The S Resource

S Scale

NEWS, REVIEWS, INFORMATION TO USE

Partnering
Mentoring
Building

February/March 2018
Volume 4 No. 3

Scratchbuilding a PRR GLa Twin-bay Hopper
Spokane, Panhandle & Palouse
"S" the new Builders Scale?
New Tracks / Contest
Car Spotters
Workbench
Shows, Meets and so much more...

BILL OF LADING

THE S RESOURCE
NEWS, REVIEWS, INFORMATION TO USE
SCALE

Published Bi Monthly

The Model Railroad Resource LLC
407 East Chippewa Street
Dwight, Illinois 60420
815-584-1577

Owner / Publisher
Amy Dawdy

Managing Editor / Advertising Executive
Daniel Dawdy

February/March 2018
Volume 4 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

Jim Kindraka's NYC RS-1 diesel pulls a short train around the interchange at "City Junction" on the late Jack Sudimak's layout during the Northern Ohio S Scaler sponsored Interstate Get Together weekend in October 2017. The RS-1 was built from an S Scale America brass kit. The junction on the layout opens to a recreation of the small town of Medina, Ohio where Jack Sudimak lived and worked.

Rear Cover Photo

A 44 ton diesel idles near the coaling tower at the south end of the engine terminal and roundhouse on the late Jack Sudimak's Pennsylvania-themed layout.

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.

From the Publisher's Desk

The new year is here and brings with it "New Tracks". As I mentioned in the last issue, "What starts out as just a shell or thought in your head, can become a nicely detailed model, especially if you turn to your peers in the modeling community for some advice and encouragement.". That's exactly what we are trying to do with the "New Tracks" addition to The Model Railroad Resource publications. We hope that it will take off and encourage modelers to share ideas and expertise. In addition, we are also having a contest to help get more people interested in building, so be sure to enter.

Everyone has to start the road to expertise somewhere. While there are "geniuses born with talent", most of us need to learn through trial and error and develop that talent before we can call ourselves experts. That's where mentors come in to help you get to that point, and we've featured some mentors in this issue, including Jim Kindraka and Dick Karnes.

This issue also brings you a highly-detailed styrene building article by Peter Vanvliet, entitled "Scratchbuilding a PRR GLa Twin-bay Hopper". The photos take you step-by-step through though this build allowing you to recreate the hoppers in the article. If you've ever wanted to build something in styrene, but didn't know where to start, then this article is the perfect tutorial for you.

"Car Spotters" is another new addition to the magazine that was suggested by Tom Lennon. Readers send in a picture of a modified, layout-quality car, along with a brief description of what they did and what they were trying to achieve. We thought his was a great idea, so send your picture along with a short description to:

daniel@modelrailroadresource.com

Also, don't forget about the Reader Classifieds in the back of each issue. This new addition that began with the last issue is a great place to get the word out to over 1000 like-minded people that you are buying or selling something. If we continue to get submissions, we will publish these monthly. To submit yours go to:

https://ribbonrail.com/railroadresource/Classified/

I always wish everyone a healthy and happy new year, and this year is no different. With respect to my own health, 2018 will bring some challenges. I was diagnosed with breast cancer late last year, and underwent surgery earlier this month. We caught it early and I cannot stress enough the importance of mammograms. As a result, the new year will be full of appointments and treatments, but I will beat this! I hope to see you all at O Scale West - S West - Narrow Gauge West in California May 24-26, 2018 and at the Indianapolis O Scale and S Scale Midwest Show September 20-22, 2018!

Happy Reading & Happy Modeling,

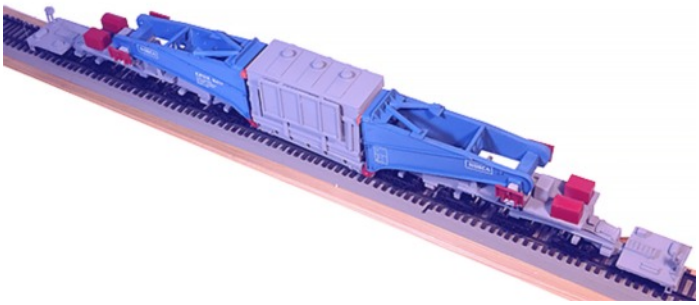
Amy Dawdy

NEWS YOU CAN USE

CPOX 820 Schnabel Car Kit Now Available In S Scale

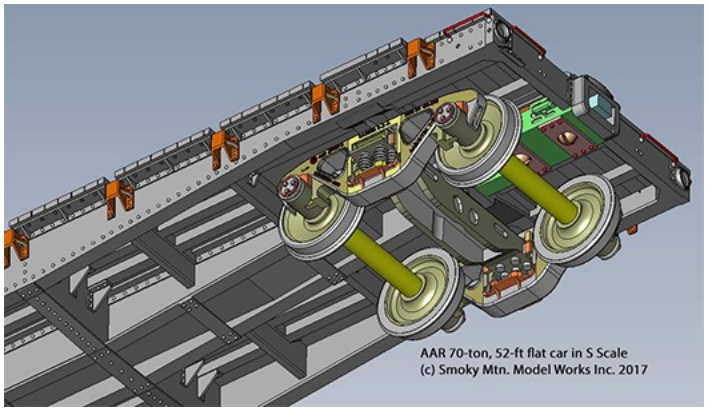
Concept Models is now releasing their schnabel car kits in S Scale. S Scale permits additional details not practical in HO scale. Many parts have been redesigned utilizing state-of-the-art CAD systems. The kit is available with the load at $199.99 USD. The kit includes decals but not trucks or couplers.

The kit, assembled with ACC cement, can be completed within a week including painting multiple colors. The model consists of resin castings and assembly hardware. Common hobbyist metal detailing wire is not provided. Focus is on providing the basis for the modeler to exercise his skill in taking the model to the detail level desired. Instructions are all photo illustrated by an experienced technical writer.



The company currently markets a variety of HO and S Scale model kits available at web address http://www.con-sys.com and ships worldwide.

Jim King from Smoky Mountain Model Works, Inc. Has an update on his AAR 70-ton flat car. The pilot model is being built now and instructions written as I move thru the process. Nearly all of the underframes for the entire project have been cast. The deck required a change and new patterns which were received about a week ago. As I make multiple molds from them, I'll ramp up with castings in short order. Looks like the first kits will ship 4th week of January.



Next project will be the Blomberg sideframes to fit Stanton trucks, then the Milwaukee ribside boxes in short- and long-rib sides (cars are different heights, too, so will stand out in a train aside from the ribs).

See his Website for more details.

Monster Modelworks has a new kit due out in February, The Placerville Garage Kit. This kit is based on the historic Placerville, CO garage. Located right behind the Placerville Station.

The location became known as Placerville after the Rio Grande Southern Railroad constructed a depot and several passing sidings west of the original settlement.

This kit even though based on a western structure, just change the color of the stone and this structure could fit anywhere.

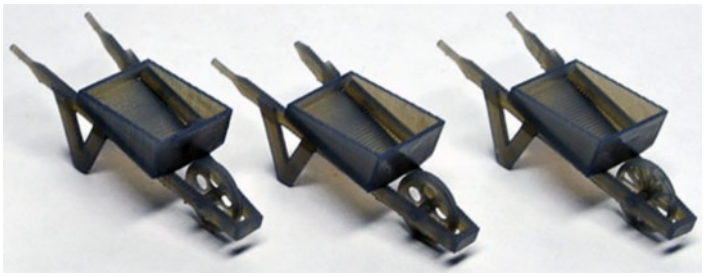
See their Website for more details.

Rusty Stumps Scale Models has some new castings ready for delivery. 3D Printed Industrial Air Compressor with a cast iron Pot Belly Stove. These two highly detailed pieces will help round out the look of your manufacturing, service or other industrial setting.

Printed in our high impact photo resin these two pieces are easily painted and detailed. Some light sanding might be needed to remove printing support points. Otherwise there is no flash or seam lines normally found with white metal castings or resin silicone molded castings.

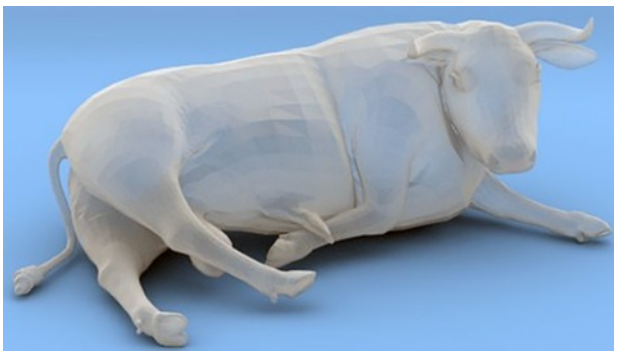
Here we have 3D printed S scale Old Fashion wooden Wheelbarrows with 4 different wheel types in one package. These will be great for your mining or other backwoods industry as well as around construction sites, railroad activities and many other places on your layout.

See their Website for all their fine products.

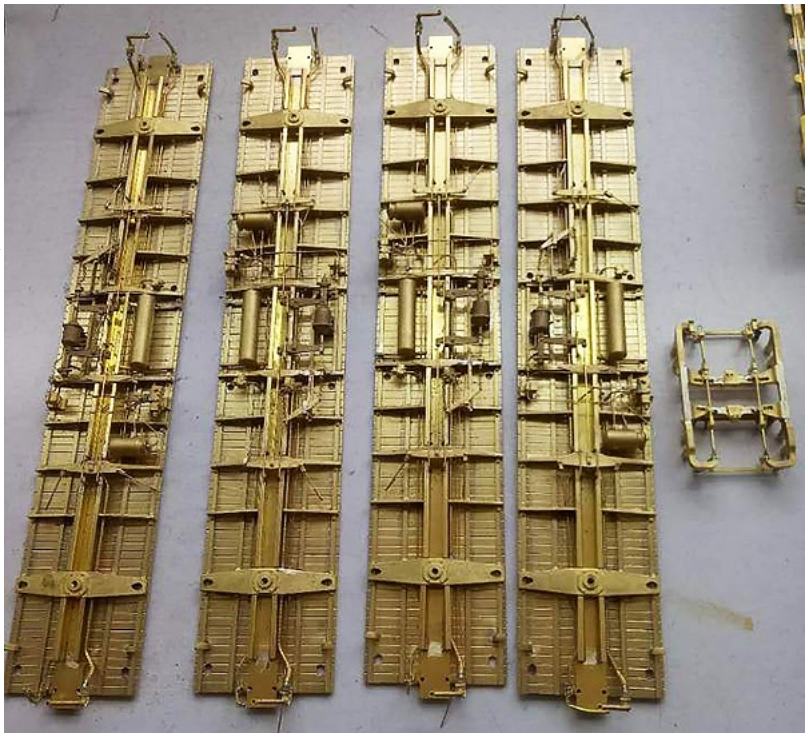


CatzPaw Innovations, LLC, has added new detail parts to their line. S-Scale (1:64) four parking meters connected by a sprue. Printed by Shapeways in Frosted Extreme Detail: Matte translucent plastic that showcases incredibly fine and intricate details.

They also have some new animals and birds. See their Website for more information.



This just in from River Raisin Models. The three photos are of sample model construction of the Railway Express Agency Express Reefers were just received from Korea by River Raisin Models.



One shows the extensive detail of the cars under frame construction. REX 6192 is the P&L sample for River Raisin's REA-004 version, Apple Green w/ speed lettering. REX 6132 is an added lettering variation of RRM REA-003 with all white lettering.

The REA-003 variant with Dulux Gold lettering will still be part of the production. RRM will be receiving the sample models from Boo Rim Precision in February. Following review of the models, any necessary corrections will be made and production will proceed.

The finished models are expected later this spring. Additionally, the Early Berkshire project production models are being built now. Loksound DCC is being installed in about half the production run. Delivery is expected in the next few months.

Mentor Definition: A Trusted Counselor or Guide

Wiseman Model Services Contest!

By Jim Kellow MMR

Last September I discussed with Daniel Dawdy, who publishes *The O Scale Resource* online magazine, the fact that modelers are not building as much as in the past. I proposed writing a series of articles on the importance of a model builder having a highly skilled modeler to be his/her mentor. This mentor would not only help a modeler learn and develop the skills, techniques, and methods needed to build outstanding models, but also help him/her gain confidence in their own building ability. I truly believe having this confidence and a positive attitude toward your ability to build is critical to successful modeling. "Yes I can, and if I make a mistake I can fix it" is the attitude needed to build outstanding models.

Daniel said he was interested and so he published my first "New Tracks" article in *The O Scale Resource* online magazine in the November December 2017 issue. We also felt a Facebook page for "New Tracks" would be helpful to modelers in finding mentors and in becoming model builders. We hope both the "New Tracks" series and the Facebook page are well received and will be beneficial to modelers and encourage their model building.

Because we believe S Scale modelers can also benefit from having a mentor, issues of *The S Scale Resource* magazine will also include a "New Tracks" mentoring article. I would appreciate your ideas and comments on these articles. I must say, that while I have been in O Scale for a long time, I can immediately see that S scale has an awful lot to offer. If I were to start over, I would certainly consider S scale. The first thing I would look for is an S scale Mentor to help me down "New Tracks".

The following S scale contest by Wiseman Model Services and the willingness of the individuals spotlighted who are willing to be mentors illustrates the mentoring concepts I am writing about. In a previous "New Tracks" article, I explained that suppliers would be interested in helping modelers increase their skill levels and get building! To prove it, I asked suppliers to help and they responded most eagerly. I owe Keith Wiseman my sincere thanks for believing in the need for modeler mentoring and being willing to be the first S scale supplier to respond to this project.

Wiseman Model Services

To get information on Wiseman Model Services and the many products they manufacture, go to www.locopainter.com

Talking to Keith Wiseman, I immediately knew I was not just talking to the owner of a major supplier to the model railroad community, but also a model builder and craftsman. Yes, a model builder can recognize another builder in a few minutes of conversation. While Keith admits he does not have the time for model building he

once had, it was evident to me he wishes he did. I truly believe, as I explained my "New Tracks" mentoring series to Keith, he not only immediately understood the need, he was instantly interested in becoming a part of the mentoring program. It was a way for him to get back into the building of models, if only for a little while, and help another modeler learn building skills at the same time.

He told me he could remember building his first Grandt Line Kits. He credits these kits with teaching him the basics of model railroad car construction and nomenclature that enabled him to move up to more advanced kits. He laughed when he recalled the instructions for those kits were so well done and easy to understand that anyone could have built a successful model by just reading them.

For this contest, he suggested his S scale Watchman's Shanty kit. You can find a photo and information about the kit at the Wiseman Model Services website. He believes this kit will provide the winning modeler a great building experience and gain the confidence to build more advanced kits in the future. Keith will also be the mentor to the modeler to build the kit. It doesn't get any better than that. Thanks Keith for your support.

I decided to limit the number of suppliers offering a contest in this article as we are going down "New Tracks" and trying to make the contests beneficial to both modelers and the suppliers involved in this effort. The supplier, this magazine, and I are just as much in a learning experience as we are asking you to be by going down "New Tracks" and participating in this contest. If you want more S scale manufacturers contests and other building ideas for S scale then show it by your participation in this contest. Best of luck to everyone.

How to enter the Wiseman Model Services contest

If you want to enter this contest, you must Fill out our form here.

We are using this independent overseer to make sure there is no chance that anyone can question the randomness of the winners selection.

A modeler can only enter one time in this contest. All emails received by February 18th will be included in the random drawing by the independent overseer. The winner will be announced in the next "New Tracks" article, as well as on the "New Tracks" mentoring Facebook page.

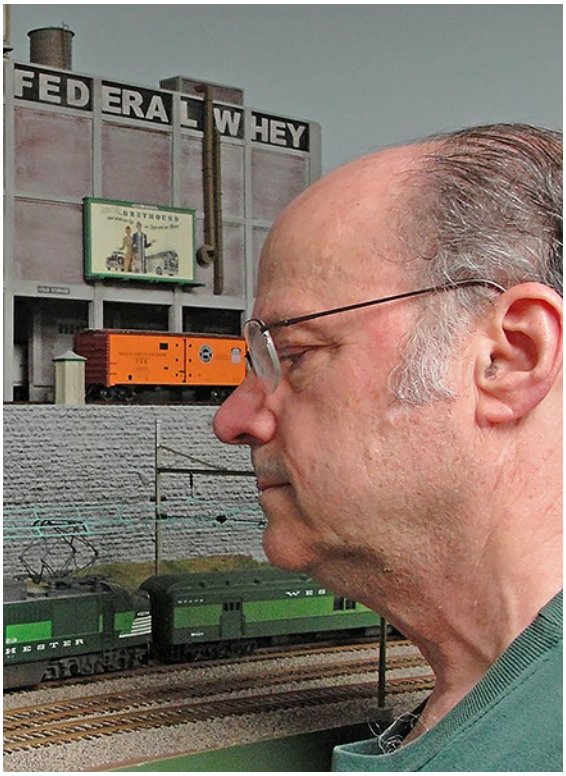
The winner of this contest will receive the Watchman's Shanty kit, plus mentoring in building the kit at no cost to the modeler. Thank you Wiseman Model Services for helping in this mentoring project. Wiseman Model Services will contact the winner directly to arrange for mentoring and delivery of the model kit. Again, good luck to all of you. Have fun going down these "New Tracks." The winner's model and his comments about what he learned from this experience will be published in a future "New Tracks" article.

Spotlighted Individuals who can be your mentor and teach you new skills

I am truly humbled by the credentials, experience, and modeling skills that the two modelers spotlighted here process. Anyone reading this article, in my opinion, would be fortunate to be able to have either of these modelers as a mentor. I feel honored to be able to present them in this article.

My interest is in increasing model building by linking skilled master craftsmen who are willing to pass their craftsmanship and knowledge about model building to other modelers who want to learn from them. Having modelers meet these craftsmen is what this spotlight section is all about.

This area will spotlight individual modelers who I have personally talked with about their modeling, and their willingness to mentor modelers who want to learn new skills and travel "New Tracks." Included are two such highly skilled S scale modelers who have agreed to be a mentor to illustrate this effort for S scale. I must admit that I do not personally know these modelers, but was able to find them in the S scale universe, talk to them and ask them to write about themselves and agree to mentor other modelers. I am constantly looking for other possible mentors in S scale and have some other people I have contacted, so stay tuned.



Dick Karnes

Dick Karnes

I talked to Dick the first time in the middle of December 2017, and immediately knew he would be a great mentor for S scale modelers. He understands the value a mentor can bring to a modeler and believes that a mentor's knowledge can be invaluable to help a modeler achieve his modeling dreams.

As we go to press, I just found out that Dick has just completed the National Model Railroad Association's Master Model Railroader (MMR) requirements. Congratulations Dick. This is certainly well deserved.

Meet Dick Karnes: I was born in 1939 and raised in the New York City area, got an engineering degree from Cornell University, then moved to Seattle to go to work for Boeing, retiring from Boeing at the end of 1998. I've been nuts about model railroading since before I could talk. My father bought my first electric train for Christmas 1939, and was surprised that I enjoyed it more than he did.

Since then I have gradually improved my skills and knowledge base so that now I am able to get pretty much whatever I want for my model railroad. If I can buy it ready to run, I do. If I can't buy it but a kit is available, I build it. If there is no specific kit but I could kitbash it from one or more kits or ready-to-run models, I bash it. If there are no kitbashing resources that are applicable, I scratchbuild it. Here's how I got to my present skill level:

As I "aged," I became dissatisfied with my three-rail Lionel with its foreshortened locomotive and rolling stock. I wanted a real model train set – a two-rail American Flyer with scale-proportioned equipment.

Well, I got my wish for my 10th birthday – an American Flyer NYC Hudson set with three freight cars and a caboose, an oval of track, and a pair of remote-controlled switches.


A P&LE Class A-2a Berkshire is nearly ready for the paint shop.

Kitbashed CNR FPA-2 poses at Troy NY

The Grand Isle Limited, down from Montreal, departs Troy Union Station on its way to New Haven. At the next station, its CNR power will be replaced by an NYW&B electric.

I started reading *Model Builder*, *Model Craftsman*, and *Model Railroader*. I noticed ads for S scale equipment in *MR* and wondered if I could build a kit. At age 11, I bought an S scale 85-foot Chester baggage car kit, which turned out to be both a big mistake and an excellent start along my learning curve. The kit consisted of a roof, floor, two body bolsters, and two spacer blocks, all made of wood; a pair of stamped aluminum sides and four separate stamped aluminum doors; and two plain aluminum plate ends with countersunk holes, plus eight small flathead wood screws for attaching the ends.

I had built a few StromBecker solid wood airplane kits, so I knew how to glue, sand, and paint wood. But the wood glue wasn't working for me when I tried to attach the metal sides to the wood body. That's when I went to my local stationery store and learned about Duco acetate cement.

I had mail-ordered a kit for four-wheel commonwealth sprung trucks from Nixon Model Co. to go under this car. Although the trucks were my first experience with soft-metal kits, they went together pretty well. Then I tried my new baggage car on my 20-inch radius American Flyer track. And that was my next lesson! Excessive overhang, and no way to keep anything coupled to the car.

This car was my first consignee to what became my scrapbox. It was resurrected a dozen years later, when I reduced its length from 16 inches to 13-1/2 inches and applied scale couplers.

The lesson here is just try it. Don't be afraid, ever, to make mistakes. That's the way you learn. My next kit was an Ambroid watermelon wood car kit that I built at age 13. It's still in regular revenue service on my present layout some 65 years later.

You have to start somewhere. Get good advice. Practice on something you're not afraid to scrap. Learn not to fear molten solder by actually doing soldering. Start with a tin can. Cut two pieces out of the can with a set of tin snips (a heavy-duty scissor-like tool) and solder them together. For starters, buy some rosin-core solder from your hardware store or Radio Shack (if there's still one around you). Tinker, tinker, tinker. Do some fussing with sheet styrene. Try the same soldering exercise, but this time use an X-acto knife and a glass tile surface for cutting, and substitute Plastruct liquid cement for solder.

Hone your skills. I began in earnest on trackwork, building my own turnouts with nickel silver rail, 60-40 solder, needle files, and a Weller electric soldering gun. At college, I earned extra cash with a mail-order custom trackwork business.

Find good advice. In these days of instant social networking access, "alternative facts," and Spellcheck, standard fonts, and the lack of any body language or facial tics and tells, everyone appears equally expert. The best approach is to ignore any "advice" until you can independently vet the adviser. Look for published authors. Talk with hobbyists whose modeling skills you have observed first hand. Visit local model railroad clubs, no matter what their preferred scale. Ask among the members who's best at what aspect of the hobby. Most likely you'll find one or more people willing to mentor you in various aspects of the hobby.

I am willing to offer my advice or mentor modelers in certain areas as illustrated by the articles I have written. A bibliography of my recently published articles appears at the end of this piece. Scan the list to get some idea of what I may be good for. My favorite aspect of the hobby is trackwork. I'm also pretty good at working in brass. And as an S scale modeler, I've done some pretty intricate kitbashing too.

If you are local in Washington State, I can mentor in person. If you are not local, we can talk by phone or email. My email address is dick.karnes@sscaleresource.com. Don't hesitate to contact me if you feel you can use my knowledge and help.

Personal Bibliography

"Kitbashing a Union Station," *Railroad Model Craftsman*, Oct. 2000, page 74

"Easy Station Platforms," *Railroad Model Craftsman*, Feb. 2001, page 66

"Steel Station Beams," *Railroad Model Craftsman*, Nov. 2001, P. 79

"Kitbashing a NYC Class DEf 2-D-2," *Railroad Model Craftsman*, Apr. 2006

"Juice for Your Juice Jacks," NMRA's *Scale Rails*, March 2009, p. 42

"Yard Throat Design for Model Railroads," NMRA's *Scale Rails*, July 2009, p. 52

"Fun with Mirrors," NMRA's *Scale Rails*, March 2010, p. 20

"So You Want to Run a Railroad," *NMRA Magazine*, Aug. 2010, p. 40

"Layout Height Considerations," *NMRA Magazine*, Feb. 2011

"Operations on the NYW&B," *Railroad Model Craftsman,* July 2012

"Passenger Operations on the NYW&B," *NMRA Magazine*, September 2013

Work Extra, 15 Useful Tips for Model Railroaders (book), RLN Publishing, 2013

"Troubleshooting Your Layout," *NMRA Magazine,* February 2014;

"New York Central Modeling in S Scale," *NYCentral Modeler*, NYCSHS, 1Q2014, Vol. 4 No. 1

"Building a 'What If' Layout Under Catenary," *Great Model Railroads 2016*, Kalmbach, 2015

"RMC/Dremel Kitbashing Award – Building an MU Train," *Railroad Model Craftsman*, March 2017, page 90

"The Milk Run," *Railroad Model Craftsman*, Dec. 2017, page 58

Dick provided a list of basic building skills that need to be developed. (Keep in mind these skills will improve over time as you build more models. Building models is the key.)

- Cutting

  -Thin metal: scissors.

  -Thin flat plastic: X-acto No. 11 knife blade in X-acto knife handle. Buy a 100-pack of blades. Use a 12-inch mirror tile as a cutting surface.

  -Thick plastic: razor saw.

  -Thick metal: buy a Dremel motor tool and use cut-off discs.

- Joining

  -Styrene and ABS: Plastruct liquid plastic cement.

  -Copper/zinc/tin alloys (e.g., brass, bronze, nickel-silver) and ferrous metals (e.g., steel, but not stainless steel): Solder.

  -Wood and card stock: Aleene's Original Tacky Glue.

  -Large wood-to-wood or wood-to-metal joints: five-minute epoxy.

  -All other materials, whether similar or not: cyanoacrylate glue ("super" glue).

- Drilling/tapping

  -Get a set of numbered drill bits, sizes 41 through 80. Sizes 61-80 are available in sets.

  -Buy extras of 68 through 75, as you will use these a lot, and they break easily.

  -Buy taps. Taps, which look somewhat like drill bits, are used for cutting standard-size machine screw threads in holes already drilled. You'll need the following tap sizes: 00-90, 0-80, 1-72, and 2-56.

-Get a “pin vise.” This is a one-hand drilling device that holds drill bits and taps firmly.

-Caution: For really small bits (smaller than No. 72), chuck the bit in your Dremel tool and use a fairly low speed. Do NOT use pressure on these small bits. Let the bit do the work by itself.

A Short Modeling Perspective… by Jim Kindraka

When I started the search for possible S Scale mentors, one person’s name kept coming up over and over again. So I called Jim Kindraka and immediately knew he was a mentor I would want to work with. He was gracious and immediately said he would participate in the mentoring project.

This is me a few years ago operating trains on Chuck West’s Des Plaines Valley S Scale layout. (Photo by Chuck West)

Meet Jim Kindraka

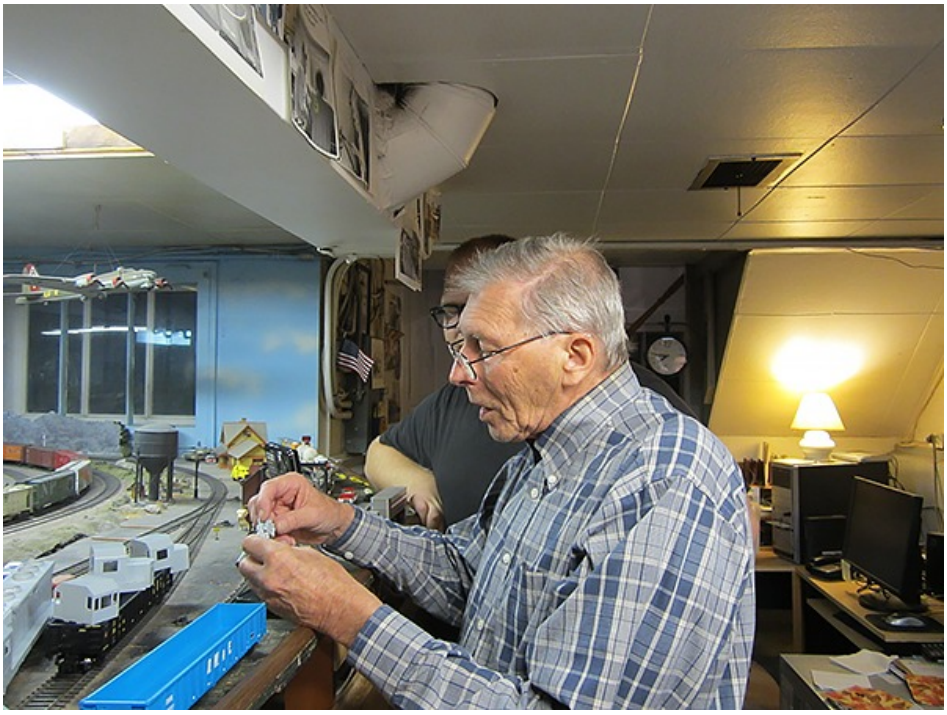
When Jim Kellow approached me to write about my modeling, it forced me to think about all the people who helped me develop the needed thought processes and modeling skills. I have always been an S scale enthusiast and I committed early on that I would not be a guy who simply opened boxes of ready to run toys. For me, railfanning and railroad history were of primary importance for modeling. I have always enjoyed the detail of prototype railroads and realized I needed to learn how to improve modeling if I wanted to capture that in S scale.

As many already know, Dan Navarre and I partnered to form River Raisin Models in 1987 with the intent of importing fine brass models in S scale. To Dan and me the route to the best models in S scale was for S scale modelers to manage building them. A great deal of my early “modeling” was researching all the historically accurate versions and prototype details to help design and build high fidelity models. I moved on from that partnership in 2007 because of several relocations in my real-world employment; but Dan remains one of my closest friends in and out of the hobby. I’m actually working with him again with prototype research for River Raisin’s current ACF REX express reefer project. You can see photos of the 60 or so different models Dan and I built during the 20 years of our partnership in the Photo Gallery section of the River Raisin Models web site: http://www.riverraisinmodels.com/

Developing a taste for great prototype fidelity lead me to understand the need for better modeling techniques for my personal models. In the last 20 years I've had the opportunity to learn from three great people who would put up with my incessant questions to mentor me in better modeling. Sam McCoy and Chuck West continue to help me enhance my skills. As I've continued to move around, I now drive 400 miles at least once a month to get together with them and continue the learning process. Another key mentor for me was Glenn Guerra, an O Scale modeler and former manufacturer. Glenn and I lived in the same small Wisconsin town and, following my retirement, I would spend whole days in Glenn's basement building and soaking up as much of his vast knowledge as I could. Glenn taught me to plan ahead, draw ideas on paper and understand that good modelers appreciate good modeling no matter what the scale. Too many S scale folks live with their heads in the sand and fail to capitalize on all the great knowledge and mentors in the wider model railroading community. Both Glenn and Sam were big on using common sense as a problem-solving tool, not necessarily the latest expensive gizmo. Glenn was instrumental in encouraging me to begin writing about modeling in the hope others would see that it wasn't magic or incredibly difficult, and try it themselves.

It always makes me uncomfortable to write about "my" modeling. I model because I enjoy it and find it relaxing and fulfilling; not for a lot of personal recognition or to impress others. Quite honestly, I hope others will see the models and take up their own tools to create their own better models. I do not consider myself a "gifted" modeler, I work at it, make lots of mistakes and live by the premise that anyone can do what I do with a bit of encouragement. I have been fortunate to have some gifted mentors along the way, people who have taken the time and made the personal effort to pass along their skills and ideas. For me, implicit in that is to continue the cycle and pass along what I've learned to others. Some of that can be done one on one, but we live in a far-flung society. "Mentoring" another modeler is more challenging when you can't work together but it can be done. I've taken to writing articles on models I've built and more importantly the "how to's" of building. Some people have contacted me with follow up questions as they have worked on their own models and I am always open to helping and working through modeling challenges and opportunities with modelers.

I included a photo of my recently completed RS-1, an S Scale America brass kit. I look at it and realize there are many pieces of knowledge from all three of the mentors mentioned and several other modeler friends wrapped up in that model! Other kits I've built, along with explanations and hopefully some helpful information for other modelers, are contained in past issues of this on-line magazine. You can check out what's been written in the Archived Index page, part of "Back Issues" on the S Scale Resource web site: http://www.sscaleresource.com/Magazine/magazine_index.shtml



Chuck West examines some detail parts and explains variations in SD45 cabs to a young member of the Des Plaines Valley S Scale group. Evenings at Chuck's layout are non-stop mentoring and learning sessions for anyone there!

Sam McCoy (on the left) and Jim Kindraka spend a pleasant day together railfanning at the Railroad Park in Rochelle, Illinois in 2015. Watching trains has always been a big part of developing my modeling eye for detail and possibilities for modern models in S scale. (Photo by Alan Zelinski)

Dan Dawdy, content editor of The S Scale Resource, and Glenn Guerra, a great modeling mentor, share some laughs and take in the surroundings at an open house at Des Plaines Hobbies in 2015.

RS-1 constructed by the author from the S Scale America brass kit. Model is shown on Jack Sudimak's Medina, Ohio layout in 2017.

Well that's it for now. I hope this article is beneficial to you. I also hope you will contact the modelers I have spotlighted if you feel they can help you become better model builders. If you want more S scale modelers spotlighted who can be mentor sin future articles,or more contests,let me know at my email Jimkellow@oscaleresources.com.

Also if there are specific manufacturers or individuals you suggest I talk to for inclusion in these articles,please let me know. If you are building a model and having a problem,let's hear about it. After all,the real benefits of this effort are meant to go to you,the current and future model builders,manufacturers, and suppliers in S Scale,so I want as much of your input as I can get. I look forward to going down"New Tracks"with each of you.

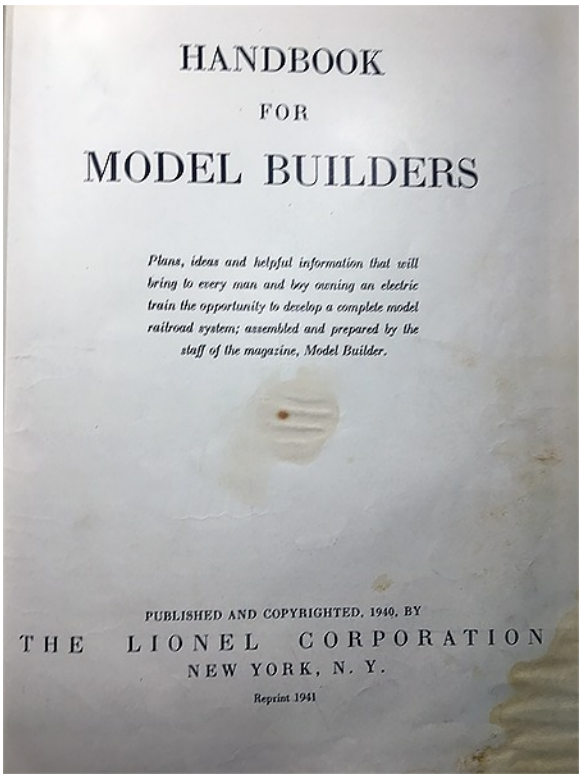
Don't forget to sign in and friend the new Facebook "New Tracks" page and post to it. Let's see your building efforts and hear your ideas.

Will S Scale become the new Builders Scale?

By Jim Kellow MMR

1. **Building models has always been a major part of my model railroad interest.**
2. **I am concerned that many modelers are not building models and modeling skills are being lost.**
3. **Does S Scale have the potential to become the model builders scale of choice? Will it?**
4. **To do so, S Scale needs promotion by suppliers and modelers in S scale. Social media, shows, and this publication have a major role to play in this promotion.**
5. **Promotion needed includes S scale modeler's articles about their building projects, modeler's entries in show contest and exhibitions, supplier advertising and new product development, social media activity, and experienced modelers in S Scale becoming mentors.**
6. **With the help of S scale modelers, this magazine is ready and willing to do everything it can to make S scale the model builders scale of choice. See my "New Tracks" article in this issue and join us to increase S Scale model building. Also join our "New Tracks" Facebook page.**

Back in the early 1940s, when I first got a Lionel train for Christmas, I also got a Hard Cover book titled "Model Builder". So for many years, model building and Lionel were linked in my mind. I became a dedicated Lionel model builder.



Later, in my teens, I packed up my Lionel and started building in HO. This decision was made, to a large extent, because of lack of space. In fact, my model railroad space was a roll out piece of plywood under my bed. But I loved the "building" part of the hobby, and something was better than nothing. It just could not be too tall. About this time I found magazines about model railroading; saw photos and read articles about layouts by the hobby greats like John Allen. They were mostly in HO so I wanted to be in HO. Seemed to me that HO was the builders scale.

As I got older and had purchased a home with a large basement, I went back to Lionel. One of the reasons I switched back to Lionel was I was not happy with the operating success I had with HO. Seemed something was always going wrong. But this time with my Lionel, I wanted to scratch build models as I had been doing in HO. I built freight cars using Lionel trucks, and structures in O scale for the layout.

ENGINE TERMINALS

BLACKSMITH'S FORGE

NO MAKE THIS

139

ONE building in a locomotive terminal or repair yard which doesn't appear to follow any predetermined pattern is the blacksmith shop or forge. It is one of the most important departments of the service yard, for, in larger establishments, the giant driving wheels of the locomotive must be shrunken on or off, giant cylinder block castings must be welded and the side frames of trucks must be rebuilt. The smaller work, such as the forming of hand rails, pilot beams, brake rods and coil springs, is done in a small shop like the one pictured on this page.

The walls of the shop are made from a single piece of heavy cardboard. Doors are not cut out but are scored in the cardboard and bent open. Small strips of thin cardboard are pasted to the doors to represent battens and braces. The walls are cardboard, reinforced by strips of wood.

The base of the forge is a block of wood painted to resemble brickwork. The chimney is cardboard pasted over a long block of wood and also painted.

The spreading base of the chimney is made from two blocks of wood cut in the shape of steps. The hood is carved from a block of wood or shaped out of cardboard. It is painted black. Chimney, hood and forge are assembled with cement. On the forge, finely ground coke or slate is mixed with chips of orange and amber to resemble a glowing fire.

The tub, electric blower and benches are details which are simple to build or may be eliminated.

The roof is a piece of heavy cardboard, scored at the center, and with wide shed extensions on each side held up by square corner posts.

Old wheels and spare parts from a box of odds and ends are scattered around the shop.

Publications such as *Model Railroader* and *Railroad Model Craftsman* gave me the plans and ideas for many building projects. Most of the articles were in HO, but never mind, I just doubled the dimensions and built it for my Lionel. Also I went back to my old standby "Model Builder" book to build some of the models I wanted to build as a kid, but just did not have the ability to do so. Funny that about five years ago I built the blacksmith shop from that book for my current O scale traction layout. As they say, "Hard to get over your first love".

But all of a sudden I wanted to be able to build better models and knew I needed help in developing my modeling skills. So, as I have described in an article in *The O Scale Resource* magazine, I found a mentor who was a true Master Modeler to teach me. The main skill I learned was to build in brass. My mentor built brass trolleys in O scale so I also built brass trolleys in O scale. Then brass cars, cabooses, tank cars, stock cars, etc. My models won contests so I was really going down "New Tracks" now and loving every minute of the trip. My wife says it was not a trip – it was a long journey. But it was fun!

Looking back on the great time spent with my mentor, I realize that while I learned a skill, I learned so much more. I gained the confidence in my modeling ability to start any project and know that I could build it. This confidence and belief that my modeling would be good enough to show to other modelers did not come overnight. It is like old age. You are getting a year older one year at a time, then one day you wake up and you have arrived in old age. For me, that day was winning my first national contest with my brass scratch built trolley. But getting there, I went through a lot of trial and error, and lack of belief that my model building would ever be that good. Overcoming this fear of failure, or not having good enough abilities, and then feeling the rewards of success is the greatest learning experience my mentor could have given me. I believe every model builder goes through this confidence building process, so wherever you are in the process, just know your confidence will get better as you get better. Keep building – that is the key.

So once again I put away my Lionel trains and started building my JN&P (Jim, Nancy & Patrick) O scale trolley railroad with scratch built brass traction, freight cars, and scratch built basswood and card stock structures. I was committed to model building and truly believed if I could find a drawing or photo of a model, I could do the research and successfully scratch build it. During this time I begin writing "The Singing Wire" column about traction modeling for *48/ft O Scale* magazine. I did this for over 20 years. I had truly found my

slice of the model railroad pie and there was no reverse or slow down on the "New Tracks" I was on. I was meeting other builders and having great model railroading experiences sharing information with them.

If I had known about *The S Scale Resource* magazine back then maybe I would have written articles in it. The problem was I was not seeing or hearing anything about S Scale. Even today I do not see much about S Scale on social media compared to other modeling scales. Why is that? I just saw one post on Yahoo that said there are only three S scale layouts in the United States included in the NMRA model railroad listing.

For some time now I have believed that I was in a minority by being a model railroad builder, not to mention I model traction. The majority of the modelers in the hobby today either seem not interested in building or don't have the time, the knowledge, or the confidence to build a model, so they purchase models already built, open the box and put the model on their railroad or a shelf in their collection. There's nothing wrong with that, it's just not my interest. I am concerned that the skills and art of building models is being lost. I hear this from other modelers, club members, and kit manufacturers in S and O scale. So I decided to try to do something to get more builders in model railroading. My "New Tracks" articles are my attempt to help.

A friend told me about an online publication called *The S Scale Resource* and its sister publication, *The O Scale Resource*. I went online to the O scale publication first as that is the scale I model in, and then to the S scale publication. These magazines reminded me of the old Craftsman magazines of the 50s and 60s that I used to pour over and over. I felt they could be the builders magazines I used to so enjoy. So while I had not written for a model railroad magazine for some years, I really wanted to write for these publications because I saw what I believed to be the potential for encouraging modelers to build. I called Daniel Dawdy, the publisher of both magazines, and so began my "New Tracks" mentoring series in the O scale magazine.

After several months of talking to manufacturers, suppliers, and modelers, I realized that as much as O scale modelers needed mentors, so did S scale modelers. What I started hearing from S scalers was that some of the growth in S Scale modeling was coming from the N and HO modeler who wanted to build rather than continue to buy ready made models and wanted, for one reason or another, to build in a larger scale. I also heard that there is a strong group of S scale modelers who have always been builders because that is what was required to model in S Scale. So I went looking for them.

Guess what! I found a group of like minded builders. I realized that my mentoring series for O scale was just as appropriate for S scale as O scale and the S scalers I talked with encouraged me to do the mentoring series in S scale for S scalers. They also kept repeating that S scale was the perfect builders scale. Large enough for great trouble free operation and detailed model building, and small enough to fit model railroaders limited space requirements. Could this be the perfect builders scale of the future?

Now let me explain why I believe S scale could become "The New Builders Scale". Based on personal experience, I know the importance of space. After all, my O scale traction layout has 13 inch radius curves. I have modeled in N, HO, and O scale; and know that what you want in a model railroad is dependent on the space you have available. So in my space I could model in N, HO, S, or O. I selected to stay in O scale traction because it was big enough that I could see to build it, liked its operation, and because I had so many scratch built items for it and had dealt for years with the parts and raw material suppliers.

But if I was in a smaller gauge N or HO and wanted to build models, with my vision I would look at changing to either S or O scale. G scale would be a possibility, but way too big for my indoor space. Frankly this is exactly what I am hearing from S Scale modelers as well as from On30 modelers. The shift to S and O is underway.

As we get older, being able to see to build in N and HO becomes more difficult so it's logical that people who love building, or want to learn to build, will tend to move to a larger scale. At least that is what I would do. I have heard over and over again stories that this transfer of builders from smaller to larger scales is happening now. As this is happening more, suppliers and kit manufacturers are coming into S Scale. I talked to two such companies recently. Now, make no mistake, when I talk to On30 modelers they tell me that their scale

is the up and comer. Also O scale traction will certainly be considered, I hope. So these scales will be real competition to S scale particularly in narrow gauge or traction circles. But for many modelers who enjoy building, those who just do not have the space for an O Scale layout, I believe S scale will be very attractive or, as I hear over and over, it is the "perfect size scale". But this supposes that modelers know about S scale. That is a role I believe can be filled by you, the current S scale modelers. Writing construction articles for this publication, showing your models at shows, entering contests with your models and being active on social media are all ways to help promote S scale as the "Builders Scale".

What Dan is doing in his two magazines by having a very strong presence of building articles, showing techniques, skills, etc and soliciting N and HO modelers to join in the S or O Scale building fun, is exactly what I believe is needed. Dan told me he is actively seeking modelers to write building articles, but many modelers do not want to take the time to write up their work. By the way, one of the best building articles I have ever seen is by Dan himself in the September/October issue of *The O Scale Resource* magazine. EDITORS NOTE: *Another even greater building article is in this right here in this issue of The S Scale Resource as Peter Vanvliet take us through scratch building a PRR GLa Twin-bay Hopper.*

OK, you want to be a builder not write stories. I understand because I have been there to. What I learned to do is keep notes and take photos each day as I build a model. "What I did, how I did it, commercial parts I used, etc". Then when the model was finished, I had all the information I needed for an article. Those step by step photos can be very helpful in finding things you want to correct before going further in building the model.

Why is it in your interest to write about what you are building? If you are in S scale and want more builders to model in S scale, then the more people who see what is being built and what is possible in S scale, the more modelers may decide to become an S scale model builder. More modelers means more demand for parts and new kits produced by manufacturers who will come into the S scale market. This will give you more building choices. Plus, you get paid for your article which means you have more money to buy more S scale. I hope you agree that S scale can become the new builders scale and write about what you are building, enter contests or exhibit your models at shows. We need to "show and tell" what S scale has to offer and why it is the "Perfect Size Scale" for builders. If we don't — who will?

I am doing what I am asking you to do in this issue of *The S Scale Resource* magazine. I have written my first "New Tracks" mentoring article for S scale. I hope you enjoy it and help me make the mentoring series in S scale something that is helpful to you and encourages you to go down "New Tracks" and build models. Lastly, I hope it encourages more modelers to become S scale builders.

We have just announced a new Facebook page called "New Tracks". The purpose is to get mentors and modelers, who can benefit from their help, a place to meet and talk about building. Take a look. I look forward to hearing about and seeing your S scale models.

Scratchbuilding a PRR GLa Twin-bay Hopper

By Peter Vanvliet

Why Scratchbuild?

Up until 2008, I always modeled in N-scale when it came to model railroading. In N-scale, almost as much as in HO-scale, nearly everything one wants is available. When I wanted the PRR 4-bay H21a hoppers, it was just a matter of waiting for Bowser to produce a set of them. Then a few years later they would do another run of them with different road numbers, and so my collection grew. When I switched to S-scale in 2008, my view changed. Although the PRR is well-represented in S-scale, a number of the cars I wanted weren't available. So, I knew that at some point I had to resort to scratchbuilding. However, I had actually kind of gotten tired of just buying things and plopping them on my layout, or, more often, stuffing them in a drawer somewhere. It wasn't really what "model railroading" meant to me anymore. I missed the "modeling" part. So, for me, scratchbuilding brings that modeling part back, and in the process I discovered some things about myself.

The main thing I learned was that I actually find scratchbuilding the most enjoyable and rewarding part of the model railroading hobby. I had read all the modeling press about how you *should* build a large layout, and how you *should* participate in the local open-house tours, and how you *should* have operating sessions. As appealing as those things might seem, to me they weren't what got me to the workbench on a regular basis. I simply just enjoy building things. I grew up with Lego®, and building plastic kits of airplanes, tanks, cars, and boats. That was fun, but the fun ended when the model was completed; I just put it on a display shelf in my bedroom and that was it. With model railroading we can build things, but then actually animate them and use them on our layouts or dioramas, and that is what appeals to me as well; to build something and then see it actually run on my home, or our club, layout. Of course, scratchbuilding is a requirement if you want something specific that simply cannot be bought, regardless of the chosen modeling scale.

Why the Gla?

My current project is to build a true-to-scale (no compromises, no selective-compression) diorama of the area around the Canonsburg, Pennsylvania "Hazel Mine" coal tipple as it was in the Summer of 1950. This mine was found along the Pennsylvania Railroad's Chartiers Branch, which ran between Carnegie, PA and Washington, PA (southwest of Pittsburgh). The mine had a five-track yard, and it could hold a total of 75 cars. So, to do the scene justice, I need hoppers. Lots of them. It was then just a simple matter of looking through the PRR reference materials to find out which hoppers were likely to be found in a branch line at that time.

I am aware of the fact that supposedly Downs Model Railroad Co. released a PRR GLa in 1988, but I have never seen a photo, much less a model of it. S-Helper Service produced a PRR GLd twin-bay hopper, but it is of the USRA design; the GLa and the GLd are not "related".

Although I will describe the building of this car in detail in this article, I will try to also make some general observations and "lessons learned" that can help anyone who wants to scratchbuild a freight car, irrespective of the type.

Prototype Info

If you want to learn more about any of the open-top hoppers of the PRR, you will need to avail yourself of the "*Pennsylvania Railroad Steel Open Hopper Cars*" book by John Teichmoeller and published by Highlands Stations, Inc. in 2000. Mine is falling apart; that's how often I have read it! The GLa hoppers were built starting in 1904, and by 1917 the PRR had well over 30,000 of these cars. In the time period I model, there were still 25,500 on the roster, so these are a must if you model coal areas where the PRR roamed, in that era. A number of these cars were originally built for other railroads that the PRR eventually bought out, so if you model an earlier era, you might be interested in building one or more of these cars as well, just applying different decals. Fellow S-scale modeler Brooks Stover, for example, let me know that the Buffalo Creek & Gauley, the railroad he models, had 600 cars that were exact copies of the PRR's GLa.

According to the afore-mentioned book, no known equipment drawings exist for the GLa hopper. One car remains preserved somewhere in the state of New York. Fellow S-scale modelers, Bill Lane and Ed Kirstatter, sent me digital photos of the car when they visited it. Unfortunately, the photos arrived *after* I had completed my model. Of course!

Intimidation Factor

When I finally had settled into S-scale after my scale switch, I took a deep breath and realized that it was time to start a scratchbuilding project. Having never done that, I was intimidated, especially when I looked at what other, more experienced modelers, had produced. You pretty much have to put those thoughts out of your mind. My philosophy (and my experience from subsequent commentary I have received) is that when you build something, it will be better than what someone else can produce, and inferior to what a better modeler can produce. That is just a fact of life. However, the question is, did you enjoy yourself? Did you learn some new skills? Did you learn something about yourself that you might not have learned if you hadn't tackled this project? Some of these things can be applied to other areas of your life, and are invaluable.

Now that I am on the other side of having built seven freight cars from scratch, I don't find it as intimidating as I once did, and I have more confidence in myself. After you've been away from staring at the model for weeks on end, you forget about all the mistakes you made and realize, "Wow, I now have an XYZ car that I would otherwise not have!". The other big thing I learned tackling this project is the old adage, "How do you eat an elephant? One bite at a time!". That is so true when you are stuck in the middle of the project and can't see the light at the end of the tunnel; just take that next bite!

By the way, I will show and describe one car, but I actually built three of these cars at the same time. I built my previous set of flat cars that way, too. What I learned was that cutting and fitting one piece of styrene to the model takes a bit of effort. Doing it again goes much quicker. Doing it a third time is nearly trivial. However, doing it four or more times becomes assembly-line work, and so the hobby project turns into a part time job, therefore I keep my limit at three. Also, having very limited space to work in, having more than three active projects laying about the place would be impossible for me. Either way, my point is that it is much more efficient to build two or three of the same model at the same time, then to build one, then come back a month later and build another one, etc.; the lessons you learned the first time through would likely have to be re-learned. Also, if at all possible, take photos of each step, so that you can remember what you did, should you want to rebuild another or similar car. Or,... should you want to write a magazine article!

S-scale Decals?

My only issue with S-scale is that decals can be hard to find. However, nowadays many companies or individuals that produce decals are willing to create them in S-scale if you are willing to buy more than one set, can get others to join you in your order, or simply by just asking. But still, my personal philosophy about a

project like this is, I will not start it until I have the decals in my possession. I scratchbuilt three PRR FM flat cars that ran "naked" for almost a year and a half, without knowing if they were ever going to be decorated. I didn't like having an unfinished project like that.

For the PRR GLa hoppers, I bought my decals from Greg Komar. Unfortunately, he closed his business a number of years ago. I do plan on building many more of these cars in the future, so my recommendation is to go to the Mount Vernon Shops web site (mountvernonshops.com). The owner specializes in PRR and HO-scale, but he states that if he has the decal in HO-scale, he can produce it in other scales. I bought my flat car decals from him and I was very happy with them. Also, Tichy Train Group (tichytraingroup.com) is expanding their S-scale decal product line by leaps and bounds, so be sure to check them. If all else fails, go to the NASG web site (nasg.org), click on the "Resources" button, and then click on the "Decals" menu option for the complete listing of all S-scale decal manufacturers. Then, send them an e-mail or call them and ask if they have, or are willing to produce, the decals you need.

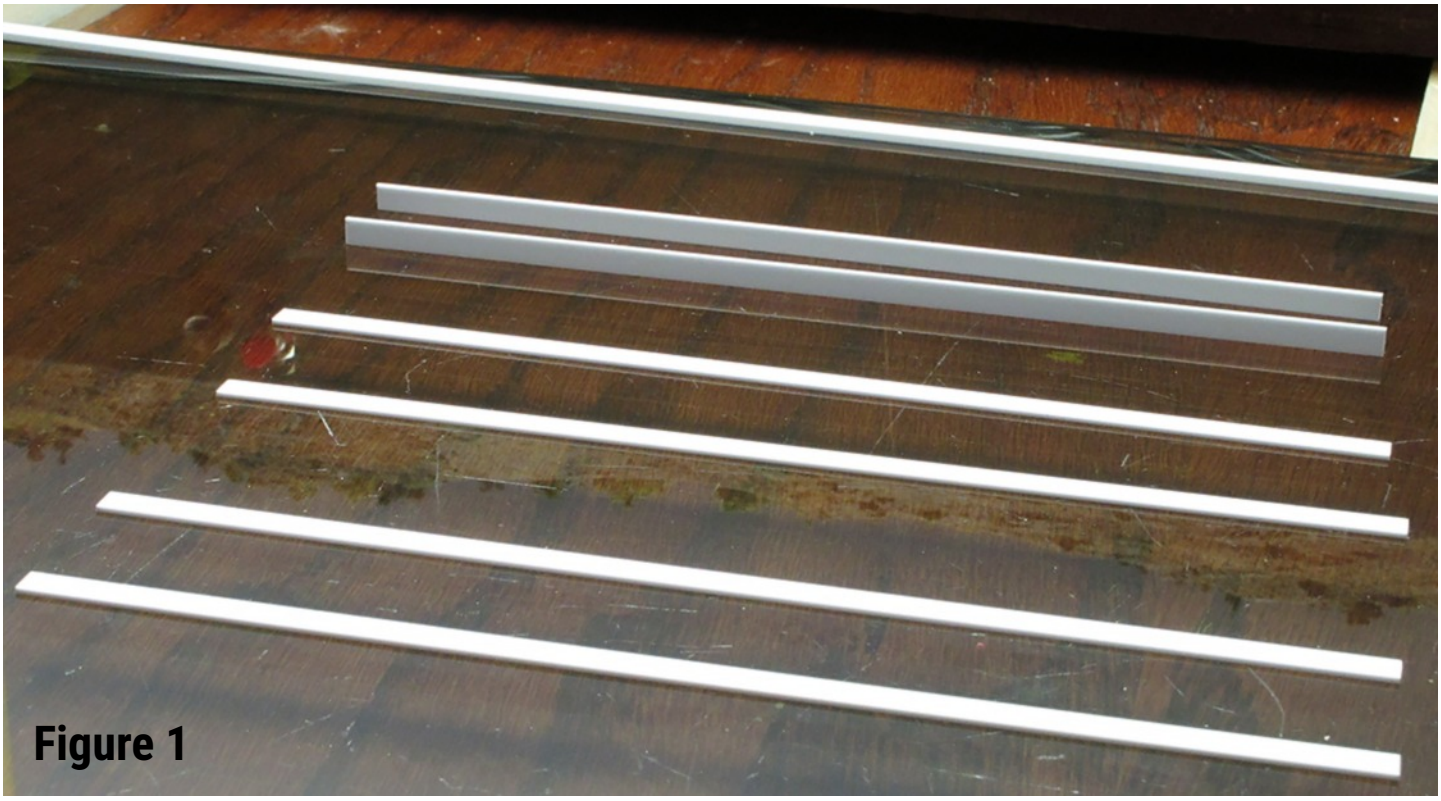


Figure 1

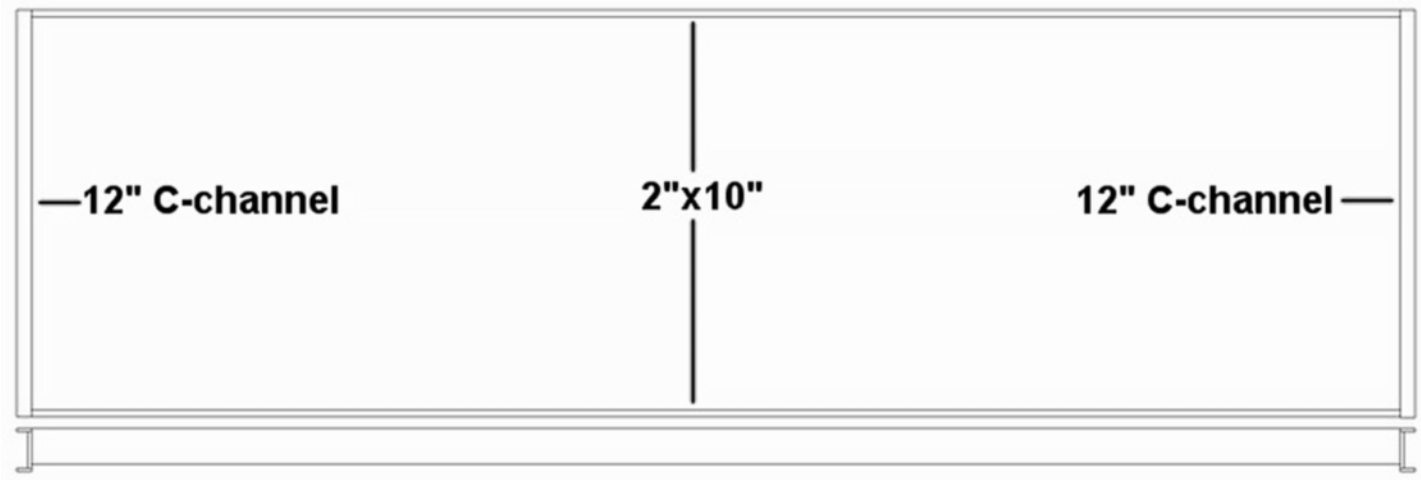


Figure 2

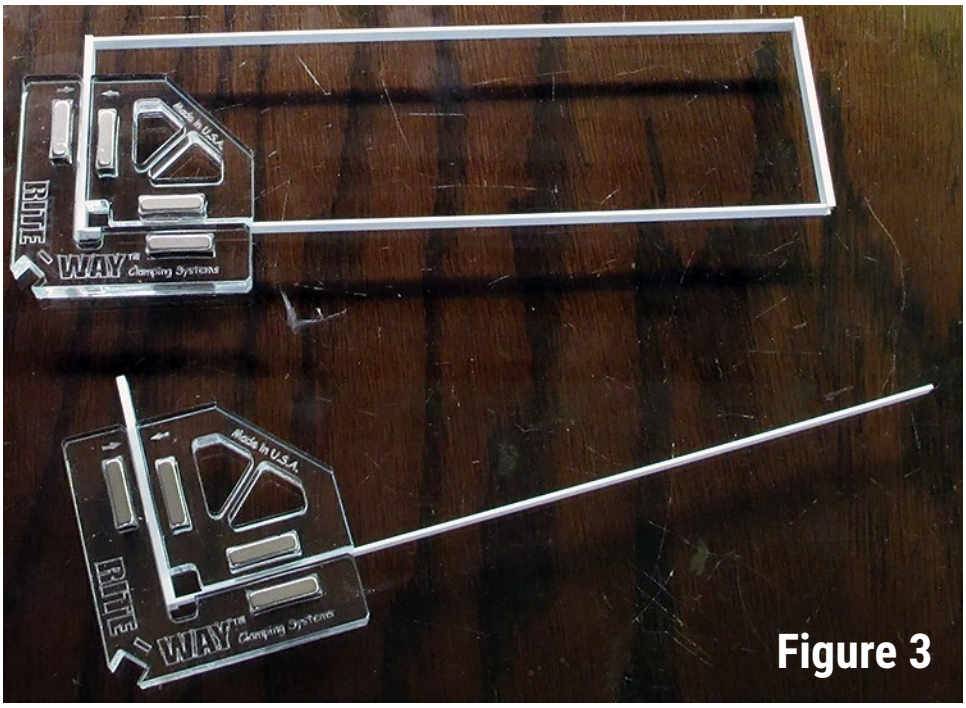


Figure 3

Building the Frame

So, let's get to the actual meat of this article. All measurements are in scale dimensions, unless otherwise noted. That makes it easier to build your own in a scale other than S. The frame consists of two side sills, two end sills, and two center sills. The side sills are formed from two 2"x10" strips of Evergreen styrene cut to 31'7". The end sills were cut from styrene C-channel strips which measured 12" tall and 4" deep. These were cut to a length of 9'4-1/2". The prototype is two inches longer, but I wanted to add the custom ends later, so I left 1" for each of those. See figure 1 and 2.

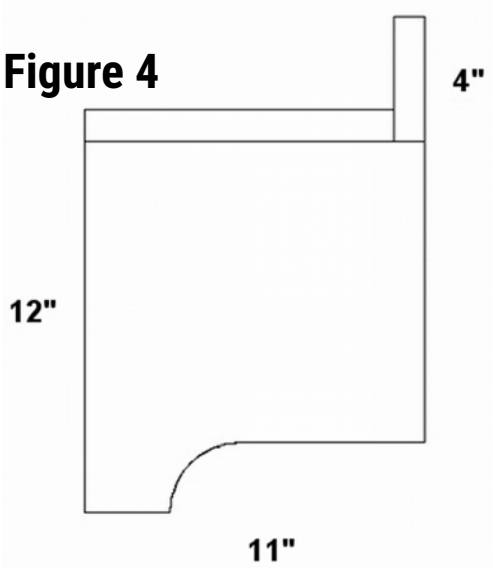


Figure 4

I do all my work on a flat piece of glass. It makes sure that all pieces are always flush, yet it is easy to remove the work from the glass, and to scrape off any glue residue with a razor blade. I placed the parts upside down on the glass sheet, and attached the parts using Testors™ Plastic Cement, applied with the thinnest hand-painting brush I own. Some sort of device to hold the pieces at a perfect 90-degree angle helps with this kind of construction. I happen to like and use the Rite-Way magnetic clamps (available from several retailers). See figure 3.

When the basic frame was dry, I formed and shaped the end pieces of the end sills (see figure 4). In the diagram there is also a 1"x10" strip that lays on top of the end sill horizontally, and a 1"x4" strip that sits perpendicular to that. These are placed on top of the C-channel ends. The 1"x10" strip is flush with the front of the C-channel of the


Figure 5

Figure 6

frame. Both of these strips need to be 9'4-1/2" long. The 11"x12" sheet is then attached to the ends of the C-channel. These are the 1" ends to which I was referring above. Figure 5 shows the front frame upside-down, and the other two right side up.

Since there are no scale drawings available for the GLa, I used the ones I had bought from the Pennsylvania Railroad Historical & Technical Society (PRRH&TS) for the PRR H21a quad-hopper I had previously scratchbuilt. The center sills appear to have been made from 10" tall C-channels, where the "lips"


Figure 7


Figure 8

of the C-channel are 2-3/4" wide. The distance between the outside-to-outside edges of the center sills appears to be 18-3/8" apart. See the cross-section drawing in figure 6.


Figure 9

Evergreen makes C-channels like that for S-scale, but I didn't have any on hand at the time so I made my own. Once built, and cut to length to fit in the frame lengthwise, I attached them to the frame. See figure 7. As stated above, I received the photos of the one surviving car in New York *after* I had completed my model. From one of the photos, it is obvious that the center sill was taller than the side sills, maybe 12" or 14" tall. So, one correction I will make the next time I build this car is to include a fishbelly in the center sill. The center sill is mostly hidden, so it is not a real big deal, unless you are building your model for contests.

The next major step is to prepare for the mounting of the trucks. The center of the bolt to which the truck will eventually be mounted needs to be 5 feet away from the ends of the frame. I made a block of styrene to fit in between the center sills, and glued them in position. Next, studying the H21a drawings, I concluded that

Figure 10

the bottom of the center sill and the bottom of the bolster block were 8" apart. I then constructed another set of blocks measuring 20" square, 8" tall, that I then glued on top of the center sill (the blocks were centered on the 5-foot mark; the frame was upside-down). These blocks of styrene provide a very strong basis for the truck-mounting bolt, which I had previously found to be a weak point in models I've built. See figure 8 and figure 9 for the underside and top-side view of the assembly so far.

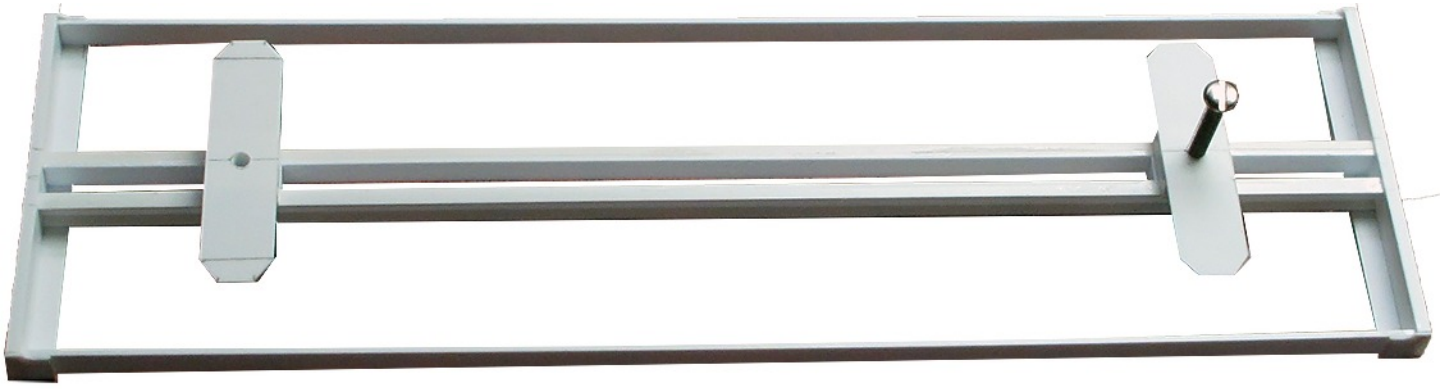


Figure 11

Continuing with the bolster area, I cut strips of styrene (all 1" thick) that were cut to 20" wide and 6'9" long, with their ends chamfered. These were centered across the bolster blocks and glued in place. See figure 10. The design was based on the PRR H21a drawings I have.

Before going much further, I drilled holes for the mounting bolts I am going to use to mount the trucks to the car. I find it annoying when a car I've built leans to one side, so I used my big drill press in the garage to drill a perfectly perpendicular hole in the styrene blocks of the frame for the bolts. I first pre-drilled the holes with a very small bit, and increased the bit size a few times until it was the size needed for the bolts. This minimizes the stress on the styrene. The frame is still very weak, so you must be careful. See figure 11.

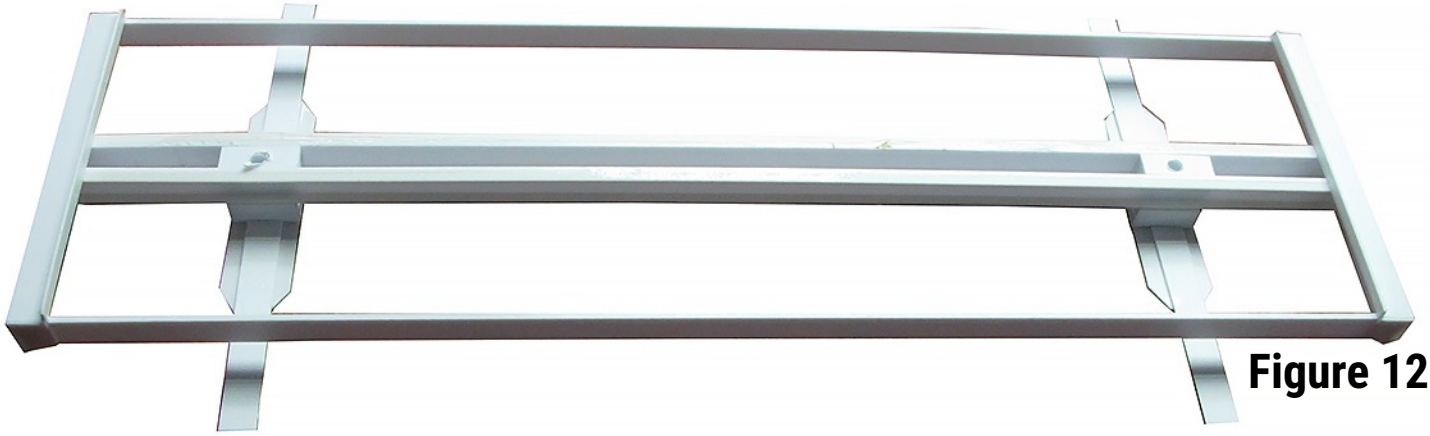


Figure 12

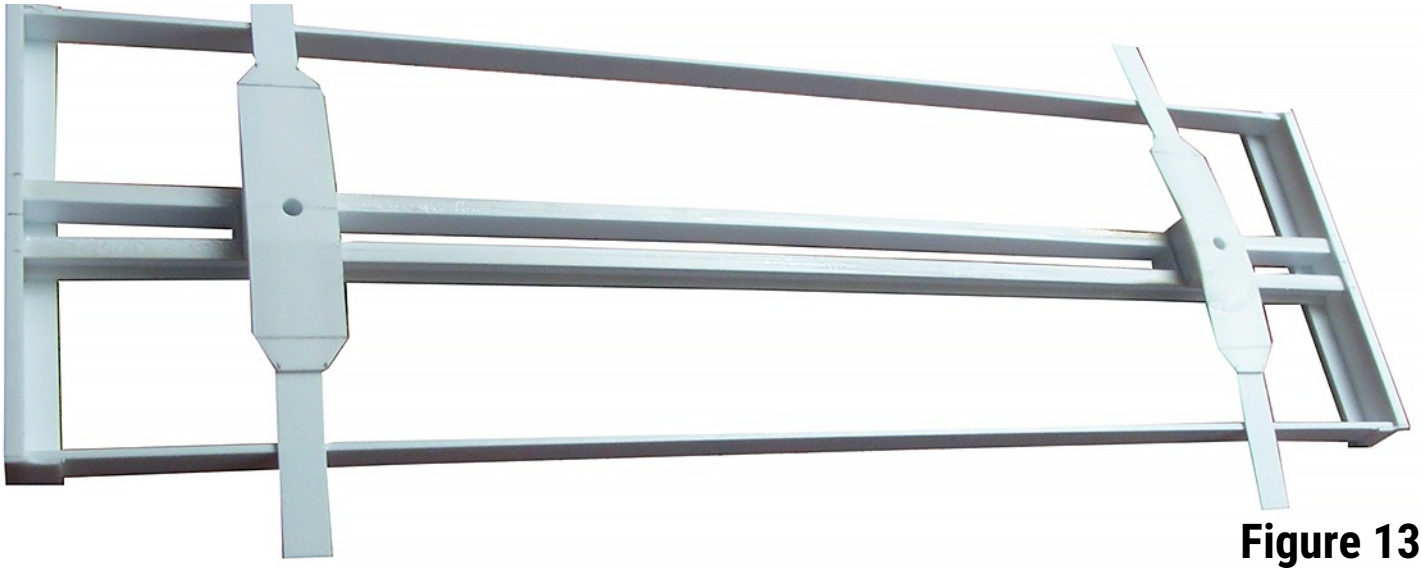


Figure 13

Figure 14

To complete the bolsters, I cut sections of styrene that are 1" thick and 10" wide, and glued those to the 20"-wide strips already attached to the frame (on the "top" side). When those were dry, I gently bent them to touch the side sills, and then glued them to the side sills. I then cut off the excess. See figures 12, 13, and 14 (shown with the trucks temporarily mounted on the frame for testing).

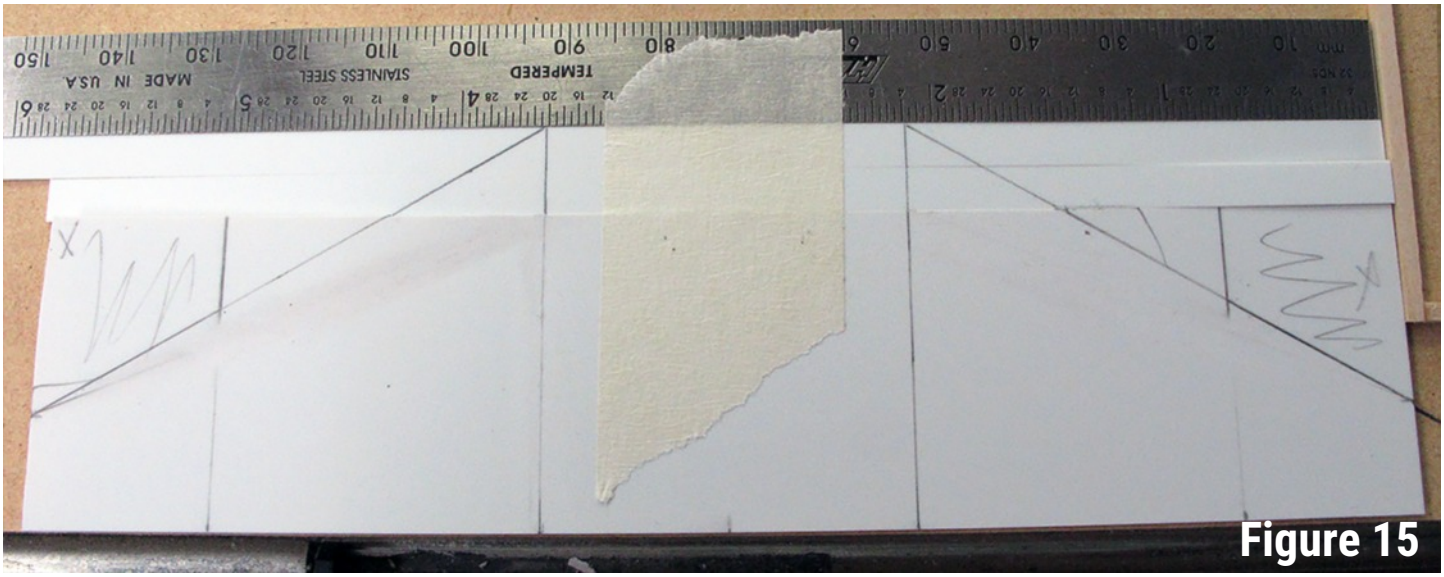


Figure 15

Building the Hopper Body

With the frame completed, the next major project is the hopper's main body. It consists of two long side panels, and two small end panels. I made these out of 0.020" sheet styrene, as a compromise between model strength and prototype sheet-metal thickness. The end pieces are simple rectangles measuring 9'5" by 2'6" (should be 2'6-11/16", but that fraction is just too hard to measure, even in S-scale). I cut the long side panels to be 7 feet tall, and they were trimmed to 30'9" long.

The hard part is to get the slope of the side panels correct. This is a chicken-and-egg situation, in that the side panels should fit the hopper bays, but those aren't built yet, and they can't be built until the main body has been built. Figure 15 shows how I laid out the side panel (the drawing was done upside-down). Here's some math. The top of the hopper stands 10 feet above the rails. The side panels are 7 feet tall. This leaves 3 feet of space between the bottom of the body and the tops of the rails. It appears that the bottom of the hoppers is 12" above the rails, so the hoppers themselves, vertically, are 2 feet tall. So, I placed two scale 12" strips of styrene against the rectangular styrene sheet that is the side panel of the main body. I taped them together so that they don't move while I am laying out the cut lines.

I marked the center of the side panels, and measured 4'1" to the left and to the right of that mark, and drew a vertical line at that location, which you can see on either side of the tape in figure 15. This indicates the lowest point of the hopper bays. On the ends of the side panel, I marked off the 2'6" width of the end panels I had already cut. From there I could then draw a line to the bottom of the hopper bays. I now had the slope that I was going to apply to the model's interior. The exterior of the body doesn't slope all the way down like, but instead has a vertical section that starts at 4'2" in from the ends.

So, I marked those lines, and then marked off the amount of styrene to cut away from the side panels. It was then just a matter of using that template to cut the other side panels (see figure 16). Needless to say, forming the body of the hopper can then be accomplished by gluing the side and end panels together. The styrene bowed a bit, but that will be resolved as the model continues to be constructed. As I built this model, I

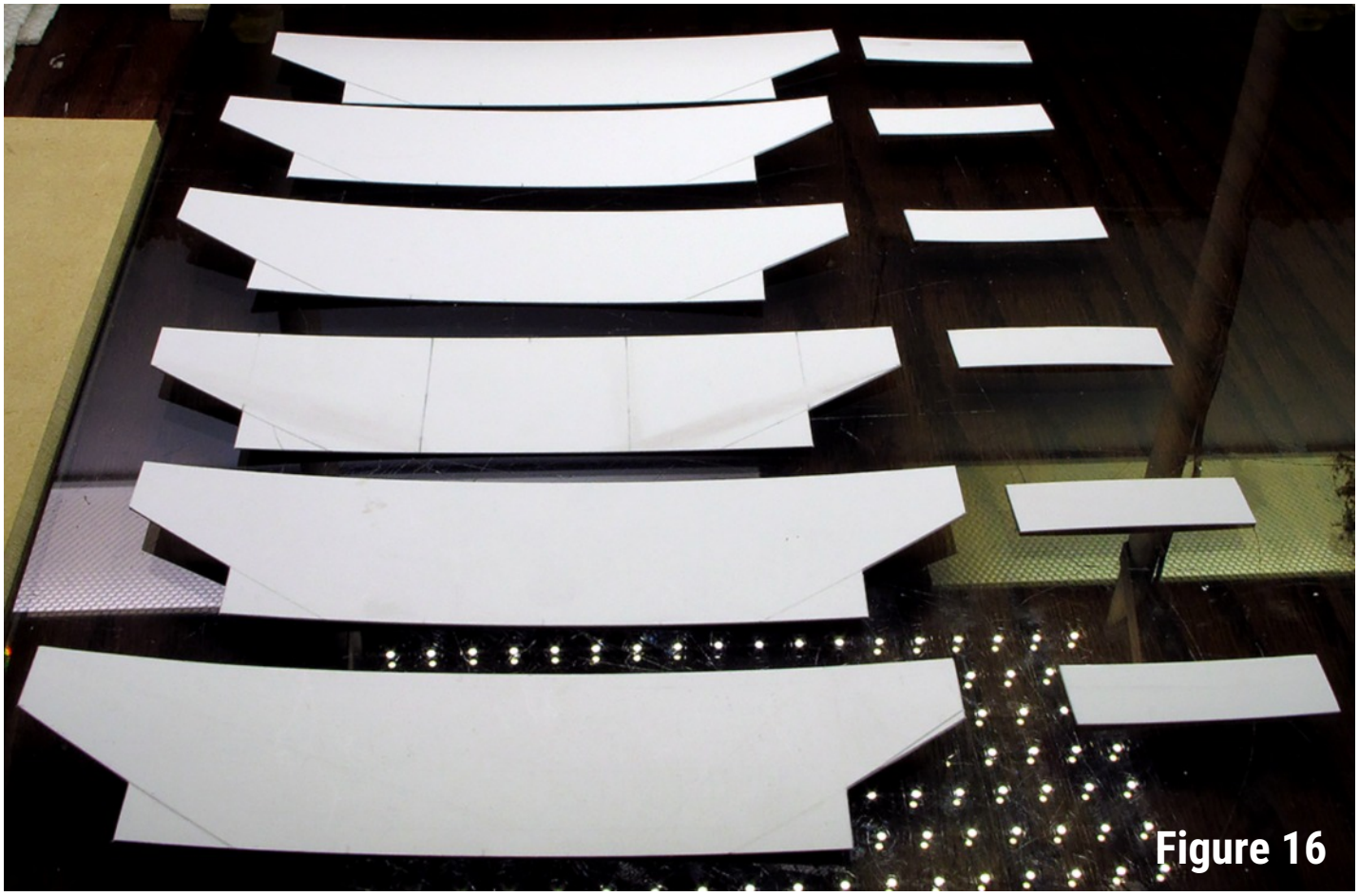


Figure 16

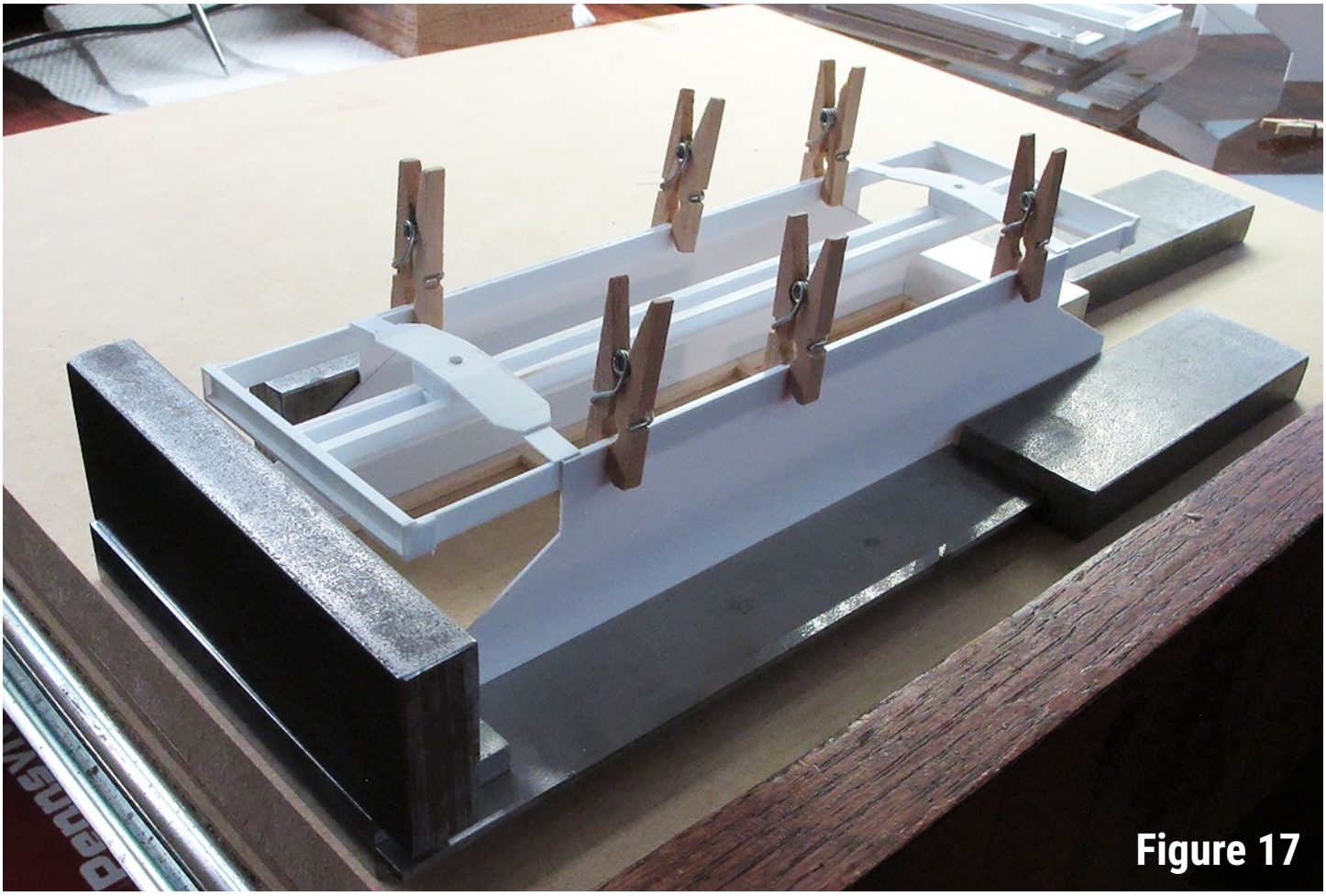
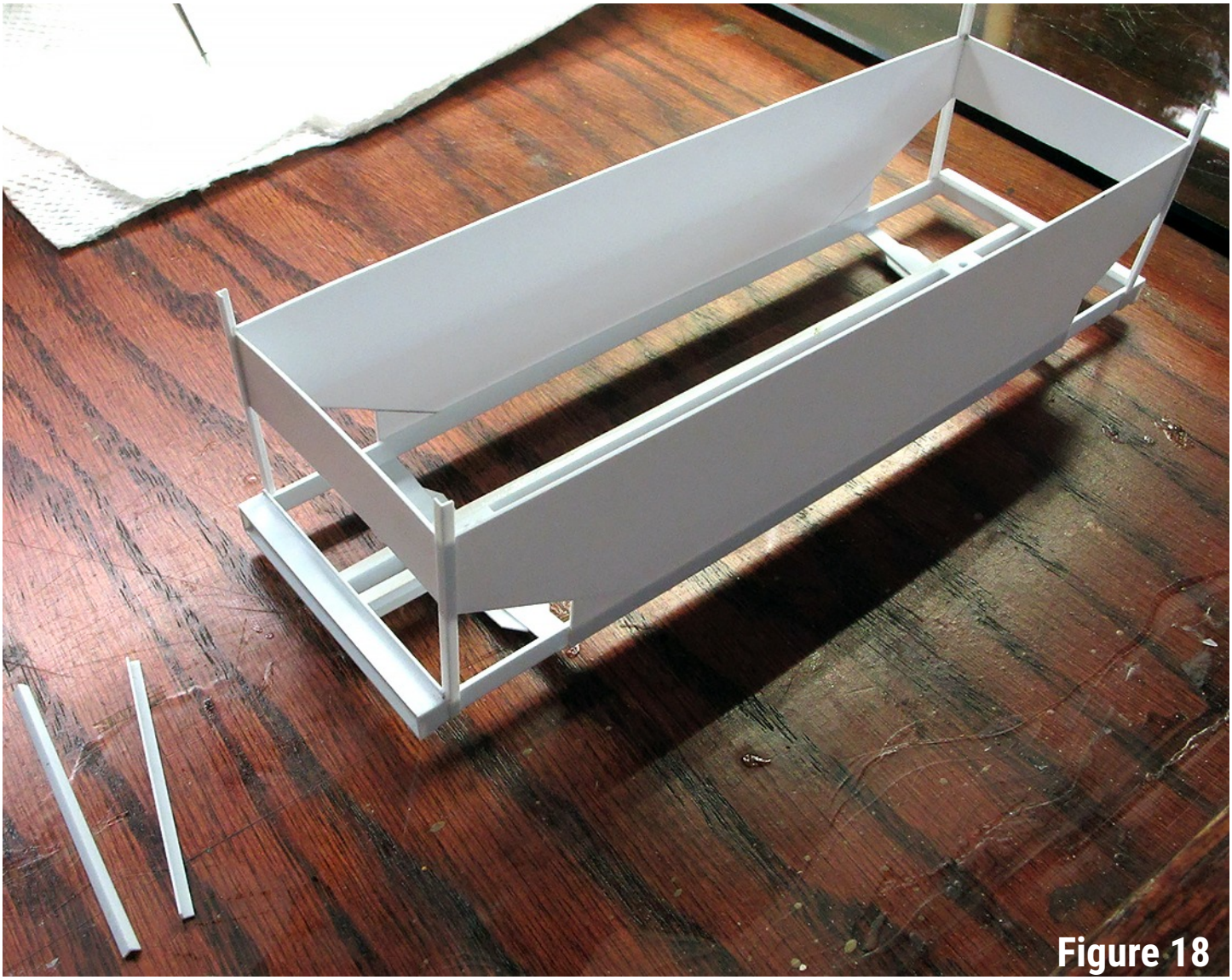


Figure 17



was surprised by how strong the whole model became as parts were added. I just wondered if the same was true when the prototype car was being manufactured back then. Once the body was dry, I glued it to the frame, as shown in figure 17. Because of the bolsters, the assembly has to be built upside-down. Make sure the body is centered on the frame, and that the bottom of the side panels sit flush with the bottom of the frame assembly. I used lightweight miniature clothes pins as clamps. Once everything was lined up perfectly, I could easily apply the Testors™ glue and let that dry.

The corner braces, shown in figure 18, hold up the ends of the body to the frame. I made mine out of 4" styrene angle strips. For each brace, the bottom 10" has to be filed off on one side (the end sill side), so that the other side can "slip over" the side sill. I cut the angle pieces a bit long, so that I could trim them to length once they were attached to the body and frame. This is the first quality-control point of the build. If you build everything correctly, the braces should line up perfectly. If not, and you are building a contest model, stop here and start over again. Yes, you read that right, start over again! The model will look distorted. The amount of time and effort you have put into this model up to this point in time is nothing compared to the entire project's time and effort, although it may not feel that way. I had one of my three cars that was like that, but since I am not building a contest model, I wrote it off as the car had been in an accident. After all, in the era I model, these cars were around 40 years old! But, my point is, from my personal experience, the first collection of steps on these cars is quick and easy, but the amount of time invested increases dramatically once you get into the detailing stage. So, if you are not 100% happy now, nothing will make it better later on.

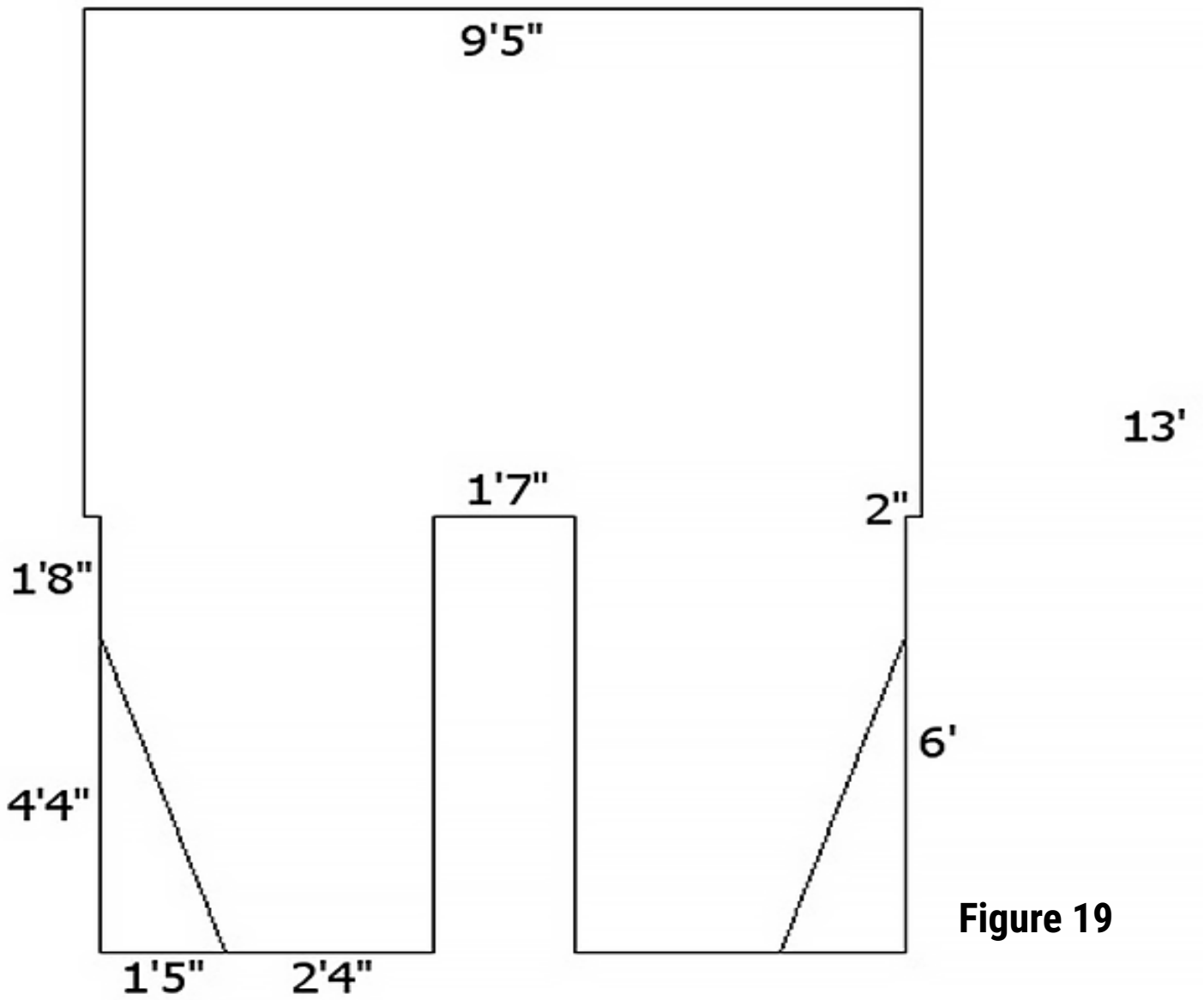


Figure 19

Figure 20

Construction of the Interior

One thing I have to say about building hopper cars is that it gets more difficult as you progress. However, seeing the frame and body together is enough excitement to carrying you through the rest of it; it is

actually starting to look like a model now. We will start with the interior slope. It is a complex piece of sheet styrene, with the dimensions shown in figure 19. The triangles in the bottom left and right of the design need to be cut off. Note that this design was based on my actual dimensions of the model, not on a prototype diagram (as there are none for this car).

Figure 21

After the parts were cut and shaped, they are glued into the model, flush with the bottoms of the end panels, and the slopes of the side panels. See figure 20.

The center of the interior of the hopper forms a triangular "hat" that directs the coal load to either the left hopper bay or the right one. Look at figure 21 as you read this description. The "hat" measures a horizontal space of 5 feet, and the top-to-bottom height is 15". It consists of four pieces of styrene sheet. I made mine out of 0.040"

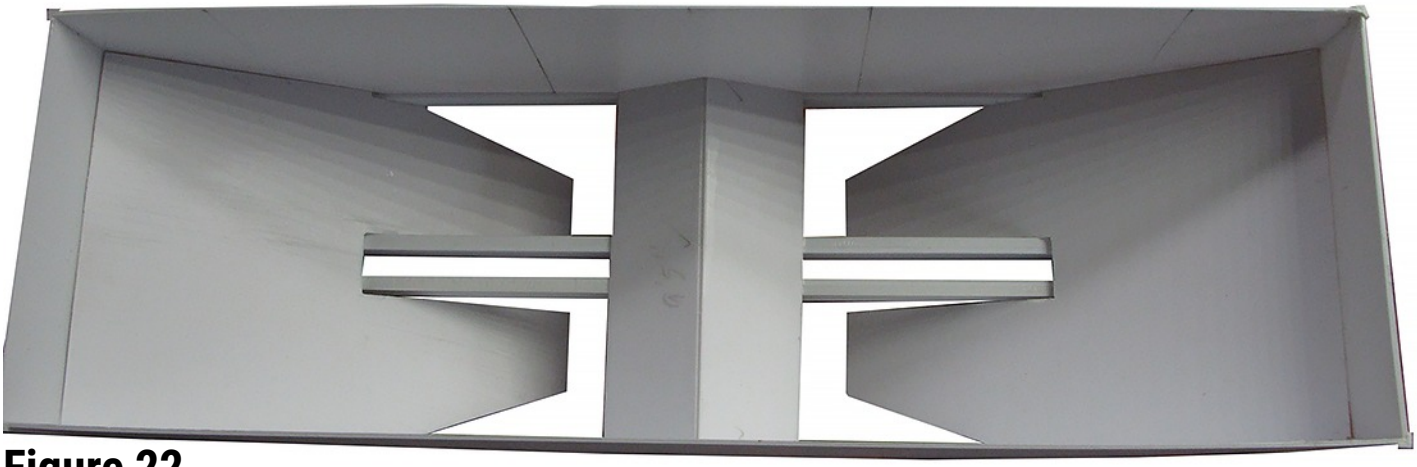


Figure 22

styrene, for interior strength. I cut two pieces that were a scale 2'10" wide by 9'5" long (matching the interior width of the car). I filed a slight chamfer on their mating surfaces and glued them together. I then cut two triangles that act as braces such that the overall dimension of the "hat" piece is 5 feet. When it was dry, I put a piece of sandpaper on my glass sheet and sanded down the bottom of the assembly to chamfer the bottoms of the assembly. It was then just a matter of properly centering the assembly on the model's center sill, and gluing it in place (see figure 22).

The hopper bay doors sit at a slightly different angle from that of the interior slope (more vertical). This is one of the differences between the GLa and GLd model. I expect my models to carry a "live" load, so I made the doors out of a sturdy 0.040" sheet styrene (emptying the cars will probably be done with a hidden rotary dumper). The part was cut and shaped to fit the interior between the side sill and the center sill, and then sloped such that it meets the ends of the interior slope sheet installed above. See figure 23. File the end flush with that interior slope sheet.

Figures 24 and 25 show the triangular side panel pieces that need to be cut and shaped to close off the hopper bays. All sides need to be filed flush with the interior bay body (not yet done in the photos).

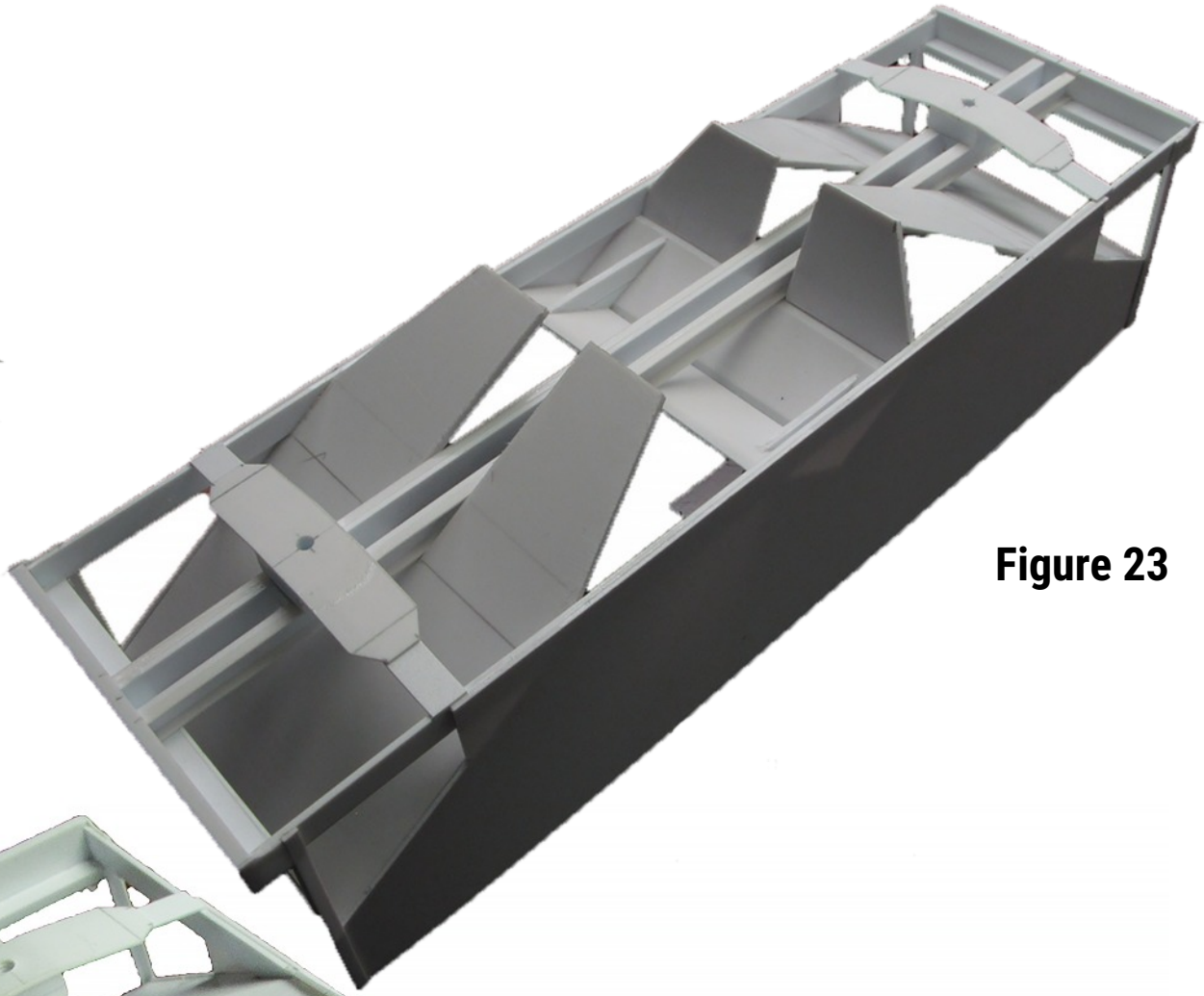
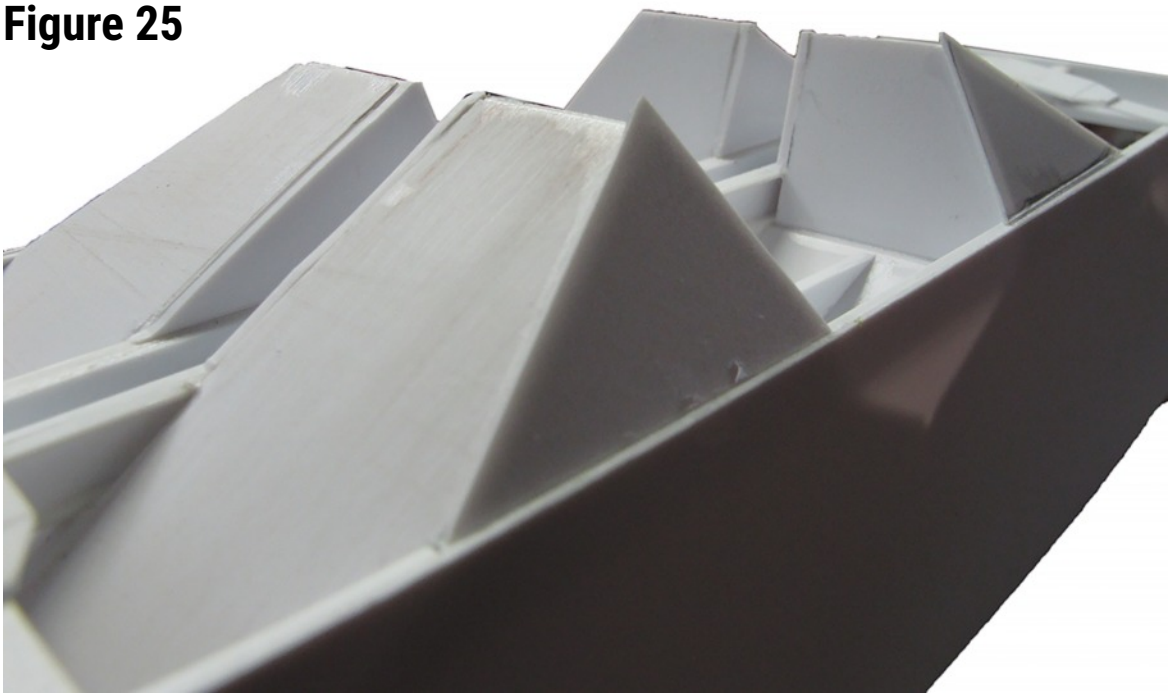


Figure 23

Figure 24

To complete the interior guidance system of the coal load, we need to put a cover on the center sill. It has a set of complex angles that I just couldn't figure out. Then one day I had the idea of taking a solid piece of 12" square stock of Evergreen styrene strip, and simply grinding away half of its thickness using my electric bench grinder. With careful effort, wearing gloves, I was able to get rid of most of the material.

Figure 25



I then used my benchtop disk sander to get a nice smooth, even surface. Essentially, I cut the 12" square stock in half diagonally, length wise. Its final width was a near-perfect match for the spacing of the center sills.

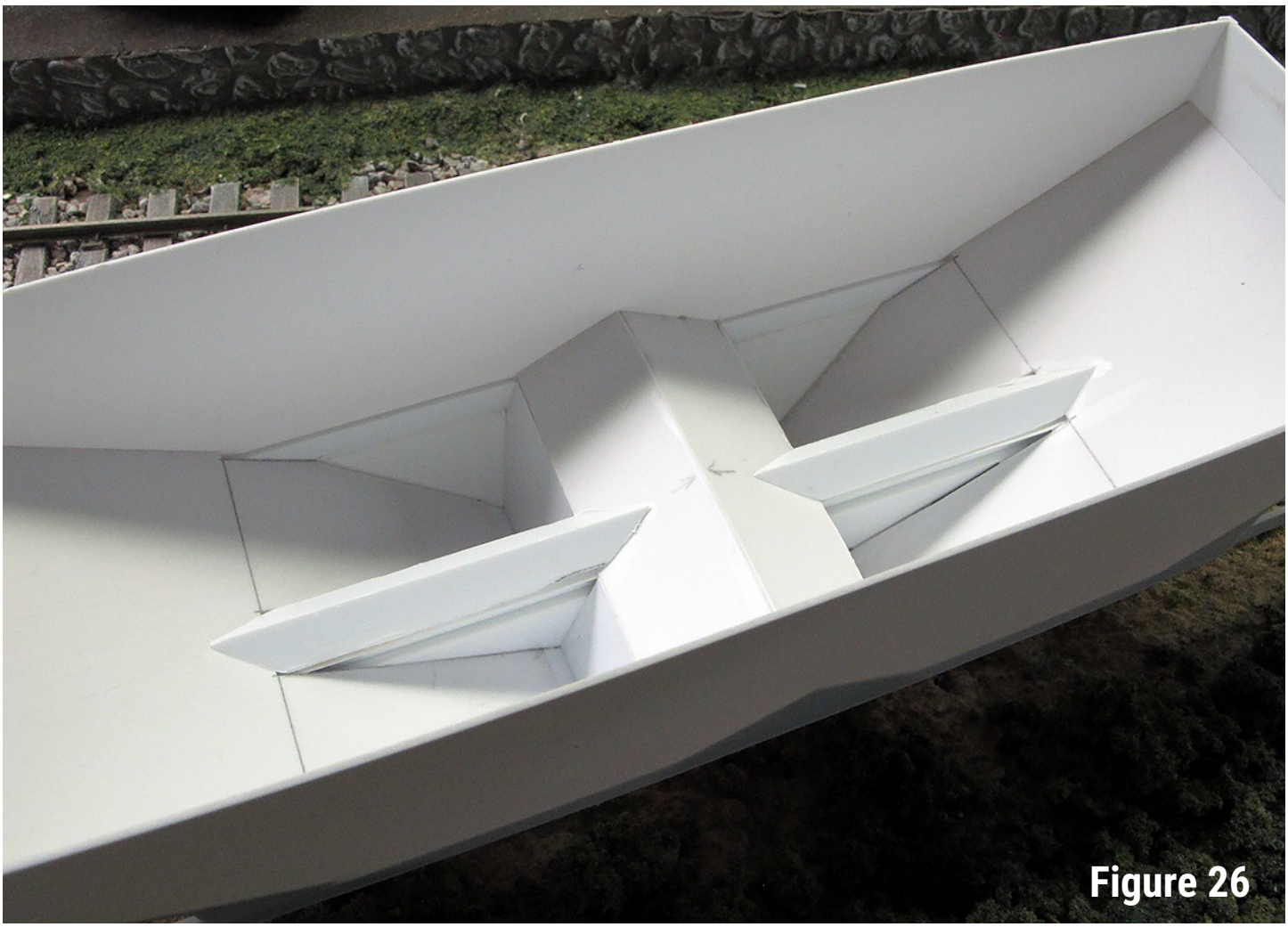


Figure 26

Figure 27

The ends of this piece could then be carefully filed down until it matched the slope of the interior slope sheets. This is a lot of cutting, fitting, and filing, but eventually I got ones that fit nicely. Figure 26 shows the pair installed on the center sill. A bit of filing of the top edge of the center sill will hide any inconsistencies.

At the time of building this model, I had no good photo of the interior of a GLa, but looking at the S-Helper Service GLd model, I noticed that they had a strip along the edges of that center sill cover. So, again with some cutting, fitting, and filing, I built the cover strips out of scale 1"x4" strip styrene. See figure 27.

If you have ever built a model out of pure styrene only, you will notice that it is a fairly lightweight material. I plan to run my models, eventually, with a live load, but that means that there will be times when they will run empty. To still have the model be tracking well, I decided to add some weights to mine, so that the empty weight is close to the NMRA/NASG specifications for this size car. The way that I accomplished that was to add lead shot to the underside interior pockets. I had bought a 25lb bag of lead shot years ago, at a local hunters/sportsman store to add weight to my N-scale cars. One such bag will last a lifetime. I glued the lead shot in layers, because the pockets are quite large. See figure 28. I glued the first layer down with superglue, since we are gluing two different types of materials together (5-minute epoxy would work, too). However, as I used up one tube of superglue for the first layer, I switched to using Aleene's Tacky glue for the remaining layers for economic reasons. It works great, but it takes a lot longer to dry, so the process of applying several layers takes a long time, as in days. Of course, if you are building a contest model, you can't take this approach to weighing the car down. You may need to add a removable load to the model later.

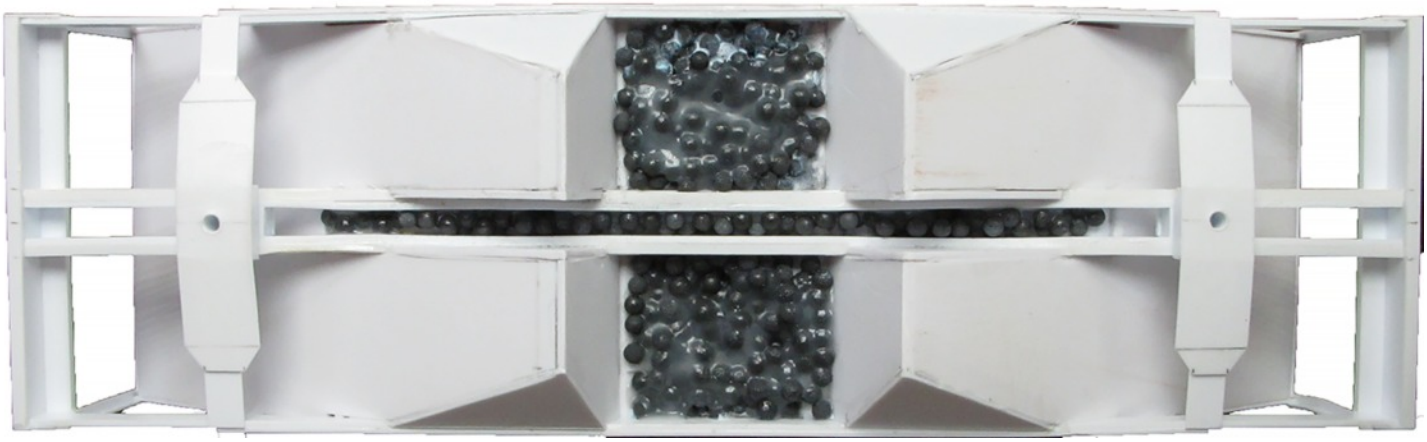


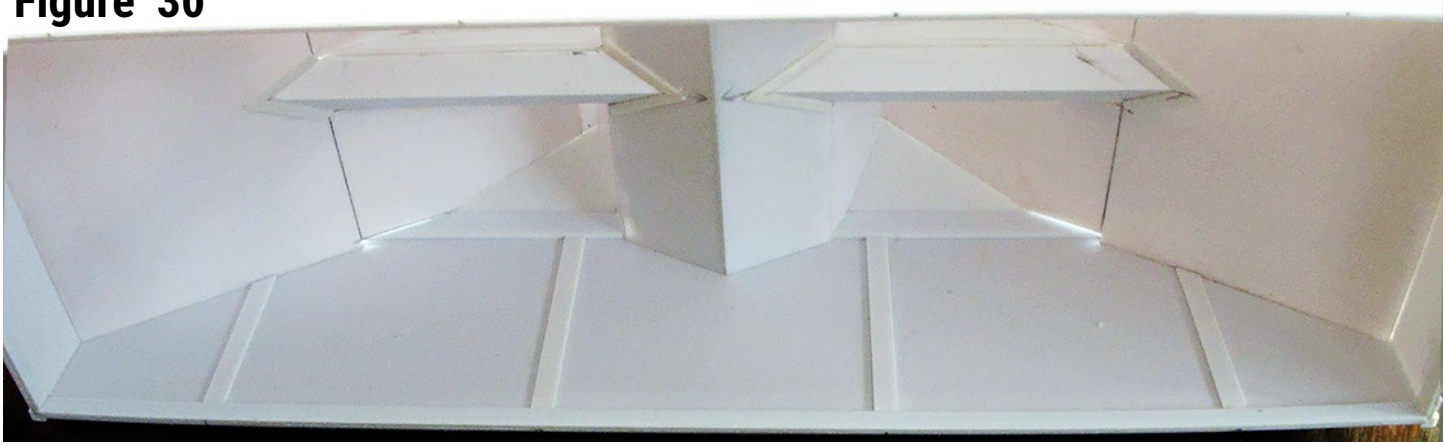
Figure 28

Figure 29

I decided to tackle the interior details from the top down. A prototype photo of a GLa I found on the Web clearly showed a riveted strip just under the top chord. In the real world this may have been part of the top chord, simply bent at a 90-degree angle. To simulate that, I made mine out of scale 1"x6" strip styrene, and glued them on the interior of the body, flush with the top, all around. This is shown in figure 29. Note that the actual top chord will be done later.

Interior photos of PRR H21a hoppers showed another strip of metal covering the seams of the individual panels that made up the body on the prototype. Since I built the body out of full sheets, these strips are purely cosmetic on the model. I again used scale 1"x6" strips. Note that they are located on the opposite

Figure 30



side of the exterior's ribs, starting with the first one and skipping every other one. See figure 30. Be very careful about their position, and that they are exactly opposite of one another on the opposite body side panels, so that the crossbearers, later on, wind up being perpendicular to the side panels. I learned that the hard way.

The interior construction continues with the forming and installing of the "ice-breakers", which I made out of 0.020" styrene sheet, shaped based on drawings from the PRR H21a (2' x 2'8"). See figure 31.

The crossbearers were a bit of challenge. I tried two approaches, with the first one obviously failing. The first thing to note is that there is a square sheet of metal, which is how they are mounted to the body on the prototype. I simulated that by cutting some 8" square pieces of 1" thick styrene sheet. Figure 32 shows the silhouette of them having been installed. They only need to be added centered in between the vertical strips installed above, on the other side of the side panel wall of where the exterior ribs will be. Building the actual crossbearer was done based on an idea provided by fellow S-scale modeler, Bob Frascella. His idea was to take a strip of 1"x8" styrene, and then glue to it, on either of its flat sides, a 4" angle strip (with its long sides sanded down to form a flat surface to mount to the styrene strip). Figure 33 shows its construction. Figure 34 shows

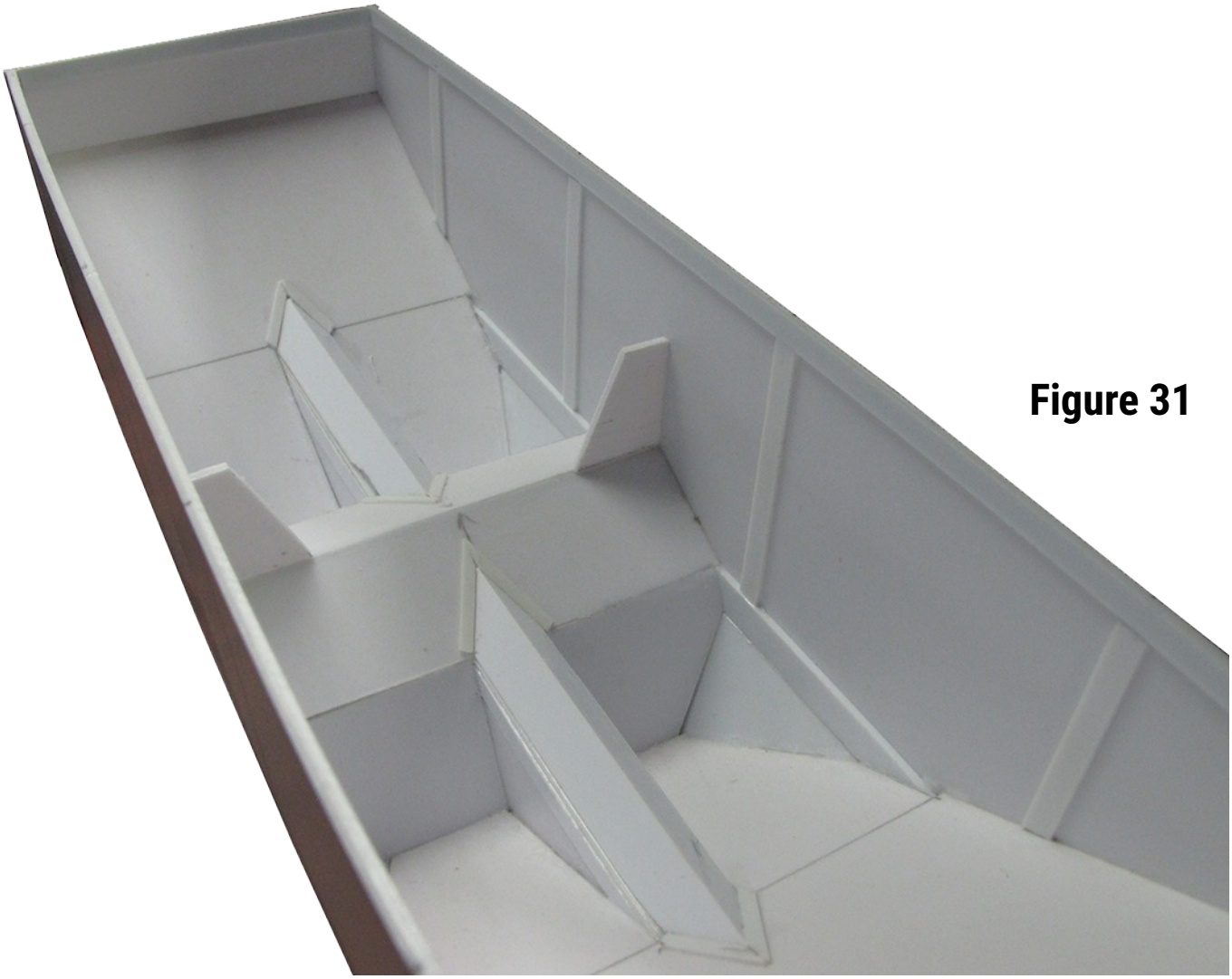
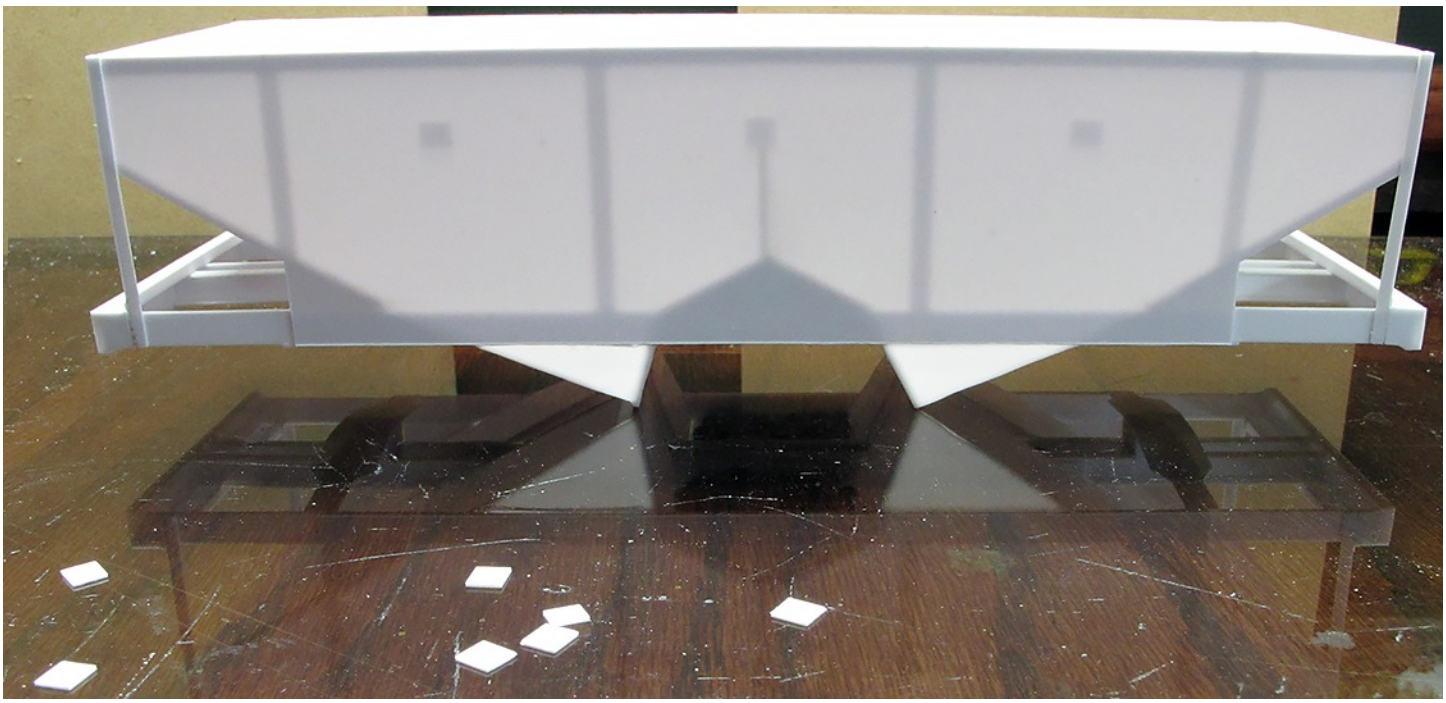


Figure 31

Figure 32



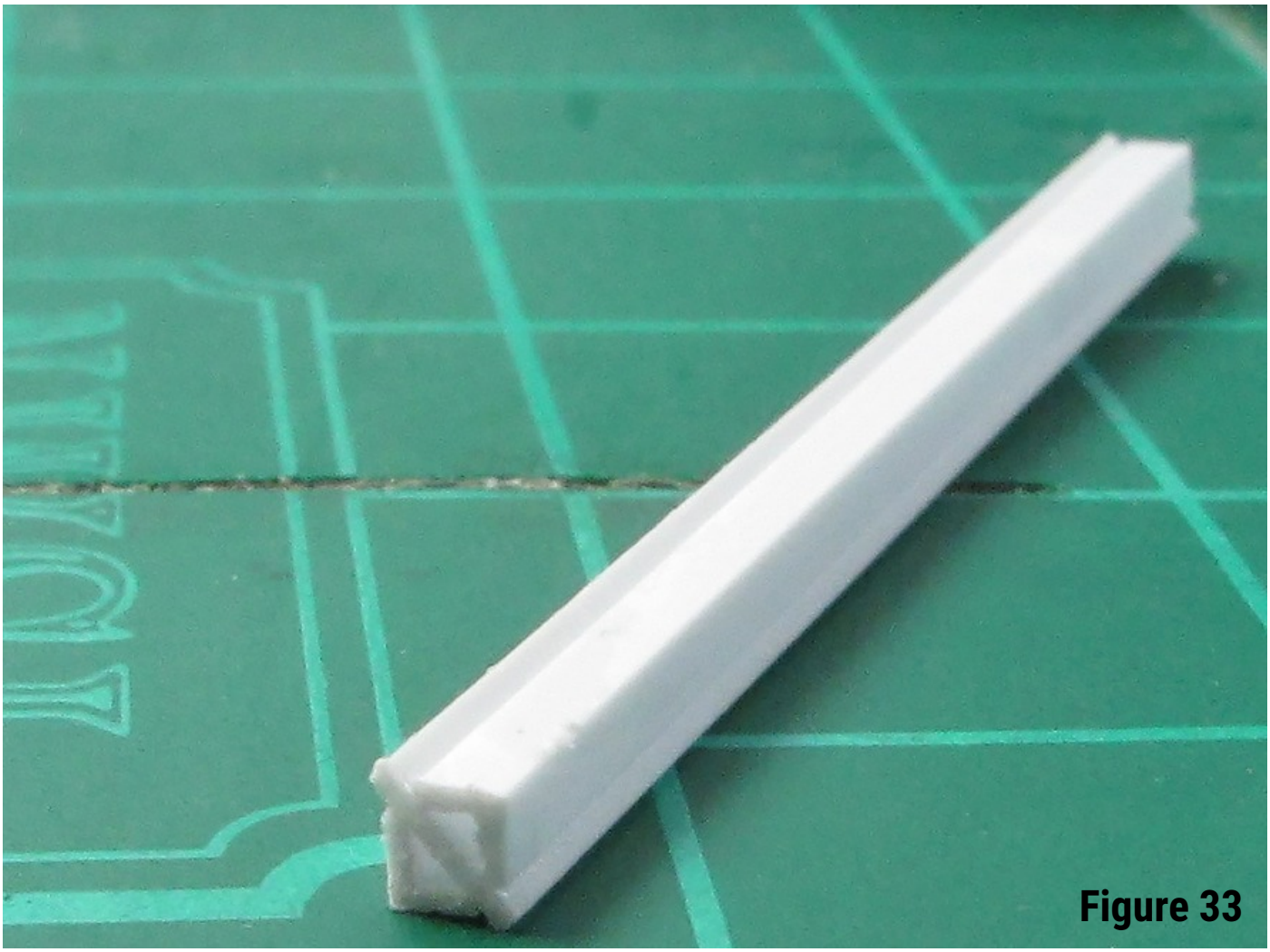


Figure 33

Figure 34

them installed in the body after fitting them to the width of the interior. The center one is glued on top of the ice-breakers. This completes the construction of the interior.

Exterior Detailing

Let's start with the ribs. The ribs seem trivial, until you spend some time studying them in prototype photos or in person. The PRR's ribs were complex beasts. They have a slight chamfer near the top and near the bottom, of different lengths. All that is to aid in the strength of the side panels holding back the tremendous loads. There are 7 ribs on each side. I marked where the locations of the ribs were to be. All the ribs are 3'6" apart (measuring center-to-center), except for the ones at the ends, which are 4'3" away from the ends of the car. For the best results, start your measurements from the center of the car's body, and work out from there. As shown in figure 35, I cut some strips of 2"x4" styrene, and glued them in place (the 2" side is glued to the body; the 4" side is perpendicular to the body). I used an machinist's square to make sure they were in the exact position. A word of caution here. When you apply glue to the styrene, the glue rapidly spreads itself to all surfaces using capillary action. If you hold the machinist's square against the styrene for too long, the glue will wick under the square, and then when you pull the square away, you will pull some of the melted styrene with it. It becomes a nasty mess, from which it is hard to recover. Luckily, I had already learned that lesson in another project, so I made sure to hold the square ever so slightly above the surface, and removed it immediately after applying the glue (without the square, the styrene strip will move on you when apply the glue). In the real world, the ribs have folded-out edges that are riveted to the car's side panel, but we can

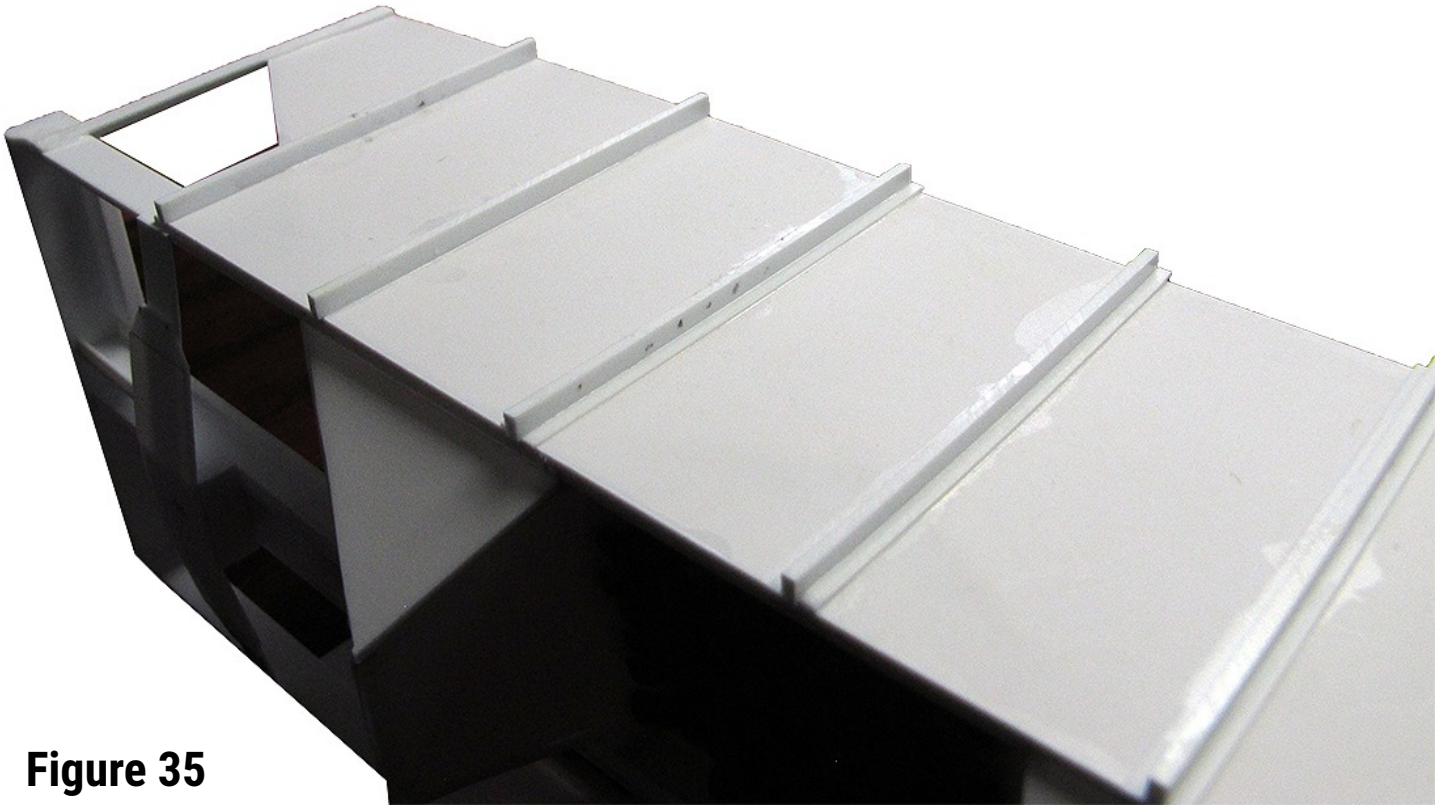
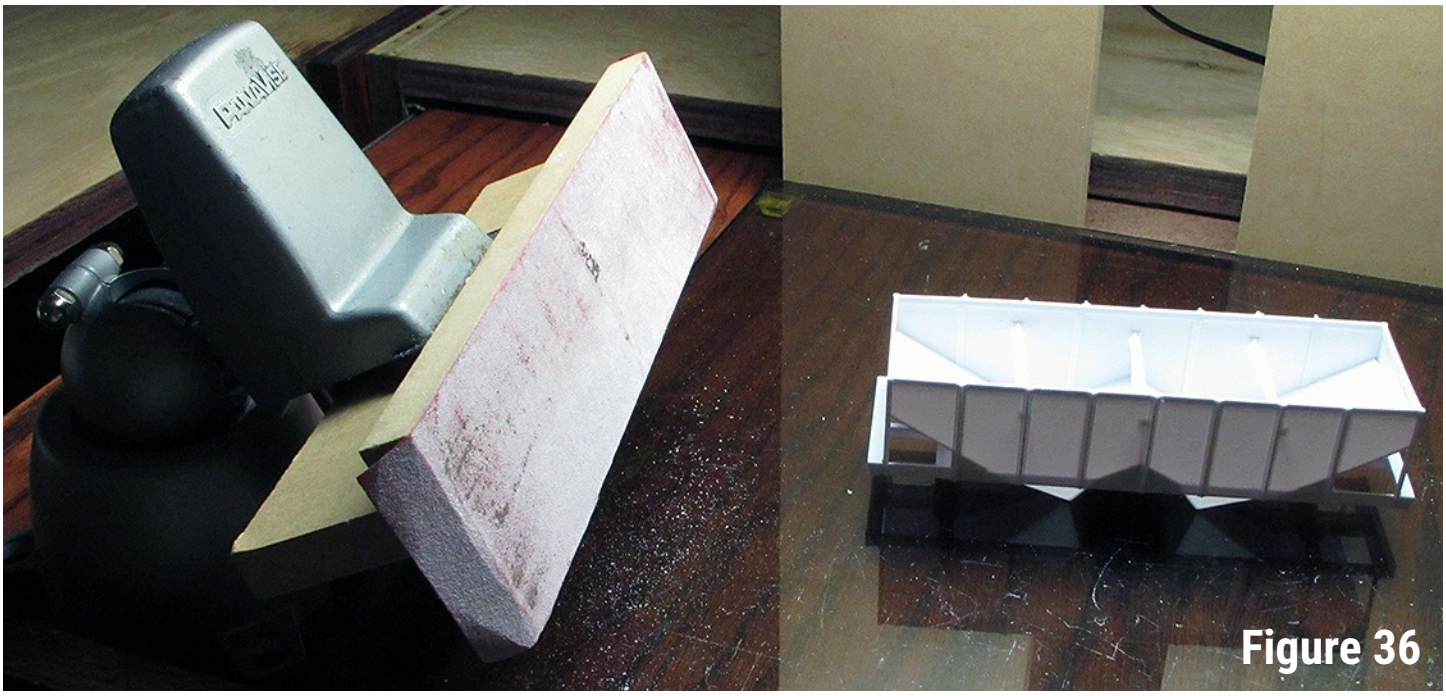


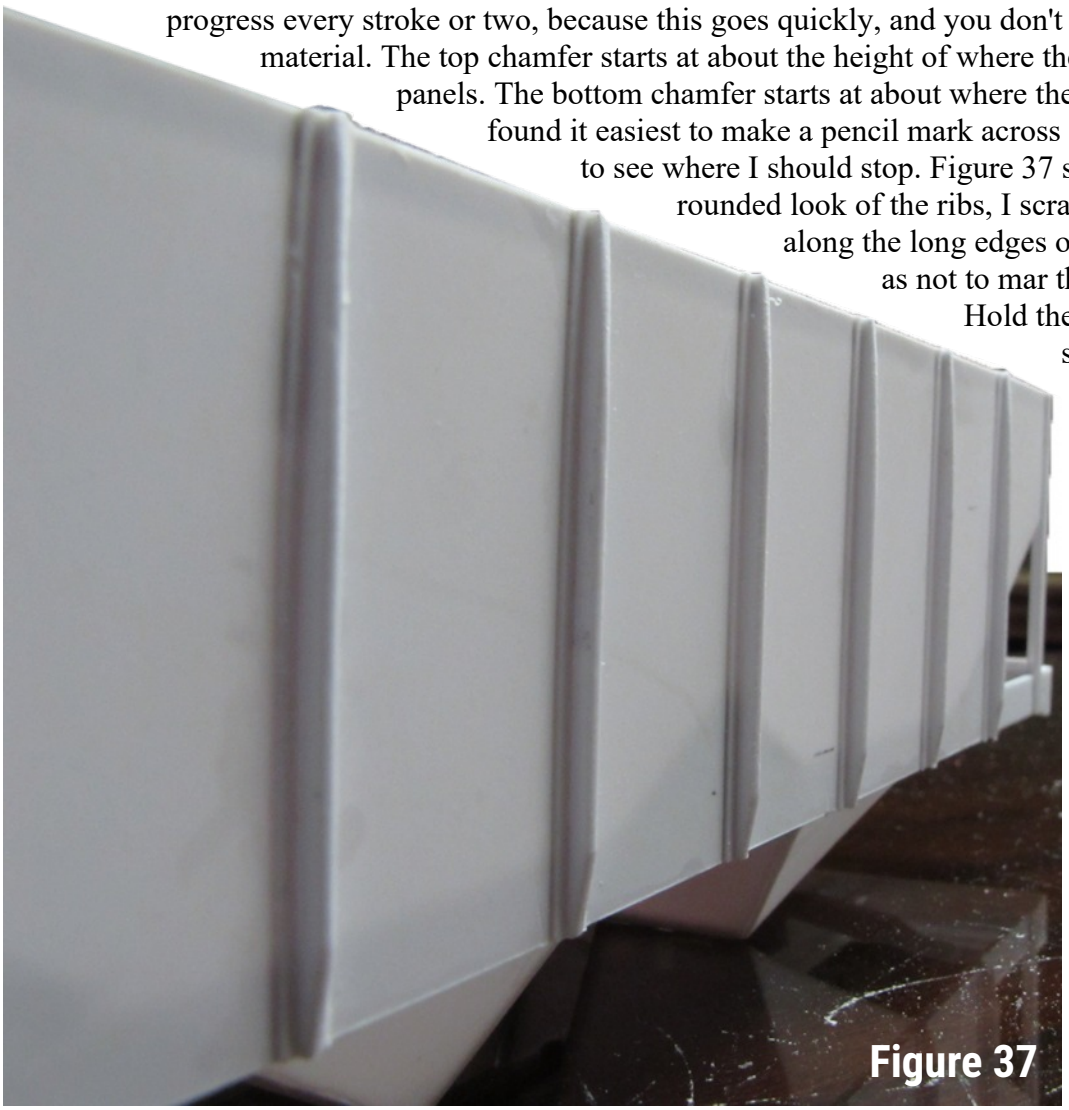
Figure 35

simulate that with some 1"x2" strips of styrene (see the ribs in the foreground of figure 35). When the ribs had plenty of time to cure, I cut and filed away the excesses on the top and bottom of the ribs, making them even with the edges of the side panels.

Studying the prototype photos of the ribs, I then set about to file the chamfer in the ribs at the top and bottom. This is a delicate process, and must be checked often. What you don't want to do is file one rib at a time, because we are never going to get them to be even with each other. Figure 36 shows the set-up I used. I glued two pieces of MDF scrap together (any flat wood will do). I then glued some fine sandpaper to the bottom of the tool. The vertical piece becomes the handle. You can then slowly move the car's ribs back and



forth, focusing your force on the top (or the bottom) of the ribs that you are filing. Be sure to check your progress every stroke or two, because this goes quickly, and you don't want to remove too much material. The top chamfer starts at about the height of where the end panels meet the side panels. The bottom chamfer starts at about where the frame's side sill starts. I found it easiest to make a pencil mark across all ribs, so that I could check to see where I should stop. Figure 37 shows the results. To get the rounded look of the ribs, I scraped with an Exacto™ knife along the long edges of the ribs, very carefully so as not to mar the side panels of the car. Hold the blade just off of vertical to shave a bit of styrene off of the ribs' sharp corners.



Now we can finally install the top chord around the entire model's top edge. It is amazing how this addition really does help the model become straight and strong. I made mine out of 1"x6" strip styrene, and I mitered the corners. Because the model is quite light, and this is delicate work, I put some metal weights in the model while I measured and then glued the strips in place, as is shown in figure 38.

Looking at prototype photos, there is a cover over the corners, so I cut a 1-inch-thick piece of styrene

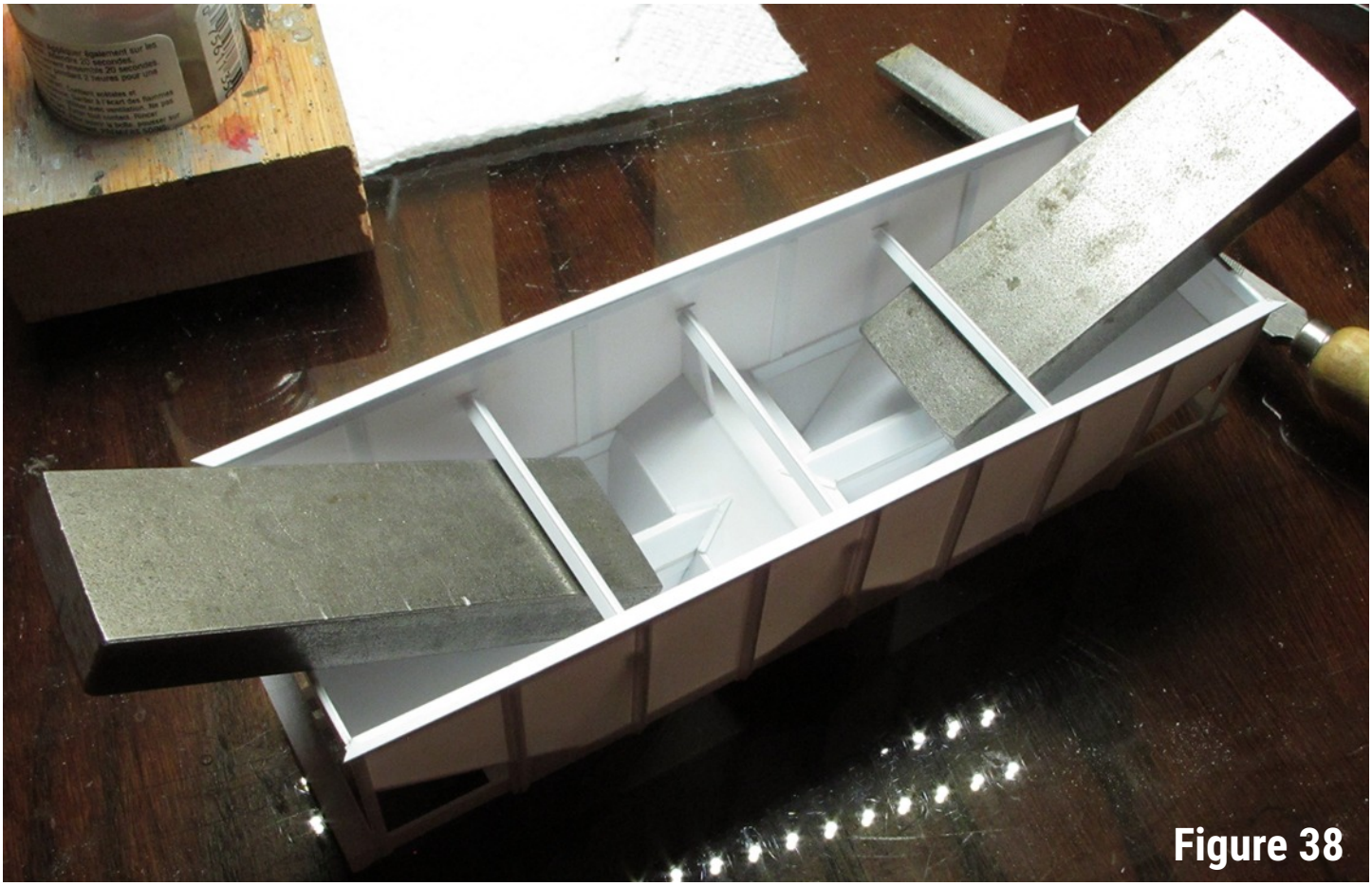


Figure 38

Figure 39

Figure 40

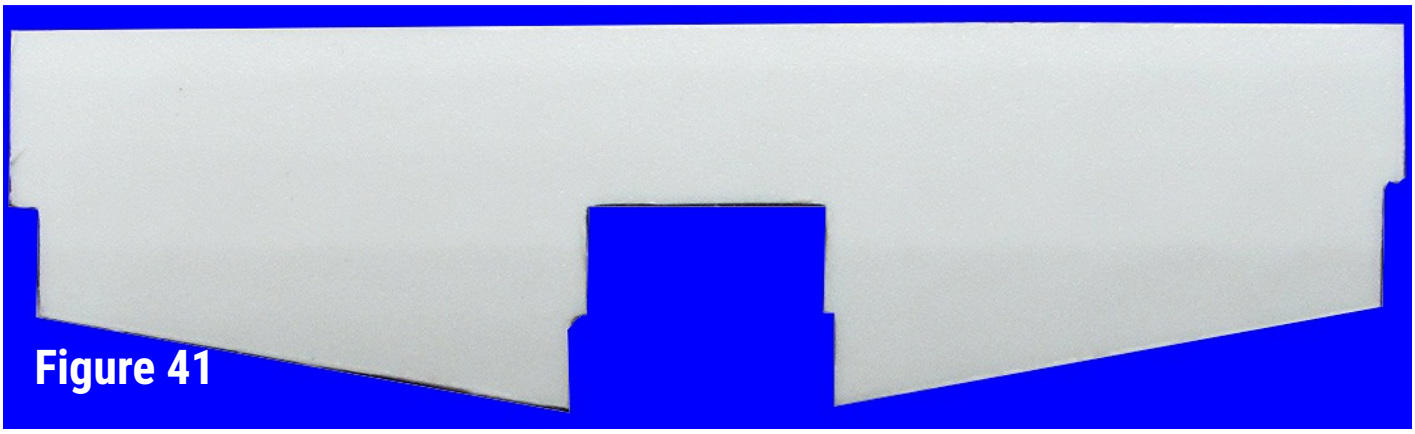


Figure 41

to 1-foot square, and glued it to each of the corners. See figure 39. Figure 40 shows how I removed the interior of the piece to match the interior of the body, and I filed the exterior in a rounded-over fashion, to match the prototype photo.

Moving to the underside by the bolsters, there is a sheet of metal that supports the angled slope of the hopper box and rests on the truck bolsters. I started off by cutting a piece of 0.015"-thick sheet of styrene to 9'4" wide by 2'6" tall. I then custom-fitted it to the interior space of that opening, as best I could. See figure 41. Figure 42 shows it installed, glued between the sloped body and the top of the bolster. Repeat this process again


Figure 42

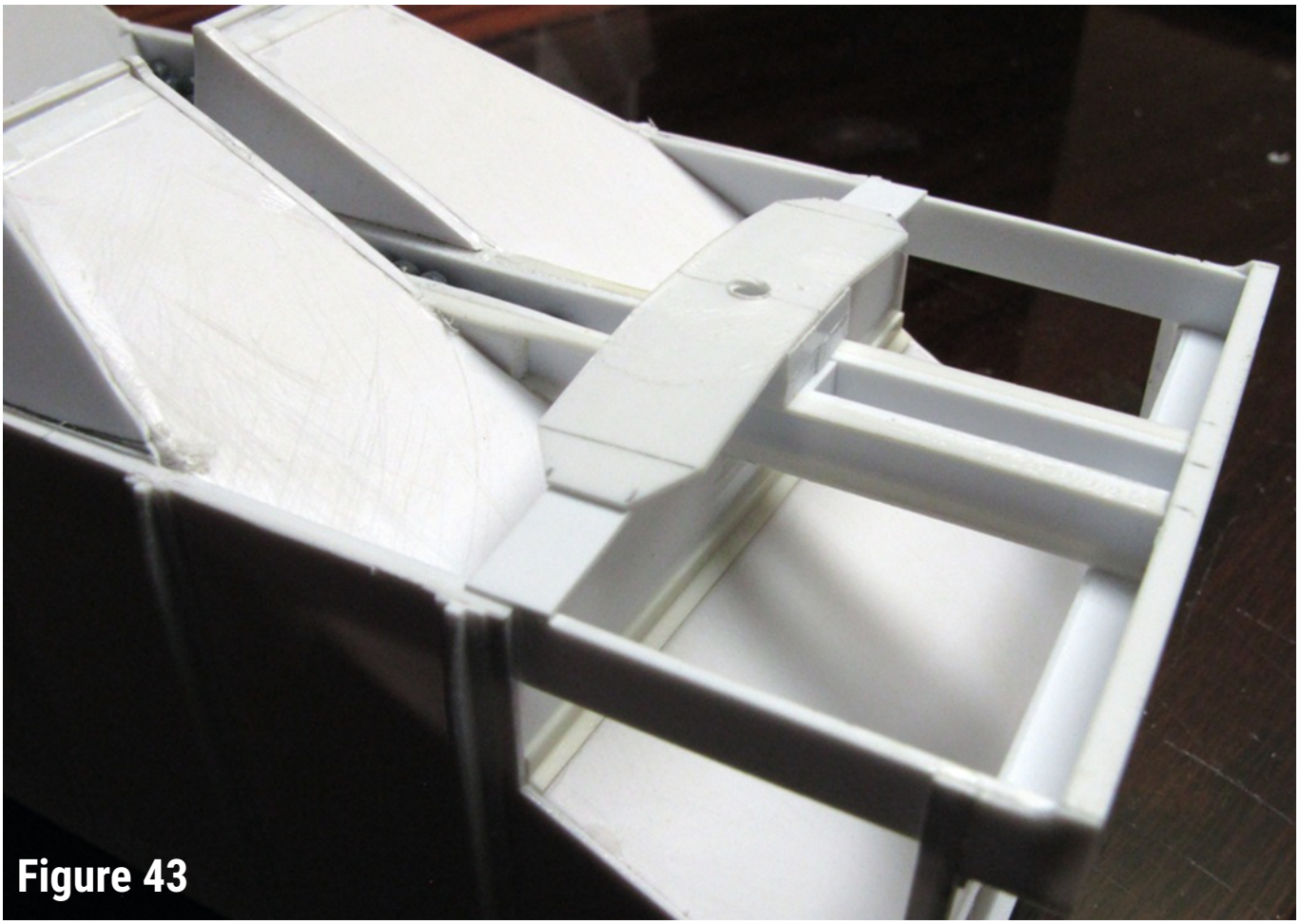


Figure 43

Figure 44

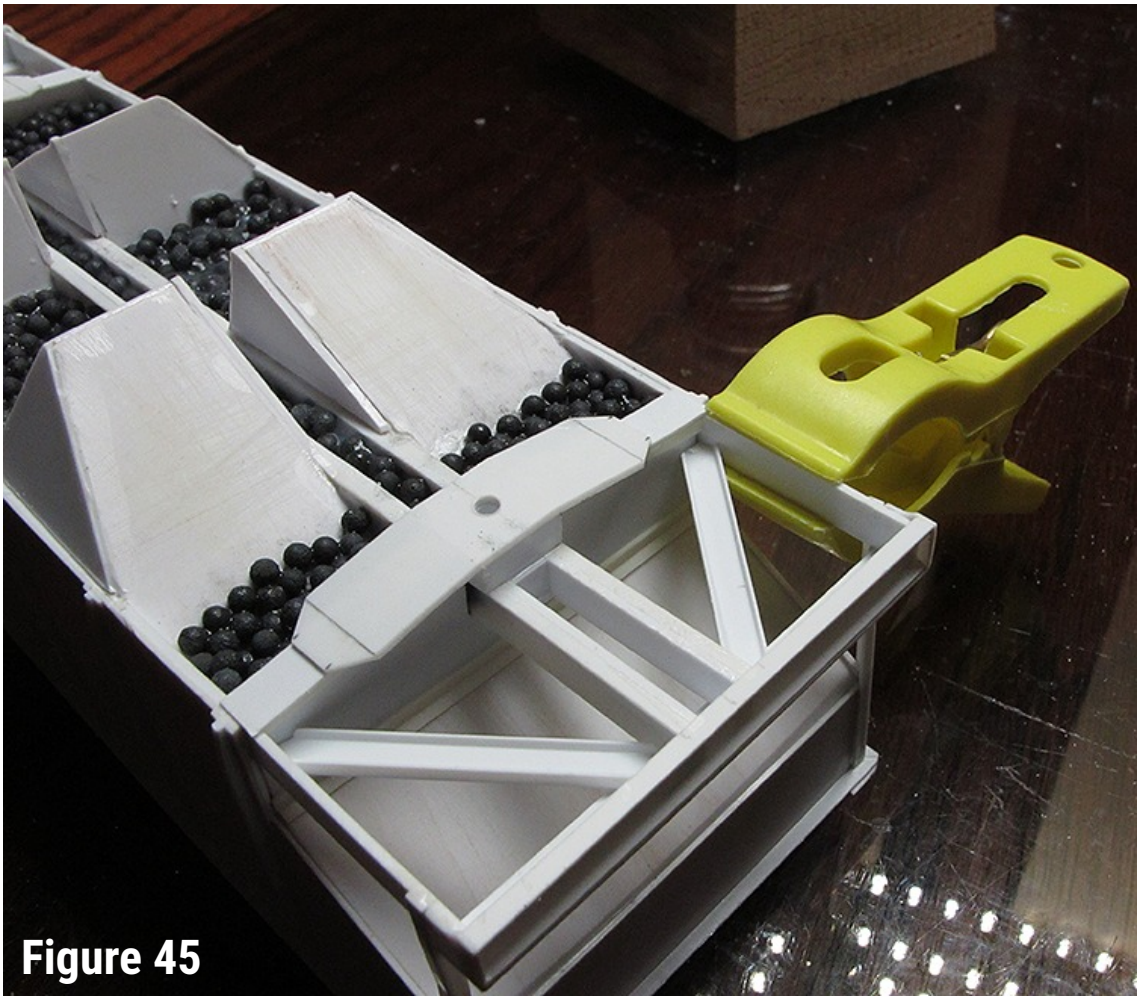


Figure 45

for the other side. Of course, all of these steps need to be done to both ends of the car. The prototype shows a strip covering the seams between the sheet and the body, and the sheet and the bolsters. I fabricated those out of 1"x3" strips of styrene. See figures 43 and 44. A side note here. In subsequent photos you will notice that I added more lead shot in behind this sheet and the hopper bays.

There are two diagonal braces running from the center sill to the outside. Hoppers of later design had these going in the opposite direction, from the outside corners to the center sill. I cut them from scale 8" wide styrene C-channels. I filed one corner into a point of two 45-degree ends, and then filed the opposite corner to custom-fit. See figure 45. The yellow clamp was used to hold one end up while I applied glue to the other end of the strip (you need three hands


Figure 46

Figure 47

Figure 48

here!). There are some triangular gussets on the top of these braces, so I cut them out of 1" styrene, 1-foot square, shaping them to fit. See figure 46. This completes the major exterior construction of the body. See figure 47 of the current status of the car (the body was just posed on the trucks).

Building the Hopper Bays

We want to focus on the exterior of the hopper bays and their doors next. Studying the prototype photos, there are two angle iron reinforcement strips on the bottom of the bays themselves, spanning across the pair. I modeled those with 4" styrene angle strips, cutting them to length after the glue had dried. See figure 48. The longer you stare at prototype photos, the more details you start to

Figure 49

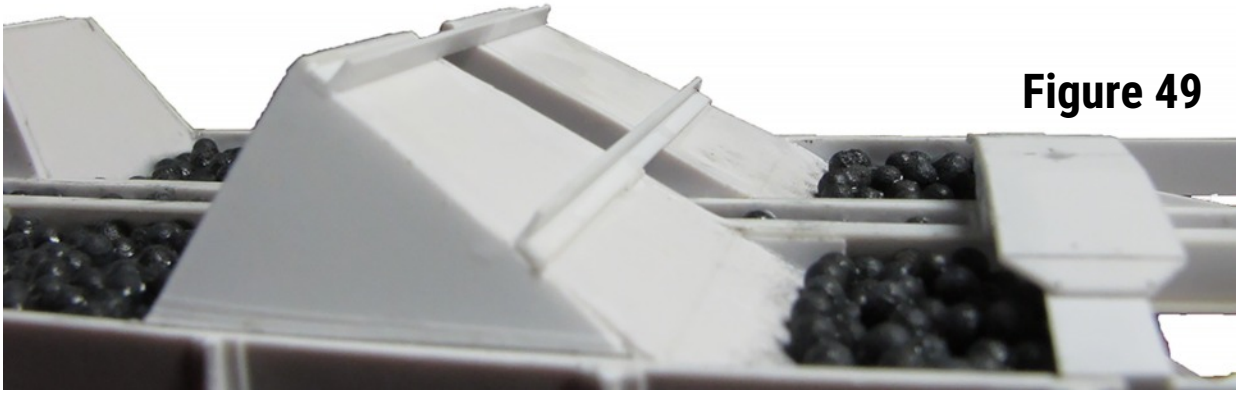


Figure 50

see. This can really bog you down on a big project like this. For example, one of the things I noticed was that the direction of the "open face" of these angle irons was always down toward the ground, except for one of the four. In every photo where I could see these strips, there was always one facing "up". I have no explanation for this, but I modeled it that way as well, as shown in figure 49.

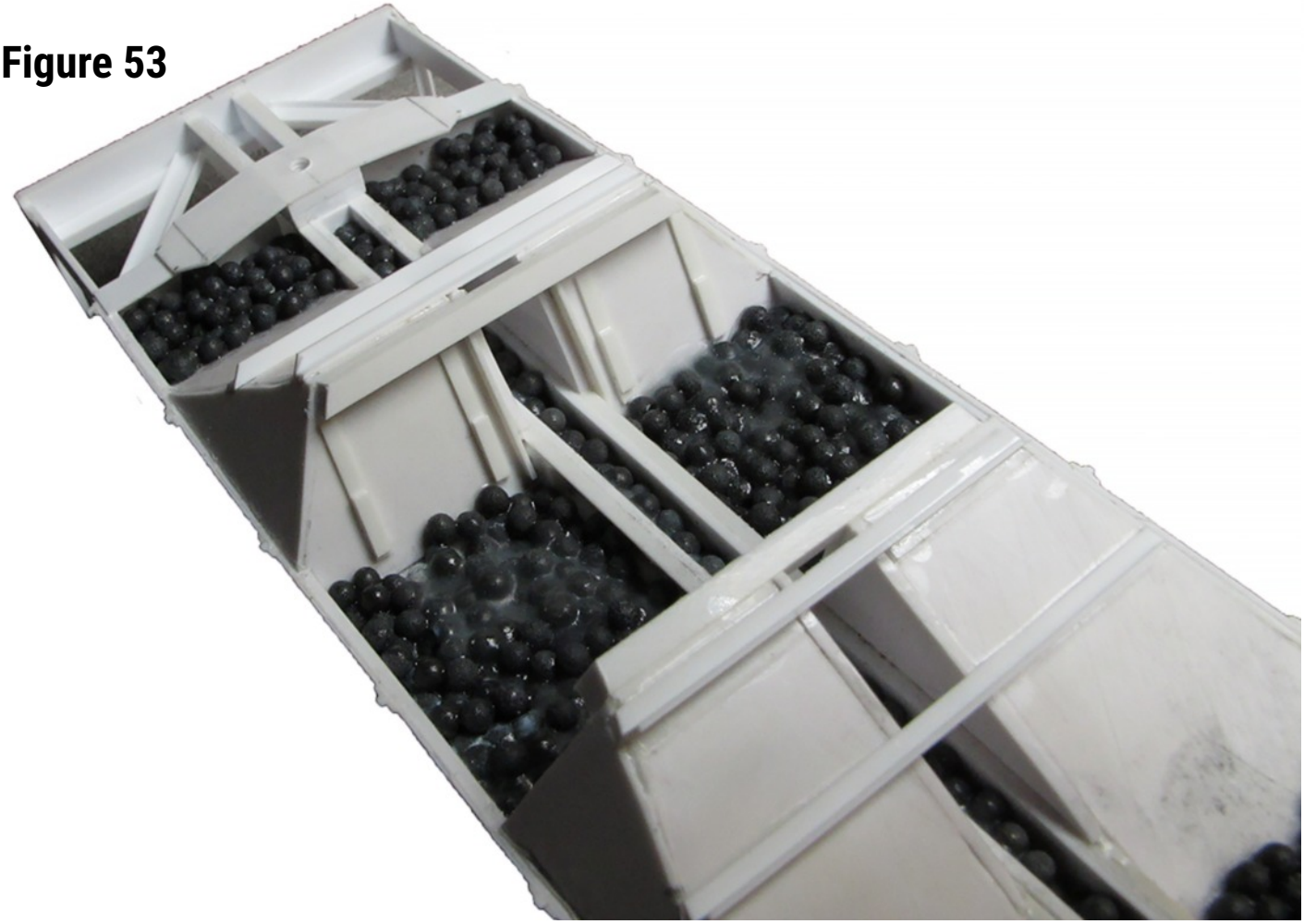
Studying the bay doors, figure 50 shows the angle iron reinforcement strips I attached to the inside edges of the doors. I made these out of 3" styrene strips. The bottom edge of the doors shows a heavy metal bar spanning both doors. These are formed out of sheet metal, with a special "bump" in the middle to clear the angle irons attached to the doors. For this hidden feature I thought that was too much work, so I simply glued a 5"x5" strip across the doors, after clearing some of the angle iron styrene away, as shown in figure 51.

Figure 51

Looking at the S-Helper Service PRR GLd and the River Raisin Models GLf models, they used a similar simplified method as well. There are hinges on the doors that are riveted up the doors. I simulated that

Figure 52

Figure 53



with a 3" strip of styrene glued to the door surface (the hinge part is hidden under the lead shot, so that is not modeled). See figure 52. A photography note here: the hinges are perfectly straight but for some reason they came out looking crooked in the photo. A secondary reinforcement strip is seen in the prototype photos, so I glued another piece over the hinges. See figure 53.

The door latches were a real pain to shape and form. They are tiny parts and they have a lot of odd curves. The B.T.S. H21a kit had some nice door latches, so I contacted the company, but they neither had them in stock nor sold them separately, so I had no choice but to form each of the four door latches per car by hand. There is a lot of extra detail you could add to these, but this is where you can really soak up a lot of time. See figure 54. The truth of the matter is that in the end, with the car painted, the missing details aren't "missed", so just simulating their overall shape I found to be sufficient. I did add a vertical detail, as shown in figure 55. I used a scale 6" diameter styrene tube, cut off a slice of it, and then cut that slice in half. I could then glue that half to the door latch.

Figure 54

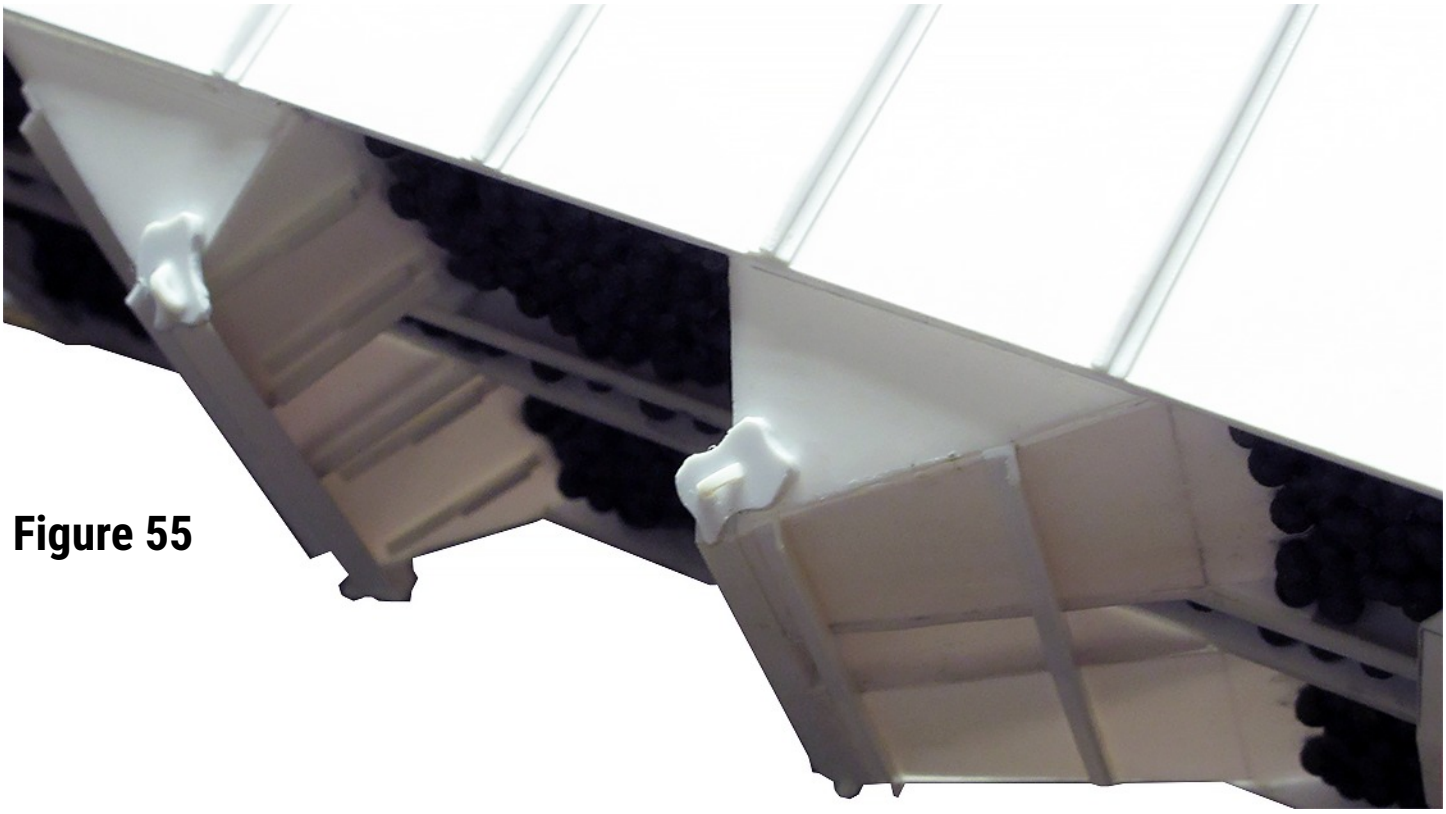


Figure 55

Building the Brake System

The November 1978 issue of *Model Railroader* had an article by the John Porter (a fellow S-scale modeler who passed away in 1995) called "Scratchbuild a Wartime Hopper Car". Although it is not a PRR GLa he was building, it did have fantastic drawings of both the KC and AB brake systems. The GLa hoppers were

Figure 56

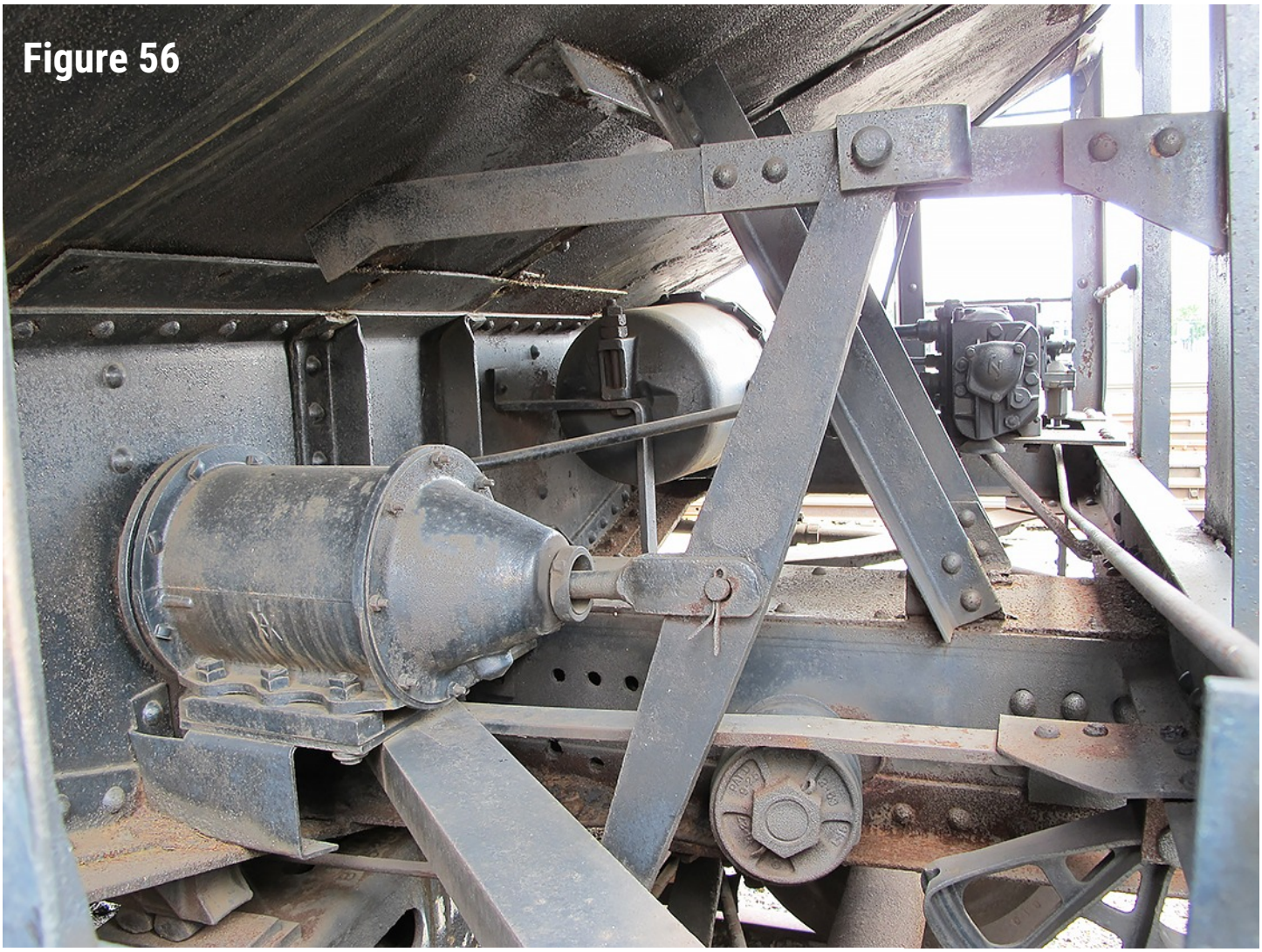


Figure 57

built with the earlier KC brake system, but eventually upgraded to the AB system. In the era I model, I am using the AB brake system. I was able to visit the Steamtown exhibit while attending the 2013 NASG Convention. I took lots of photos, one of which included the brake system details of a two-bay hopper there. See figure 56. With both of these resources at hand, I build the brake system. Due to the configuration of a hopper, the brake system is predominantly above the frame, with it all visible, so it pretty much has to be modeled. I used pieces of the Grandt Line AB brake system kit (part #4057), and

Figure 58

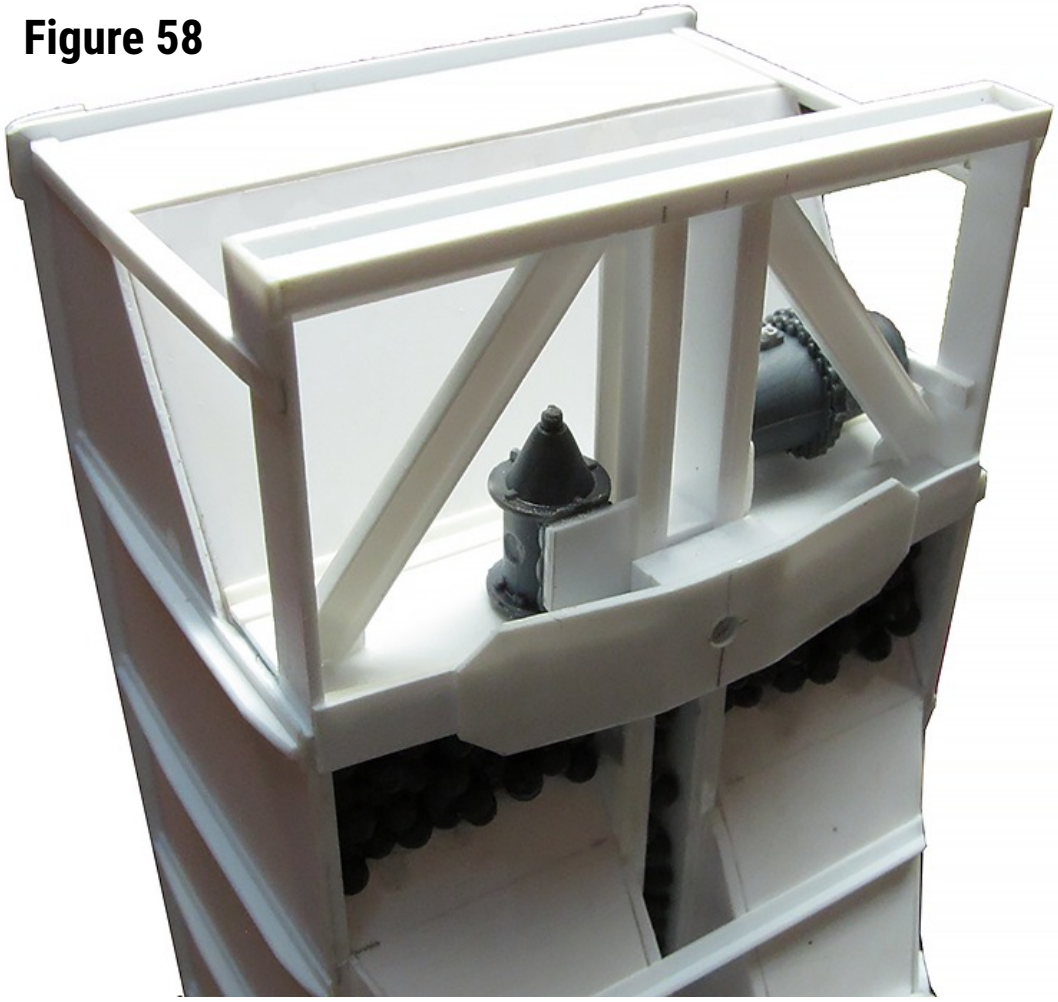


Figure 59

fabricated the various mounting brackets from tiny strips of styrene. These are really just a matter of figuring out how the component would have been supported in the real world and attempt to mimic that in the model. I found differences between various prototype photos, so I am sure these were custom installations with each shop who worked on these doing it in their own way. Figure 57 shows the air reservoir installed. I determined the brass wire sizes I was going to use, and so pre-drilled all the components with holes to take that brass wire, before installing them. Figure 58 shows the brake cylinder installed on a sheet metal plate, after having its bottom filed flat. To get the parts to actually fit in this tight space, I had to file the back of the cylinder flat, and remove the protruding actuator rod. Figure 59 shows the triple valve. I glued that to a piece of clear styrene (used for structure windows), because it was the absolute thinnest plastic I had on hand. The brass wire was added between the components as the components were being added. This was incredibly frustrating work to do. The parts are tiny, the space is tight, and there were usually three hands needed to hold all the parts. A lot of time was eaten up by building the brake system.

Figure 60

Figure 61

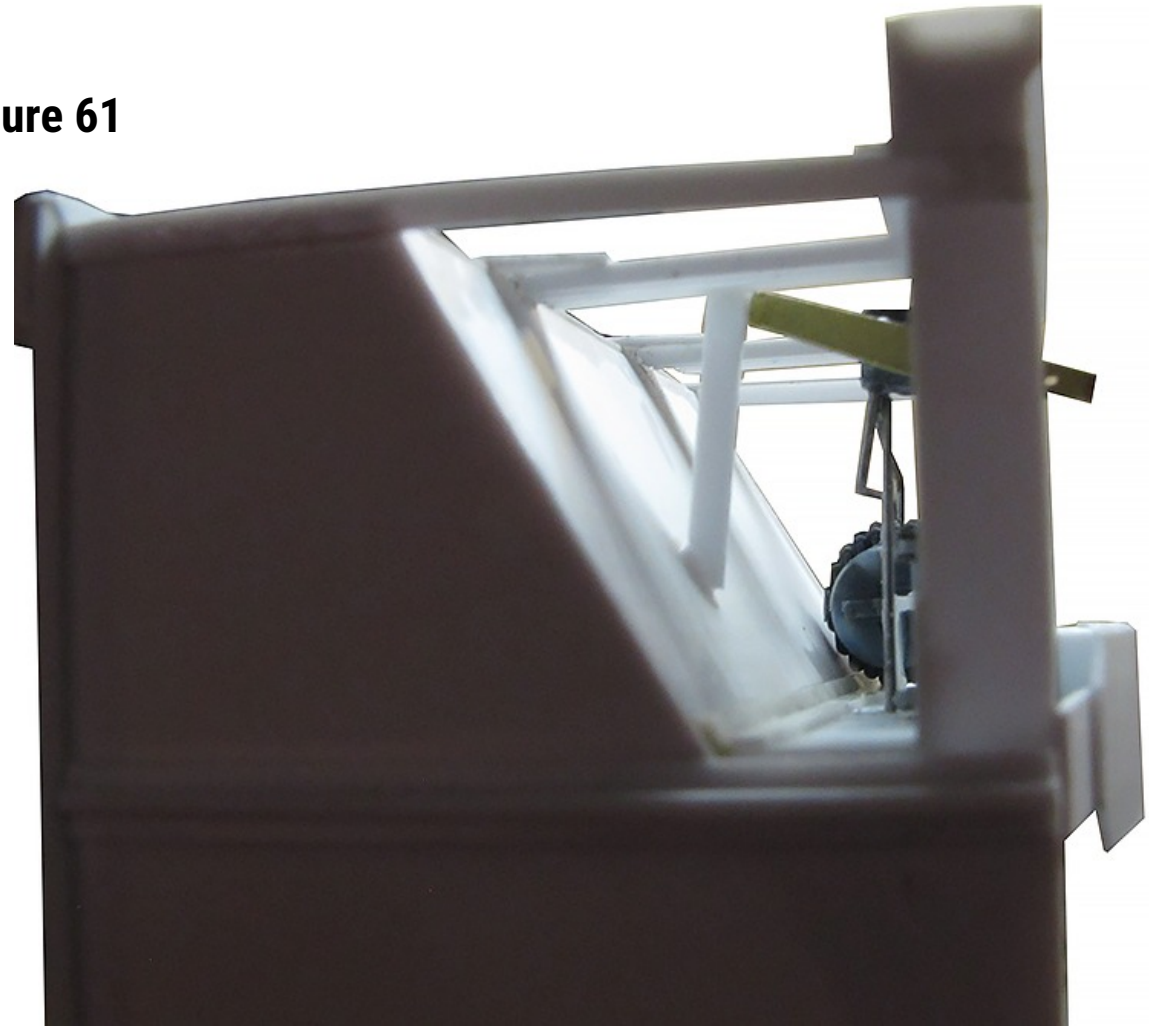
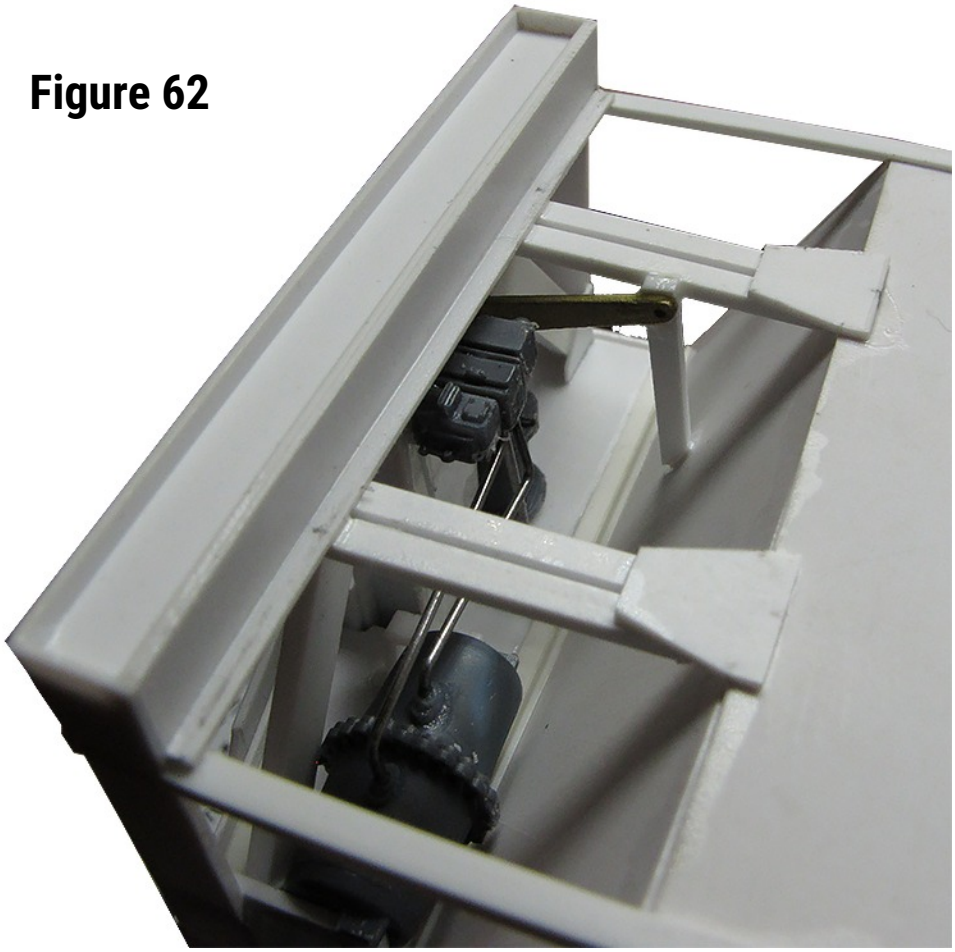


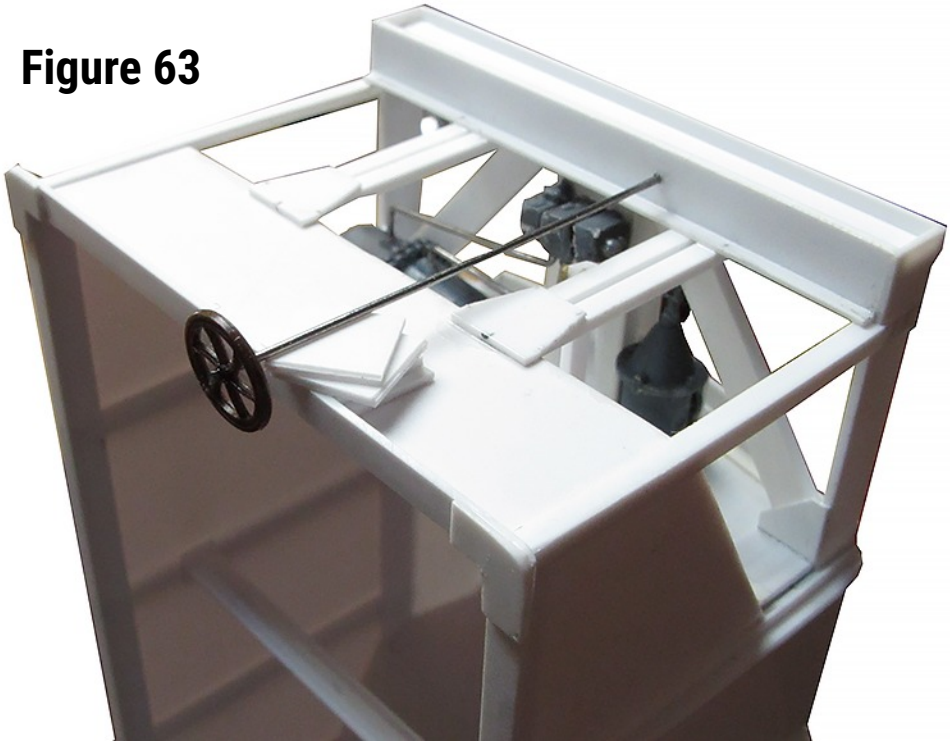
Figure 62



To complete the brake system work, the vertical support "pillars" had to be added, as shown in figure 60. I used 4" C-channel for each of the two pair of pillars. L-shaped styrene is more accurate, but I had run out of them. These are glued to the inside (back-side) of the end sill. A 15" square piece of styrene was then cut and shaped to form the gussett plates. The gussett plates actually have to be glued into place first before the vertical pillars can be attached. Very delicate work.

I placed the pillars such that they are about vertically above the wheels of the car. Note that these same support pillars have to be added to the non-brake end of the car as well. With these in place, I could then add the remaining brake system parts which connect to the vertical pillars (and the sloped sheet), as shown in figure 61. The brass piece in the photo I had left over from another project, but that can be just as easily shaped from a strip of styrene. This was probably the most difficult step of the entire project! I needed four hands here, if not more, to hold all the parts together in their custom locations, fighting gravity along the way. Figure 62 shows the parts from a different angle.

Figure 63



The brake wheel is next. I cut a piece of stiff brass wire and attached the wheel to it. The brake wheel staff appears to be about 3'6" from the left side of the hopper, so I drilled a matching hole in the top of the end sill. To hold the staff in perpendicular position, I used some scrap styrene pieces to temporarily, hold it up, as shown in figure 63.

There are two brackets that hold the brake wheel staff in position, so I formed them out of a thin strip of brass sheet material. Figure 64 shows the shape and size, and figure 65 shows them glued to the car's end. As a side note, make sure to glue the bottom bracket up high enough, so that the the brake platform can be positioned (vertically) correctly (see the next paragraph as to why).

Figure 64

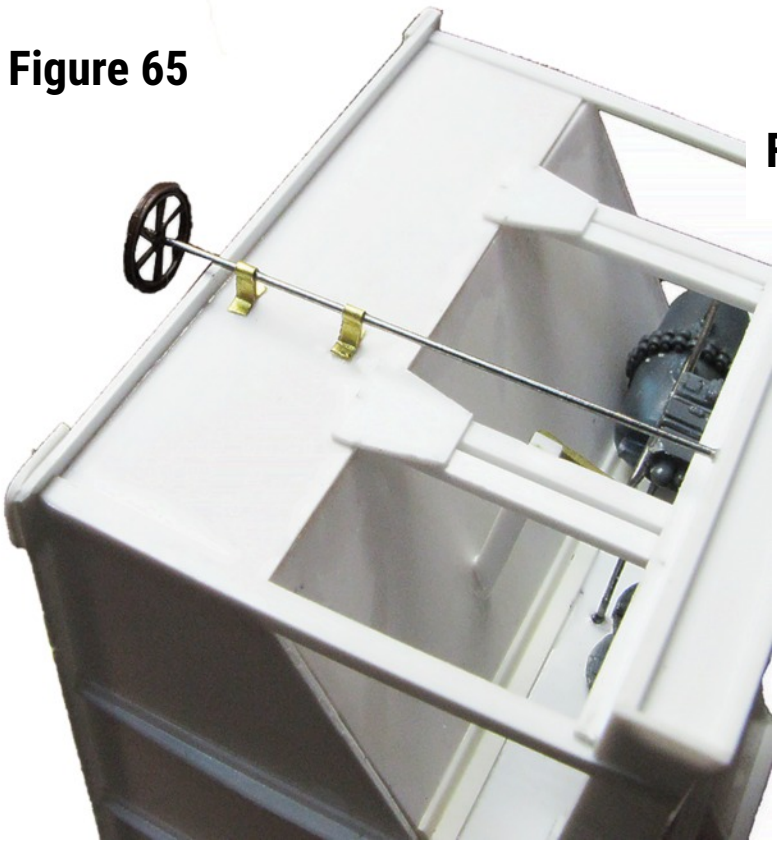
The brake platform is a 1" thick sheet of styrene cut to 3'3" by 1'. The brake wheel staff doesn't go through the platform in its center, so it is offset somewhat. Figure 66 shows it installed, along with a support bracket. The longer pieces of strip styrene forming the bracket should be glued at the same angle as the slope of the car's body, but mine weren't due to positioning of the brass brackets I had already installed.

The bottom of the brake wheel staff ends in a U-shaped piece that I made out of a slice of a square piece of styrene hollow tube, and then cutting one section off of one side. See figure 67. On the opposite side, I drilled a hole for the brake wheel staff, and then glued it in place, as shown in figure 68.

Figure 69 shows an overall progress photo, with all three cars having their brake components installed. I had some brass components left over, so I used those instead of the Grandt Line parts, but the implementation is the same. The brake system took me about two months of hobby time to get installed on these three cars. I kid you not!


Figure 66

Figure 65



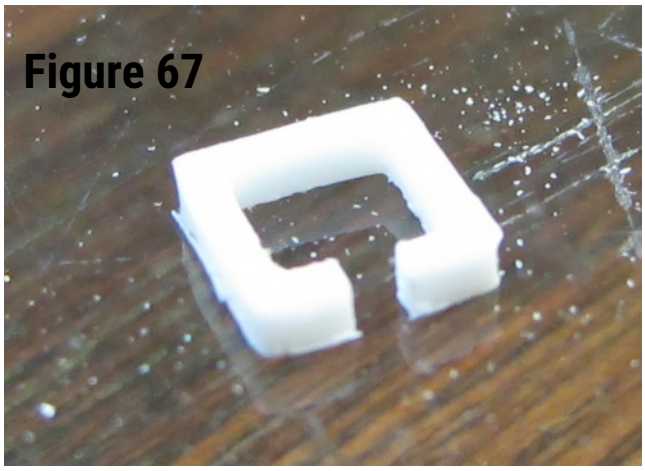
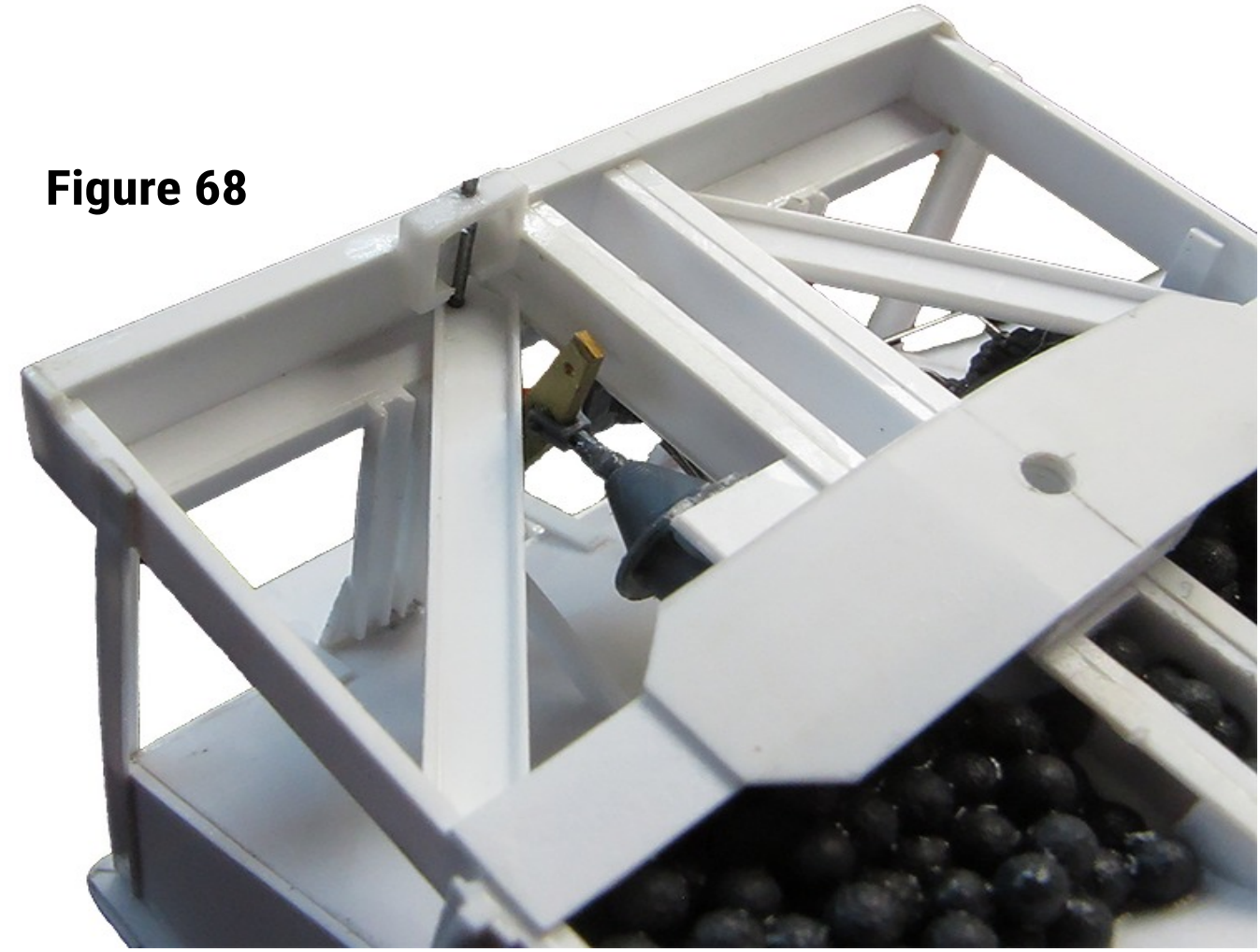


Figure 67

Figure 68



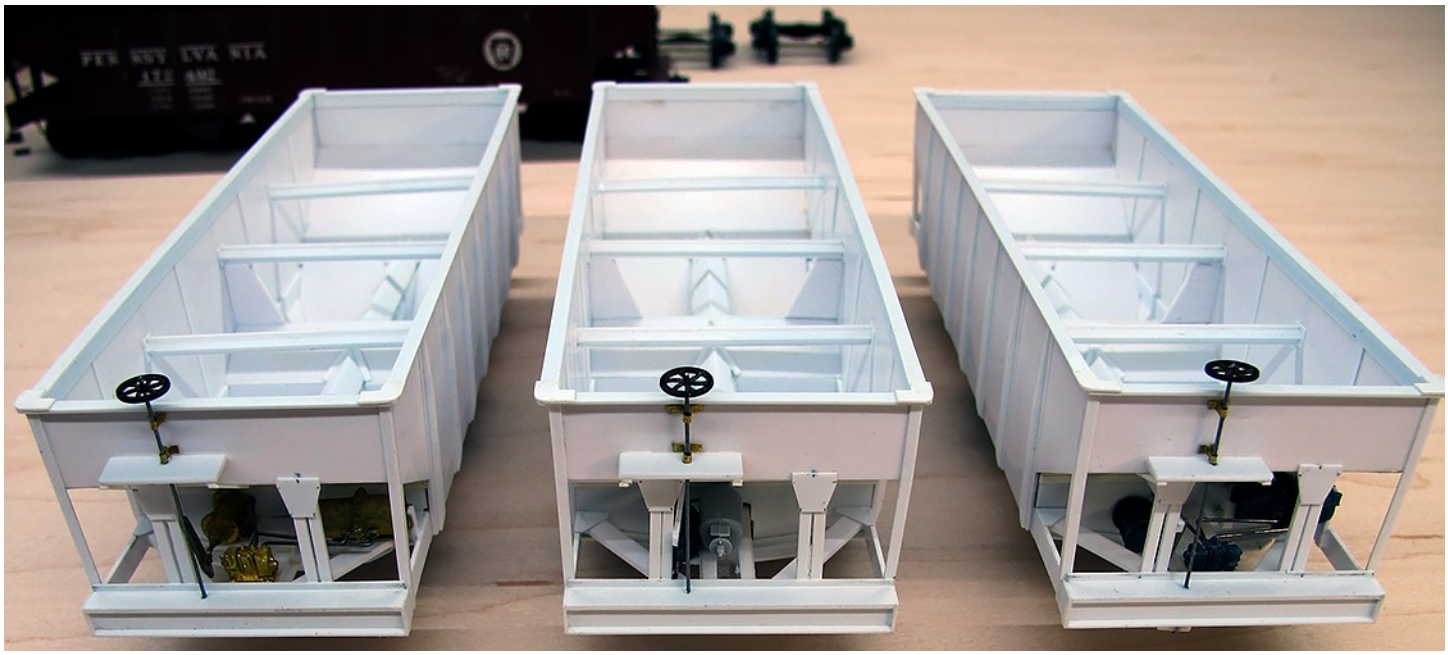


Figure 69

Final Detailing

As I mentioned above, as the project progresses, it feels like you are walking through molasses; it gets slower and slower, and your progress seems to be less and less. The final details, although close to the end, represent another major task in a project like this. They really eat up your time, and wear on your patience. However, the good news is that the project is close to being finished. The first of these details are the grab irons. For the thicker ones, I used music wire. These are harder to work with than brass wire, but they hold their shape better and thus as less prone to being damaged. I take my cars to local train shows, so they need to be able to handle the transporting back and forth. Another note about grab irons. If you are a perfectionist, you can spend quite a bit of time forming these things to be perfectly straight, square, and true. However, keep in mind that much like the modeling world, grab irons take a lot of abuse in the real world, and you'll find that on older cars these are bent out of shape or otherwise abused. So, if you get one that is not perfectly correct, you can just let it be. Since we are using different materials, I used superglue for attaching all of these grab irons.

The right, outside corner grab irons are first. The longer one was placed 1'9" above the bottom of the side sill. See figure 70. The shorter one was placed at 3'6" from the bottom of the side sill, and its holes were 2'3" apart. Make sure to trim the ends of the grab irons before installing them in the car, because you cannot get a cutting tool into the tight space after they are glued in place. There is also a grab iron to be positioned at the end of the car. Figure 71 shows how I formed and then installed the vertical grab iron along the right-hand corner post. It is 4'3" long.

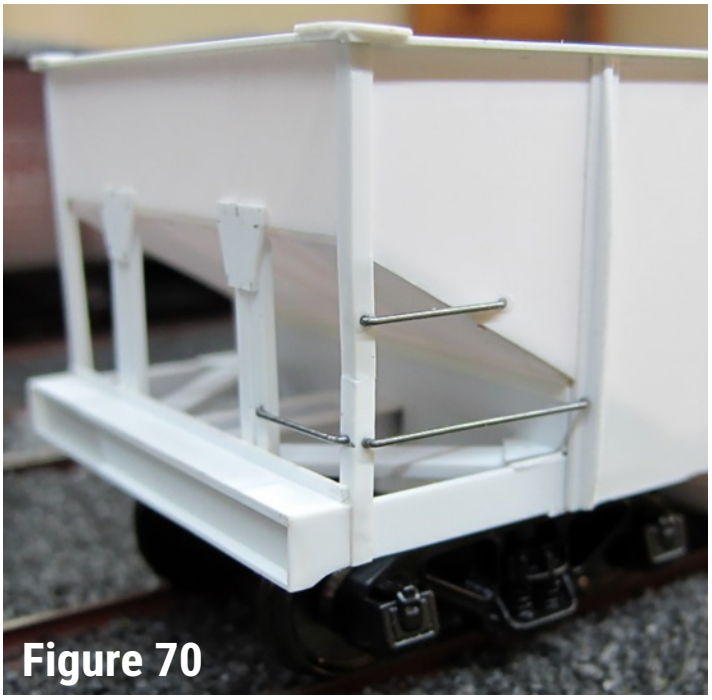


Figure 70

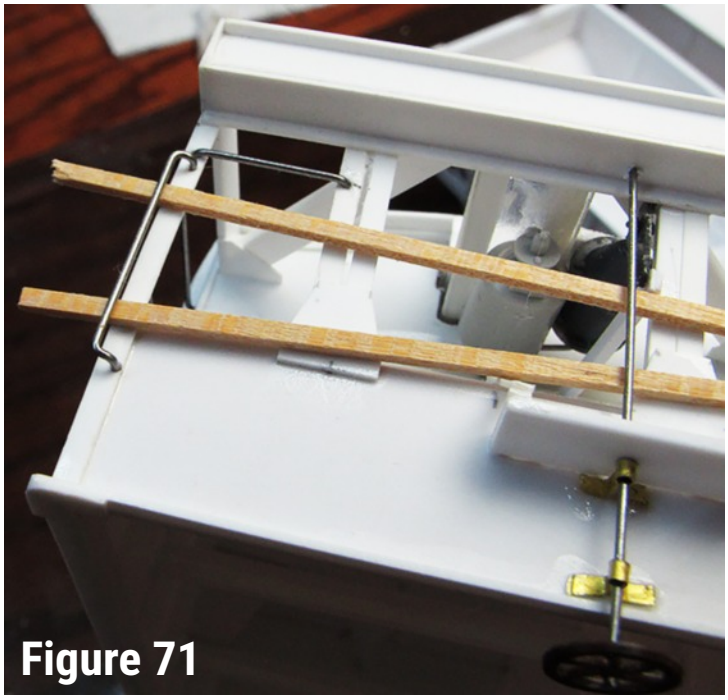


Figure 71

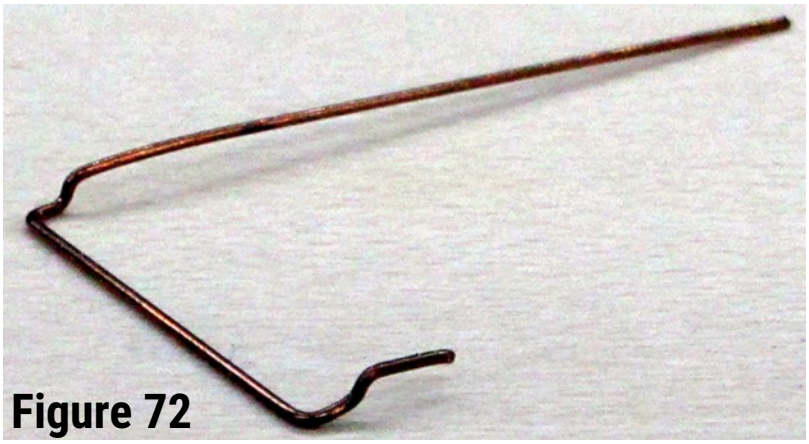


Figure 72

Figure 72 shows the other custom-formed grab iron that goes on the ends of the car. These are thinner, so I used brass wire there (under a scale 1" diameter). It is like a drop grab iron, but it has a 90-degree bend upwards right where it enters the body. Figure 73 shows it installed. For the ladder grab irons I used the Tichy Train Group 18" grab irons (part #3501). A vertical support brace has to be installed first. I used a 2"x3" strip, with the 3" edge being the one glued to the body. Note that


Figure 73

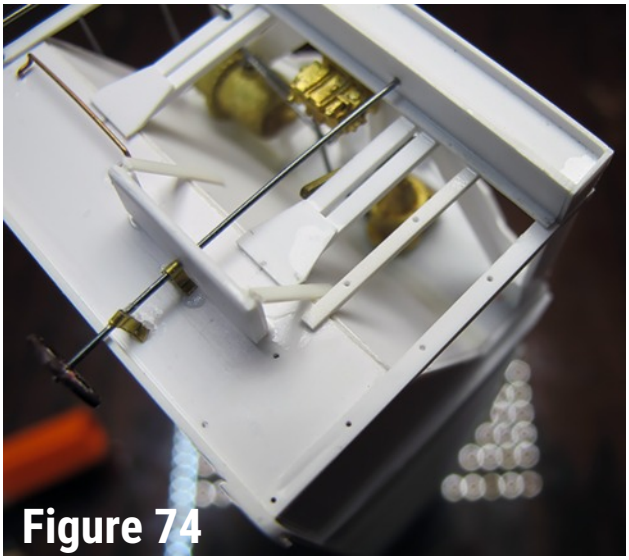
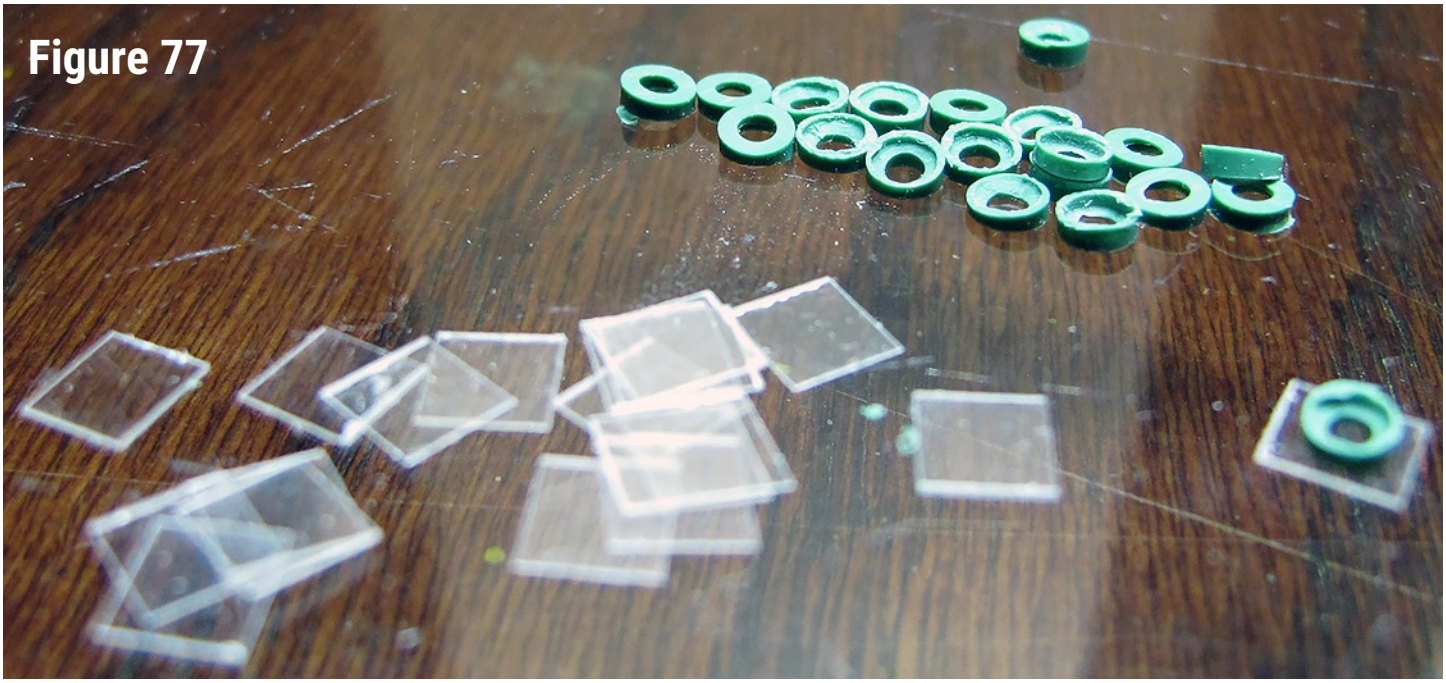


Figure 74

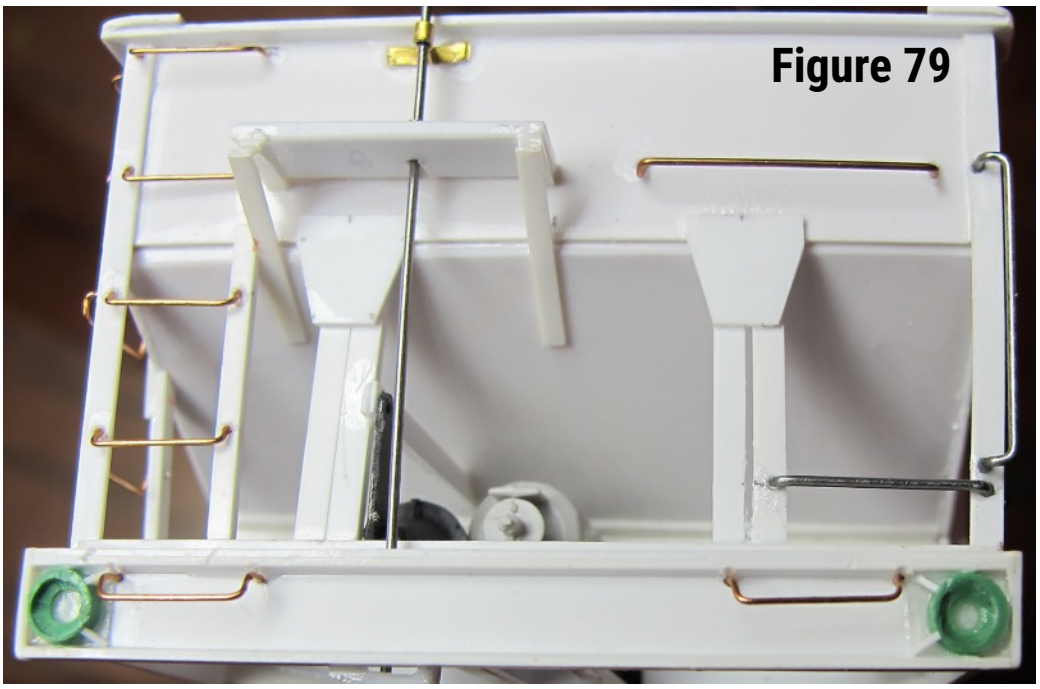

Figure 75

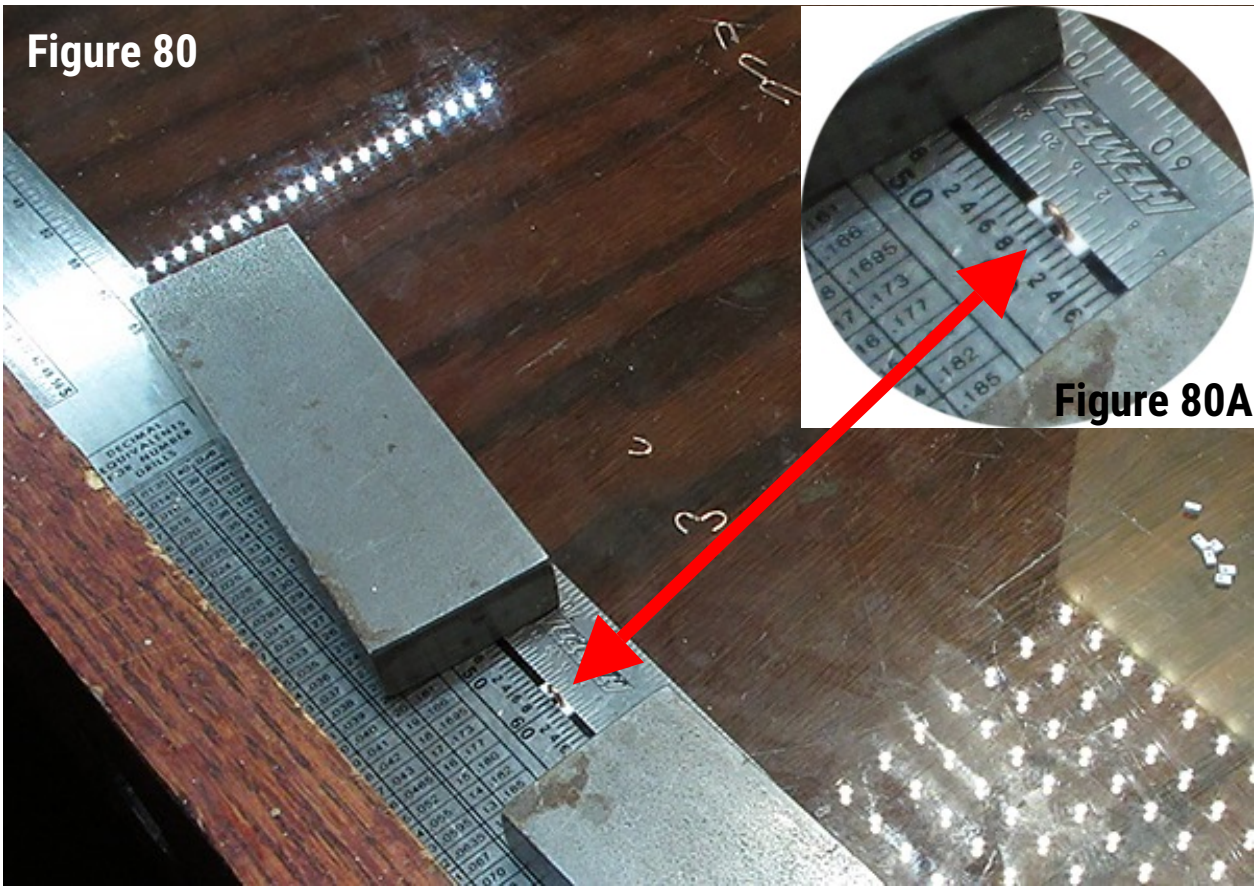
a 1-inch thick notch is to be filed away at the top where it connects to the end panel. When the glue was dry, I drilled the holes for the grab irons at a 1'6" spacing. See figure 74. Figure 75 shows them installed. Note that the one at the top is bent out a bit, trying to match the prototype. As with the corner grab irons, be sure to trim the ends of the grab irons prior to installation because they are hard to get to. The holes that go into the body went through the inside of the body. I could trim and file those flush. Later, when painted, you can't tell that there is a hole there (fill it with some superglue or body filler and sand flush, if need be). On the side of the car, a similar set of grab irons need to be installed. See figure 76. Again, I added a vertical 2"x3" strip, which appears to have reinforcement strips on the prototype made of 1"x3" styrene strips. These grab irons need to, vertically, line up with the ones on end of the car.


Figure 76



Poling pockets are not available as a separate part in S-scale, so we have to make our own. Figure 77 shows the parts I use. They are placed on a reinforcing piece of steel plate, which I simulate with a square piece of thin clear plastic. The actual poling pocket rings are formed from thin slivers of a plastic tubing. You need four of these per car, so I needed 12, but, as the photo shows, I cut a whole bunch of them. That way I could pick the best-looking ones. The cupped shaped was made by manually rolling the sliver over the end over a drill bit that I mounted in a vice. If I had one that I liked, I then used a file to have the front-facing end be shaped to "aim" in one direction (poling pockets are sloped/angled toward the next track over). Next, I cut some tiny triangles, again, making far more than I need from thin styrene strips. I then glued the steel plate, the poling pocket, and four such triangles into each corner of the end sill. See figure 78. With those in place, I could then install the Tichy 18" grab irons in the end sill. See figure 79.





The details get smaller as we progress! Next up are the D-shaped roping rings. These are used to hoist the car up. I used a mandrel to shape these (a mandrel is a hand tool that has various radii shapes molded into it; I got mine at a local crafts store; the shaft of a really small screwdriver could be used as well). The rings are mounted into some blocks, so I cut these tiny parts out of 1"x2" strips of styrene, and drilled a hole into each of those matching the diameter of the brass wire I used. Figure 80 and 80A shows how I used two metal rulers to hold two of these blocks in position and then glued the brass wire ring into them. Figure 81 shows them installed on the model, just outside the bolster area right on the underside edge of the side sill.

Stirrups are separately available in S-scale. However, they are either of a shape that doesn't match the prototype I am trying to model, or I had a hard time removing them from their sprues. I had previously formed these from thin strips of brass flat stock, but getting them all to be of the same size and shape is hard to do. I pondered this for a while, but eventually fellow S-scale modeler, Bob Werre mentioned that he used staples for his stirrups. I used Arrow brand T20 staples. Stirrups are generally 12 to 18 inches wide (the steps area), so these staples were too wide. Figure 82 shows how I manipulated one leg of the staple to form the shape that the ones on the GLa hopper had. Figure 83 shows one installed. They are a bit too thick, so I am going to be looking for thinner staples, but the concept works well.


Figure 82

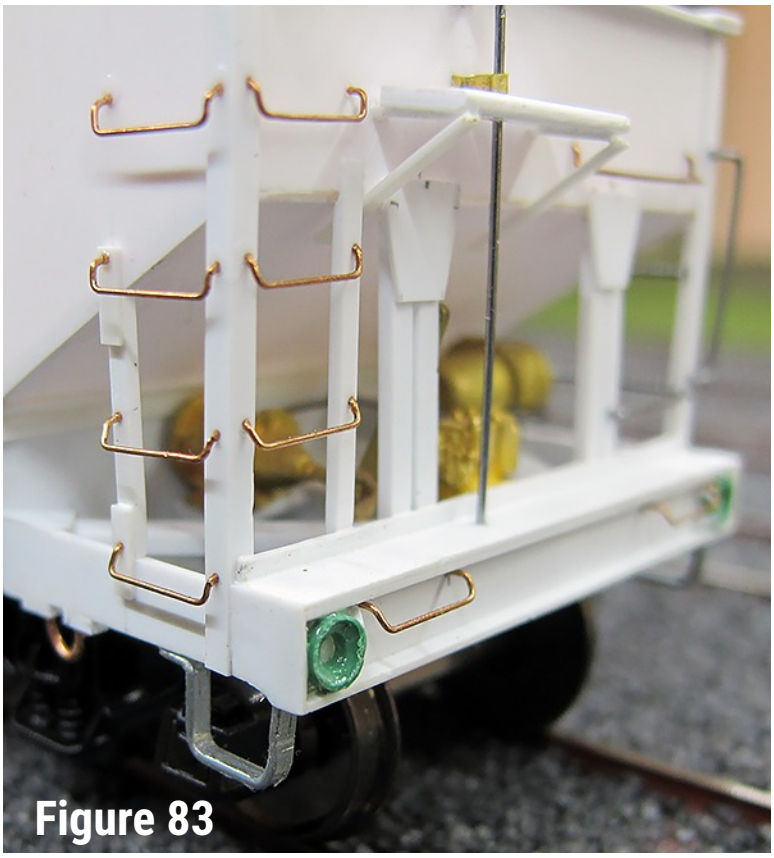


Figure 83

Wheels & Couplers

For the trucks I decided to use MTH's AAR Type Y trucks (part #35-1104) with scale wheels. Figure 84 shows them installed. I tapped the hole I had previously drilled for 2-56 screws. With them installed, I could then check against my coupler-height gauge and found the car to see a touch too low. A small washer was just the perfectly solution, which I attached with superglue. See figure 85.

The couplers require a bit of removal from the end and center sills. The prototype photos show that as well. I had known about this since the early construction phases, but I didn't want to remove any material until the whole car was ready for the couplers. Figure 86 shows the material that I had to remove to get the coupler to fit. I use the Walthers HO-scale ProtoMax couplers as my fleet standard, so I fit the opening accordingly.

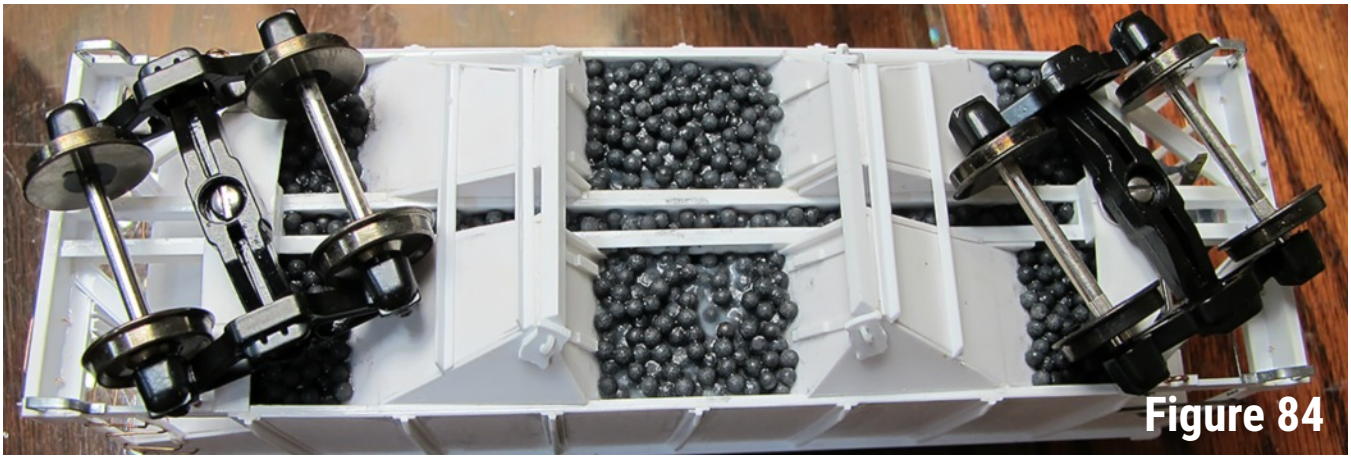


Figure 84

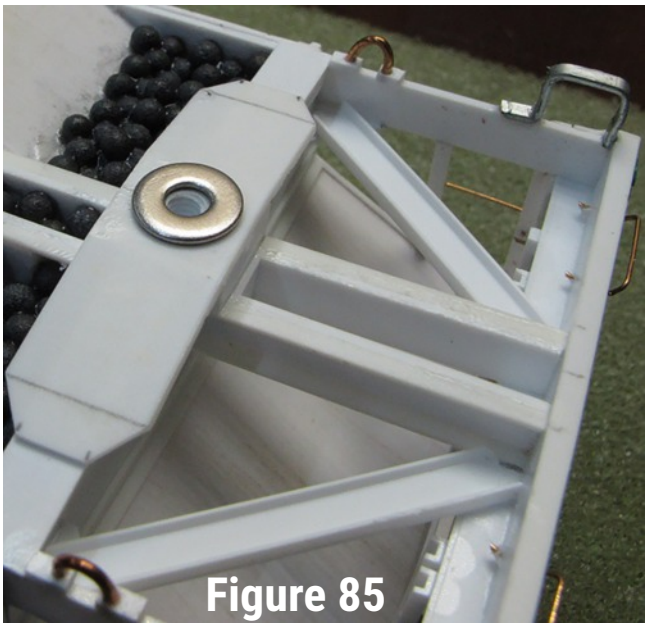


Figure 85

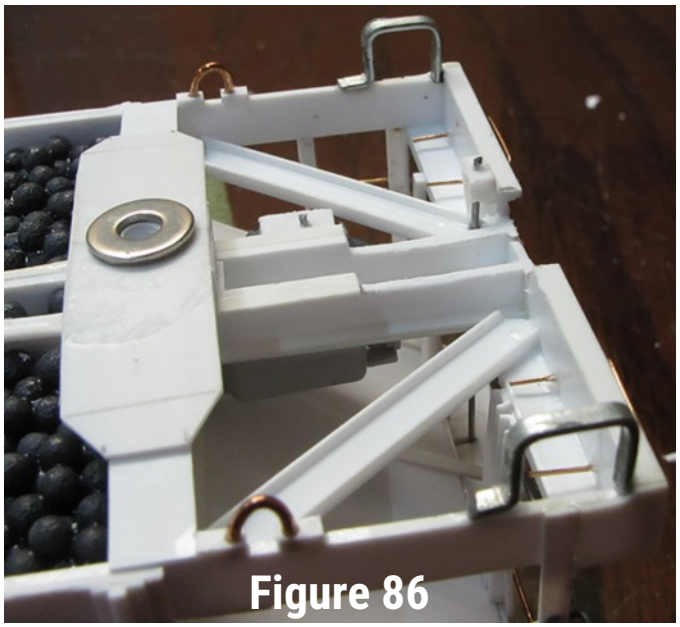


Figure 86

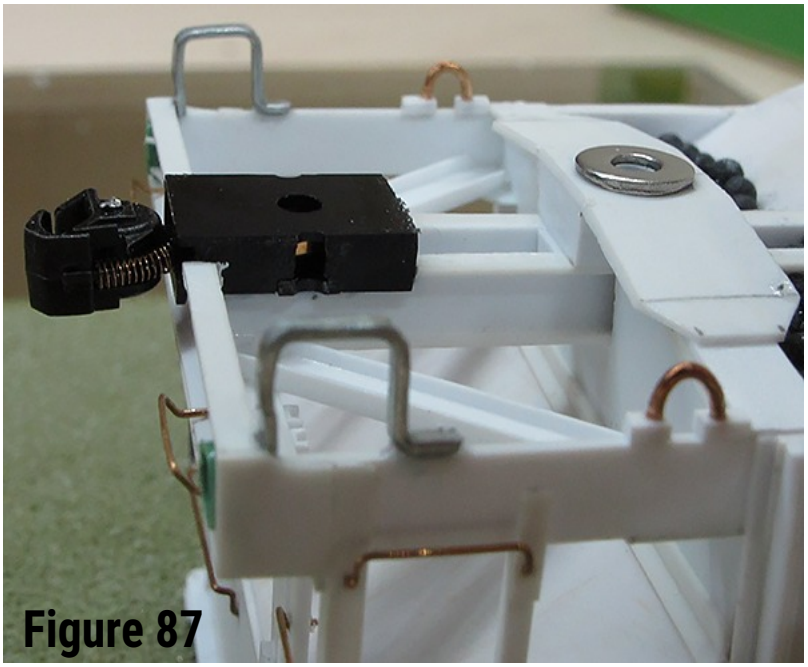


Figure 87

The coupler body had to be cleaned up, and I cut off the metal uncoupler pin from the coupler, which is my preference. See figure 87. I glued the coupler to the car using superglue. 5-minute epoxy would also work, but I have found that if the car takes a good hit at a train show (speaking from experience here), the break is cleaner and easier to repair with superglue. Superglue is strong enough to pull the size trains I normally run. Your mileage may vary. Figure 88 shows the completed models with the addition of the airhose next to the couplers. Due to the unrealistically tight curves we run on our layouts, I mounted the airhoses 6" away from the coupler draft gear box (the prototype has them up against the draft gear box). Note that these are mounted under the end sill, not run through the end sill, matching the prototype.


Figure 88

Painting and Applying Decals

At this point in time, you would apply 3D rivet decals to the model, such as those available from Archer Fine Transfers. The PRR GLa hopper has a ton of rivets. I was getting burned out on the project, and the thought of spending all of that time (and money; those decals are not cheap) was too much. However, the thing I like about S-scale (vs. O-scale) is that rivets are optional. In HO- and N-scale rivets are nearly impossible to see. In O-scale and G-scale, they are just about required because you can clearly see them. S-scale falls in between; you can add them or leave them off. Now that I am looking at my finished models, I do not miss the rivets at all. Once you are two or three feet (real world) away from the model, most people aren't going to be able to see them anyway. If I were making a contest model, then the effort would be worth it. So, with that issue resolved, it is on to the painting phase.

My painting effort on this particular project was beset with problems. My air pressure regular on the airbrush set-up I have broke. I tried without it, but that failed. Also, since I had run out of my supply of Floquil freight car red paints, I decided to try Tru-Color™ paints. Try as I may, I wasn't happy with the results at all. I have consulted with other modelers. Some swear by either ScaleCoat™ or Tru-Color™, and some swear to never use either of them. My conclusion is that you need to try each of the brands and find one that works for you. It could be dependent on the airbrush set up you have, or your environmental conditions (humidity, etc.). In the end, I found one last bottle of Polly Scale™ "Special Oxide Red". I used that to paint the three cars I built. However, I decided to hand-paint mine. It made me very nervous, because we all know that we are *supposed* to use the airbrush to paint our cars and locomotives. Well, I am happy to report that I am very pleased with the end result. The local modelers whom have seen these cars in person were very surprised when they learned I hand-painted them.

To hand-paint the models, I watered-down the paint a bit. Polly Scale™ paints can be thick. After I washed the models, carefully, with purified water and simple soap, and let them dry overnight, I applied one coat of the watered-down paint (I did not prime the models). This did not give a good coverage. However, the second coat did the trick. Some areas needed a third coat. In the end, I am glad I hand-painted the models, because there are so many nooks and crannies in a hopper that the airbrush would not have been able to get into all of them anyway. The end result would have been thicker coats in some areas due to the overspray of repeated nearby applications, I think. I will hand-paint my models again. Figure 89 shows the painted model.

After the paint had a good long time to cure, I sprayed the model with Testors™ Glosscote (part #1261). This gets the surface nice and shiny to get ready for applying the decals. See figure 90 (taken with some bright light nearby). As mentioned before, I used Greg Komar's decals (part #PRR-S-392A, although no longer available). See figure 91.

Figure 90

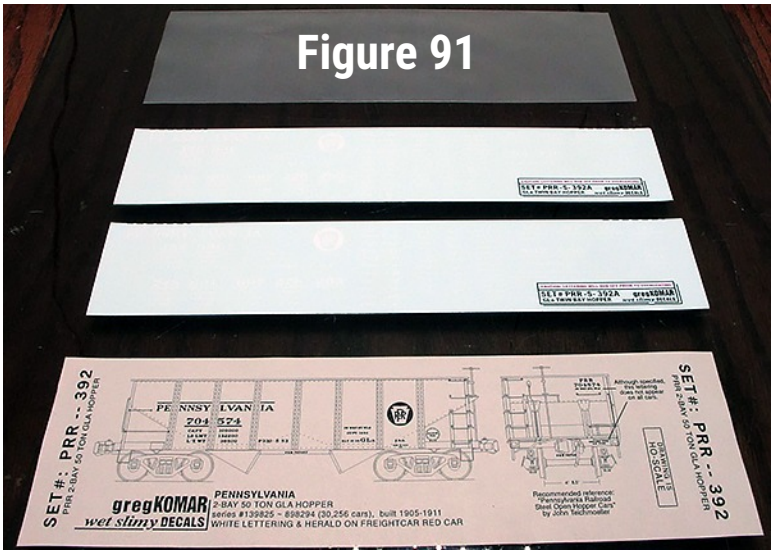


Figure 91

I used Walthers Solvaset to finalize the position of the decals. Figure 92 shows the decals applied to the side. As I completed one side, and let it dry overnight, I sprayed that side with Testors™ Dullcote (part #1260) to protect the decals. To apply the decals to the ends of the car, I carefully wrap it in some foam padding and then set it on its end (on top of some more foam). See figure 93. That allows me to carefully apply the decals without the model falling over (and if it should fall over, it is protected).

Figure 92

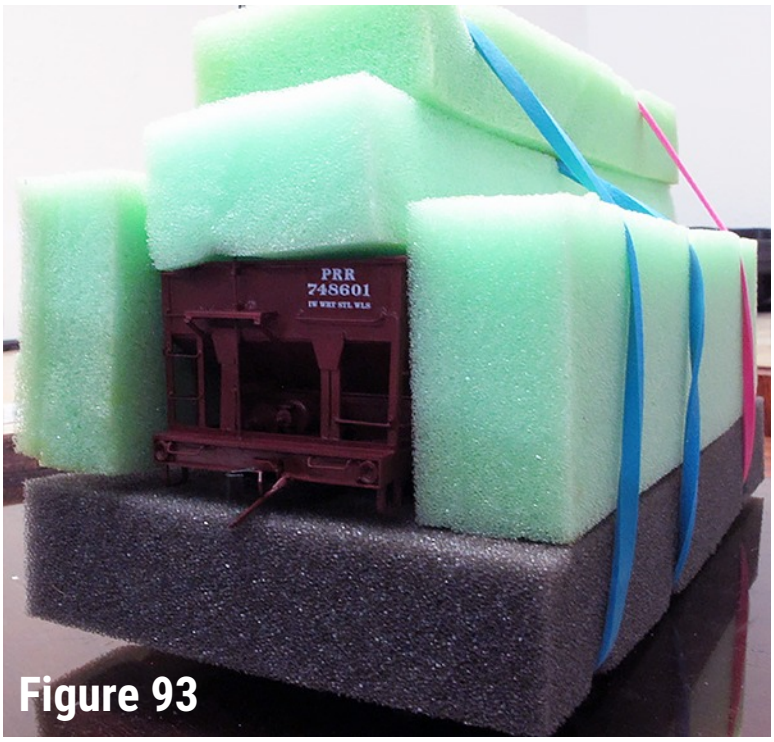


Figure 93

Conclusions

Figures 94 and 95 show the completed model. I am very happy with the end result. Figure 96 shows the three cars I built, ready to be put to work. As stated at the beginning of this article, some modelers will look at my work and see the obvious flaws in it. That is part of the experience that you can only get by actually doing this work. I very much enjoy the act of scratchbuilding. I learned a lot building these cars, including such things as patience, deep-breathing, and persistence. I have gotten suggestions for making molds out of the sub-assemblies and then casting them in resin, to more quickly produce more models (basically building my own kits). I may do that at some future date, but for right now, I simply enjoy the act of gluing one piece of styrene to another piece of styrene until it looks like a scaled-down version of the real thing.

Figure 94

Figure 95

The purpose of this article was not to only share how to actually build a hopper, which is not a trivial project, but to also show you that you can go from a collection of various styrene pieces and build a realistic looking model. Keep adding to the model, study prototype photos, and take a break from the project if it gets frustrating (sometimes for hours, sometimes for days or even weeks!). In calendar time, building these three hoppers took me three years and three months. However, judging by the photos I took, I estimated that I worked on these cars for about 17 months of my hobby time. But my modeling time is usually measured in "minutes" rather than "hours". I suspect that if I were retired, I could probably build these in about three months.

My plans are to build more of these hoppers, as well as the PRR H21a four-bay hoppers. I also plan to build some flat cars and their matching gondolas. A depressed-center flat car project is also on my to-do list, as is at least one PRR cabin car ("caboose" for non-PRR people). The branch line I model used 4-6-0, 2-8-0, and 2-10-0 locomotives to pull the trains. Only the 2-10-0 has been made in S-scale brass. So, my ultimate goal is to scratchbuild these engines, but not until I have some experience under my belt!

About Peter

Peter started model railroading in his mid-teens in the late 1970s in N-scale. After moving to Houston, Texas in 1980, and during a stint in a local rock band (as bass player), college, marriage, and a start in his carreer, the hobby was put on hold until the summer of 1999. A Discovery Channel documentary on the Lionel company rekindled the memories of the hobby. So, an N-scale starter set was purchased, and here we are! Peter enjoys scratchbuilding, electronics, battery-powered locomotives, bike-riding, and gardening. You can follow his model railroading activities on his personal web site at pmrr.org. Professionally, Peter started writing software applications for Windows-based computers in 1990, first as an employee of a local consulting firm, then for the local branch of an Atlanta-based consulting firm (during the Dot- Com craze), then as an employee of a software applications firm, and finally, starting in August 2001, as the self-employed owner of Fourth Ray Software (fourthray.com), producing a variety of software applications for every- day use for any Windows computer user. Peter is also the webmaster for a number of companies, as well as the NASG (nasg.org), and the local S-scale club in Houston, Texas, the Houston S Gaugers (houstonsgaugers.org). You can contact Peter at peter@fourthray.com.

Reference material for this project may be seen at Peter's Website by clicking here.

Photo by Dan Vandermause

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Phone: 815-584-1577
FAX: 800-783-0127
Email: amy@oscaleresource.com
daniel@oscaleresource.com
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407 East Chippewa St.
Dwight, IL 60420

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The Spokane, Panhandle & Palouse Model Railroaders Club

By Tom Dempsey

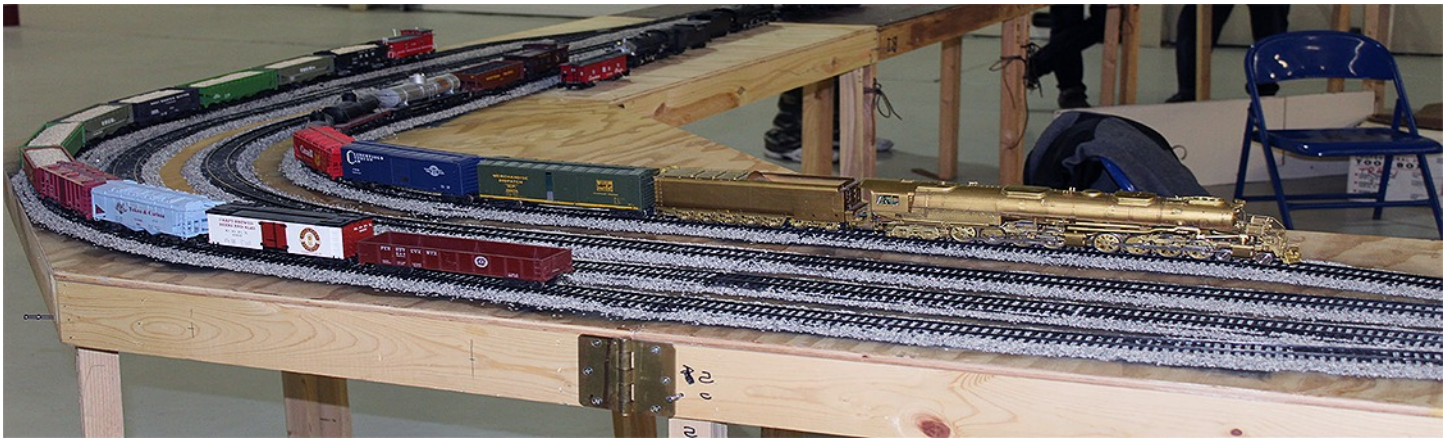
The Spokane, Panhandle & Palouse Model Railroaders Club modular layout made its debut at the 2017 Fall Model Train Show in Spokane, WA.

Five of the six members of the club, from left to right. Kevin Callos, Doug Sassman, Ron Tilton, Sam Rapp and Vic Cherven.

Left: Sam is busy monitoring mainline operations.

Let's take a tour around the layout!

Much of this modular layout, built to the clubs in-house standards as designed by Ron Tilton, remains to be finished. However, the track is almost trouble free at this point and continuous running for the entire show was easily achieved. As frequently found with established S Scalers, there was a not insignificant amount of scratch built modeling on display.

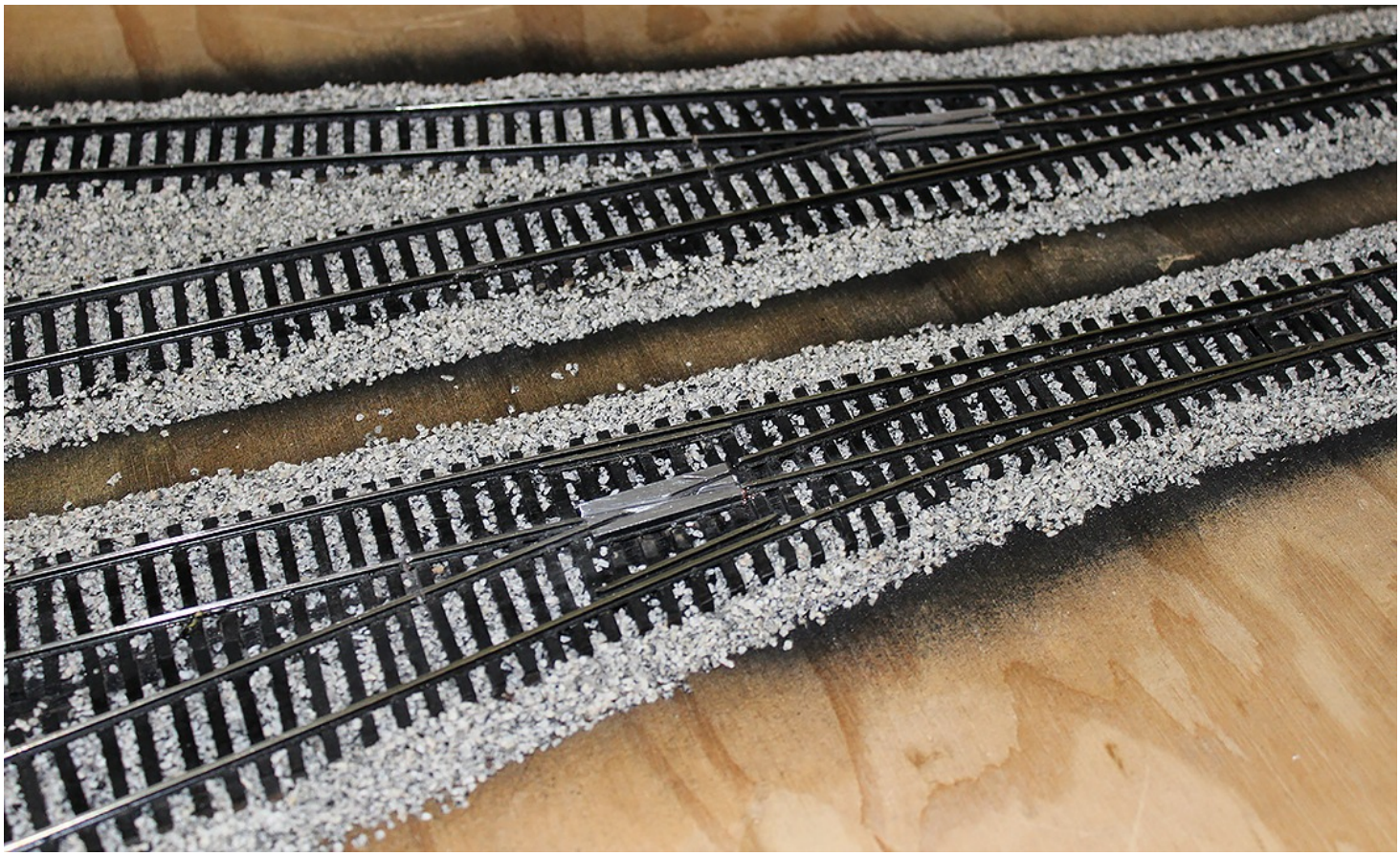


Of particular note was a brace of Ron Tilton's scratch built FT's below.

There is some beautiful workmanship to be found in many of the structures placed on the layout. This lumber yard really stands out when you take the tour. Of course, no lumber yard can exist without the tree farm down the road.

Left: We see Ron making some fine track adjustments. Model railroads always need a little fine tuning, especially the traveling kind.

Sam Rapp fabricates frogs for the layout in his home workshop..



The six year old club membership is open and new members are being sought. Contact Vic Cherven at rockdoc.vbc@gmail.com if interested in becoming a member.

CAR SPOTTERS

Tom Lennon suggested a new section called "Car Spotters" where the readers could send in a picture of a modified, layout-quality car, along with a brief description of what they did and what they were trying to achieve. We thought his was a great idea, so here it is with Tom's car being the first in a series. Send your picture along with a short description to daniel@modelrailroadresource.com

The Soo Line had a bunch of double door 40' boxcars, and I figured that Ken Zieska's Minnesota Heartland needed at least one representative car. It's an American Models stock kit.

The extra door came from Don Dewitt. To simulate the Hutchins Car stamped ends, I sanded the ends flat and added styrene strips to represent the unique ends, then added individual grabs instead of the ladders in the kit. Lettering came from 2 sets of CDS Soo boxcar sets.

To get the "O" on the corrugated doors, I transferred "slightly more than half O's onto decal film, and applied each bit separately. That allowed the decals to snuggle into the corrugations, and allowed for the full height.

Tom Lennon

Scene Around the Layout

We are proud to feature readers' work. Depending on your response, we would like to make this regular feature. So get those cameras and cell phones out and start shooting!
High quality JPG or TIF files are only.
Email to daniel@modelrailroadresource.com with a description of your pictures.

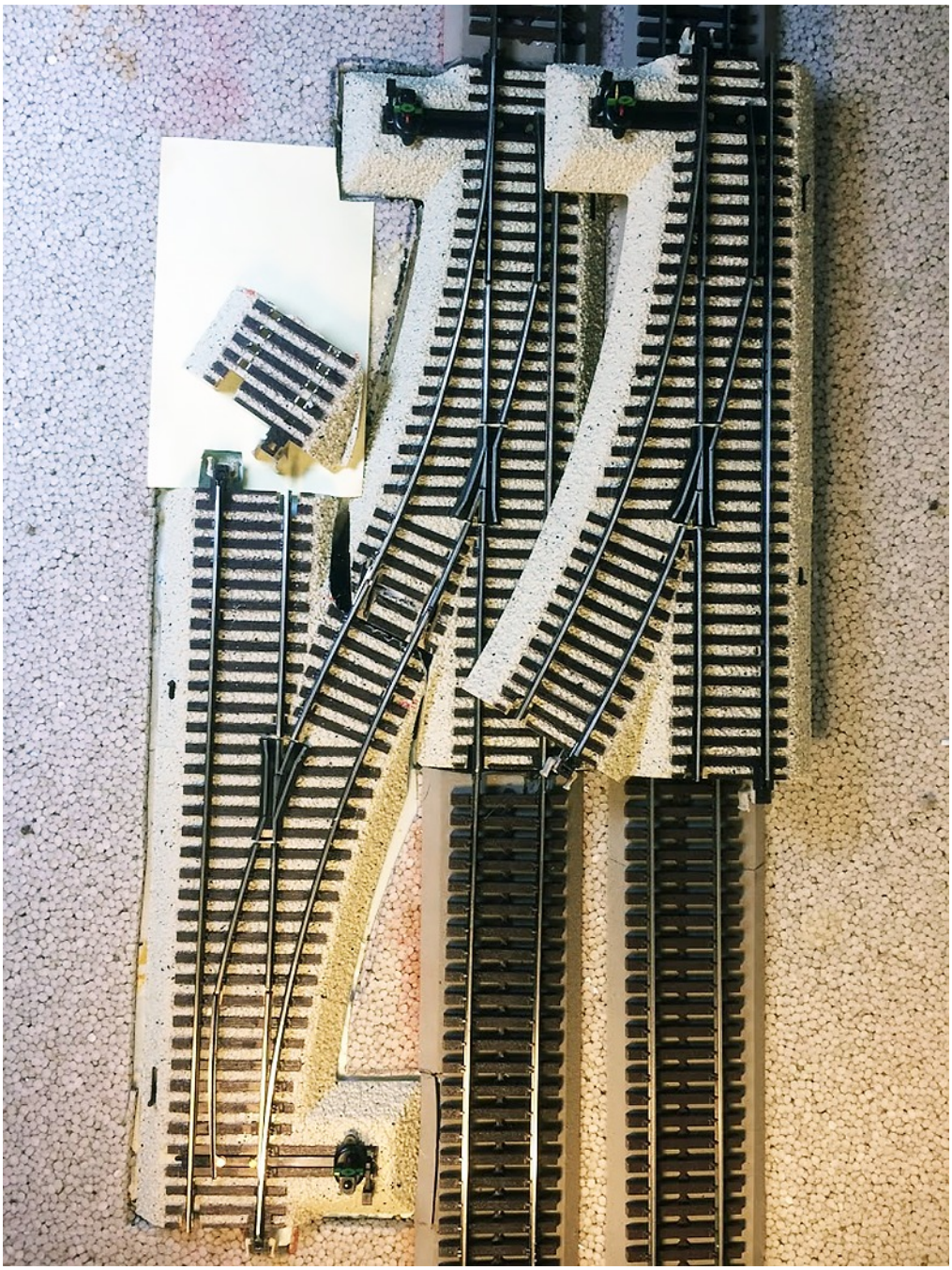
This 2-bay cement hopper was spotted at Marilyn Junction on Ken Zieska's Minnesota Heartland. It started as a PRS 3-bay kit, and simply had the center sectioned out of it. The rest was built following the instructions. Ken had the decals printed by DLM many years back, but could easily be reproduced in black on his computer.

Delivering LCL to the Depot at Ascension on the Minnesota Heartland, this door-and-a-half USRA box car is the work of Tom Lennon. "I was inspired by an advertisement photo for an O Scale model of this car imported by Overland some years ago." It started as an undecorated SHS car. "I had purchased several pair of extra doors at an SHS Open House, so I took a set and created a pair of half width doors. I used an Exacto™ chisel blade knife to lift the latch detail off of them, and flipped them around to mount on the right edge." Styrene was used to extend the door guides and the end blocks. Decals are Enhorning, with some dry transfer letters used on the doors.

Found on a siding at the Ceresota Plant on the Minnesota Heartland. This SHS USRA box car was modified by Tom Lennon, following an article in a copy of a Great Northern Historical Society monthly magazine. The article included plans and a complete lettering specification. "I started with a C-D-S dry transfer set which provided the "upper half" of the sides, and the end lettering. I made a copy of part of the lettering plan, and sent it to Great Decals to print me one full sheet of the "lower half" of the side lettering."

What's on your workbench today?

This series shows 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



Chris Monje sent us the following: This crossover is made with 2 modified Mike's Train House switches. Included is an unmodified #3 switch for reference. Code 125 rail is close to S scale. One and a half inches is removed from the curved section of each switch, putting the putting track centers at three and three quarter inches. The movable section of frog rail improves operation, although the sharp S curve is best suited to a small diesel and 40' cars.

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.

Pacific Model Loggers' Congress
March 3rd, 2018
Camp 18 Restaurant and Logging Museum, 42362 Highway 26, Elsie, Oregon 97138
This is a one-day convention, our 14th annual event, aimed at those interested in logging railroad and wood product industry modeling. Model contest, logging-specific vendors, technical and history clinics, terrific museum displays of logging hardware and photos. All scales and gauges welcome.
Website: www.pacificmodelloggerscongress.com
Email: splco-mwry@comcast.net

Sn3 Symposium
April 5th to April 7th, 2018
Dallas / Fort Worth, Texas
Sponsored in conjunction with the Lone Star Region of the NMRA
Website: 2018sn3symposium.com
Email: bu1977@att.net

Grand River Valley RRC Spring Train Show
April 14, 2018
HSB, 5625 Burlingame Ave SW, Wyoming, MI
Time: 10 am to 3pm. Enjoy more than 210 tables of trains and model railroad supplies in all scales.
Contact Ken Skopp: 616-667-9680
kwskopp@gmail.com or visit
http://grandrivervalleyrrc.org.

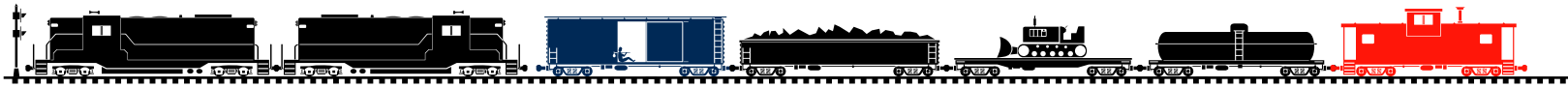
2018 Spring S Spree
May 11-12, 2018
Crossroads Expo Center in the IBEW Building 6550 Poe Avenue Dayton, Ohio 45414
Hosted by the Miami Valley S Gaugers
Website: www.sspree.info
Email: Mmitter1@hotmail.com

O Scale West / S West
May 24-26, 2018
The Hyatt Regency Santa Clara (San Francisco area).
O Scale West is considered the one of the best 2-rail O scale meets in the country, and is an institution among O scalers. 2018 will be the twenty eighth consecutive annual O Scale West. It will also be the thirteenth consecutive S West meet, and of course, the first annual Narrow Gauge West. The O, S and narrow gauge activity is fully integrated into one large event with the umbrella name of O Scale West.!

The show includes vendors, how-to clinics, contests, operating display layouts, individual seller tables, and local layout tours (self-drive).
Website: www.oscalewest.com
Email: info@oscalewest.com

2018 NASG Convention
July 24 through 29, 2018
The Boxboro Regency, 242 Adams Place, Boxborough, Massachusetts.
Hosted by the Bristol S Gauge Railroaders, in celebration of their 70th anniversary!Click here to visit the website, which includes the registration and car-order forms, and the tours.
Website: www.bsgr.us

Indianapolis O Scale Show / S Scale Midwest Show
September 20-22
Wyndham Indianapolis West
The Indianapolis O Scale Show has been in place for over 48 years. For the past 15 years, it has been chaired by James Canter, and he has decided it is time to "pass the torch" We, at The Model Railroad Resource LLC, publishers of The O Scale Resource and The S Scale Resource, are proud to have been selected to carry on the tradition for the 50th year, and include S Scale.
Website: indyoscaleshow.com
Email: info@indyoscaleshow.com



Reader Classifieds

Buy ~ Sell ~ Trade

To submit a wanted to buy or sell non business classified ad please click the link below.
https://ribbonrail.com/railroadresource/Classified/ 725 Characters $10.00 less contact information.
Please read all instructions on the classified page form.

NEW

Reader Classifieds

That's right, after many requests we will now be offering non business reader classified ads for buying and selling.

Fill out our secure on-line form here.

Please read all instructions, including magazine dates and deadlines to make sure your ad is published in the proper issue of *The O Scale Resource* or *S Scale Resource.*

The $10.00 Basic Ad contains 725 characters less contact information. Two extra blocks of 725 characters are available for $7.50 each. For larger ads, please contact us. Your Email address will be linked so anyone reading can contact you at immediately while reading the ad.

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to place your ad today!

The S Scale Resource — Classified Listings

Manufacturers Dealers Pre Owned

To advertise in The S Scale Resource classified listings contact us for our rates. Your classified ad will appear in the section you want for 6 issues. If you do not see a section that you think would fit your products or services, let us know. We can add a category that better suits you. Your ad is hot linked to your website which puts your customers one click away from you.

Your ad could be here for only $56.00 an issue! Linked directly to your Website and seen by over 1600 viewers an issue. All back issues also stay on-line and continue to be read and links clicked!

Contact Dan or Amy today

Advertiser Index

Yes, we now have a Facebook page to help keep you up to date on new products and ideas. And, even in an on-line magazine, we sometimes have more pictures than we can use so we'll post them on Facebook.

Indianapolis O Scale and

S Scale Midwest Show

Come to Indy and kick off your modeling Season!

The best of O Scale and S Scale in one Show

September 20-22, 2018

Wyndham Indianapolis West 2544 Executive Dr. Indianapolis, IN 46241

WYNDHAM

Room Rate
$108.00
Refer to Indianapolis
"O/S" scale show

317-248-2481
877-361-4511

Dealer Setup
Thursday 4pm - 9pm
Friday 7:30am - 9am

*** Show Times ***
Friday 9am - 5pm
Complimentary Hors d'Oeuvres
and Cash Bar 5pm - 6:30pm
Saturday 9am - 2pm

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Meet old friends and make new ones

Please print clearly – Detach and return lower portion with payment

Name: _____
(Exactly as you would like badge printed)

Business: _____
(Exactly as you would like badge printed - table holders only)

_____
MAILING ADDRESS

_____
CITY/STATE/ZIP

Phone: (_____) _____

Email: _____

Make checks payable to: Model Railroad Resource LLC
Mail registration form to: 407 East Chippewa St
Dwight, IL 60420
Or register and pay online at:

Registration (Both days included) $25.00 **$25.00**
(Table holders must pay the $25.00 registration fee)

 # Of 8 ft. Tables ____ **$50.00 ea/$60 after 8/1/18** **$**_____

O Scale vendor ◯ S Scale vendor ◯ No preference ◯

Number of add'l registrants ____@ $25 each **$**_____
(Please list below/Use back if needed/Children 15 and under free)

Name: _____

Name: _____

Spouse's Name: _____
(No charge/only needed if attending show)

TOTAL AMOUNT ENCLOSED: **$**_____
(No refunds after 8/1/18)

Electrical needed? **Yes** ◯
(Subject to availability)

IndyOScaleShow.com or SScaleMidwest.com

Contact info@indyoscaleshow.com or call 815-584-1577 with any questions

The parties whose names appear on this registration form/here agree to hold harmless all of the organizers, sponsors, Model Railroad Resource, LLC, The Wyndham Indianapolis West, and others, single and collectively, for any injury, harm, loss, damage, misadventure, or other inconvenience suffered or sustained as a result of participating in the Indianapolis O Scale Show and S Scale Midwest Show 2018 or in connection with any activity related to this event, whether of negligence by agents under their employ or otherwise.


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