the other side. I remember asking Bryce how he drilled a whole passenger car side. He said all you need is about an inch of the pattern. Poke those rivets and then move your styrene to line up the pattern again. Guess what? It worked, and I was able to make my end beam that way.



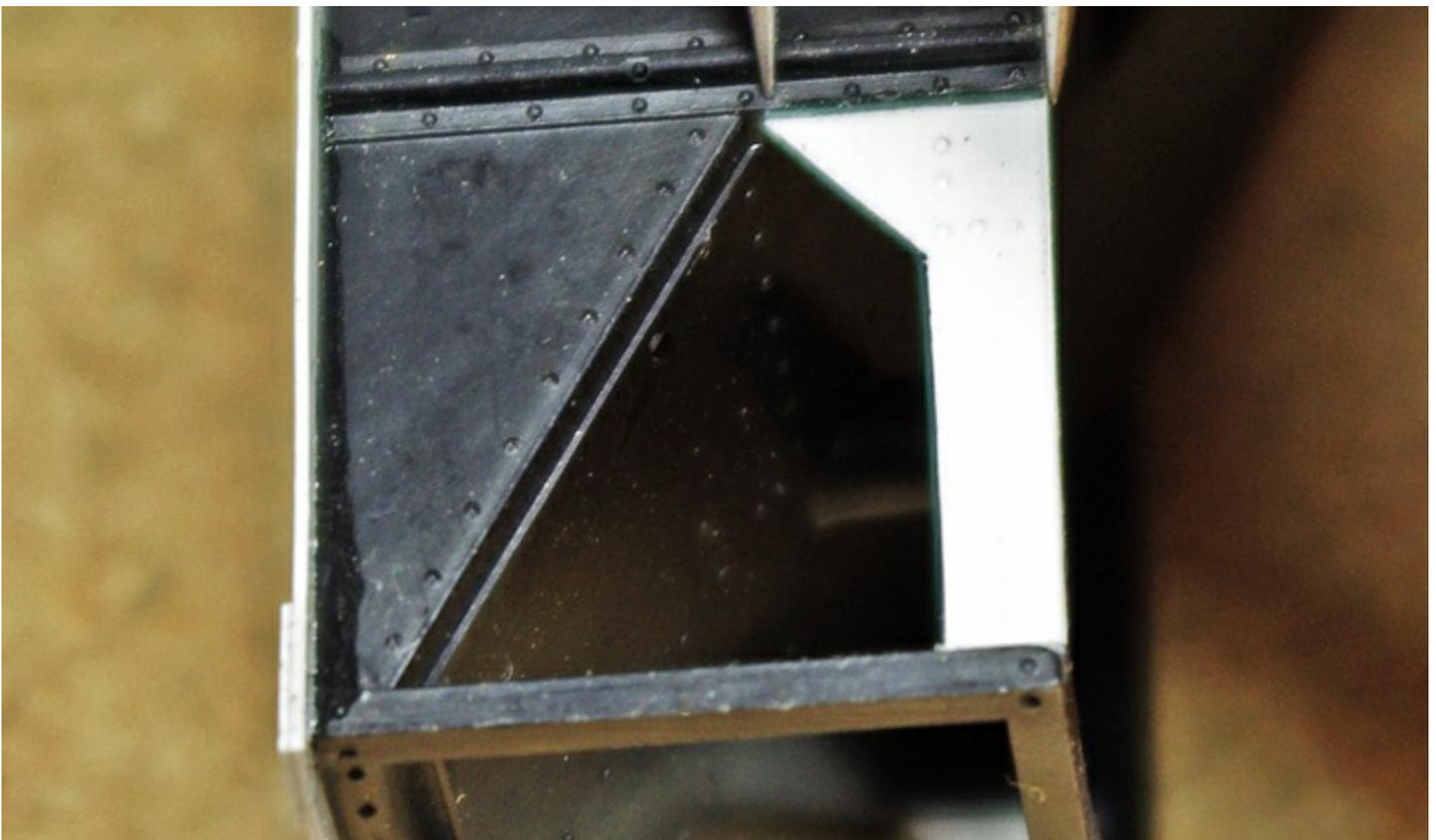
I've had this nibbling tool for quite a while, but never used it much until lately. It's a handy gadget and will cut styrene as well as brass. The top photo shows the tool on a scrap of brass. You squeeze the tool, taking a small bite out of the material as shown in the bottom photo. Keep taking small bites to remove all the material you want. The guy who first showed me one used it by drilling a large hole in the side of a brass car and nibbling out the window openings. What I like is that it does not distort the metal like a shear would. It is also much nicer for cutting inside corners. With some practice, you will be able to cut right up to your scribed line. Generally, I cut close and finish with a file. You can get these from Micro Mark or McMaster Carr. I am sure they are also available elsewhere, and a quick search on nibbling tool will turn up more locations. They vary a lot in price – the one in the photo is around \$23.00.



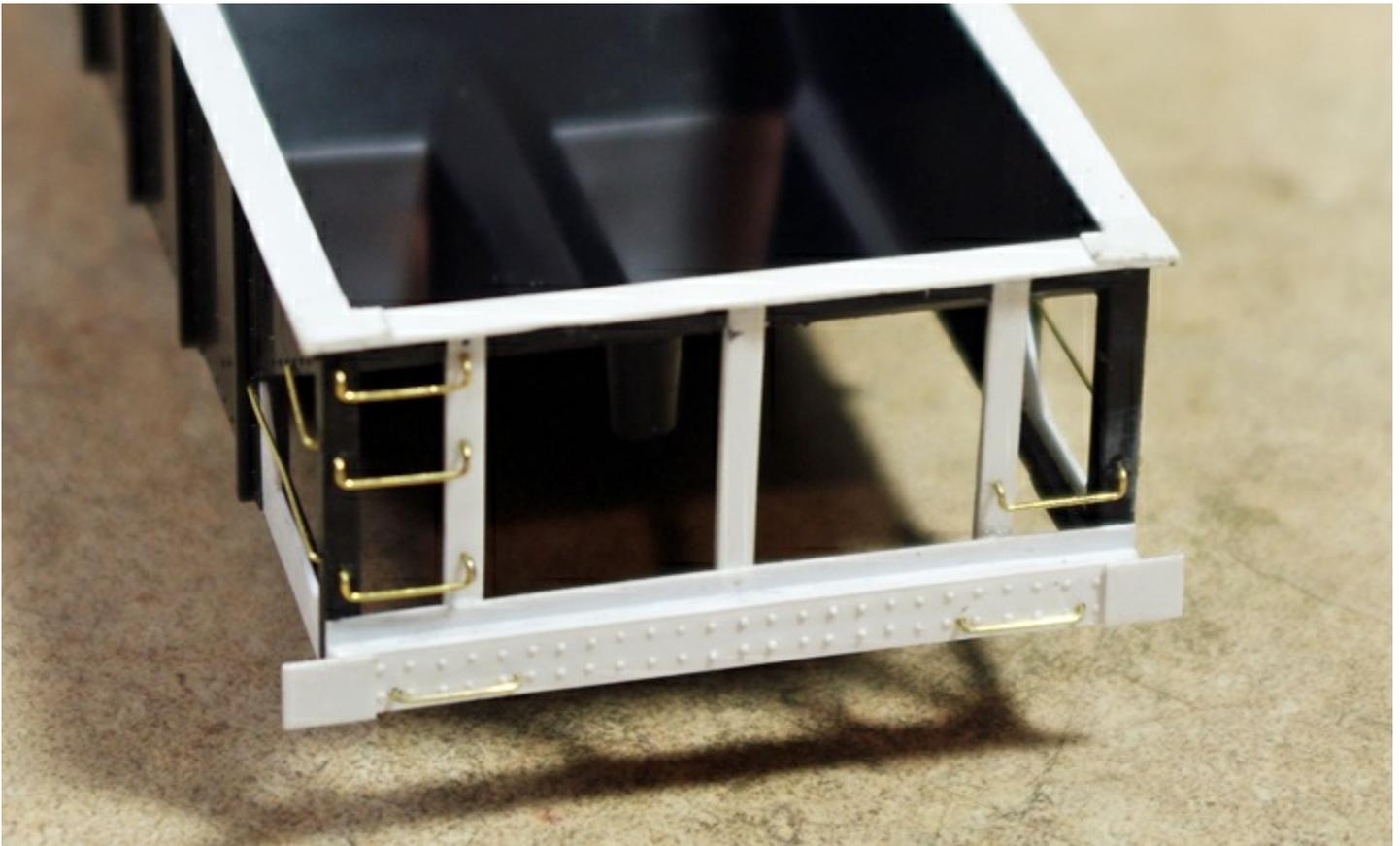
The top photo shows my finished fixture and trim fixture. The bottom photo shows a piece of .010" styrene taped to the fixture and placed on my improvised light table. The light table is a piece of 1/4" Plexiglas hung over the edge of the work bench with a light underneath. See how the holes in the brass show on the styrene? All you need to do is poke each dot with a sharp hard pencil or use a scribe like I did. To do the other side of the car, tape the styrene on the other side of the brass to get the mirror image of this part.



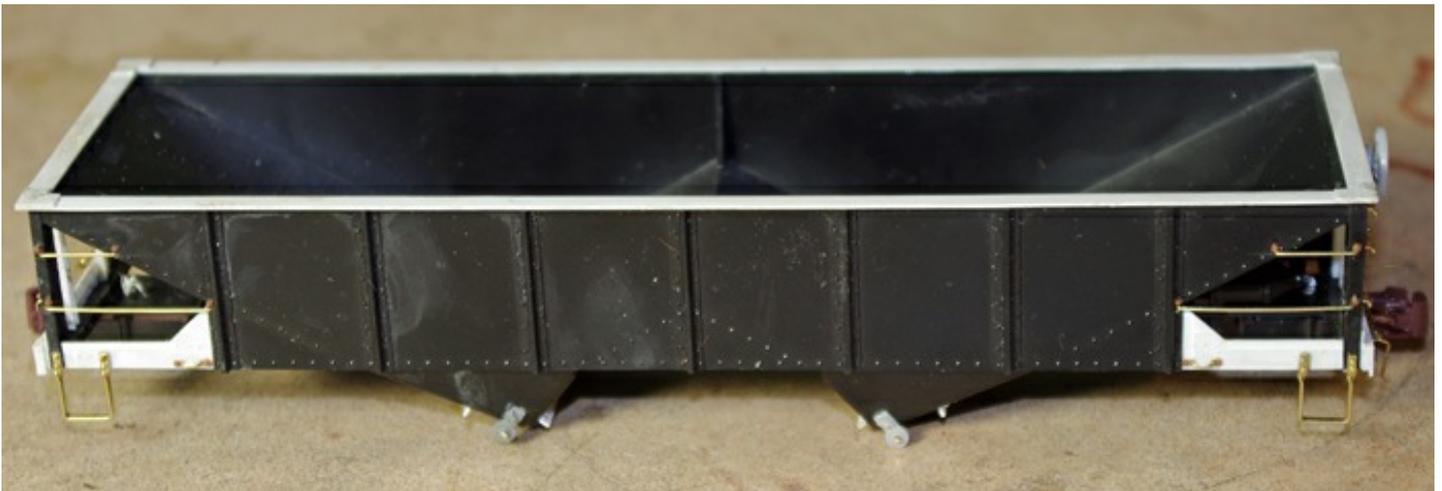
Here, I am trimming the styrene before removing it from the fixture. This worked out really well. The poked rivets held the part in alignment in the fixture, allowing me to cut a nice clean inside corner.



Here is the finished part on the car. This is the first time I have tried making rivets like this, and like the results. Once I had the fixture made, each corner took less than two minutes to make and they all came out the same.



After learning how to do the poked rivets on the sides, I tried the end beam. Here I am putting the corners on. I glued a piece of styrene on, leaving it long. Then I trimmed it flush. This works better for me than trying to cut a small piece and place it where I want it. I like the way the rivets look, and will be trying more of this.



Here is the model ready for some paint. In the photo, there was a door mechanism on the sides of the hoppers. There was nothing on the model and I thought it needed something. I found some styrene brake wheel ratchets in the scrap box and just used them. I bent them, and ran a wire from side to side to act as the actuating rod. This is not the exact mechanism, but when painted it showed something there and that was good enough for my purposes.

Next, I went to work on the rest of the end bracing. I had to cut out the old bracing and install some new parts to look more like the photos. I drilled holes for the hand rails and bent some .015" wire for them. I like to use some nut bolt washer detail next to the ends of the grab irons and railings. This looks like the forged end of a grab iron. Since this was a styrene model, I used some styrene parts from Tichy Train Group. The corner steps were made out of flat wire from Detail Associates. They were bent with a flat nose pliers and twisted with another pliers. The problem was attaching them to the car. I have not found a good way to glue brass to styrene. The best I have found is a rubber cement like GOO or Pliobond. The problem here is there is so little contact area that the glue has nothing to work on. I usually resort to drilling holes in the steps and using some brass nut bolt washer detail. Cut the stems on the nut bolt washer detail long and they will act like pins. I drilled the brass steps first. Then glued them on with ACC. This gave me enough strength that I then came back and drilled the holes in the brass through into the styrene model. After that, I glued the brass nut bolt washer detail in place with ACC. This added bit of material in the joint makes the step surprisingly strong.



I painted the interior of the car with a rust color first. Then, I masked a shown here so I could paint the exterior of the car.

I thought that this car was in work service making the chance of there being any paint on the inside slim, so I painted the inside first with a rust color. This would give me a base to darken it with weathering later. I masked off the top and painted the body black. I have to admit, I have no idea what the prototype car was painted. For all I know, it could have been freight car brown on the outside. The rust color on the interior would be a little too light and a monotone color. It is easier to weather something darker than lighter, so I was not too concerned with the color of the interior yet.

Now it was time for decals. Remember Jim Kindraka did a short article about saving any old scraps of decals. Well, this came in handy here. This is one of those cars that there are no decals for, but you expect that when you start one of these projects. Jim had a set of S Scale C&O hopper decals that he had taken some lettering out of. I was able to use the dimensional data from those decals; and, getting a little carried away, cut out the individual numbers so they would match the photo. Jim thought maybe I was still suffering the effects of the cold I was getting over and was not all there in my mind yet. The letter "L" was a problem. The serif on the "L" looked like something the C&O or Pere Marquette would use. The problem is there is no "L" in either name. I found some scraps of an O Scale set I had and cut the "E" to look like an "L", I used the "M" from the same set and trimmed it a little. This was not hard to do with a sharp knife. On the right side there is the name, Litchfield & Madison. The curved lettering was going to be a problem to lay out. To do this, I made a guide out of painters tape. This is a heavier paper than masking tape and is about the same stickiness as a post it note. I laid out the arc on the tape and cut it with the knife. Then, I taped it to the side of the car for a guide. I cut the letters from an alphabet set. Be sure you cut them close to the bottom of the letter so they will all line up on the guide.



To lay out the curved lettering on the side of the car, I made some guides using painters tape. I drew a center line and then an arc. The centerline helped me find the center of the word, and that is where I started placing the decal lettering. I cut the tape with a knife.

I set the letters one at a time using the guide and applied some decal set. I had a center line on my guide. This helped, and I started at the center of the word and worked out from there. I had to go light with the first coat of decal set because I would be moving the lettering around a lot and did not want them to get too soft. When I had all the spacing right, I gently put some of the final setting solution on and let the whole thing sit for a few minutes. I did the other side next. By the time I was done with the second side, I could remove the tape from the first side. The low tack of the painters tape was a big help here. Next time you are in the hardware store, pick some up. It is white and the paper is heavy. It works good for things like this and it will not leave any residue. I finished the lettering on the first side and put some decal set on it. I took a break and went to get something to drink. When I came back, I removed the tape from the second side and finished it.



In this photo you can see how I am using the painters tape guide to lay out the lettering.



This is what the car looked like when I was done with the lettering. The interior was too light and too much of a monotone color. The whole car needed some weathering.

When I was done with the lettering, the inside of the car was too sanitary and light in color. I had some artist chalk, and shaved some of it for weathering. Commercial weathering powders have a binder in them and they stick to a smooth paint job. I was having trouble with the artist chalk sticking on my model so I needed to try something. I tried a little mineral spirits on a brush and tried to pick up the chalk with that. The brush was too wet, and I ended up making paint. I was able to wipe it off with a clean rag and a bit of mineral spirits. Onto the second try. This time I dried the brush with a paper towel. I noticed that it still left some residue on the model even though it seemed dry. I went ahead and painted the whole interior with the dry brush. Then, I dusted it with the artist chalk. This seemed to work better. I started with a dark brown first and tried to concentrate on the corners. Then I used some red rust color and highlighted a few spots. Finally, I used some off white and highlighted a few more spots. I thought they may be hauling gravel in this car which leaves a light off white color of dust on everything. When I had the interior looking the way I wanted, I gave it a coat of dull coat to bind it all together. This lightened what I had done making it look like it was painted again. I fixed that in the next step.



Here is the side of the finished car. The dust was made with a very thin mix of rust and concrete color. Mix it up thin enough so you can't see it going on. It should look like you are just spraying clear thinner on the model. When the thinner evaporates, you will be left with dust.



For the interior of the car, I used shaved artist chalk. It does not have the binders that commercial weathering chalk does, and I was having trouble getting it to stick. I dampened a brush in mineral spirits and wiped it dry. Then, I painted the inside of the car with the dry brush. There was just enough mineral spirits to leave a residue on the car. When I came back with the chalk, it stuck better.

Many years ago I would clean my air brush and save the solvent I used for the cleaning. As you can imagine, this solvent got to be rather dirty looking. One day I tried spraying a little on a model to see what it would look like. It was so thin and there was so little pigment I could not see any difference on the model so I left it alone. After a few minutes the solvent evaporated and my model had a nice dusty tone to it. For this model, I used a drop of rust and a few drops of concrete color with some thinner. Mix it up very weak and test it on a scrap. If you can see it going on, you need to add more thinner. Spray the lower part of the model and around the braces and doors. Let it sit for a bit and see what it looks like. Add more if you want. It gives the car a nice dusty look without being too heavy. I sprayed some of this on the interior and that took care of the painted look with the dull coat I used to seal the artist chalk.

So, I finally built the model I have been thinking about since 1983 when I first saw the article in Northwest Lines. I showed it to one of the local S Scale guys, and he said the car is “just strange enough to be likeable”. This was another fun project and I learned a bit about making rivets in styrene.

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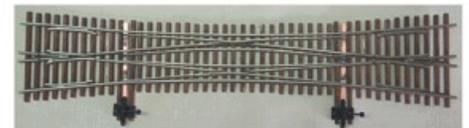
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WHAT'S ON YOUR WORKBENCH TODAY?

We are starting a new series to show our readers what other modelers are working on, and we need your help to make it successful. All that's needed is a simple snapshot of what your workbench looks like and the project on it. Send us a picture or two along with a short description of what you are working on so we can share it here. If it's a project under construction, send it in. Repair job, send it in. Completed project, send it in. Send your pictures and descriptions to daniel@modelrailroadresource.com



Peter Vanvliet from Houston, Texas says: Due to limited space, my workbench is a pull-out shelf in a cabinet. The cabinet is one of ten that I built myself in 2003, which house my tools and model railroading materials. On top of the cabinets is where my layout sits. The workbench space is lit by an LED light that I built myself using LED strips. My work surface is a glass plate.

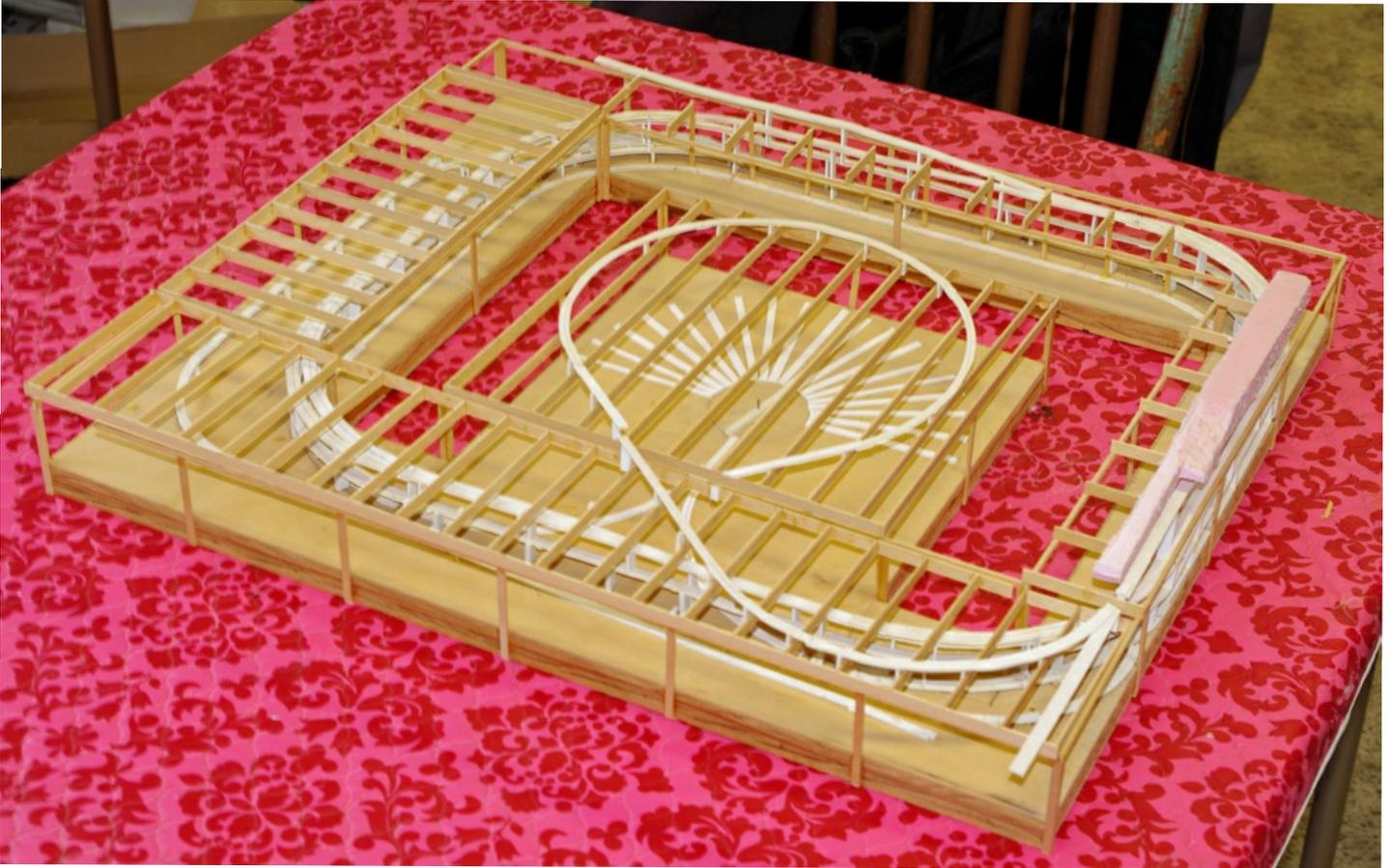


I am in the process of scratchbuilding three PRR GLa two-bay hoppers in S-scale. These are built from styrene strip and sheet material. At the time of this photo, I was installing the vertical sheet above the trucks that supports the angled hopper sheets (I do not know the prototype name of

that sheet). This is visible at the far truck bolster of the car that is upside-down. The tools shown are the ones I needed to fabricate that sheet. I fully document my projects on my personal web site, and this project is no exception. The current state of this project can be seen at this web site address:

<http://pmrr.org/Equipment/GLa/index.htm>

Some Layout Ideas



Roy Meissner built this model of his layout to help him visualize how the climbing tracks would get from the lower level to the upper level. By actually making a framing model, he was able to study how he would frame his layout.

By Glenn Guerra

One of the fun parts of this hobby is visiting other people and seeing how they do things. Each of us sees a problem differently, and usually tackles it a different way. We can all take something away from these visits as Jim Kindraka and I did in a recent visit with Roy Meissner in Merton, Wisconsin. Roy is in the process of building a model railroad, as well as, a lot of other things. Roy has no shortage of ideas. Jim and I sat there for a few hours talking with Roy and looking at some of the things he is doing. One of the topics was his layout and how he planned it and how he is building it. There are some interesting ideas, and I was glad we got to see it before it was all covered up. I want to show you a few of those ideas in this article.



This is one of the sides of Roy's layout that is viewed from the outside. You can get a feel for the separation between the levels. Notice how the construction looks like the model on the previous page. Roy was able to work out the framing while building the model. On a side note, Roy comes from a family that was in the dairy and milk hauling business. Some of Roy's other hobbies are farm toys and milk bottles. Roy said he has over 600 different milk bottles from Wisconsin dairies.

Let's start with planning a layout. We all have a space requirement first. That is to say we all have some space we are going to build in, and that is going to dictate a lot about our layout. Roy has a house with a walk out basement where he is building his layout. Since one wall of the basement has doors and windows to the outside, building all around the walls layout was not going to work. Another concern was having large radius curves to run large locomotives on. To accommodate these curves meant the layout would need to be open in the middle. Roy would need to build against two walls and have the other two sides of the layout exposed and free standing. The next concern was the backdrop. The two sides next to the walls were not a problem since the wall could be used. The two free standing sides of the layout were a problem. The backdrop could be on the outside and; therefore, all operation of the layout would be on the inside. This would basically hide the layout from visitors. On the two sides of the layout that are exposed, Roy did not want legs to support it because he felt the space under the layout just collects junk. What he did was build some 2' deep cabinets with shelving to support the layout. Now he has nice storage space for his model boxes and milk bottle collection. While thinking this all through, another problem started to arise. Roy thought he would like a two level layout.

The biggest challenge to designing a two level layout is getting from the bottom level to the top level. In order to get some viewing area on the bottom level, there needs to be some distance between the bottom and top level. Now we need to deal with grades. One solution to the problem is a helix. Roy wanted to have at least 48" radius curves and this meant his helix would be 8' x 8' square. This is a lot of space to use just going in circles. Another way for an around the wall layout would be to have the climbing track behind the backdrop and make a few laps around the basement. This has the benefit of using large radius curves and a very gradual grade. The drawback is that the track is inaccessible, and that spells trouble.



This view is a little closer view of the previous photo. There is good depth behind the tracks for buildings and scenery. There will be a backdrop installed on the supports for the upper level. That will hide the climbing tracks that are just on the other side of the supports. These tracks will be accessible from the inside of the layout.



In this view you can see the 3/16" wood on top of the splines and the shorter spline for supporting the scenery. At this time Roy was using solid wood and not the plywood he is using now. Roy scratch built the load and this car. The car is made of brass with a styrene floor. Roy put bevels on the deck to look like nail able flooring.



In this view you can see some of the spline construction. On the right is a track with no cap on the spline yet. See how Roy makes his roadbed with three splines and spacers. This saves time and wood.. On the track with the locomotive, you can see the splines are only as wide as the ties, and there is a wood cap on the spline. Then there is a short spline. This short spline is to support the scenery.

To deal with this, you can make the climbing track visible for most of the run and just duck behind some scenery for a short stretch. Roy started thinking like this, but he was having trouble visualizing how it would work. He needed a good model of the layout to see if his idea would work.

Roy built his model out of basswood in a large enough scale that he could build the framing as well. This helped him work out some of the framing details. What he did was start climbing in the back of the two sides of the layout that are against the walls. When he got to the duck under, where you get into the center of the layout, he made the curve for the climbing track move to the inside of the layout. Since the upper level would be supported on a wall off of the lower level Roy, could fasten a backdrop to it. On the outside of this wall is the part of the layout that will be viewed from the outside of the layout. This area is around 2' deep. On the inside of the supporting wall, the layout is only around 1' deep, and this supports the climbing track. Now the climbing track is hidden when you are viewing the layout from the outside, but is open and accessible from the inside of the layout. On the two sides of the layout that are not attached to the wall, there will be no scenery on the inside just the climbing tracks. Roy was able to make three laps around with larger than 48" radius curves and he has less than a 1% grade. This will be a nice easy climb to the upper level, and he will be able to run long trains. In addition, the climbing track will be exposed for maintenance or derailments.

When I first saw Roy's layout, I was trying to figure out what he was doing. Once I figured it out, I really liked it. Seeing the scale model really helped me visualize the layout also. Think about making a model like this if you are panning a layout, or even an addition to your existing layout. A model like this can help you work through not only track plans, but bench construction and scenery.



This is a close up of one of the hard soldered rail joints Roy makes. Next to the track is a piece of rail turned upside down so you can see the bottom of the joint.

Another thing Roy is doing is spline roadbed. I have done a lot of this and really like it. When you build your roadbed using splines, you will get a natural easement into all your curves. This will improve operation and make the curves look like they are larger than they are. Another advantage to spline roadbed is it is only as wide as the track. This allows you to make your track on a hill and have the scenery dip below the track for a bit. I also like how it allows you to have a drainage ditch next to your track. Spline roadbed is also very strong. Like everything else though, spline roadbed does have some drawbacks. It takes a little time to make, and it can be a problem attaching the scenery to it. Roy has eased some of these drawbacks. When I have made spline roadbed in the past, I made it solid splines which meant many layers of spline. Roy makes his roadbed with only three splines and puts spacers in. This saves a lot of time and wood. We talked about it and Roy said to grab it to see how strong it was. I was impressed. The other thing Roy is doing is putting a shorter spline on the outside of the main roadbed. I asked what that was for, and Roy said it's to attach the scenery to. When I made my spline, I had it as wide as the ballast and capped it with homasoate that was chamfered. This made the roadbed wide with a lot of splines and made it difficult to attach the scenery to the splines. It did give me a good base for the ballast and a ditch alongside the tracks but scenery was still a problem. Roy is using 3/16" Luan plywood underlayment on top of his spline that is only as wide as the ties. To make the curves, Roy puts cuts in the plywood so it will bend to follow the spline. I like this. The spline, as we mentioned, will make nice easements and curves. By having it only as wide as the ties, it is easier to have the track follow the spline. I like what Roy is doing; there is some good thought behind some of this.



This is how Roy prepares the ends of his rail to make the lap joint. Each rail is notched halfway through for about 1/2" and then the rails are hard silver soldered together. This effectively makes one continuous piece of rail.

The last thing I would like to mention is how Roy is joining his rails. Roy is hand laying code 100 rail. Rather than using rail joiners, he is hard soldering the rails together. First he mills or files a lap joint in each rail. The lap joint is about 1/2" long. Roy removes half of the width of the rail on each end of each rail. Then he made a fixture to hold the rails together in alignment. Once the rails are positioned, he hard silver solders them together. This needs to be done with a torch, but is fairly easy to do. The hard silver solder is as strong as the rail and will not come apart. If you pull it to break it, the rail will fail before the joint will. Roy is doing this to eliminate the look of the rail joints, and to eliminate most of the problems with derailments. I asked about expansion and Roy said he has one piece of rail that is 23' long between switches and there is not a problem with it.

I like some of the things Roy is doing, and we had a lot of fun visiting him. When we see people's layouts, we often wonder how they got to that point. It's all about solving some of the problems. It can be interesting seeing a layout in progress, and we can get some ideas talking to the builders.

GETTING GLASSY

GLASS CUTTING FOR MODELING

By Dan Dawdy

Editors Note: This article originally ran in the September/October 2014 issue of The O Scale Resource. It is being repeated here because the editor felt the techniques and methods shown were universal and could be applied to modeling in S Scale. Please note that the models shown are not available in S Scale.

Glass, we all know what it is. My first experience with glass was when I was five years old and my friend David pushed a glass storm door through my arm. Yes, glass is sharp, and I still have the scar to prove it. My next glass experience was not so traumatic. In the early 1970's, I received a K-Tel Bottle Cutter Kit for my birthday. The perfect toy for a young boy. It had an open cutting wheel, a candle and some emery paper to "smooth" the drinking surface. You scored the bottle, Four Roses Bourbon bottles if I remember my Dad's tastes, over the cutting wheel. Then, you rotated the score line over a candle, after which you rubbed an ice cube over the hot score line and then tapped the bottle on a hard surface. What could possibly go wrong? Well, I survived childhood, as most of us did from that era, without all the precautions and safety awareness we seem to need today.



Now, let's race ahead a few years, quite a few years, to the present. I never gave much thought to model windows in buildings. I just used thin clear styrene sheets cut to fit and called it a day. Then I started working on locomotives and brass cars – modifying, rebuilding and painting them. Styrene windows just did not cut it. It did not look like, well, glass. Nothing reflects like real glass. Nothing looks like broken glass better than, you guessed it, broken glass. So I bought some "scale window glass" from [Clover House](#).

Below are some examples of items I have used glass in. Some of these are referenced in this article.



Because the inside was flat and the windows were going to be dirty I was able to cheat and use square cut glass for the round windows.

It's basically microscope cover glass but larger at 2.3" x 0.9". The thickness runs about .006". Did I say it's easy to break when you don't want it to break? Along the way I picked up a few cutters, more precisely called glass scribes, as that is what they really do. After a few mishaps, slivers and some bad language, I got the hang of it. It's not that hard and the cost of supplies allows for many practice sessions for less than the cost of another kit.



You can see the reflection from the windows in the caboose above. You can't get that effect from plastic. This caboose was easy as all cuts were rectangle.



Because there was no room for an interior and since it works the coal mines I dirtied up the windows for this unit.



Sometimes we can cheat and not have to cut curves. You can see some of the straight angles I was able to use in the cab of this Alco S2. This unit is begging for an interior which is in the works.



This NJ International Alco RS-1 was a bit easier to cut the windshield for than the Atlas RS-1 shown in the video. Remember to leave room for the railings and wipers to pop though the shell. It's a mess if you forget.



RS-1 at right shows an open window ahead of the engineer. Makes a nice effect.

To begin, we need (of course) glass sheets. I used the glass by Clover House or, although smaller in size, you can use generic microscope cover glass [like these](#).

A good scribe and maybe a few different types. I normally use a tungsten carbide tip scribe such the the [General Tools model 88](#). You can find these at Clover House, and many craft stores. You don't want something any larger as the glass is just to delicate. I have not had a problem using a tungsten carbide scribe. Some people will use only diamond scribes. Whichever you prefer is fine.

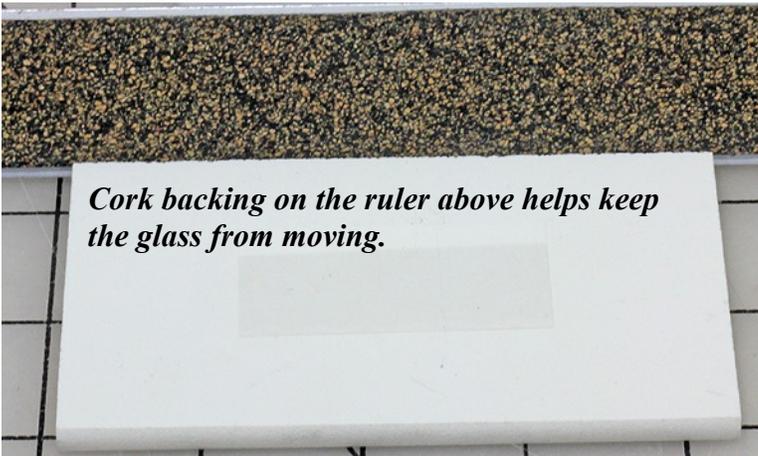
A marker (like a very fine Sharpie) that's easy to wipe off with alcohol.

A hard flat surface to scribe on. I said hard, not wood or anything that will give even the least amount. A small piece of plate glass works well as will a scrap piece of Formica.

I good metal ruler. One tip I learned from my wife, Amy, is to add a cork material to the bottom of the ruler. This will be a big help in holding the ruler on the glass being cut, and stop it from moving around the cutting surface.

Safety glasses are a must. One small slip and you can shoot a microscopic piece of glass almost anywhere. You will also notice some very small shards of glass on your cutting surface. These will find their way into your finger at some point. A little common sense goes a long way here.

It's hard to describe the process without seeing it, and it's hard to photograph it because of the very light scribe lines. So, I have created a video



Cork backing on the ruler above helps keep the glass from moving.

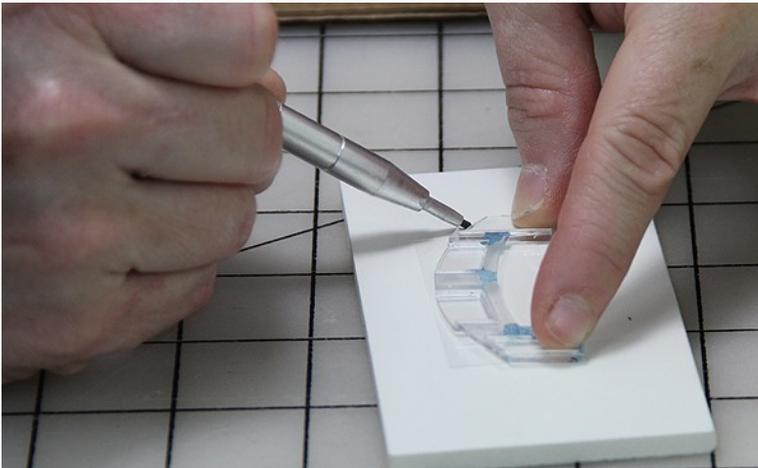


[Click for glass cutting video.](#)

extra for this article. [You may watch it here.](#) There are four segments, Scoring Straight Lines, Scoring Curved Lines, Scoring Round Circles and Cutting Glass For Window Castings.



Let's start with something easy. Try scribing a glass sheet in half. Here is where the practice comes in. Press too hard and you crack the glass, press too light and when you snap the glass it will break. You just have to get a feel for it. I don't wear gloves as I can't feel what I am doing. Don't worry about waste, the glass is cheap. Just get a feel as you take one stroke across a straight edge. We are looking for the perfect score. To do that takes firm, even pressure perpendicular to the glass. Once that is done you should be able to pick up the glass and lightly bend it on the score line. I promise you, after a few tries, it will work. Luckily, most of our windows are square or rectangle so it makes cutting easier.



Now, we'll try a curve. Trying to freehand a curve is not really an option; therefore, we need some sort of template. In the video I used the Atlas RS-1 windshield plastic casting for my template. If I had not had that, I would have used thin styrene (i.e. .010"). You need something heavy enough for the scribe to follow without shifting, but light enough that the tip of the scribe is not pushed out because of the thickness of the styrene.

With styrene, you can easily shape and fine tune the template before scribing.

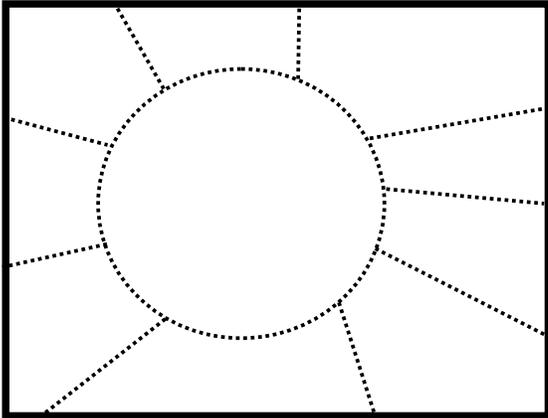
In the video, I simply placed the Atlas plastic window casting on a sheet of glass and followed the contour of the top. Next, I went back and trimmed the sides to fit with a simple straight cut. Once that was completed, the bottom contour was cut. It did take a few times to get this cut, but again, it's just practice, practice and more practice.



The Atlas window casting was harder to use as a template since the top of the roof was also the top of the window. As a result, there could be no "fudging" of the cut. In some pictures here, you will see that there was extra room for some windows cutouts, so rather than trying to be exact, I used more straight cuts as in the Gilmaur Alco S2. The NJ International Alco RS-1 also had room above the window so the cut did not have to be perfect. The degree of accuracy will all depend on how easy it is to see inside the finished unit.

Headlights – what to do about round circles of glass? It's not as hard as you may think. Last time ([July/August issue of *The O Scale Resource*](#)) we talked about MV Lenses and they have their uses. But, depending of the type of headlight or class light, you may need a piece of clear glass in front

the headlight and, of course, for round windows. Let me start out by saying that I did cheat on the RD&S No. 35 caboose. Because I knew I was going to “dirty up” the windows, and the inside of the caboose was flat, I simply used a square cut piece of glass. If I have a headlight casting, that is not an option, so let’s cut some circles.



Using the Helix combo circle template Amy bought me at a craft store, I look for the closest match to the hole. Once I have that, I cut a piece of glass close to the edges of the hole. I don’t want to waste a whole sheet of glass, and as you will see, it’s easier to finish off the hole if there is not as much extra glass around it.

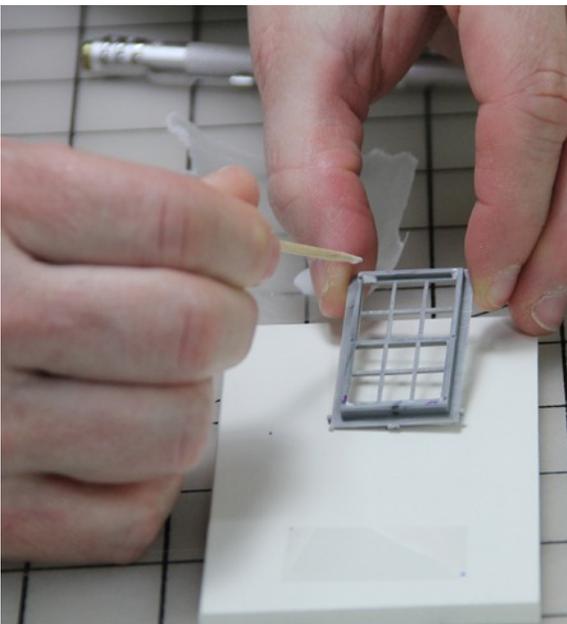
I scribe the hole, making sure I can see the scribe line all around the circle. Now, and you can do this part freehand, I scribe lines from the edge of the circle straight out to the end of the glass (similar to the rays on a child’s drawing of the sun). When you do this, you will see the glass start breaking and following the scribed circle. I will guarantee you that you will not get this on your first try as as shown in the video, but once you get the hang of it, you will be cutting circles like a pro.



The easiest cuts are straight, so using glass for window castings such as Grandt Line are very easy. In the video, I don’t even take the time to measure, I simply use a marker to make a point on the glass at the edge of the casting and cut the horizontal side. I then repeat the process flipping the casting for the vertical. I use a little alcohol to clean off the ink and I’m finished. Of course, you may want to measure or use a caliper to make things exact, and that’s fine too.

There are many type of glues that we can use. First off, don’t use any ACC type of glue because they will fog the glass. I use Pacer Technology Formula 560 Canopy Glue. It dries clear, and more important, it never fully sets up. Having the glue stay somewhat flexible is important. It makes it easier to remove the glass if broken, and you will break a finished piece, I can guarantee that. It also aids in adding a little extra cushion against rough handling. There are other choices out there, so don’t be afraid to experiment, but I’m happy with the Pacer brand.

There are many way to glue glass, but here is that I do. I’ll put some glue on a piece of wax paper, and then using a toothpick, I’ll lightly dab glue on the corners of the item and then lay the glass sheet over. This works if you have left a



sizable amount of glass around the opening you are filling. You can let the glue set up for a few minutes so it becomes tacky, and then drop the glass on top. Even though the glue dries clear, you will still see distortion on the glass if a blob dries and is visible. A better way is to lay the glass where you want it, take the toothpick and add dabs of glue on the corners of the glass and onto the unit. This way, it won't go under the glass, but will make a flexible bond between the unit and the overlapping glass. There will be some things you need to think about as your gluing in your glass. One thing is, are there any holes, maybe for a handrail stanchion that is now behind the glass? As you reassemble the model you push the handrail through the hole and hear that little tinkle of glass, that tells you that you just screwed up. Been there, did that with the NJ RS-1. You can see where the handrail goes into the cab, and I did not cut the glass that exact. With the Pacer glue, it was easy to pop out the rest of the glass and glue so I could make a replacement.



There will also be solder globs in the way in many brass units which will have to be filed smooth so that the glass lies flat.

One tool I found to help place the glass is the Badger Hobby Pal Vacuum Pickup Tool. It comes with straight and angled adapters, along with a few different sizes of suction cups allowing you gently pick up the glass and lay it where you want it.

In closing, just remember to be careful (it may be thin, but it's still glass), and with a little practice, you too can become a glass cutting pro!

Jan Brudzinski's Layout

This is S Scale!

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S SCALE SHOWS & MEETS

The S Scale Resource Magazine will now be providing a free listing of upcoming events. This small, text only listing will include the Event, Date, Location, Type of Event, and Contact Information. [Click here](#) to go to the sign up form. This form will take your information, and we will publish it in our next issue. If it is an annual event, you will need to submit your information every year.

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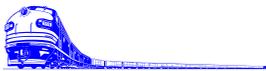
May 5-7, 2016 NOTE NEW DATE
Hyatt Regency Santa Clara
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Admission: \$35 for registrations postmarked by March 31, 2016; \$40 at the door; registration includes spouse and all children under age of 18
Saturday only - \$20

-Table Rentals: \$45/table if registration is postmarked by March 31, 2015; \$50 after March 31, 2016, e-electrical hook up is free.

Additional information & registration forms available at:
<http://www.oscalewest.com>.

Additional questions, please contact John Gibson at
gibson@myfam.com or at 916-580-5444



Spring S Spree Convention
May 13 to May 14, 2016
Strongsville, Ohio

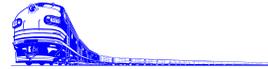
The Spree is organized by the Cuyahoga Valley S Gauge Association

Website: <http://www.cvsga.com/index.htm>

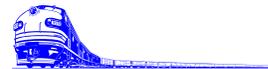
2016 NASG Convention
August 10 to August 14, 2016
Novi, Michigan

The 2016 NASG Convention, sponsored by the Southeastern Michigan S Gaugers will be held at the Sheraton Detroit Novi hotel.

Website: <http://www.smsgtrains.org/2016conv.html>



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Bill Bartlam's Surrey Valley Railroad handles both scale and hi-rail equipment and presents a freelanced view of the Appalachian Mountain region. His layout is another one that will be open to visitors at the

NASG National Convention August 10 through August 14, 2016

