The S Scale Resource

NEWS, REVIEWS, INFORMATION TO USE

April / May 2019
Volume 5 No. 4

New Tracks - More Card Modeling,
Software Contest and Free Download!
Workbench - New Sn2 Narrow Gauge
Logging / Mining Layout
A Battery-powered Caboose
Track and Wheel Standards
Shows, Meets and so much more...

THE S RESOURCE
NEWS, REVIEWS, INFORMATION TO USE
SCALE

Published Bi Monthly

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Volume 5 No. 4

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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

A scene from Warren Judge's Sn2 portable layout.

Rear Cover Photo

Wanted…. We Need You!

BILL OF LADING

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.

O&S Scale Midwest Show

Formerly the Indianapolis O Scale and S Scale Midwest Show

It's September! Time to kick off your modeling season!

The best of O Scale and S Scale in one Show

September 20-22, 2019

WYNDHAM Indianapolis West 2544 Executive Dr. Indianapolis, IN

DEALER SETUP
Friday 4pm - 9pm
Saturday 7:30am - 9am

SHOW TIMES
Friday 4pm - 9pm
Saturday 7:30am - 9am

Room Rate $119.00* per night (until 8/21/19) Reference O/S Scale Show when calling

Click here to book hotel at special rate

***Based on availability**

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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/$60 after 8/1/19 **$_____**

◯ O Scale vendor ◯ S Scale vendor ◯ No preference

Number of add'l registrants ____@ $25 each **$_____**

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Name: _____

Name: _____

Name: _____

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(No refunds after 8/20/19)

Electrical needed? **Yes** ◯
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OScalemidwest.com or Scalemidwest.com

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

From the Publisher's Desk

Thanks to everyone who filled out the State of S Scale Survey. We had a great response and will be featuring the results in an upcoming issue.

This issue features a great cover from Warren Judge's portable mining/logging Sn2 layout, along with a sneak peek at it in the Workbench section. It's technically larger than a workbench project, but it's a project still the same. If all goes well, Warren will have this on display at this year's O and S Scale Midwest Show in Indianapolis, IN September 20-22, 2019.

New Tracks has another contest and free download, along with some modelers/mentors that can help you when building card models. Be sure to read the article and enter the contest before the deadline. These models, when done correctly, look fabulous and can be very detailed. The highlighted modelers are all very talented and more than happy to answer questions and/or serve as mentors. Be sure to utilize their expertise, not only if you are a beginning modeler, but also if you are an established modeler looking for some help on a new project or to enhance what you are already doing. Every mentor has an email address in the article for your convenience.

Have you thought about battery power on your layout and how to utilize it? Peter Vanvliet has, and has written a great article for us on using battery power in a caboose to highlight the interior. If you are going to go to all the trouble to detail the inside of a caboose, you need to see inside of it, and Peter has done just that!

Also in this issue, Glenn discusses track and wheel standards and why they are needed. He has included some diagrams that show exactly why and what the differences are between high rail and scale with respect to wheels, flanges and track.

The next issue will come out after O Scale, S Scale, Narrow Gauge West May 23-25, 2019 at the Hyatt Regency, Santa Clara, CA. We will be attending, and will have highlights of the show for you. Hope to see some of you fellow modelers in California!

Happy Reading & Happy Modeling,

Amy Dawdy

NEWS YOU CAN USE

Right On Track Models Releases New Products For S Modelers: S-04 BERKY'S LUMBER $ 86.95 WITH FREE SHIPPING

Our 4th S scale offering . Berkey's Lumber . Two separate structures for versatility of your lumber yard scene. Shed footprint 7.75" x 4.25" and office 4.5" x 2". These kits features precision cut MDF, highly detailed styrene windows and doors as well as metal parts. The kit will offer our new "Real Scale Textured Tar Paper Roofing". Complemented with easy to follow step by step color instructions.. Check our website for more info on this kit and our 3 other S scale kits.

See their Website as well as their ad in this issue.

David Allen of Concept Models sent us a note about his S scale line. Concept Models has re-established their S Scale product line on their website. This includes schabel, cryogenic tank, and special flat cars. The product line will continue as the work of the octogenarian owner :-)

See his Website for all his S scale equipment.

Dave from LBR Enterprises, LLC has three new add-ons for pre-1966 AF steamers with tenders and the original electromechanical reverse units.

They also have a great selection of water slide decals for all of your scale needs.

See all of their items on their Website.

Stephen Milley of Rail-Scale-Models sent us an update: As of March 2019, Rail-Scale-Models has acquired the design and production rights to the Laser-Cut Craftsman Kits product line from Rusty Stumps Scale Models (RSSM). This line-up includes over 20 unique structure designs in HO, S, and O scales, and are well-known quality craftsman kits in the hobby. This acquisition follows upon the acquisition of the RSSM Laser-Cut Details product line by Rail-Scale-Models in 2018.

Rusty Stumps Scale Models will continue to provide 3D printed detail castings.

Rail-Scale-Models offers model railroad craftsman kits, laser-cut detail components, custom scale structures, and laser-cutting services for the scale model railroading community. Visit the updated website at www.Rail-Scale-Models.com.

Alan Zamorski from Studio Z / Millhouse sent us a note.

Millhouse River Studio is now offering a S scale detail parts pack for people to super detail their turntables with these added items. Parts are made with resin and include the following: drum controller and brake lever for inside the operators cab, a set of locking levers for the bridge and a tool chest for the deck and a sand bin that hangs on the turntable railing at the end of the bridge for sanding the rail by the drive wheels.

Available now on our website or call 716-830-5267. Price is $20

Michael Eldridge of Sandy Point Models will be creating a new kit for the 2019 O Scale – S Scale – Narrow Gauge West Convention.

Southern Pacific Interlocking Tower at Santa Clara, California.

These are prototype photos – the tower is still standing, allowing us to produce a very accurate model.

This is a craftsman level kit featuring laser cut components, with peel and stick components for the trim, allowing easy painting. The kit includes detailing components, such as the battery cases outside the building. Some interior details are also included. This kit will be produced in S Scale and in O Scale and will be available at the O Scale – S Scale – Narrow Gauge West convention in May, and then will be available through our website.


S Scale pilot model

NE Prototypes announces these new decal sets:

SN-15 NYC white road name set $ 4.50
SN-41 D&H white road name set $4.50
SN-63 ERIE white road name set with both black & white and just white logos (ERIE spelled out in 7 different sizes and spacings) $4.50

ST-236 Firestone tank car blue and black lettering (for grey car) $5.50

When you place an order, be sure that it includes at least $10 worth of merchandise, and add $3.50 for postage. NE Prototypes, P.O. Box 4-4-2, Rutland, MA 01543-0442 (508) 886-4848 (between 8am and 8pm Eastern only).

Scenery Unlimited has a new product. Our Hidden Treasure Mine No. 2 is right out of the Old West and the numerous mining districts that used to dot the mountain towns in Colorado, New Mexico, Utah, California, Nevada, Yukon territory and elsewhere.

This accurate S scale board-and-batten model has been designed and styled to fit your layout, offering an optional loading house kit, depending on how you want to locate and use the mine. With a tall peak center section, sloping roofs, 12-pane windows, a boiler house, exhaust stack and a banded water tank,

this mine will become the centerpiece of your mining district—or your entire layout.

The Hidden Treasure Mine No. 2 kit includes the mine structure and rear boiler house and consists of laser-cut plywood walls with etched board lines, peel-and-stick battens, and plywood roofs with corrugated paper roofing. Windows are laser-cut, easy to assemble peel-and-stick Laserboard, a smooth card material similar to plywood, and pre-cut glazing.

The Hidden Treasure Mine can be combined with the Mine Loading House kit to form a complete complex. The Mine Loading House kit also includes laser-cut, easy-to-assemble basswood trestle bents and a pre-cut retaining wall. Footprint for the Hidden Treasure Mine is 9-½" wide x 6-¼" deep x 9-¼" high including the boiler house. Footprint of the Mine Loading House is 3" wide x 5" deep x 6-¼" high including the trestle bents. With both kits combined, the footprint is 9-½" wide x 11-¼" deep x 12" high.

See their Website for all the details.

Steve Wolcott from Pre-Size Model Specialties is offering its second modern freight car kit. The Greenville gondola with corrugated sides is a distinctive car, built in the '70's, and it is still seen across North America. This is the 52'6" car. The kit is a one-piece body of high-quality resin with a separate underframe making for easy assembly. Included are decals for MP & UP.

Trucks & couplers not included. See the instructions on our website for complete details.

Twin Whistle Sign & Kit Co. Has just released their S31 New York Engine 252 Firehouse. This is a beautiful kit based on the actual building. Built in laser cut styrene, acrylic, and basswood.

It features removable roof, sliding door and engraved facade. FOOTPRINT: 13.25"L x 4.5"W x 6.875"H (to top of facade)

- Styrene and Cast Resin Body
- Removable Roof
- Sliding Door
- Moderate Skills Required
- Complete Instructions
- Detailed Roof Accessories

Also, the Country Roads Gas & Grocery Store Kit Available on O and S Scales for the moderately-skilled builder! One of our updated classics. There is an interior scribed Basswood flooring. large selection of graphics, and many accessories. The model is made of high-quality Basswood and has several laser cut and cast accessories

For close-up shots, see our website and Facebook page.

WANTED

Articles

How To
Layout Building
Kitbashing
Equipment Modification

Pictures

On Your Workbench
Around Your Layout
Anything You Want to Show Off

Not a writer? No problem! We'll work with you and make it great!
Email us at
daniel@modelrailroadresource.com

Mentor Definition: A Trusted Counselor or Guide

By Contrubiting Editor Jim Kellow MMR

Card Modeling - Great Looking Inexpensive Models Needing few Tools to Build - Worth a Try

Please bear with me for four quick comments before we discuss card modeling and its future in our hobby.

Comment 1:. I want to thank the NASG for including me on their honor page with the other S Scale NMRA MMRs. I have enjoyed meeting many S Scale modelers as a result of my modeling and "New Tracks" series in *The S Scale Resource* online magazine. I appreciate the consideration and recognition. Thanks also to the NASG webmaster, Peter Vanvliet, for bringing this matter to my attention.

Comment 2: I talked to Peeyush Garg who is one of three partners that own WIFI Model Railroad Company about their new WIFI control solution using an Android device (iOS version coming soon) and their app for train control. I think he is really on to something. His solution will allow the control of a D.C., DCC, or Dead Rail unit, or a combination of motive power units to be controlled on the same layout. So a D.C. Unit will be able to run on a DCC layout.

In effect, with the WIFI solution, you may no longer need DCC. Please see more details at their website www.wifimodelrailroad.com. I wish it was available for use with our S or O Scale units, but it is not. It is only available in HO Scale at this time. However, according to Peeyush, it is coming to S and O Scale. I suggest all of us keep track of its development. I plan to profile the company when Peeyush tells me he has tested the larger units and is ready to bring them to market. Thanks Peeyush for your interest in bringing this new technology to model railroading. Good luck.

Comment 3: When my article on Sn3 was published in the Dec/Jan 2019 issue of this magazine, I got emails from three modelers I want to share with you.

If you want to get more involved in Sn3, these three people may be able to help you get started down your "**New Tracks**".

Harry Sage

Hi Jim, Just a couple of additional bits of information regarding the history of Sn3.

Ken Pruitt had a Sn42 layout in his home which served as the club layout for the BOINGS, the Brotherhood of Independent Narrow Gaugers. I saw that layout in the summer of 1973, when I was working in Chama, NM between my Jr and Sr years of college.

Another early manufacturer of rolling stock was Triangle Scale Models, who produced kits that were primarily Styrene. Also Eric Bracher, MMR of Rio Grande Models produced kits, many of which were D&RGW MOW equipment.

And Cliff Grandt produced detail parts for Sn3 for oh so many years.

P-B-L's first plastic rolling stock kit was the D&RGW box car, and it's initial introduction (for all practical purposes) was at the 5th National Narrow Gauge Convention in Columbus, Ohio.

And finally, for us misguided Sn3 East Broad Top modelers, Bill Wade of BTS produced rolling stock and structure kits and imported a kit for locomotive #12 from New Zealand. Harry Sage.

Harry, good to hear from you and thanks for adding to our knowledge of Sn3 in the early days. Love to see any of those old models.

Roger Bernier

Hi Jim,

Just want to let you know how much I enjoyed the photos of Bill Boucher's circus trains . In 1968, in the fall issue of the *S Gauge Herald*, Bill had a construction article for a ten car circus train. I think it ran for four issues. In the mid 80's, Bill and I wrote each other on building s gauge reefer cars using the Old Shanty wood reefer car sides. I still have a few of the car sides and some Kinsman kits some place in the basement. Bill was a wealth of information on these cars. I met Bill once at a train show in Springfield , MA. I hope Bill is doing well and thanks for the article. Regards, Roger Bernier.

Roger thanks for taking the time to send me your email. I really appreciate it. Obviously you have a lot of modeling memories that new S Scale modelers would love to hear about. Hope you will consider sharing more of them with us.

Mark Lewis

Jim: Good morning! After reading the "state of Sn3" article in the just released issue of S Scale Resource Magazine, I want to thank you for presenting the topic to the S scale modeling world.

As a model railroader for almost all of my 69 years, I have finally ended up in Sn3, after years in HOn3 and On30. As with most current model railroaders, if you mention S scale, the immediate thought is of American Flyer and Plasticville modeling. A great dis-service to model railroaders is the lack of coverage of "scale" S scale modeling by the model railroading main stream press (ie: *Model Railroader* & *Railroad Model Craftsman*). Yes- I know- they print only what articles they receive from modelers, but they both have had various "project model railroads", put together and published by their in-house staffs, but.....when was there a S scale project presented? S scale and particularly Sn3 need regular, national exposure to move ahead.....even though, as pointed out by the gentlemen in the article, Sn3 is a "loner" type off shoot of S scale and other narrow gauges of modeling.

The NASG website is full of great information, but as noted, is lacking in guidance towards Sn3, for those modelers that are looking to move in that direction.

My own move to Sn3 started many years ago, when I first saw the amazing Sn3 modeling of Paul Scoles. Recently more and more activity on Sn3 social media on various Sn3 Facebook groups and websites, has driven my focus to Sn3, as well as, quite honestly, not being able to easily work in HOn3 and not having the physical room for much of a On30 layout. Sn3 has ticked most of my modeling requirement boxes, quite nicely.

I am just starting my Sn3 journey, so have little to show for it, at this point other than a 2'x12' shelf layout base and I am not a photographer or an author type, but I support any and all avenues for promoting Sn3 narrow gauge modeling and can only hope some other quality manufacturers see the importance and positives of producing more S and Sn3 products, in the vein of P-B-L quality, to give others that are looking at Sn3 a variety of options. Again- thank you for presenting the Sn3 article. Always "narrow" minded, Mark Lewis.

Mark thank you for sharing your journey to Sn3. I hope other modelers can benefit from your story and take a hard look at changing to your new Scale.

Comment 4: In the last issue of this magazine, I wrote about a Novice Model Railroad Facebook group. I immediately got a comment that I needed to profile another of the Administrators of the group and his modeling. I found that he is a highly recognized modeler in Europe. He has had his Model Railroad featured in the Swedish Model Railway magazine, *Modell Jarnvags Magasinet*, Issue #31, November 2017, as well as being on a Scotland TV Model Railway Show. Please meet Les Cliff, not exactly a novice modeler.

Leslie Andrew Cliff

Monty and me

I only began thirteen years ago at the age of 50 when I was bought a train set for my birthday.

My daughter's boyfriend's father worked on the East Lancashire Railway prevention line, and she said one day, "Oh my dad had a train set as a boy.", and there, began the adventure as it was decided that a flying lesson and a train set would be a good 'Big O' birthday present!

Little did they know it would take over my life in the way it did, or grow to the size it became!!

Sadly there was no room at home to build a layout, but circumstances at work meant that I had to buy the three story building that my framing business was renting, and with that came the opportunity to clear out a 600 sq ft basement.

Now I have to explain that I had at the time no computer, still don't, nor a mobile phone or anything to do with social media or model railway groups. I was flying blind and began with my limited knowledge of forty years before, this was a mistake, because I was ignorant of developments.

Abandoned Wessex gives the sheep something to bleet at.

Still I began, no planning, just imagination and over the first three years had started to create an interesting idea. Then wham bam thank you mam!! comes the recession and that put a stop to the procedure.

However, by now I had got a bit more involved with technology of the Internet and began taking note on things. My main limits were financial and this restriction kept me dealing with second hand, broken and inexpensive items. But as I have a degree in fine art, been involved as a stage painter on a large scale with amdram, my main focus and interests soon became more about the landscapes, the dioramas and less about running trains.

Above: Building a 17 arch viaduct and tissue paper for water, with a packhorse scratch built bridge.
Below: Military maneuvers.

I'm not interested in the accuracy of creating specific places and adhering to the general rules of model railways, I'm a maverick and have engines from various times and regions, I created a fictional world called Notlobia, with Notlob Central as the main station and town.

Then over the last few years I was getting my act into gear, still concentrating with the landscape but creating greater detail and getting the railway working.

It was around now I began to make a few dioramas from broken items to sell on ebay, and this is when I met Neil as he lives near me. He was impressed with some of my work and bought one, and soon after this he set up his Novice Facebook group and invited me to be part of the administration team.

Now the two scales at 00 and 009, as I had incorporated a very large mountain narrow gauge that meandered through the landscape, whilst a double line OO gauge circumnavigated the outside of the room and a lazy figure of eight branch line filled up the interior.

As a child in the 60's I'd had cousins, and prior to them emigrating to Oz, had been on the narrow gauge lines in Wales and we had a love of these engines and trains they pulled. So I wanted to create my own Snowdonia.

There was a full mountain range created with mod rock and all manner of scrap, there was a military airfield, there were planes on fire, houses on fire, helicopters putting out fires, there were canal scenes, a harbour and I was creating a major town with street lights, over four hundred painted figures and cars with working lights and numerous dioramas filled the layout.

Now you may notice I slipped into the past tense. Well I had some bad news for my big six O birthday when I was diagnosed with leukemia. This has meant that I have had to rethink the future.

As the layout wasn't portable, it literally was built into the fabric of the building, and if I am to retire and sell both the building and the business it has meant that Notlobia has had to be destroyed.

Yes I have saved all the stock, but you can't save the landscape and creativity and cost in time and plaster that thirteen years had put into making probably the largest layout in the town. It had been and still is a disheartening experience.

So what of the future?

Well during the last few years I have been fortunate to be on the TV with the Biggest Littlest Railway in the world challenge in Scotland, and hopefully this year I will be in one of the teams doing the second series of the great model railway challenge.

I'm also building a number of four by two feet modules to create a new layout that can be taken away, and all being well if I can sell the building, and possibly the business, my wife and I hope to find a place in the countryside, maybe Wales with space for a model railway in a large garage or workshop as well as into the garden, hence the additional name of Gardinia. But it is an uncertain future.

If you think I can help you with your modeling please contact me at LeslieAndrewCliff@sscaleresource.com Thanks for your patience in reading these comments. Now let's talk about card modeling and it's future in our hobby. Good modeling to you.

Card Modeling

A surprise free card model! A contest for three winners of a free computer program! Plus, card modeling mentors

Question 1. Anyone out there want a card manufacturer to offer model Railroad Car sides like used to be

Picture is current, cars are throwbacks, the closest four cars are forty-year-plus old cardboard sides from the NMRA Bulletin, on home-built wood bodies from about 25 years ago. I'm slowly getting the super-details on the nearest two cars, the other three are in regular service. Stephen Karlson photo from his O scale layout.

published in the NMRA Bulletin? Check out this photo below.

I know I want to get them back because after seeing this photo, I built some of them recently that I have had for many many years, and had a lot of fun doing it. Any card manufacturer or the NMRA interested please email me at JimKellow@sscaleresource.com and let's see what we can make happen.

Or how about this artwork that John Mann posted on a Facebook group? Maybe use it on a card model box car? Well, what do you think?

Question 2:

Are model railroaders building card models? Yes take a look and read on.

Jim Gore MMR IMG 8356 Miss Sue's (named after my wife) has a complete interior as well as many exterior details. Signs were computer generated as were the walls of the interior dining area. This is a kit modification of Smitty's in the Clever Models catalog. Jim Gore photo.

Jim Gore MMR IMG 8356 Miss Sue's (named after my wife) has a complete interior as well as many exterior details. Signs were computer generated as were the walls of the interior dining area. This is a kit modification of Smitty's in the Clever Models catalog. Jim Gore Photo.

David M Mason quote: "*Probably the best company out there is Clever Models. Numerous buildings and in different scales and also various texture sheets, plus he has free ones to try out. Just a download away. www.clevermodels.net*".

For more information on building card modeling and Clever Models, see the David Rarig and Jim Gore MMR mentor profiles below.

"Card and paper have been modeling tools since Noah built his first layout in the ark. We now have new technology to use this medium more effectively." I forget who sent me this comment.

Jim Gore MMR wrote similar beliefs in a "Card-stock Craftsman Structures" article published in the *Sn3 Modeler* magazine a few years ago. Jim wrote: " Just by the title, you might think that I am telling you to consider card-stock as something other than a placeholder on your layout. Indeed, that is exactly what I am suggesting. With new skills and new materials, you can create structures (from kit or kitbashed or scratchbuilt) from card-stock that will rival any craftsman model kit that you have purchased. All it requires is getting used to a few new techniques, a little different planning, and the "willingness to suspend disbelief."

Jim Gore continued: "Card-stock modeling is nothing new in model railroading. European modelers, especially, have created a wealth of kits and some incredible paper and card kits for quite a few decades. As a matter of fact, John Allen's famous engine house at Gorre (built in about 1948), was built entirely of card-stock and it can only be described, even by today's standards, as nothing but a foreground structure." Read more about Jim Gore MMR in his mentor profile below. I purchased the Clever model kit of John's Engine House kit years ago and it has been awaiting building on my workbench for way too long. I finally completed it this afternoon. Great model and fun to build. Now for details and find a location for it.

After hearing from several other modelers who suggested I write one of my "New Tracks" articles about card and paper modeling, or as I will refer to it from here on as card modeling, (best I can determine this is the term used worldwide), I decided to look into what is going on in this modeling medium.

This morning I posted to several Facebook Model Card Building and model railroad groups hoping to identify card model manufacturers, who either produce card models, software that can be used to produce card models, and modelers who are skilled in building card models. Several of the Facebook groups I joined are: Model Rail Buildings – mostly card and paper, Papermodelers.com, Card Model and Scalescenes Modelers Group.

Jim Kellow's build of Clever model kit "John's Engine House".

The response was more than I expected and frankly confirmed my belief that interest in building card models is definitely "alive and well" among all modeling scales. Thanks to all of you for your information and interest. I have more information than I can use in one article, so rest assured you will hear more about card modeling in some of my future "**New Tracks**" articles.

Based on my contact with Facebook groups, I believe there is a growing interest among modelers to build card models for their railways or railroads. Modelers give various reasons for their interest in card modeling: less modeling cost, easy to correct a mistake or problem, just print a new page and start building again, minimal skills required to start, fewer tools needed to build, and overall; it just seems easier than other mediums to construct a model that looks great on their railway or railroad.

I also found out there are card manufacturers in various parts of the world in addition to the US and the U.K., Including Poland, Russia, Japan, Germany, Spain, and Ireland, to name some I have been told about. In addition, there are software programs that allow a modeler to design, and print their own card models or building materials such as sheets of bricks, stonework, etc. to use to build specialized card models. I found modelers in N, HO, S, and O Scale who are building with card. I found National Model Railroad Association MMR's who build card models, including, Jim Gore and now yours truly.

I even found a card model of a Titanic deck chair on Anthony Stevens' Weblog. More about his site later. I could not resist the deck chair, so I used the design to build one out of brass (old habits die hard) and another out of card. This was really "New Tracks" for me and I must say much fun. By the way the "sailor" in the chair is also a card model. More about this Spanish Card manufacturer's paper figures, which can be made to take any position needed, later. Oh and how about this Narrow Gauge Australian Sugar cane Locomotive? Again, I used the pattern to build it in paper and in brass. Yes more about this manufacturer later.

Based on the responses I got from my post, I am writing several articles about card modeling. I truly believe card building, by model railway and model railroad modelers, is going to play a more significant role in our future model building than I would have through possible not that long ago.

A perfect example is my experience with the deck chair and locomotive. Why will I continue to build in brass, basswood, or plastic if I can build the model that suits my purpose cheaper in card? For me and for some, if not most of you, I believe we may first check out available card models before deciding what building material we will use. Even if you do not build the model in card, I think you will find the patterns are great to use with other building materials as I have done.

In this article, I want to introduce a new card manufacturer, a software manufacturer, and some skilled card modelers who can help you get started in this medium as well as develop, improve, and diversify your card building skills and artistic abilities.

Now for a *surprise-surprise-surprise* to give all of you a free taste of card modeling from a new and upcoming manufacturer I found. While this surprise is a first promotional effort for me and "New Tracks", I hope it is not the last. Most importantly, I hope you have fun building the model and benefit from the skills you will gain.

A New Card Manufacturer

Team Track Models is located in Oregon and owned by John and Aaron Gibbens. They have been in business for about a year. Thank You, Daniel John Beresford, for telling me about Team Track Models. When I looked at the company's website, teamtrackmodels.com I immediately saw that what the company was saying about why modelers should consider card building were the same reasons I was hearing from various modelers. So I called and talked to John. He was completely forthcoming about their company, and their goals for the future.

First, John told me they currently only offer semi-trailers for a big rig truck and containers in S and O Scale, but have plans to include the truck for the Big Rig Trailer and various structures as soon as he completes designs and his models are test built by skilled modelers. At this point in time, he wants modelers in S Scale to contact him with what structures they would like to see offered and any other suggestions they may have for improving his models in the future.

Team Tracks Surprise Gift

Now for the surprise I promised. John and I discussed how my readers could experience building one of his S Scale card models for free. He thought about it for a minute and said, "How about I offer one of my S Scale big rig truck trailers with special signage on the sides just for your article?" Oh John, you just made my day. Here is the signage we agreed on, I hope you like it. John is also going to offer each modeler who gets the "New Tracks" trailer a free Big Rig truck that will go with the trailer as soon as the design for the truck is complete. See picture on next page. Any reader of this article can download the card model of the special "New Tracks" Big Rig trailer in S Scale, for free, within three weeks of the date this article is published, by emailing

Team Track Models at john@teamtrackmodels.com hope a lot of you download this model, have a lot of fun building it, and use it on your model railway or railroad. I know I am looking forward to getting the model. After the three weeks, this model with the "New Tracks" signage will not be available or offered again. Make sure you and your friends do not miss out on this very special offer by Team Track Models, and "New Tracks" presented only in this magazines. I look forward to seeing your photos of the big rig truck on your layout.

Please send to my email at jimkellow@sscaleresource.com. Thank you Dan and Amy Dawdy for publishing this offer in your magazine.

John, thank you and your company, Team Track Models, for your interest and help with my mentoring project. I hope S Scale modelers respond to your request for comments and suggestions for your models, and that you develop many other card model products.

If you like what I am doing with this modeling project and its special signage, and want to see other manufacturers provide special logos or signage on other models in my articles, please let me know at jimkellow@sscaleresource.com. I think we could have some fun with this concept and hope you agree. I look forward to hearing from you. This could take all of us down some. "**New Tracks**"

Software Manufacturer

The Evan Design Model Builder software was designed by David Jamison. I first heard about this software firm from several modelers who recommended it in their replies to my Facebook post including Sam Matthews. I emailed Dave and he could not have been more enthusiastic in wanting to be profiled in my article. I believe Dave understands the modeling needs of card modelers and has done everything he can to make his software programs easy to use and produce the results that the modeler wants to create.

Dave told me: "When developing Model Builder I wanted to make a program that was easy to use by all scale model builders, even novice computer users. I found that most modeling software has a steep learning curve which can be a turn-off to many home users. Feedback that I have received from users shows that I have accomplished this goal. When Model Builder came out I also made our existing Brickyard software work as a plug-in to Model Builder. Brickyard allows Model Builder users to use additional Bricks and stone textures within Model Builder when creating their designs. Shortly after its introduction, Model Builder became our most popular program. Users wanted me to make my other existing software plug into Model Builder. Since then I have made our Advertising Software, Stained Glass Software and parts of the Sign Creator software plug into Model builder thus allowing users to incorporate those textures in their designs."

"After Model Builder was out a year or so some people who had heard about what others made with Model Builder would tell me, "I am interested in Model Builder but I have little or no modeling experience so I would not know where to start."

"To support this type of potential customer we created a File Sharing website that specifically supports Model Builder Customers. Currently, you can find a few hundred project files from the sharing file that you can open up with Model Builder. After opening a file you can print as is or customize it by swapping out windows, doors, trim etc. See http://www.evandesignsmodelbuilder.com"

"In the file-sharing site, modelers do not have to limit their search to their scale as Model Builder will re-scale a project upon request. Besides the shared files provided by customers, you will also find a video tutorial section to support new users understanding of getting the most out of the software."

"Model Builder has over 500 building textures that you can use to create your models along with various tools that are designed specifically for scale modeling. Many customers also supplement Model Builder by importing Pictures that they take with their camera of unique Windows or Doors of a building that they are modeling. Another great source of additional images to import into a Model Builder design is the Internet where one can find a vast variety of images based on their search criteria."

Dave also said: "I have found that Model Builder is a tool that many modelers use throughout their participation in the hobby. Every week I hear from Model Builder users that have had the program for 5 or 10 years. They may have had a computer crash and need a new download for their new computer or misplaced their CD after moving and need to get up and running again. I am always glad to help.

Evan Designs Contest Drawing

I suggested to Dave that he offer a contest email drawing like I have done with other model manufacturers in my mentor series. He agreed, but expanded what I normally do in the drawings. I am very pleased to be able to announce Evan Designs contest in this article will have three winners who will receive one of "Evan Designs" software programs. 1) Model Builder, 2) The Advertiser, and 3) Brickyard. If a modeler has Model Builder or one of the other programs Dave will provide something of equal value.

This contest will enable the lucky modelers to design their own card models. I wish all of you luck in the contest and much success in your card modeling with Dave's computer programs. I know the winners are going to have a great time experimenting with the programs and go down some "New Tracks" with Dave.

To Enter Evans Design Contest

Dave will contact the winners to arrange for the delivery of the appropriate computer programs. Thanks Dave for your interest in my project, I really look forward to see the three winners completed Evan Designs models and hear not only their comments, but also yours, about their model building experience with the Evans

Design software programs. The models and comments by Dave and the modelers will be included in a future "New Tracks" article.

Individuals Who Can Be Your Card Mentor

One modeler who replied to my post said: "card modeling is a separate art form". If you need help modeling in card building, either to just get started, or improve your skills and techniques, then a mentor can be very

The alley side of the Union Hotel, with drain-pipe and stair arrangements all as described by Harry Brunk. Even the gutters are cardstock with plastic downspouts. Again, details make the difference. Jim Gore Photo.

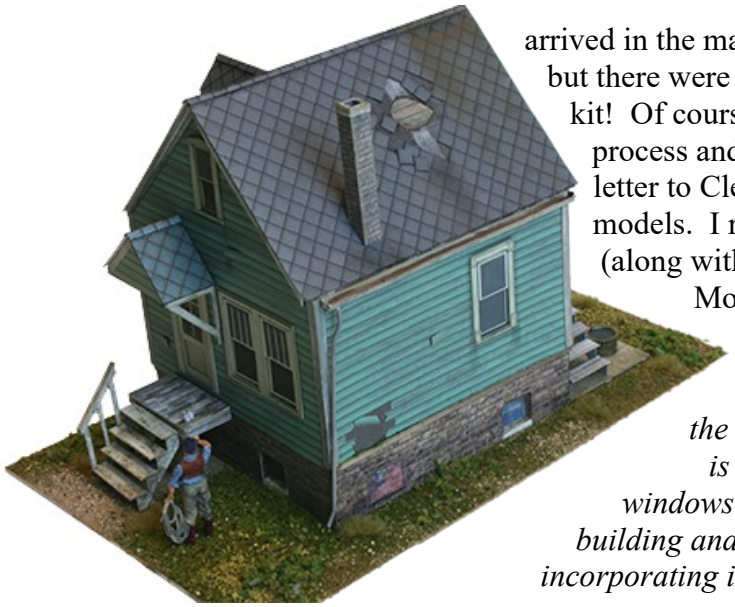
important to you. Some very skilled and knowledgeable card modelers are profiled below. Please say hello and take advantage of their skills, knowledge, and expertise to improve your card modeling down these "**New Tracks**".

Jim Gore MMR

My history in paper modeling? Paper modeling has been around for well over 150 years. Of course, if you want to go back enough the Japanese and Chinese artisans in the 17th century were building various art-works out of paper. The British produced paper model kits of various London landmarks in the 19th century; the most famous of which was constructed and modified by Joseph Merrick (The Elephant Man) in the 1870's. It is still on display at a museum in Longond. As far as model railroading, the British and Australians have been using paper models quite extensively over the past 100 years. I think that most of us will still remember Suydam kits which were made of embossed cardboard. Early HO kits had cardboard embossed sides (Globe, for example, prior to and during World War II).

Did I have a mentor or just trial and error?

It was both through trial and error as well as a mentor. I started paper modeling by purchasing a Paper Creek (no longer in business) model. They were laser-cut with small frets to hold them on the carrier sheets. The extensive instructions were great and taught me about layering to give the model dimensionality. That's the real essence of paper modeling, adding layers of paper parts to give a true 3D dimension to the model. I then turned to Clever models and, since I model in On30, chose a kit. It arrived in the mail with about 8 sheets of parts that had to be hand-cut but there were no assembly instructions. It really was a "wing-it" kit! Of course, I screwed it up and ruined a couple of parts in the process and had no way to replace them. So, I sent a rather nasty letter to Clever Models and told them what I thought of their models. I received a note back from Thom Miecznikowski (along with his brother, Dave) owner and designer for Clever Models (at that time, it was called Clever Brothers).



This is a company house from Clever Models. It shows the effectiveness of layering of cardstock "parts". The roof is three layers, the walls of the house are four layers, the windows are six layers. This also demonstrates my technique of building and detailing the structure on a sheet of thick plastic, then incorporating into the layout. Jim Gore Photo.

This is another test build of the coaling tower at Chama, New Mexico. Ultimately, the only way I could effectively complete the model was to make it multimedia, with wood supports, a detail kit from Grandt Line, and a balsa coal pit. The main part of the kit (walls, roofs, hoist house, etc.) are all cardstock. Jim Gore Photo

He offered me a refund, but I said, "no … teach me how to build the models". So, by email, for about two weeks, Thom and Dave talked me through building a Clever Models kit which is, in my estimation a craftsman kit. A year later, Thom introduced John Allen's engine house at Gorre. However, they decided not to sell it, because it would have been over 40 pages and cost over $100. So, I begged and pleaded with them to be allowed to try the model and Thom agreed, if I would photo document construction. After receiving the files by email, it took me a good 3 or 4 months (and a whole lot of #11 blades) to complete the model. I was pleased that Thom and Dave liked my rendering and, ultimately, that model became a cover story for *O Scale Modeling*. Perhaps because of this success, Clever Models decided to sell all their kits as downloadable files. Once you bought the kit (for somewhere around $20), it was yours forever and you could build as many versions as you wanted. That's how the models are produced today. Clever Models produce all of their kits in 1/4" scale, the engineer and architects choice. So, if you model in HO, you must tell your printer to print each page in 48/87 proportions, or in N scale, 48/160 proportions.

Why paper modeling?

To make a paper model look realistic is a challenge to skills and patience. The great advantage, at least with Clever Models, is a wide selection of kits that can be easily kitbashed. This does not mean to say that I eschew craftsman kits; there are plenty of those on my layout as well. When I see a cardstock model that will fit the space where a craftsman kit won't, I will use it.

Tips for new modelers thinking of paper model building.

This question always reminds me of computer modeling (one of my research projects when I was on the faculty at university). I had a sign in my office that holds true for cardstock modeling: "Computer Modeling / Cardstock Modeling: Fast, Cheap, and Accurate. Pick any two!" You can't have all three! If you want an accurate model with lots of detail, treat it as if it were a craftsman model, just made of a different medium than wood. Inexpensive and accurate means that you must be slow and thoughtful. Just because the medium is cardstock does not mean it should go fast.

Plan to use lots of #11 blades. In general, I plan to go through 3 or 4 blades per completed side (I used over 100 to complete the Engine House at Gorre). Paper dulls blades faster than any medium. Don't throw the blades away; they can always be used for a softer medium like wood. If it takes you more than two swipes of the blade to cut out a part, it's time for a new blade. Even using a metal straight-edge to guide your blade, a dull blade will tend to wander, making it difficult get accurate pieces. Spray all your parts prior to cutting with

J&RG Wright's Repair. This is a stock kit from Clever Models with some additions, including complete studs on the interior wall, lighting, and a complete machine shop. The building to the right of Wright's is also from cardstock. This shows what some careful planning and detail can do to create a craftsman-style structure. Greg Komar Photo.

Dullcote. This has two advantages. It tends to seal the parts so they don't absorb atmospheric water and warp. The Dullcote also provides a block to UV light so they don't fade. Here in Florida, I have structures on my layout that are over 12 years old that have held their color and are not warped.

Layering of parts to produce dimensionality is the most important part of cardstock modeling. We all grew up on Grandt Line and Tichy windows, but they are grossly over-thick in some of the smaller scales. A typical cardstock window will have between 5 and 7 layers (frame, mullions, sills, etc.) and will be almost spot-on true scale. Since the parts are already printed in color, it is the layering that demonstrates the craftsman in you.

Contemplating then creating the piece can be long process. For example, I am currently building an overhead electric traveling crane (not currently available as this is a test-build). The block and tackle is composed of 42 layers of cardstock!

When you cut cardstock, you will have an exposed white edge. That has to be colored to match the color of the printed part. I have two methods for coloring: I can use a #2 round brush with acrylic paints (my favorite color is something called Mudstone by Delta Ceramcote). Paint from the back side of the part (the unprinted side) using the side of the brush not the tip. Alternatively, you can use Copic pens (get them at an art supply store). These are similar to a Magic Marker so it takes a little practice to not allow the ink to run into the piece, just color the edge. I primarily use T4 Toner Gray (it gives a nice shadow effect when layering pieces) and E57 Light Walnut (when used on pieces like metal roofs, for example, allowing it to seep into the pieces gives a nice rusted effect).

Finally, consider the scenery you will apply around the structure. If you are using the current water-soluble sorts of scenery (ground foam, etc.), remember that the walls will absorb the water and separate the pigments as they wick upwards into your model! My own process is to "paint" the inside and outside walls (up to about a ¼" up the side) with Lip Balm! The paraffin carrier is transparent and blocks the water from being wicked into the building sides. Again, this takes some practice. To make things easier for myself, I attach the finished (or almost finished) structure to a sheet of .04" styrene, leaving a good inch or so around all sides. I can control the water soluble scenery mixes easier, and I can add details without attempting it after being placed on my layout.

There's no "rule" that you must use only cardstock on a paper model. Mixed media models are allowed. The cardstock police will not attempt to arrest you.

Detailing is what separates these models from the backdrop-type models. You can detail these models just like any wood craftsman model and you will be surprised at the result! The really nice part is that if you make a mistake, you can always print out a new part and start over!

Changes manufacturers should consider making to have paper modeling easier to build or more accepted by modelers?

I often hear modelers complain that the parts should be laser-cut like the old Paper Creek models. I agree that it would be nice but, personally, I am unwilling to pay for the process when my #11 blade (sharp) does a good job; it's just slower. Thom tells me that it would triple or quadruple the price of kits [the $30 Engine House at Gorre would be well over $125]. As far as being "accepted" by modelers, learning the skill of layering can make the models look like true craftsman structures. I challenge most visitors to identify all 17 cardstock structures on my layout. They can pick out one or two, but nobody has identified all 17!

What is not available you would like to see?

I'm pretty happy with the situation as it stands. Clever models, alone, has structures sufficient to build an entire fishing dock scene if you model New England, and including a light house. If there is a complaint, personally, I would like to see more western false-front structures and adobe structures. But, I build adobe out of balsa or dental stone with no problem, so I am not picky about that need. Indeed, Clever models offers two CD's with all of their "textures" on 8x10 sheets (or you can buy them individually on-line).

Clapboard, shiplap, board and batten, brick, cinderblock, roof underlayments as well as windows and doors and other textures are available, so I can scratchbuild just about anything, given enough time. My first attempt, the Diamond-Bar in Como, Colorado, won a national contest for scratchbuilt models. As long as there is an expanding availability of textures, I will be happy. I am currently building the Service Station that my grandfather owned in the 1950's. All I have to work from is photographs that were used for insurance coverage.

If you think I can help your modeling please let me know at james.gore@oscaleresource.com

David Rarig

I've been building models since I was about 10 years old, first with plastic cars, then control-line model airplanes and then model railroading. I acquired my first N-scale train model in 1970 while attending grad school at Penn State and I have been "playing with trains" ever since.

I was re-introduced to cardstock structure modeling two years ago when I read an article in a magazine in which the modeler used computer-printed brick texture paper to construct an O scale retaining wall. I built models in the 1970's using the traditional methods of milled basswood siding and strip wood along with heavy mat board substrate, but I had always used model paints to finish them. I liked the realistic appearance of the printed brick in the magazine article, so I went on-line and ordered some texture sheets from the manufacturer referenced in the article (Clever Models).

Once I down-loaded a number of texture patterns, I started to experiment with them in N scale which is my primary modeling size. I have been driving a truck over-the-road since 2001 and I was becoming very frustrated with the lack of time available to pursue my modeling hobby as I am typically at home only 36 hours every other week, and other necessary tasks usually prevent spending much time in my basement "train room".

As I purchased some ready-designed cardstock buildings, I realized that I could fit everything I needed to model them in a standard briefcase, and since there were no messy or hazardous paints or chemicals involved, I could take my hobby with me on the road. Here are pictures of my "workbench" in the cab of the Freightliner truck I drive.

I started with simple structures with few windows and doors, then

progressed to more complex designs as I gained familiarity with the medium. I think I've become "hooked" as I really enjoy building these models and admiring the artistry involved in making the original designs. There is absolutely no way that I could achieve the realism in appearance of these models if I had to try painting the finish on plastic or wood kits, especially in N scale! There are some extremely talented modelers who could do it, but not me.

These models were printed on 110# plain cardstock paper with an Epson ink jet printer. They are N scale 1:160 and are some of the first models I made.

N scale Wally's Mercantile by Clever Models (my index finger for size reference)

These models were printed on 110# plain cardstock paper with an Epson ink jet printer. They are N scale 1:160 and are some of the first models I made.

I began to experiment with different types of paper to see if I could improve the appearance of the finished model. I tried using a "bleed-proof" Bristol paper with good results, but still not the sharpness of print I was looking for

The Cannery Model by Clever Models in N scale

I finally hit on several combinations that I found did a good job of producing a good print and helping the construction process which requires bending the paper at 90 degrees to form corners. The first is a paper from Strathmore called Satin Board which I purchased on-line from Blick. It is rather expensive and no longer available from Blick (but there are other sources). It is satin glossy on one side and matte on the reverse side, about .010" thick, and what I would call a hard finish paper. It is quite stiff, but once folded, holds the shape well, requiring little internal reinforcement. I find that all paper models have to have internal reinforcement to prevent warping and unwanted surface distortions. The pictures below are models built with this paper.

The third method I tried was to print the model on matte finish photo paper. I found an inexpensive one at Wal-Mart made by Printworks that sells for about $7 per pack. It has a moderately smooth finish and measures only .0065" thick which makes it easy to fold. This is important since some of the models require folding the print into a small feature such as wrapping around a chipboard core to form pilasters. With paper this thin it is really important to back it up inside with a heavier card or chipboard. I like to print the design a second time on cardstock, laminate it to a still heavier material like chipboard and cut it to fit INSIDE the model printed on photo paper. You have to cut it to fit after the outer shell is formed to allow for material thickness. By printing it on cardstock, you will be able to cut the window and door openings to the exact size and placement as the external walls. Tip: I coat the windows with clear fingernail polish (3 heavy coats) to make it glossy like glass, alternately, they can be printed on glossy photo paper.

N scale Akron Machine by Clever Models (note these windows are printed on glossy photo paper)

The exterior walls, doors, and roof covering are printed on .0065" matte photo paper with heavy .055" thick chipboard interior reinforcement throughout (even behind the windows). Tip: the rooftop ventilators are coated with thin ACC after forming from 7 cut pieces each, makes them tough as fiberglass! Can you detail paint your plastic building this well?

One of the very nice features of these "cardstock" models is that they are printed on your home computer printer and can be reproduced as many times as you like. If you goof-up you don't have to give up; just print it again and start over.

They can also be reduced or enlarged to suit your modeling scale as can be seen in the photo below; same model done in Z, N, HO, and O scales. What FUN!

If you think I can help you please let me know at David.Rarig@sscaleresource.com. I look forward to hearing from you.

Greg Williams

Well Jim, I'm not sure of how much use I can be, but I will answer your questions the best I can and hope to be of some help. (Author's note: "I cannot tell you how many times I hear this." I just wish I had some of Greg's skills. Judge for yourself if he can help you.)

I started in the hobby quite young, I'd say about the age of 10. I always had a fascination with what my father was doing. I watched him at his small workbench in our apartment in Montreal do all kinds of things from repairing radios to building models. As part of this, I discovered my father's collection of *Model Railroader*, *Railroad Model Craftsman* and *Trains* magazines. I asked if I could look at them and I was off! I have read every issue of *MR* from 1950 to today. I grew up with the greats of model railroading and still believe Linn Westcott to be my hero as I youthfully wrote an essay in grade 6 on my hero. I think I should have put my father as he is the real hero of the story.

One day dad brought home a book from Carsten's publishing with a bunch of pre-printed buildings that one could cut out and put together. Printed on card stock, this provided the first structures to my small 4x6 layout.

My father taught me to build. I watched as he crafted things from the basics. Wood, paper, cardstock, sheet brass etc… One of his greatest achievements was a double track pratt truss bridge built entirely of wood and brass. No structural shapes bought, he made them all from brass. He didn't have a lot of money, but he had skills.

By my early teens I was building in wood and card. I scratch built a wood gondola with scribed card sides and wood braces. I still have it somewhere. Not that bad actually considering my youth and skills. Card is a versatile material that can be used to simulate everything from wood to metal. One of my structures was a coaling tower with card used to make the buckets. When painted Floquil gun metal and streaked with rust, it looks very realistic.

I've been a model railroader on and off since that time. Lost interest in my early 20s. Returned to it in 30s, started a business and put it aside to go back to it in my late 40s. I am not a prolific modeler as time does not allow, but I do enjoy the hobby in some sense everyday. HO has always been the scale for me as that is what dad was into. However, lately I have a yearning to work in O scale, narrow gauge as On30 catches on in popularity. To me, narrow gauge modeling is perfect for wood and card modeling.

A couple of years ago I tripped on a video review of a Cricut machine. Now they are used primarily by crafters who work in paper and cardstock. The reviewer was a model railroader who scratch built and demonstrated how it could be of benefit. I showed my wife and that Christmas there was a Cricut under the tree.

I began collecting cardstock for use in it and learned how to lay out vector drawings to make my own parts. I was very successful in making a door in HO scale from three layers of card. In my eye it looks as good as a plastic casting. There are others who work with this tool and a Facebook group dedicated to modeling with the Cricut.https://www.facebook.com/groups/ModelingwiththeCricutExplorer/

I then gained an interest in the available card stock models that one can print, cut and assemble. As I am building a small, urban industrial layout, I thought it might be a good way to populate the layout with structures

at a lower cost that purchasing plastic embossed sheets. This lead to a new high-quality ink jet printer under the tree the following year. My wife knows how to shop! Now much has been said to malign ink jet printers with the low cost of machine but high cost of ink cartridges. My wife chose a Canon printer that you refill the ink containers with liquid ink you purchase. I have yet to use up the included ink when I set up this winter. Ink is reasonably priced, and you get a good cost ratio with it. Canon Pixma G3200.

Recently I was building a scrap yard and to get an idea of the buildings and how they related to each other, as well as placement on the layout, I used card and paper to mock up each of the buildings. This was a great benefit as it allowed me to make some small changes that made a lot of sense. If I had built them straight off from wood, I would have regretted it.

Here is a picture of my latest build. Beginning with a small basic wood kit we were challenged to see what we could do with it. I used printed card stock to model the roof and foundation of the building as well as print

custom signs. For this I use thin card marketed as matte photo paper. To my eye these printed textures look as good or better than anything else out there. The signs are not available any where else and are taken from prototype photos. The key to this is some software I bought with card modeling in mind.

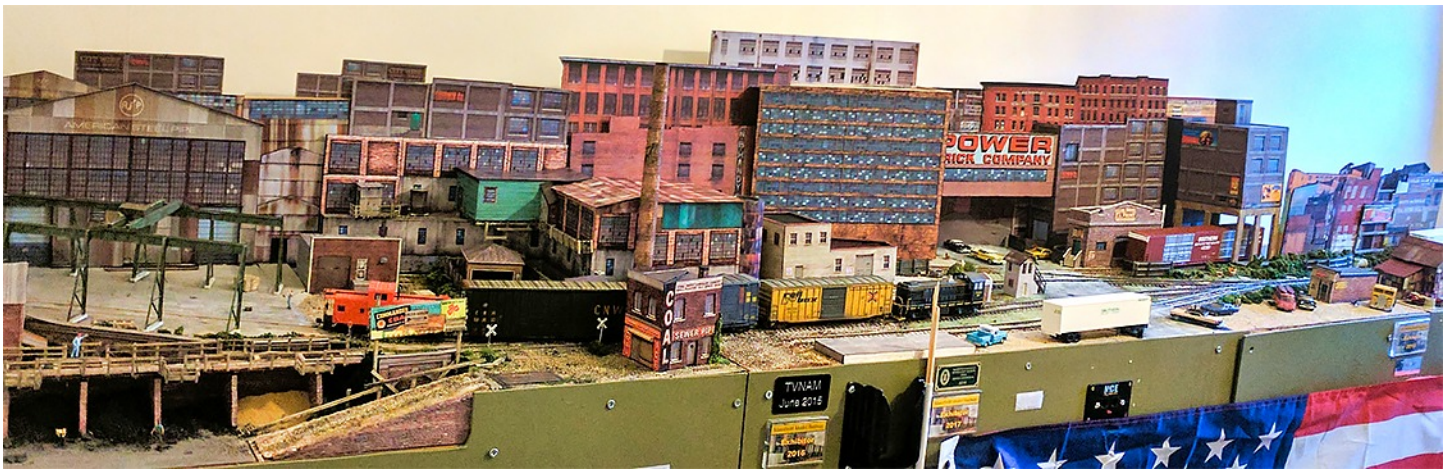
Model Builder from Evan's Designs allows one to use their pre-generated designs and textures to create your own buildings or build some that come with the software. There are lots of add on modules available with many different textures and materials. Also, on the Internet I discovered https://www.textures.com/index.php which has many textures available for download both free and premium. Added to this would be some good image manipulation software. I use the free GIMP, (GNU Image Manipulation Program) available at https://www.gimp.org.

A visit to another modeler's home revealed his secret to scratch building structures. He uses a card core to which he laminates plastic sheets with a brick pattern embossed. I asked about what he uses for card and he told me he uses material bought at an arts and crafts store. Something suitable for making mats for framing. I have yet to experiment with this material in my Cricut machine but that is next on my agenda. Overall, I find card to be a great material to work with that is inexpensive and versatile. Give it a try!

If you think I can help you with your modeling please contact me at Greg.Williams@oscaleresource.com

Dan Beresford

Dan is a very talented modeler who has really helped me get started in my search for information about card modeling. His help is most appreciated.



Layout is all cardstock

My name is Dan Beresford, I'm from England, and I've been modeling in cardstock models since I got back into the hobby around 10 years ago.

I started building in cardstock because it is a pretty forgiving medium – mess up a build? Just print out another copy and try again. I began with free demo kits that came from several different cardstock manufacturers, and naturally I built them according to the instruction sheets that came with the kits. I made a LOT of mistakes, and scrapped a lot paper and card in the process. But that's the only way I learn – hands on, trial and error.

I've never been a "book-smart" studier, I prefer to learn by doing, though I will go over the instructions a few times, as well as any build guide videos I can find online so as to avoid any common pitfalls.

These days, I look at photographs of the finished models from the manufacturers or other modelers, and I use these to work out how I want to build each kit. I must admit, I tend to look at each kit as a collection of

scratch building or kitbashing aids these days, and I use them to build my own structures that I need to fit a certain spot on any layout project I'm building.

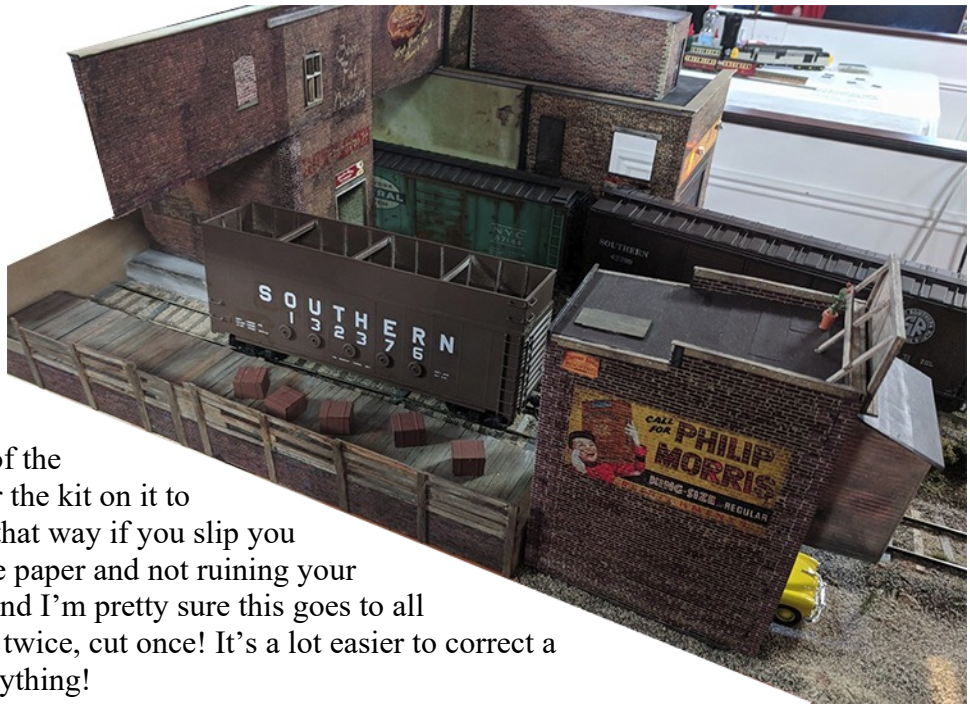
That's the beauty of cardstock kits – you have an endless supply of parts to build your structures with. Want to make that engine house twice as long? Print out twice the amount of side walls and roof parts. Want to make that warehouse taller? Print out more parts to build it higher. The potential provided by even the smallest cardstock kit is essentially infinite.

The idea of the mentor initiative that is being featured in "New Tracks" would have been a great thing to have when I was starting out in cardstock modeling. I'm by no means an expert, but I'd like to hope that I could offer assistance to anyone looking to start in cardstock modeling too. For anyone doing just that, I'd recommend a few of what I'd like to consider essential practices.

Always keep your blade sharp – I cannot stress this enough. Cardstock will blunt your blade surprisingly fast, and I've had to re-print a fair few paper parts due to a dull blade tearing the paper when cutting. I prefer straight edge razor blades for working in cardstock, though a standard scalpel or box cutter can work just as well. A steel ruler is essential in keeping that sharp blade away from your fingers too!

Always keep a nice supply of different card types and thickness in your materials stock. I like to keep hold of any sources of card I find and add them to my materials supply, as you never know when they might come in useful. Cereal boxes are my go-to source for thin card for building up layers, but I tend to go for artists mount board for my primary material. Sometimes, if I need to build something big, I cheat a little and use foam core

board to act as the shell around which my cardstock kits are built.



Sharpies are your best friend. I use Sharpies in multiple colours to remove the white edges of the cardstock or paper once I've cut out a kit part. Brown for brickwork or wood, black for tarpaper, etc. I just take the Sharpie and run it at a 90 degree angle along the edge of the paper to colour it in. One thing I do recommend is making sure the side of the paper or card that has the artwork for the kit on it to be facing AWAY from the Sharpie, that way if you slip you are only marking the plain side of the paper and not ruining your carefully cut out kit part! Finally – and I'm pretty sure this goes to all aspects of model building – measure twice, cut once! It's a lot easier to correct a measurement error before you cut anything!

Oh, and take your time! Cardstock models are like any other craftsman kit – they are complex kits that produce beautiful models, but they are a marathon, not a sprint. They inevitably look better the more effort you put into them.

There are plenty of cardstock kit manufacturers out there, whether the kits are download files you print out yourself, or pre-printed sheets you buy packaged up, or pre-cut kits similar to wood or plastic models. I think

most of the manufacturers are doing a stellar job of catering to the needs of the modeler, and I think a lot of them are also criminally overlooked when compared to plastic kit manufacturers.

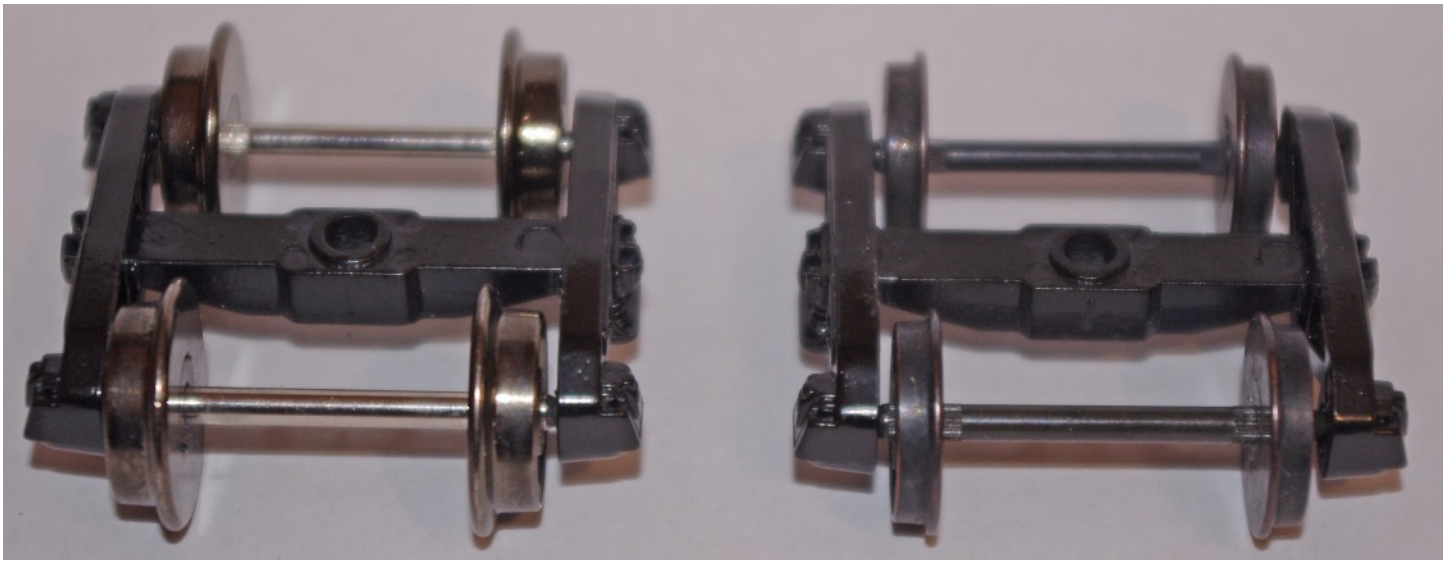
There is however, one aspect of cardstock modeling that I think hasn't truly been tapped into yet is rolling stock. There is a fantastic British modeler named Jim Read who not only makes cardstock structures on his layouts, but all his rolling stock – wagons (freight cars), coaches (passenger cars) and even locomotives are all built from cardstock. Yes, even the running gear and chassis frames are cardstock. The only things not made from card are the wheels, gears and motors! Jim's O scale micro layout, MoxleyHeath, is a true work of art.

For US modelers,Clever models does make a collection of narrow gauge freight cars and a box cab locomotive, but I think they might be pioneers in this aspect of cardstock manufacturers. I did try my hand at scratch building a freight car from cardstock, using side-on photographs of actual freight cars cropped and printed out to make the car sides, and though the execution wasn't perfect, the theory is definitely sound. If any modeler would like any assistance with any aspect of cardstock modeling, please feel free to get in touch! Dan.Beresford@oscaleresource.com

That's it for this "**New Tracks**" card modeling article. I hope you enjoyed it. Thanks for reading this far.

Time for me to get back to my work bench and build another card model while I wait for my son, who has my copy of the Evans Design software to give me one of his custom designed card models of a historic building in Atlanta Georgia. Thanks again, and have fun with your model building. Remember, I really love to see your photos and hear your comments.

Track And Wheel Standards



The truck on the left has NASG standard Hi Rail wheels and flanges. The truck on the right has NASG scale wheels and flanges. Both are made to NASG standards and are compatible with other equipment made to the same NASG standard.

By Glenn Guerra

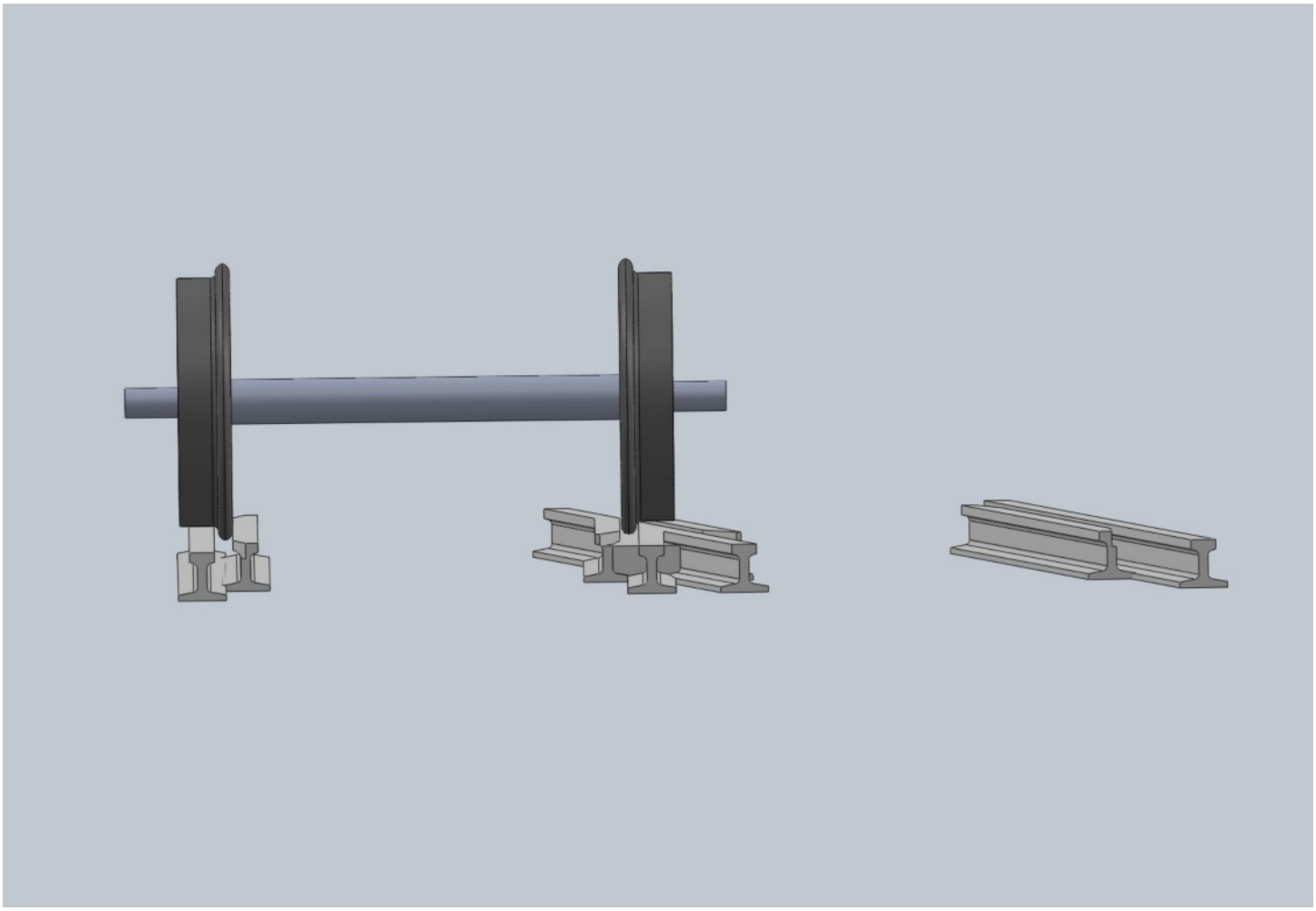
In S Gauge modeling, we have two popular standard gauge track and wheel standards to work with, Hi Rail and Scale. There is actually a third if you consider Proto 64, but for this article we will not cover that. The models that American Flyer made are much closer to scale than the models Lionel made for O Scale. I suspect this has a lot to do with why many people like to run their American Flyer equipment with their new equipment. In the recent S Scale survey, we asked what size rail people used and then why they liked it. They people who used larger rail sizes also said they like to run their older American Flyer equipment with their newer equipment.

A few years ago in Michigan, I was visiting a layout and they were trying to run Hi Rail and Scale equipment on the same layout. I questioned that and said it probably would not work. Last summer, I saw them at the NASG National, and asked how it was going. They said it did not work, and they had to settle on one standard. This article is about is why you need to go with one standard or the other.

Before I get into why, let me clarify that it has nothing to do with the quality of your model or whether you should use Hi Rail or Scale wheels. It's your hobby, so do what you feel like. However, if you want reliable operation, you need to standardize on one or the other and here is why.

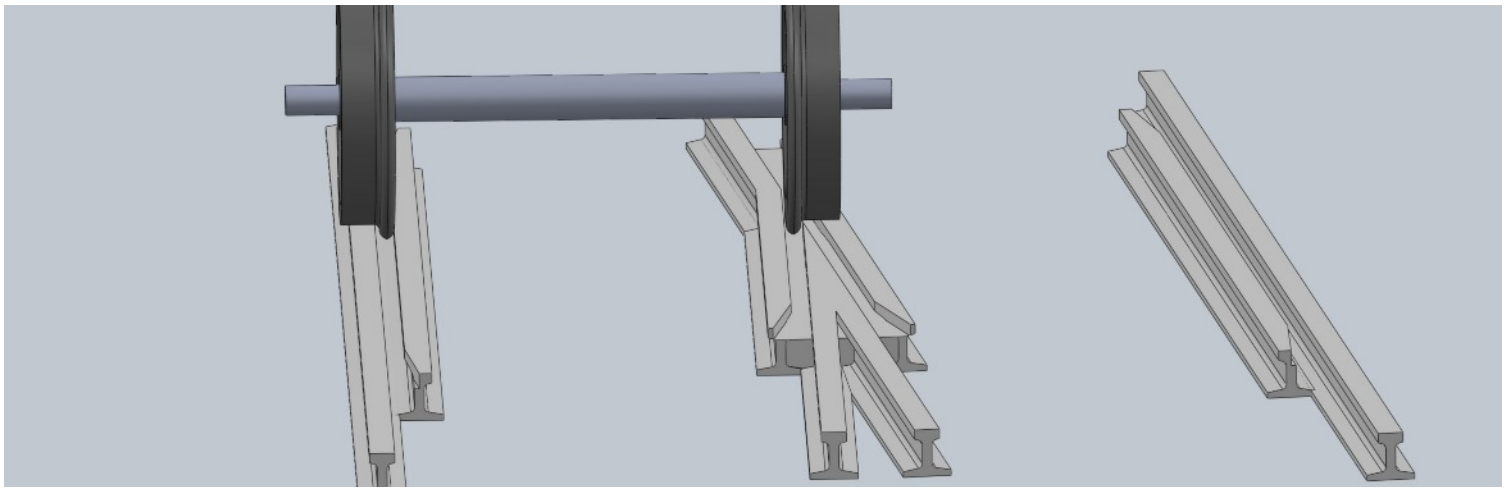
The relationship of the guard rails at switches and crossings and the back to back distance of your wheels must be compatible. The purpose of those guard rails is to keep the flange of your wheel from hitting a point or climbing another guard rail. Many years ago, the NASG came up with standards for both Hi Rail and Scale. These standards were adopted later by the NMRA. Today manufacturers make track and/or wheels to these standards. This has been a big help to the hobby.

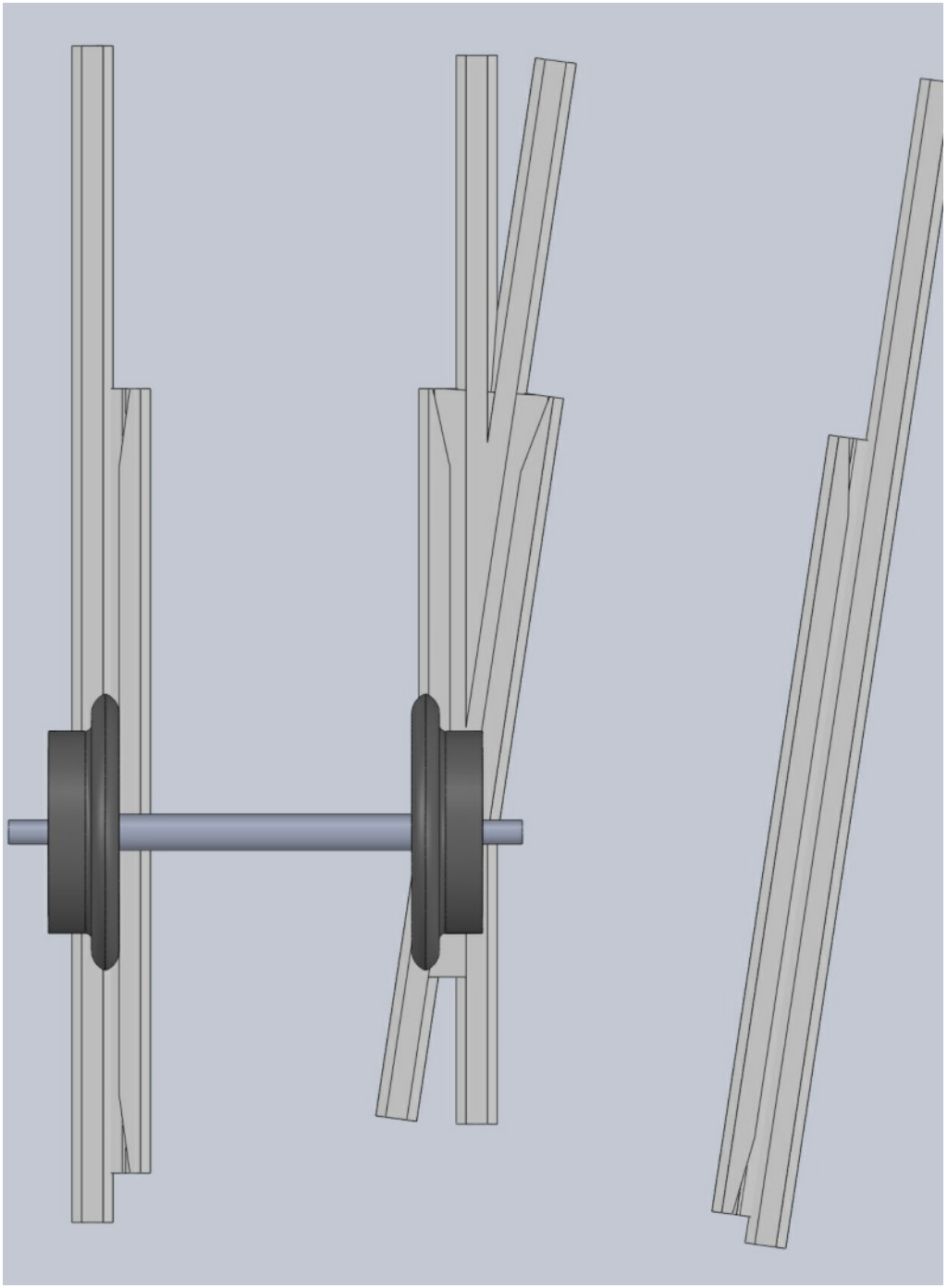
To help explain why the track and wheel standards are important, I have made some drawings to illustrate how this all works. Each drawing has an explanation along with it.



Above is a switch and wheel set made to NASG Scale standards. Notice how the guard rail on the left is preventing the wheel set from going to far to the right. In the photo on the left you can see the flange of the right wheel will not hit the point of the switch.

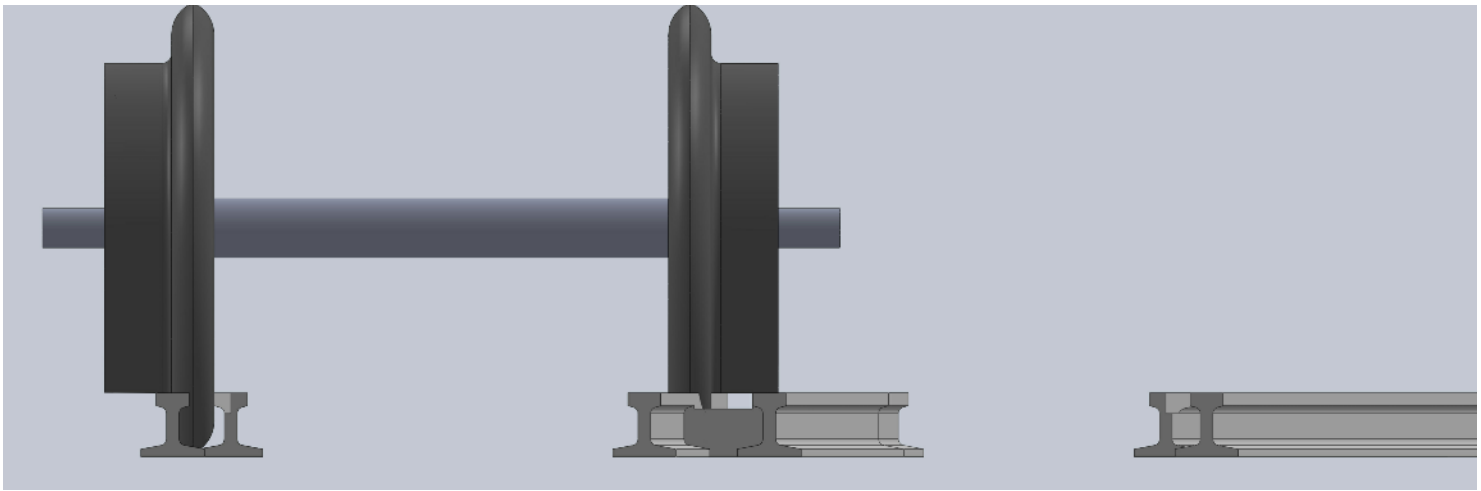
In the lower photo, you can see there is room around the right flange and the guard rail and switch point. The track and wheel set are compatible and you will have good operation.

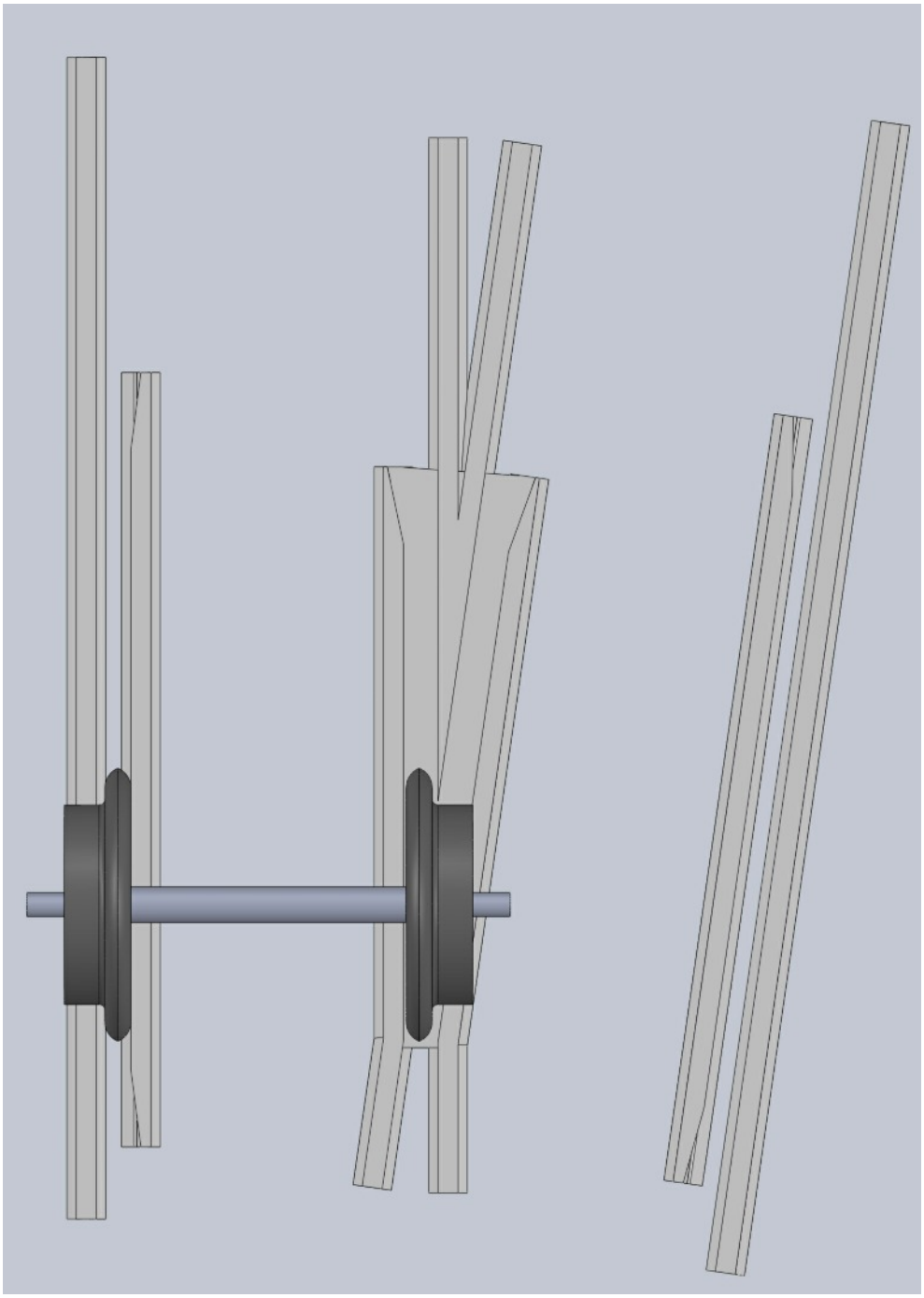




This is what happens when you try to run a Hi Rail wheel set through a scale switch. In the photo on the left, you can see the guard rail on the left is too tight for the flange of the wheel. The flange is drawn to NASG High Rail standards and the guard rail is drawn to NASG Scale standards. Notice also that the flange on the right wheel has climbed the guard rail at the switch frog. At this point your car is on the ground.

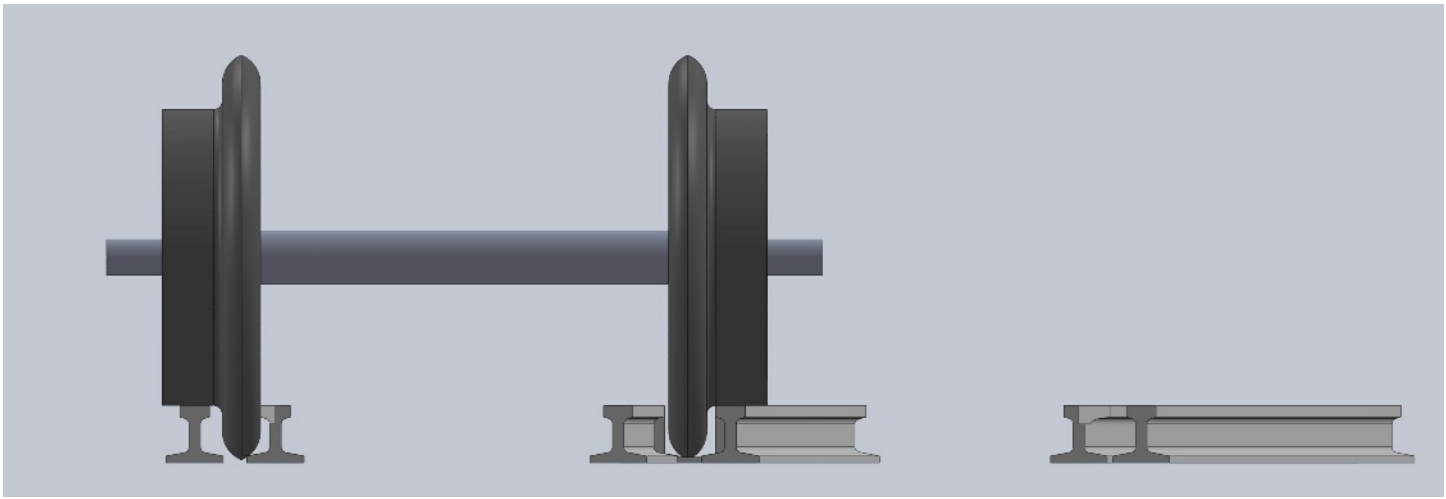
In the lower photo, you can see the flange is too wide for the guard rail clearance on the left wheel.

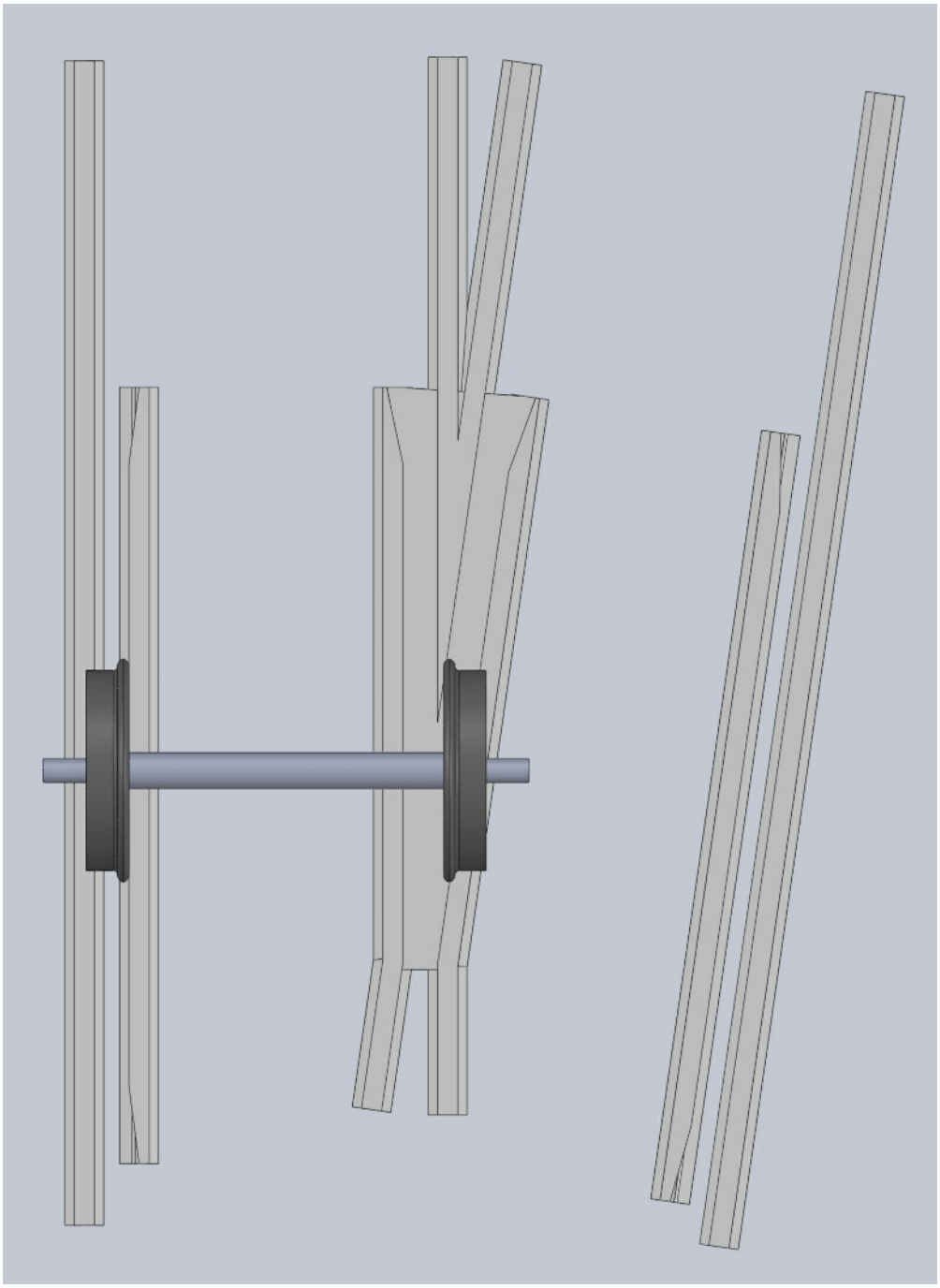




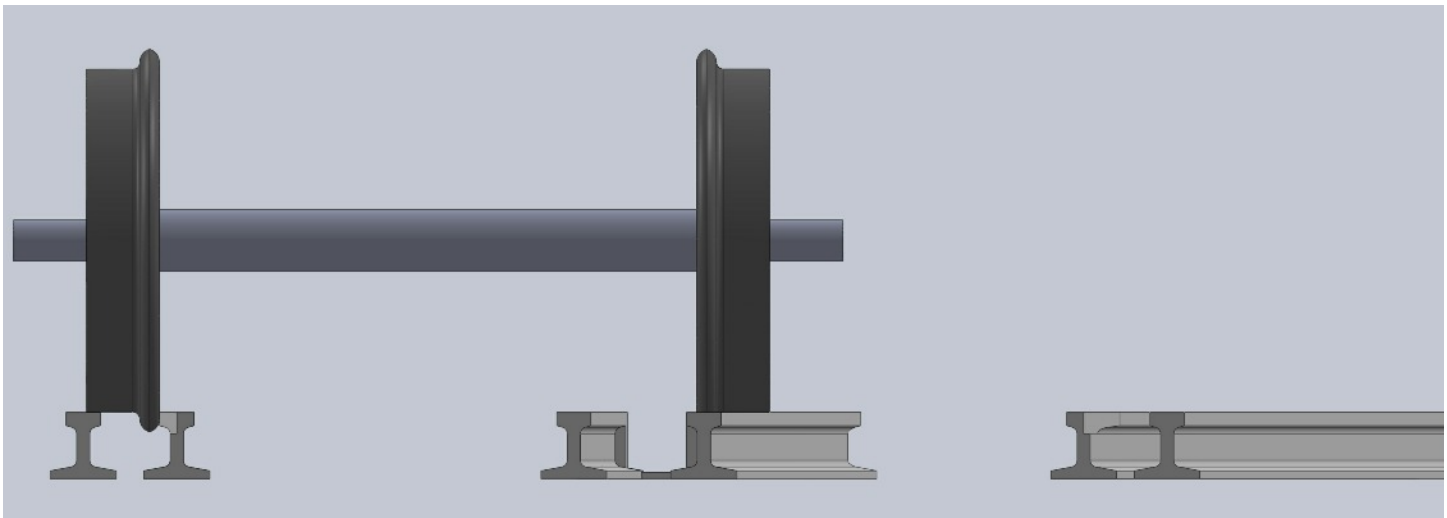
This is a switch and wheel set made to NASG Hi Rail standards. Notice in the photo on the left that the left wheel fits in the guard rail and is holding the right wheel away from the switch frog. The wheel set will be guided safely through the switch frog.

In the lower photo, you can see the back of the left wheel is tight to the guard rail and there is still clearance around the flange of the right wheel. This combination will work well.





In this drawing, a scale wheel set is trying to go through a Hi Rail switch. Notice the guard rail on the left wheel is allowing the wheel set to go too far to the right. The wheel on the right is free to hit the point of the frog and this can cause a derailment. Because the guard rails on the Hi Rail switch are wider, and the Scale wheels are narrower, the distance from the running rail and the point of the frog is greater and the Scale wheel can fall into the switch and possibly hit the point of the frog.



I hope these drawings illustrate the point of why track and wheel standards are necessary and related. Again, let me stress that Hi Rail or Scale is your choice and one is not better or worse than the other. What is important is that you must adopt one or the other for reliable operation. Model trains are not much fun if they keep falling off the track. Lastly, let me point out that this is one of the biggest reasons we all need the NASG Standards to make things compatible.

A Battery-powered Caboose

By Peter Vanvliet

The caboose shown in this article's photos is the Pennsylvania Railroad N5c ("cabin car" in PRR speak). The PRR N5c cabooses are unique in that the cupola was streamlined, and the windows of the car body were portholes instead of rectangular in shape. A total of 200 of these cars were built in 1942. The kit of the model was produced by Kaslo Shops Distributing in S-scale in 2004. When I switched to S-scale in 2008, Kaslo's owner was selling the few he had left on eBay, so that is where I got mine. I got a few e-mails from people complaining about the kit's warping, but mine was and still is perfectly straight. At the time of this writing, Kaslo no longer sells S-scale kits, but there are rumors that re-runs are possible.

Gotta Have the Lights!

Figure 1

When I completed the kit, I wanted to have interior lights, as well as two marker lamps attached to the end (not supplied with the kit). I bought a pair of brass Master Creations (part #02308, sold by B.T.S.) marker lamps **(figure 1)**. These are hollow. I painted the pair a yellow color. Next, I soldered magnet wires to a pair of SMD (Surface Mount Device) LEDs. This takes a bit of practice, but it is not hard. No matter your eyesight, magnification is required to do this. Magnet wire is a very thin wire with an enamel coating on it that really sticks to the wire. It is called magnet wire because that is the wire transformers are built out of. I bought mine from a company called Ngineering. Next, I filled the marker lamp with Formula 560 canopy glue. This dries clear. The LEDs were then fed into the bottom hole of the marker lamp, and I made sure that the LED continued to face out of the center ("back") hole while the glue was setting. When done, I painted the glue area of the back hole of the marker lamps with Floquil's "SOO Line Red", so that they appear red from behind. The two side holes of the marker lamp I left unpainted.

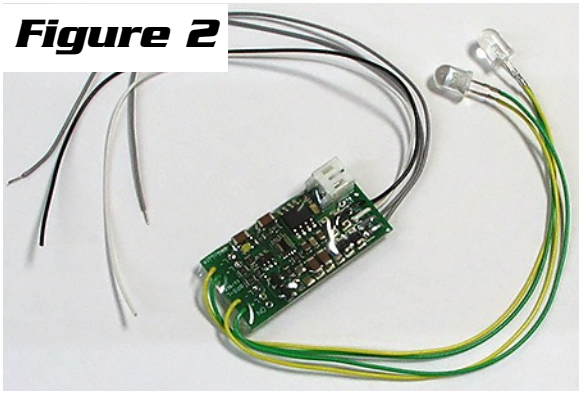
When I built the car kit, I was still using the Digitrax DCC system for my home layout. One of the things that always annoyed me was the flicker of caboose (and for that matter, passenger car) lights, because generally their electrical pick-up is not good. The Kaslo model has several interior detailing parts, including plates and silverware, all of which I installed. If I was going through that effort, I wanted to be able to see those through the porthole windows of the car!

So, at the time, I bought a circuit board from Richmond Controls. The company is based in Richmond, Texas, which is just outside of Houston, so owner Jim Hinds is a fixture at local train shows. He custom-designed a circuit board for me that fit within the caboose. It just so happened that fellow S-scale modeler Bob Werre was also working on the NYC version of that caboose for another S-scale modeler, and had also contacted Richmond Controls. The nice thing about that circuit design was that it used the (new at that time) super-capacitor. When I tested the board, the built-in SMD LEDs literally stayed on for 30 minutes after the power was withdrawn from the board! Nowadays super-capacitors are being used in stay-alive circuits sold by several DCC manufacturers to keep the sound decoders from temporarily loosing power. This all worked great, both at home and on the club layout.

Switching To Battery Power

However, in late 2012, I discovered and bought Neil Stanton's S-CAB system. Briefly, the S-CAB system is a throttle that uses radio-frequency that sends commands to a receiver in the locomotive. No signal communication is handled by the track anymore. Neil took the system a step further and designed the circuitry necessary to allow a small cell-phone-sized battery to power the circuit boards as well as the DCC compatible decoder and all the electronic components inside the locomotive. I converted my engines to battery power and the S-CAB system. And, now I am building a "dead-rail" layout. What this means is that there are no wires connected to my layout's rail at all. No gaps to cut in the rail, no short-circuits to deal with, no complex wiring involved when installing turnouts (or reverse loops, or wyes, or turntables). A short section with a 12-volt power supply applied to it is all that is needed to charge the battery inside the locomotives. No external plugs, and no removal of the battery.

Figure 2



This was all fine and dandy, until I revisited my N5c caboose. How was I going to have the interior and marker lights light up on a dead-rail layout?

Canadian S-scale modeler Brian Walsh (who also switched to using the S-CAB system) and I discussed this issue via e-mail, and we decided to contact Neil. Neil came up with the idea of offering a new system, specifically designed for managing interior (and marker) lights on cabooses and passenger cars that are operated on a dead-rail layout. He is calling this the "BPS-Lite", a lighting power supply.

What is the BPS-Lite?

The BPS-Lite is a circuit board that is a smaller version of what is normally installed in a locomotive when you use the S-CAB system **(figure 2)**. The BPS-Lite is powered by a small battery, and it provides outputs for LEDs. The battery is sold separately, so that you can choose which battery best fits your situation.

The BPS-Lite measures 1-1/3" (34mm) by 2/3" (17mm) and is 1/3" (8mm) tall. It can provide a continuous supply of 1 amp. This may not sound like a lot, but SMD LEDs use very little power, so you can power quite a few of those. The board itself comes with a white SMD LED installed, which is on whenever the battery provides power to the board. Then, there are two outputs that have a 470-ohm resistor hard-wired to each output. So, to those you just solder an LED and you are ready to go. As a matter of fact, when I got my package, a 5mm LED was soldered to each of those outputs to test the board, all I had to do was plug in the battery and wave the magnet. There is another output (plus and minus connections) that provides the battery power, but that output is NOT protected by a current limiting resistor. You can use that output to install one or more resistor-with-LED combinations, or perhaps even some small animation (remember the 1-amp limit).

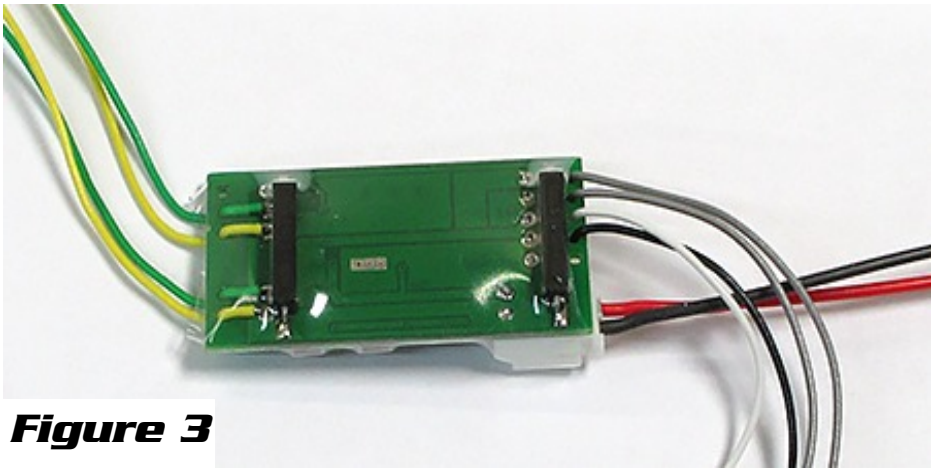


Figure 3

Turning it On and Off

The power on/off is controlled by two reed switches installed on the BPS-Lite board **(Figure 3)**. A reed switch is a small rectangular electronic component that is activated when a magnet is held close to it. You wave a magnet over one of them and the power from the battery is supplied to the outputs. You wave a magnet over the other one, and the power is turned off. Operation couldn't be easier.

Click here for a quick video of the on/off switching of the switch.

For those of you already familiar with the S-CAB system, you know that it can charge the internal battery via the track pick-ups that the engine already has in place. If you place a locomotive on the track that has DC, DCC, or even AC power connected to it (at least 6 volts), the locomotive's BPS will detect that and turn the internal system on. For a caboose and a passenger car, you don't really want that. If you are operating those pieces of equipment, when the run is done, in the real world they turn the lights off. You can simulate that with the BPS-Lite, even if you park it on a piece of track that has power to it. So, only the reed switches control the LEDs on/off state. (A quick note: if you really want the normal on-when-power-is-detected feature, then let Neil know when you order the BPS-Lite.)

Let's Talk Battery

You need to buy the battery separate from the BPS-Lite, because Neil offers several different sizes, both in energy storage and in physical dimensions. If you are going to run a lot of LEDs and/or need a long duration, you are going to want to opt for the largest battery. If space is a limiting factor, then you might want to consider the smaller battery. Check Neil's web site (http://www.s-cab.com/) for the latest sizes available.

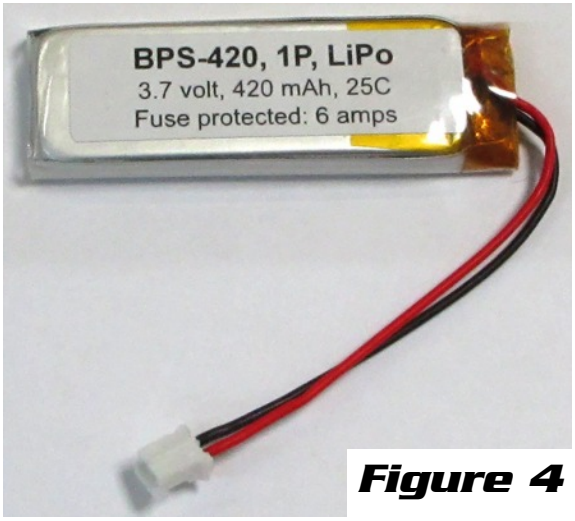


Figure 4

Since mine was going to be installed in a caboose, and since I wanted the interior of said caboose to be lit up, I opted for the smallest one that Neil offers, the 420mAh one **(figure 4)**. The units on these batteries indicate how much current the battery can provide for one hour. In this specific example, it can provide 420mA (0.42A) for one hour. So, if all the LEDs that I have installed in my caboose total up to needing 420mA, then my caboose will be lit for one hour.

However, a very conservative estimate is that each SMD LED draws 20mA, probably less, so if you have two of those on your caboose (40mA total), then that small battery will last (when fully charged) ten and a half hours! If you have three-hour operating sessions, even that small battery would only need to be charged once every third session. If you pick Neil's 1,000mAh battery, you'd be looking at 25 hours between charges. Of course, it all depends on which battery you pick, which LEDs you are using, and how many LEDs you have installed.

Installation Ideas

The BPS-Lite board comes with a white SMD LED installed on the board. It by itself could light up the interior of a caboose. Its primary purpose is to let you know that the power to the board is on, so that you remember to turn it off when you are done with it. For a caboose, you can have any number of interior LEDs and/or marker lamps.

For a passenger car, you can use the BPS-Lite to light the interior LEDs and perhaps a lit drumhead on the observation car. Since a BPS-Lite can support up to 1-amp continuous output, you can daisy chain several passenger cars with interior LEDs. There are several mini plugs available on the market, to make it easy to route two wires from one car to the next. These could simulate brake hoses, especially if you use flexible wire. Neil has shared with me a connection plug he has made for his passenger cars, so contact him if you get his BPS-Lite board.

There may be other uses for the BPS-Lite board that we haven't thought of. Let your imagination run free! There are small motors that use very little electricity. Servo motors might also work.

Installation Restrictions

There are three restrictions that you should to be aware of. One is the physical size of the components. You need to fit the BPS-Lite board into the car, and you need to be able to fit the battery as well. Neil designs all of his components for use in HO-scale, so the little bit of extra space that we have in S-scale models comes in handy, and makes the installation a bit easier.

The second issue is that you must be able to get a magnet to within 1/2" of the two reed switches, otherwise they won't respond. That means the BPS-Lite board needs to be mounted near an exterior wall or roof of the model. If your model is made out of brass, you have an extra hurtle to overcome, because the brass will shield the magnet from the reed switches. You might want to entertain the idea of mounting the BPS-Lite board under the model, in among the clutter typically found under cabooses and passenger cars. With some painting, it could be hidden. Note that the magnet doesn't have to touch the reed switches; just to be able to get within 1/2" of them. So, even though the board might be mounted under the car, the magnet can still get to the reed switches from the bottom side edge of the car.

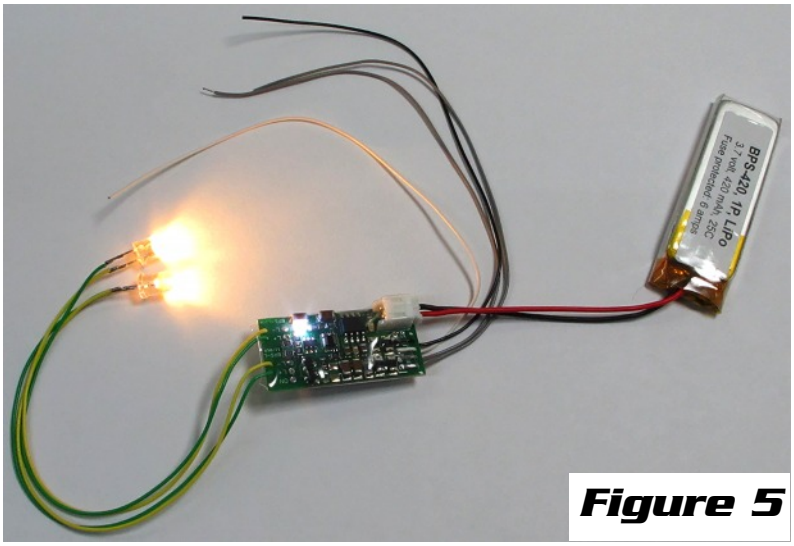
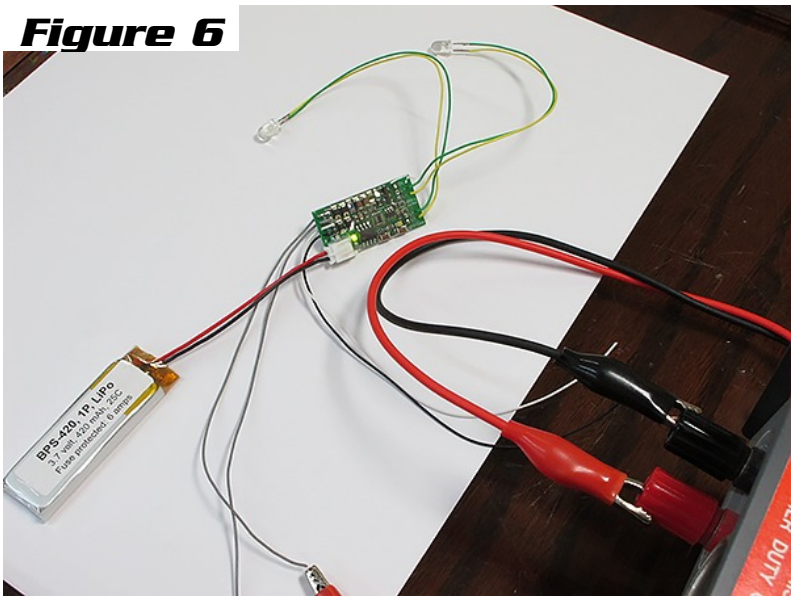


Figure 5

Third, the battery needs to be replaced. Chargeable batteries, as all of us who have cell phones have learned, can only be charged so many times before they stop having a meaningful storage capacity. When that happens, you can unplug the battery from the BPS-Lite and replace it with a new one. As a result, you may want to plan your installation such that some time in the future you can get to the battery (it will likely be many years, but still...).

Figure 6



Testing the Parts

As I stated above, it was trivial to test the board when it arrived; I simply unpacked it, and plugged in the battery into the white plug on the BPS-Lite board **(Figure 5)**. I then waved a magnet over the reed switches to see the 5MM LEDs that were soldered to the two output turn on and off. The SMD LED on the board itself worked, too.

Testing the Charging

When I temporarily hooked up the two gray wires that are used to charge the battery to a power supply, a small green/yellow SMD LED on the board lit up **(Figure 6)**. It turned off automatically when the charging was complete. This is great for knowing when the battery is being charged and when it is full.

Allow me to briefly cover the charging issue, because I get quite a few questions about that. One of the key features of the S-CAB system that I really like is the fact that you can set it up to charge from the power pick-ups that most engines and some cabooses and passenger cars already come with. Instead of having them go to

the motor or a DCC (or similar) decoder, it goes to the BPS board. Neil's BPS boards and batteries come with the following protection systems built-in:

a) when charging the battery, when it is full, the BPS automatically shuts off the battery.
b) when the battery becomes too drained, the BPS will terminate all connections to the battery.

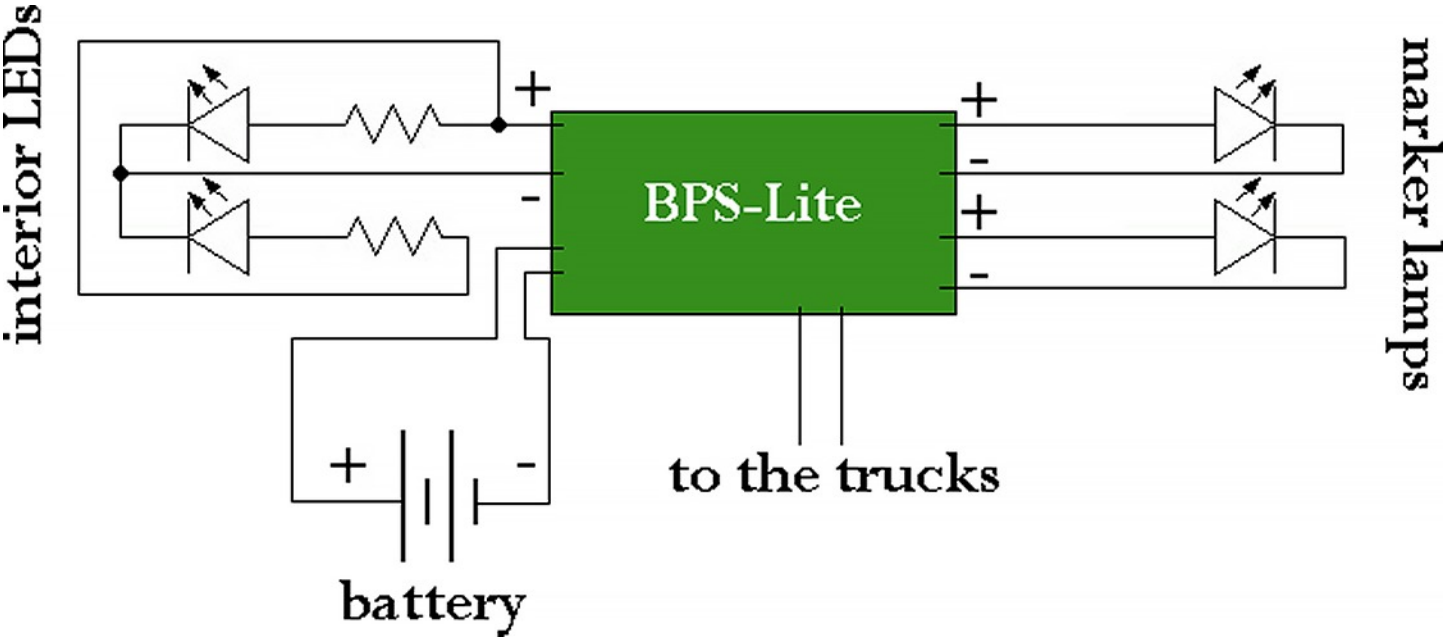
Without these protections in place (which may happen if you build a system yourself or buy undocumented/untested batteries from eBay or China), the following might happen in the abovementioned situations:

a) the battery may "explode" (it basically enlarges itself, oozing out its internals)
b) the battery will never hold a charge again, if it is allowed to drain too much.

So, you get a lot of safety features when you use Neil's components. By the way, Neil mentioned that the BPS board will charge the battery at a rate of 450mA per hour.

My Caboose Installation Experience

I will take you through the process of actually installing the components below.



I suspect most caboose installations of the BPS-Lite will follow a similar process, and likely the same might be true for passenger cars. I started my particular installation by removing the old Richmond Controls system that I had in there before. My model uses the American Models caboose trucks, which have one side of the

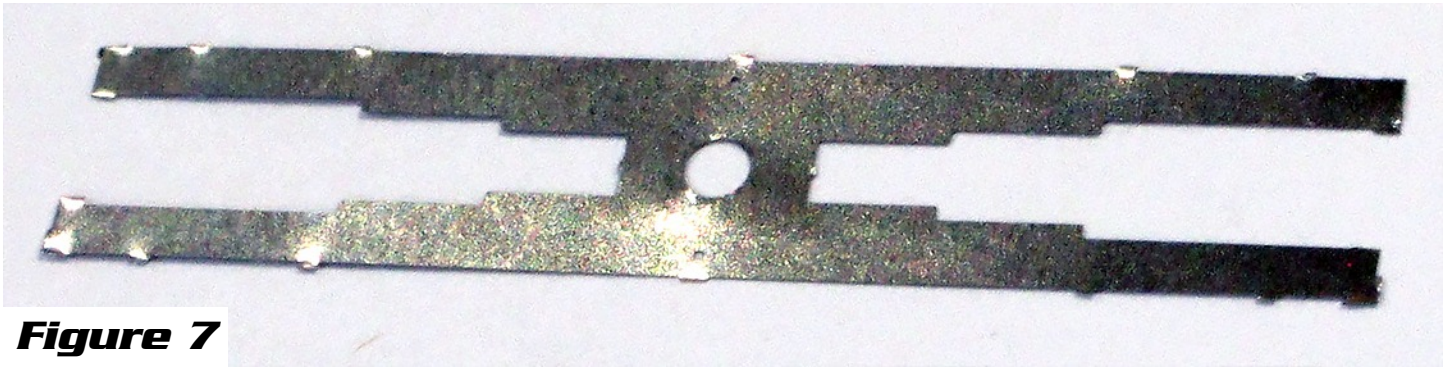


Figure 7

Figure 8

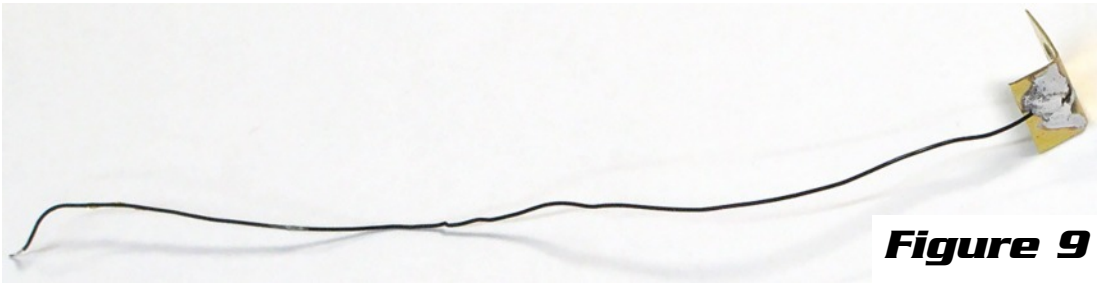


Figure 9

wheels insulated from the other side, so that you can use them for power pick-up. I started by installing the wheel wipers I had bought (alternatively, running a brass wire against the inside of the back of the wheels works as well). My wipers were sold as "HO-scale", but they were plenty long for S-scale. **(Figure 7 previous page)**.

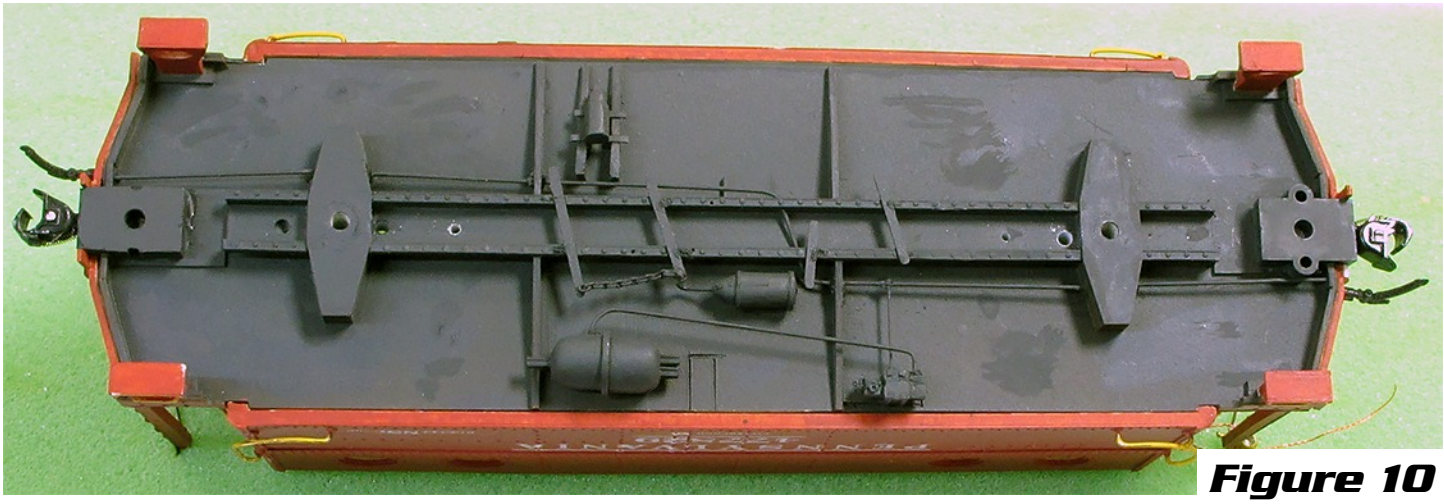
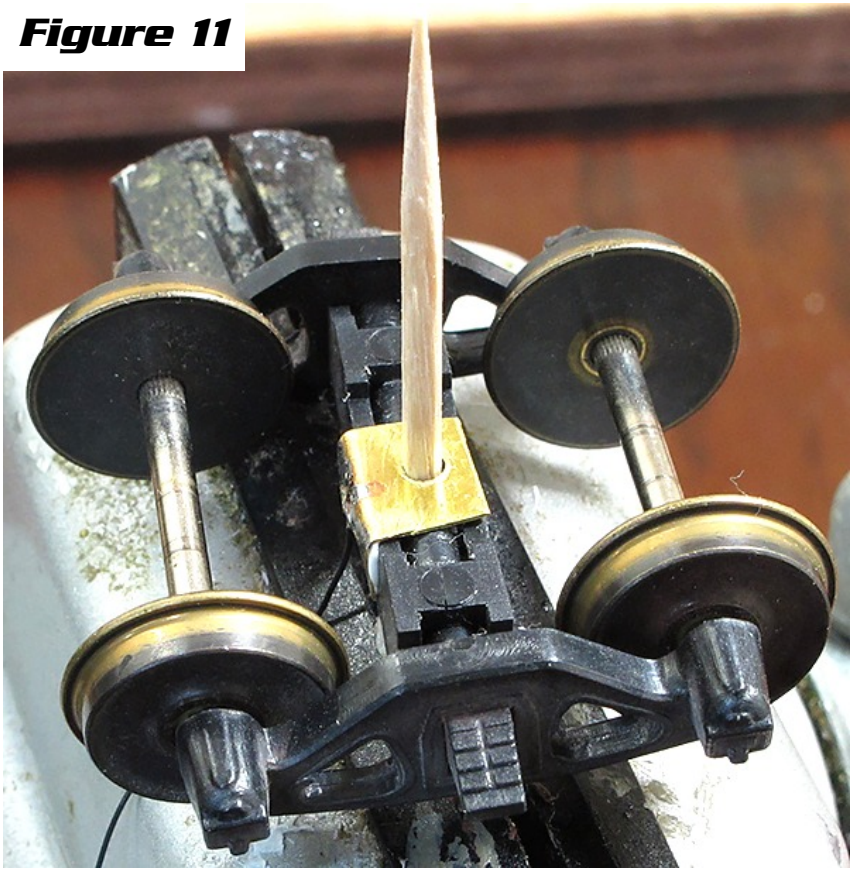


Figure 10

Figure 11



However, the metal that they are made from did not accept any solder, so I formed a brass shim that would simply rub against the metal wipers **(Figure 8)**, and to which I could solder a wire **(Figure 9)**. I drilled a hole into the bottom of the car, close to the bolster, and routed one pick-up wire through each of the holes. I drilled the holes close to the bolsters, so as to cut down on the drag those wires had when I had previously put the holes much further away, which happens when the trucks turn. **(Figure 10)**.

Make sure that the insulated wheels are on different sides for the trucks, otherwise you will have a short-circuit. In other words, the insulated wheels on one truck need to be an the right-hand side, and on the left-hand side in the other truck. Since wheels can pop out of trucks, make sure that each of the wheels are facing the same direction within their respective trucks.

Figure 12

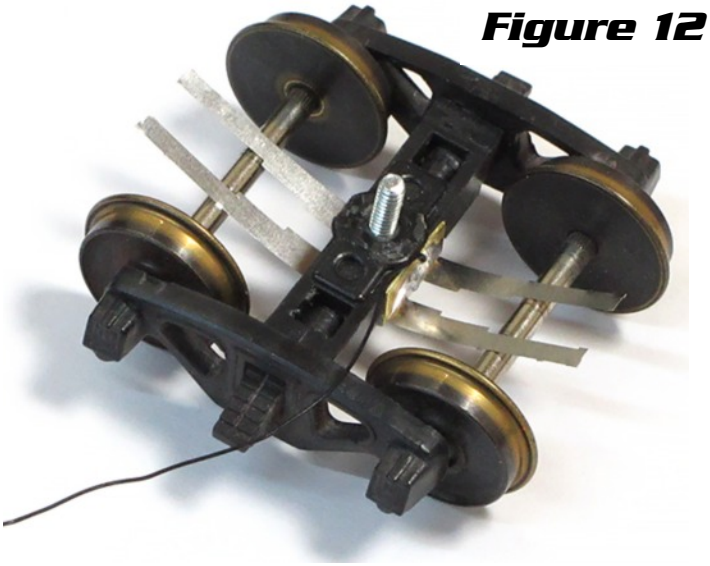


Figure 13

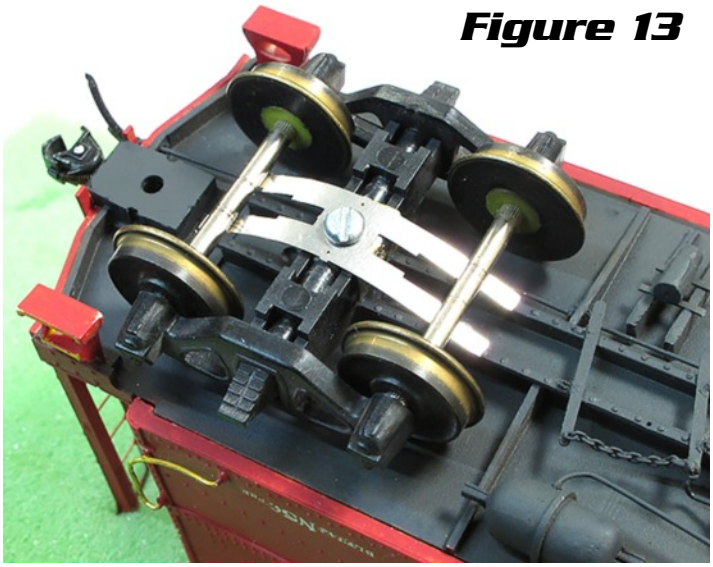
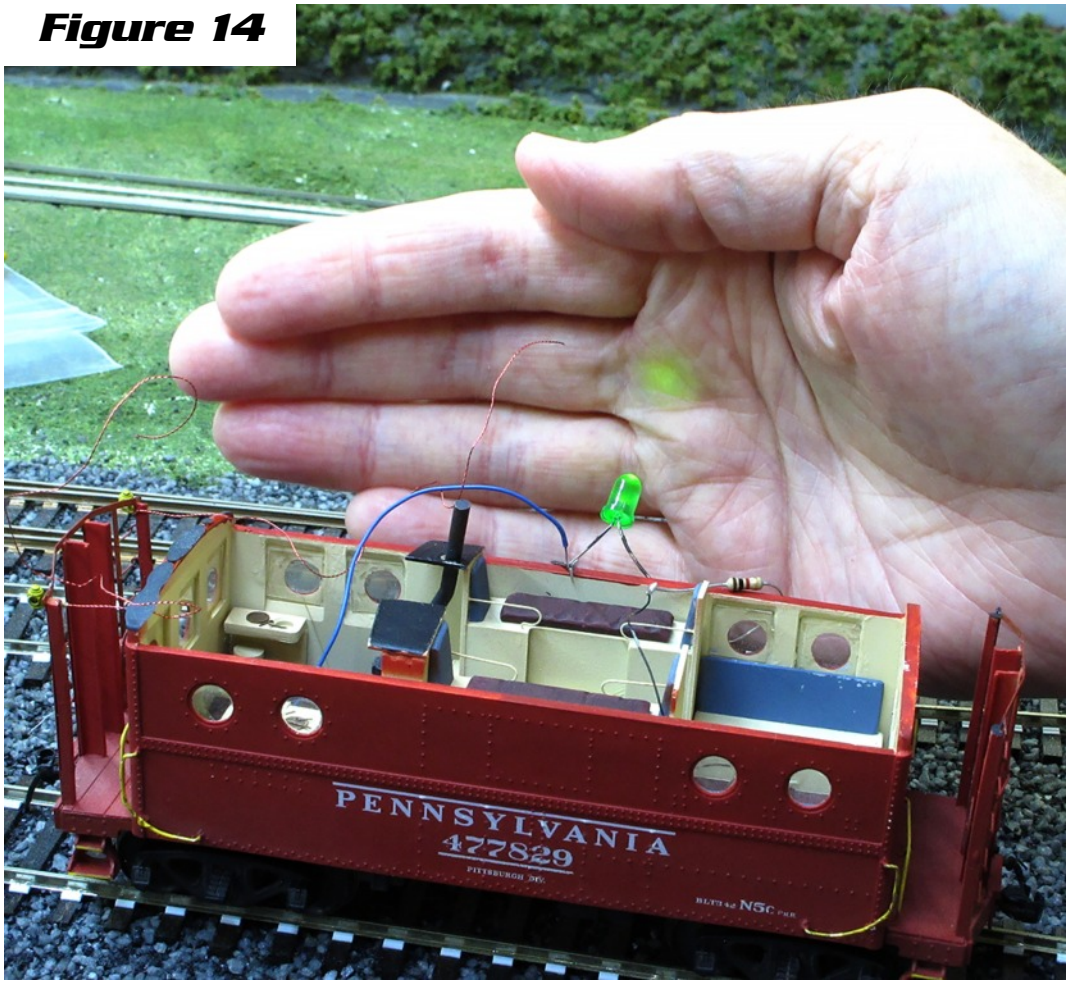


Figure 14



To get everything to line up for the mounting screw, I used Aleene's Tacky glue to glue the brass shim to the bottom of the truck **(Figure 11)**. When that was dry, I could then insert the truck's mounting screw and the wheel wipers to the truck **(Figure 12)**. Installing the trucks to the car, while carefully routing the feeder wire through the hole next to the bolster was the next step **(Figure 13)**. I put a power supply to a section of track, making sure to note the positive and the negative rail, and then soldered an LED with a current-limiting resistor to the two power pick-up wires inside the caboose. This helped me verify that they were indeed getting power from the rails **(Figure 14)**. Note that when charging your battery, you do want to have a section of clean track and clean wheels. Being able to see the green/yellow charging LED on the BPS-Lite board will help, if you can see it from the outside when the installation is all done.

One quick note about working with electronic components. You want to test your connections after each step, if possible. That way you can find out which part isn't working, or which connection is failing. If you wait to test the system until it is all built, it will take a long time to "debug" it, if it doesn't work. I use a Radio Shack volt meter, which has a continuity check built in, to check if two pieces of metal connect. Very handy for debugging circuits and track.

Planning My Installation

The next step was to plan out the LEDs I wanted. I already had the two marker SMD LEDs installed, as mentioned above, so those were a must. I decided that I wanted to have two more SMD LEDs to light up the interior, in addition to the one that comes on the board. So, a total of 5 SMD LEDs are going to light up this car.

With that decision made, now comes the difficult part. How to mount the components? I took several days to think this through, and did one experiment that didn't work out. So, in the end, what I decided to do was to install the BPS-Lite board in the cupola of the caboose, with its built-in LED lighting up the windows there (the center of the car's body has no windows). I would then add one SMD LED near each end of the car on the inside, which lights up the interior that you can see through the porthole windows. The marker lamps already had their wires installed, so I just kept those. The battery that I chose is long, but somewhat skinny, and it actually just fit perfectly between the two lockers in the center of the car. The battery is relatively heavy, so keeping it low and evenly spaced between the two wheels should help with the car's traction. Speaking of weight, the components I bought weighed 0.5oz (14g).

Making It Happen

The actual installation of the components started with the battery. I used Aleene's Tacky glue to glue the battery to the floor of the car, in between the lockers **(Figure 15)**. When it is time to replace the battery, I suspect that the glue bond will break pretty easily, with perhaps taking a little bit of the floor's paint with it, but that will be easily remedied. At least it will not be rolling around in the car.

Next, I glued the BPS-Lite board to the under side of the cupola roof **(Figure 16 next page)**. The board is wrapped with a clear-plastic wrap, so that is actually what is being glued. Because I would be pulling on the board as I worked on routing the wires, I figured that a good-quality glue connection should be applied. So, I chose a 5-minute epoxy. After mixing it, I applied it to the board's wrap, right over the two reed switches. Because there is just no way to mechanically clamp that in place for 5+ minutes, I decided to set everything up so that I could just hold the roof and board in position with my hand, and just watch a video on my computer. Then after about 10 minutes, I carefully let go of it, and let it sit and cure overnight.

Figure 15

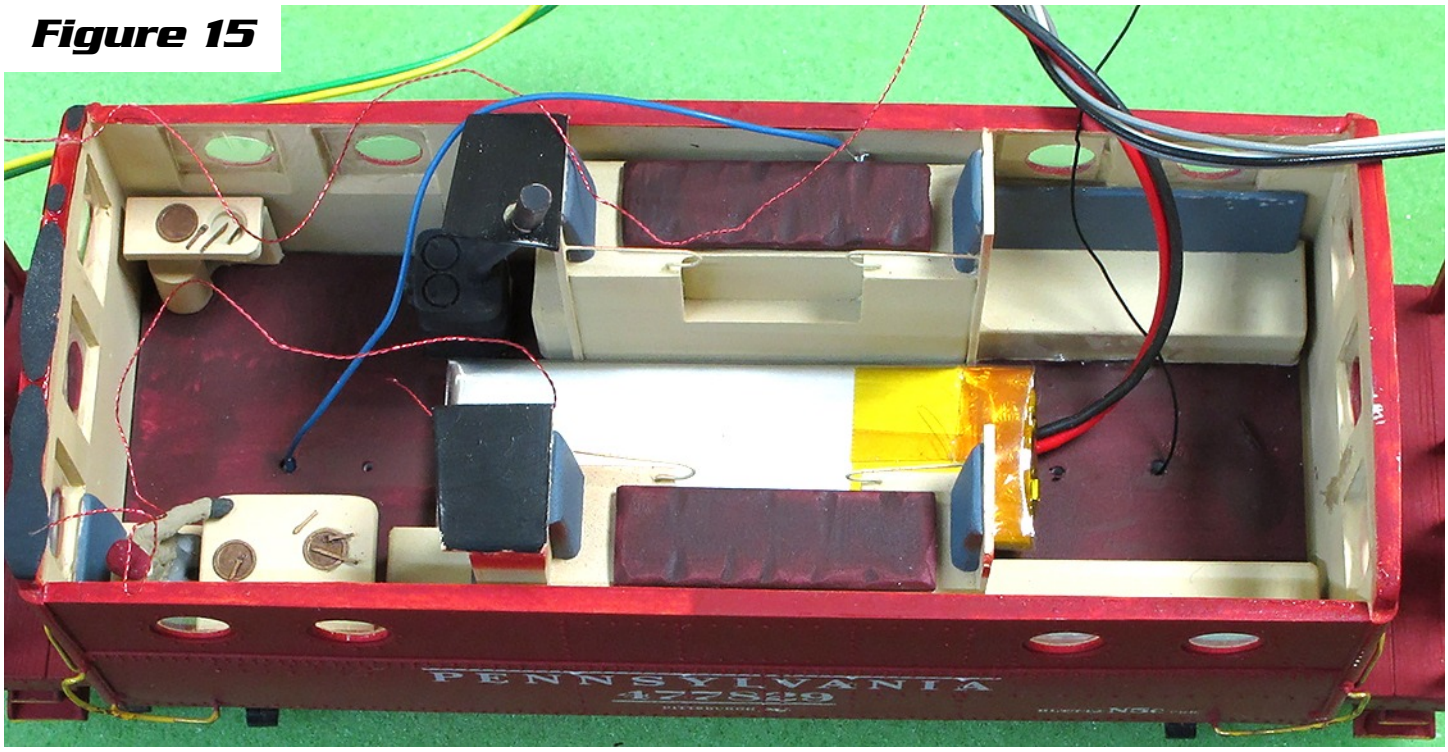


Figure 16

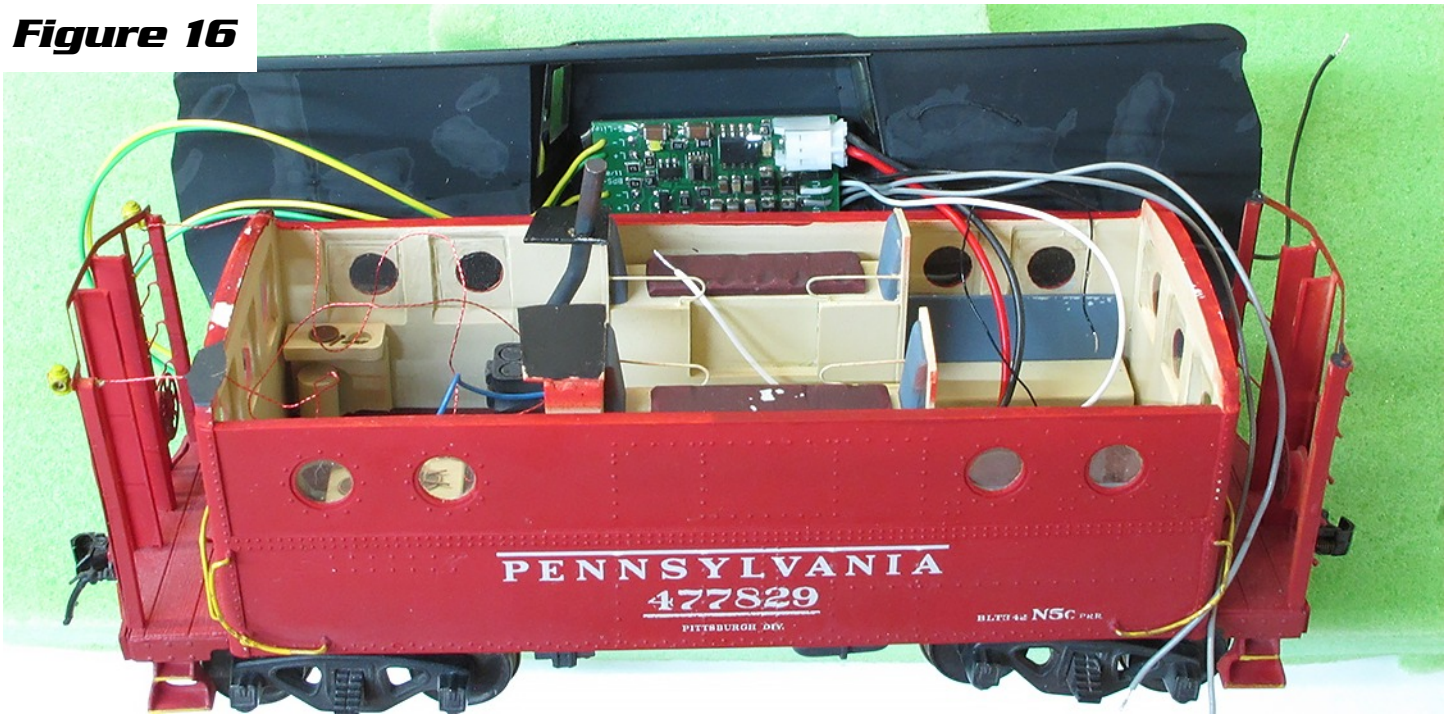


Figure 17

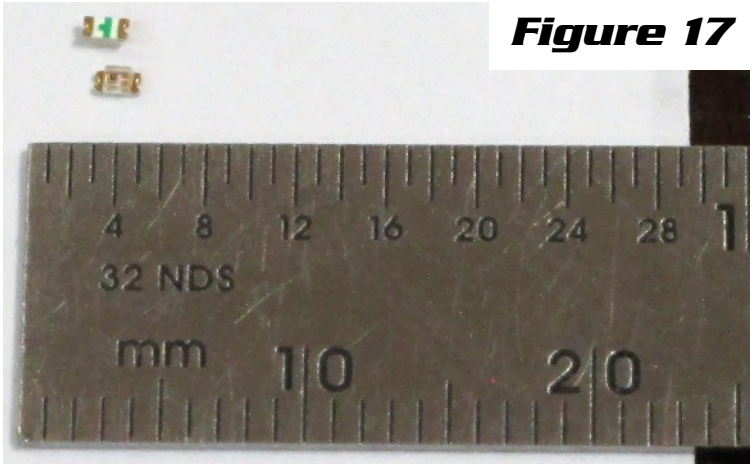


Figure 18

This worked well. The wires coming out of the ends of the board wound up being behind the center walls between the front/rear-facing windows of the cupola, so they aren't really visible. Both the white LED and the green/yellow charging LED are visible through the windows of the cupola.

Next up are the two extra interior SMD LEDs that I wanted in the car **(Figure 17)**. I wanted to solder these to a small strip of printed-circuit board, so all I needed to do to the LEDs was to apply some solder to their pads. I put a strip of double-sided tape to a metal weight, and then used a pair of tweezers to put the LEDs, face down, on the tape. **(figure 18)** This allowed me to solder them, without them moving. Let me emphasize, these are tiny, tiny parts. They almost look like a spec of dirt, so be careful around them once you take them out of their factory package. Sneeze, and they are gone! I used a 15-watt soldering iron for this task.

Since I used to be in N-scale, I have a supply of printed-circuit board "ties" that Clover House provides. I used to use these as throwbars on my N-scale turnouts. I filed a gap near one end, and applied solder to either side of the gap. I could then solder the SMD LED over that gap. **(Figure 19)** I then filed another gap

Figure 19

Figure 20

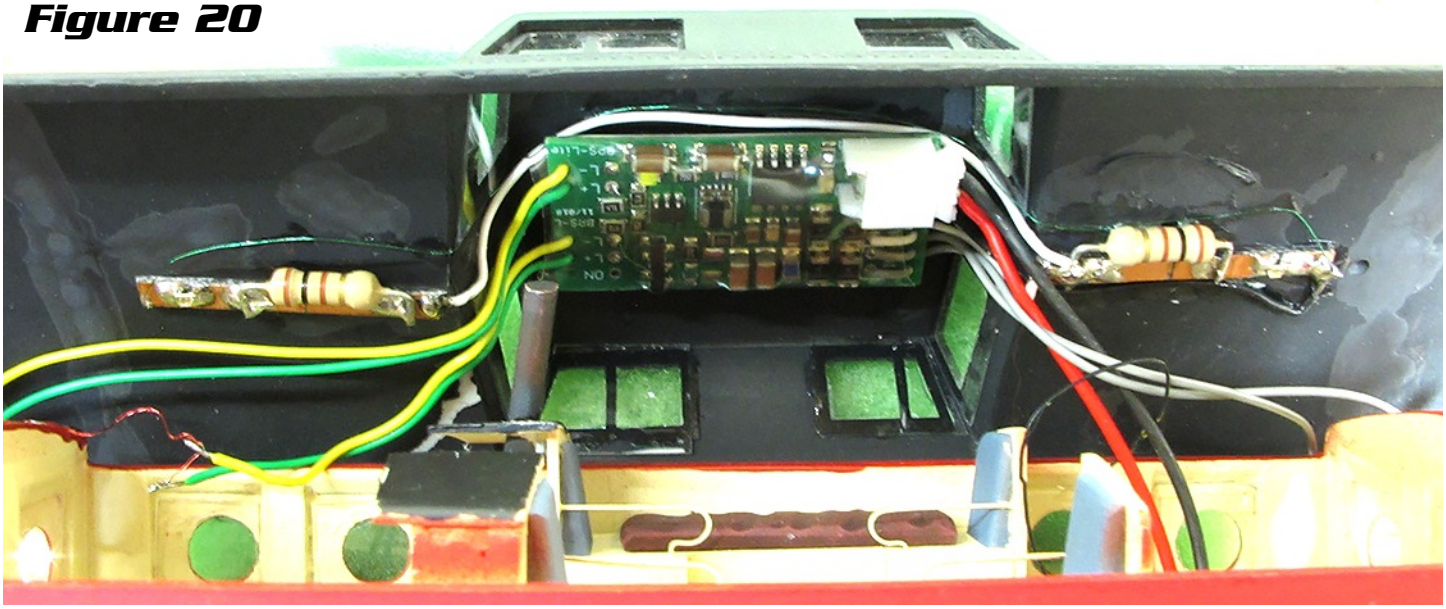
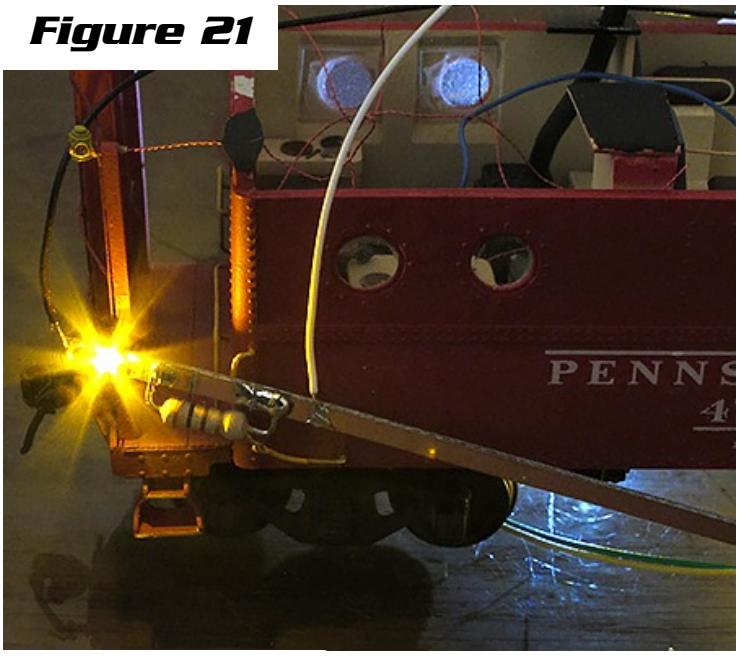
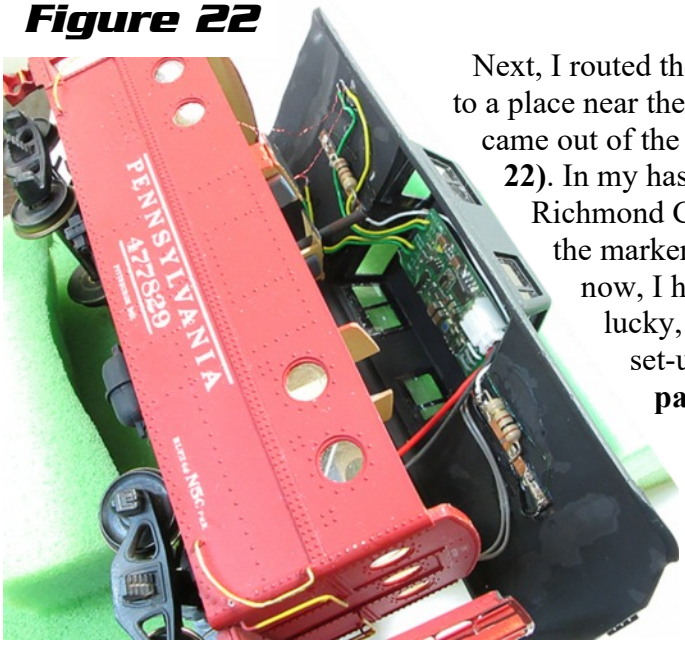


Figure 21



in the printed-circuit boards conductive layer and soldered the current-limiting resistor across that gap. Using the LED's specs, I calculated that the resistor needed to be around 100 ohms, so that is what I used. I would have preferred to use SMD resistors, but I didn't have any that were 100 ohms. Yes, they have SMD resistors now! These, too, are tiny. With two of these boards completed, I applied Aleene's Tacky glue to their backs (quite a bit actually; it dries clear), and then just let it sit and cure. I could then route, solder, and glue the necessary wires from the BPS-Lite board and between these PC tie boards **(Figure 20)**. A quick test proved that they worked **(Figure 21)**. By the way, for gluing the wires to the car, I used either superglue or Aleene's Tacky glue; some wires took superglue and some wires just didn't hold with superglue (different coatings, I guess), so I used Aleene's.

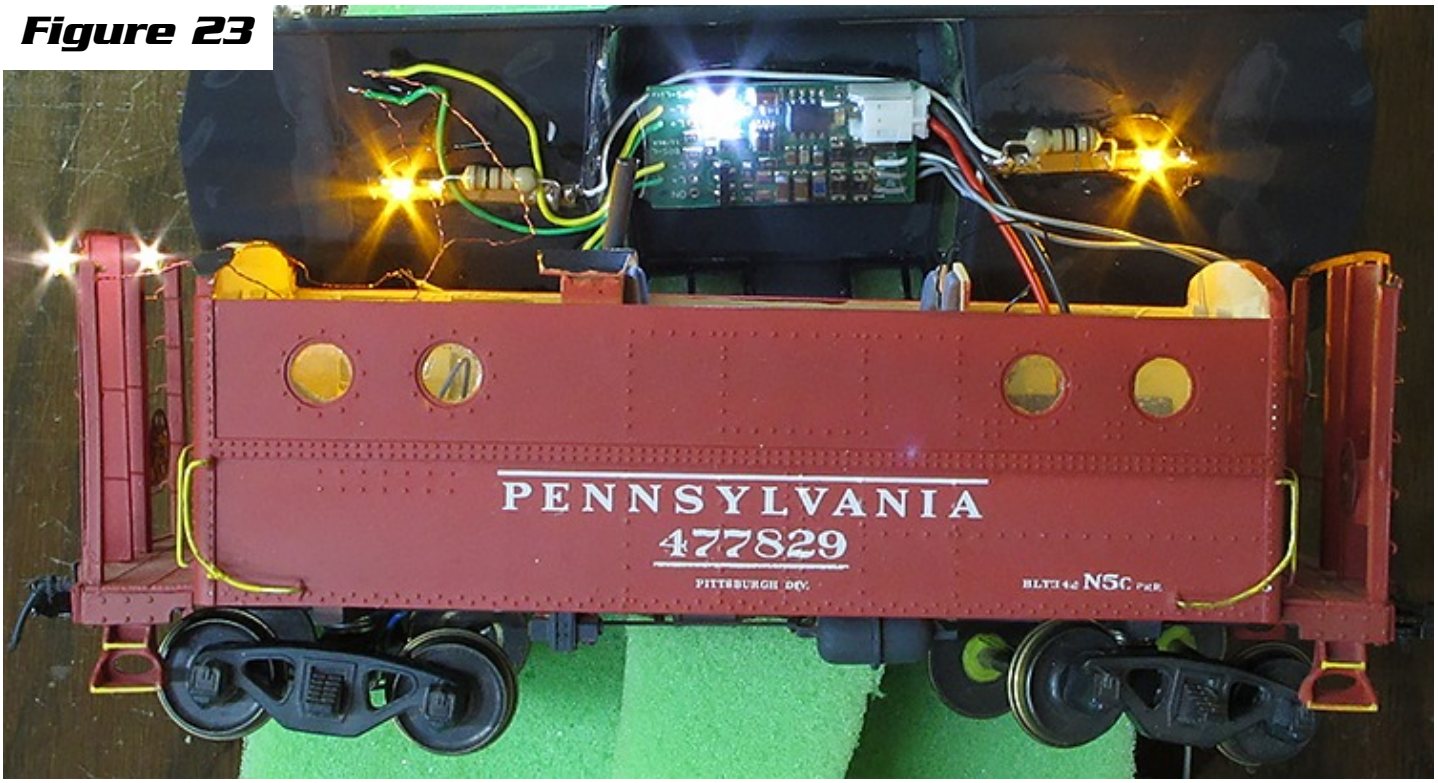
Figure 22



Next, I routed the two pair of green/yellow wires from the BPS-Lite board to a place near the back of the caboose. I then trimmed the magnet wire that came out of the marker lamps and soldered them to these wires **(Figure 22)**. In my haste to get started on this project, when I removed the Richmond Controls board, I forgot to mark which lead coming out of the marker lamps was the positive. So, when I was soldering them up now, I had a 50-50 chance of getting it right. Believe it not, I got lucky, and both times my initial guess was right! I then tested the set-up again, and the marker lamps, too, lit up **(Figure 23 next page)**.

The only visible wires through the windows are the red and black wires coming from the battery. I'll have to deal with them somehow later. However, the two gray wires that are to be soldered to the wires coming from the pick-ups on the trucks also are visible. Then, I noticed a

Figure 23



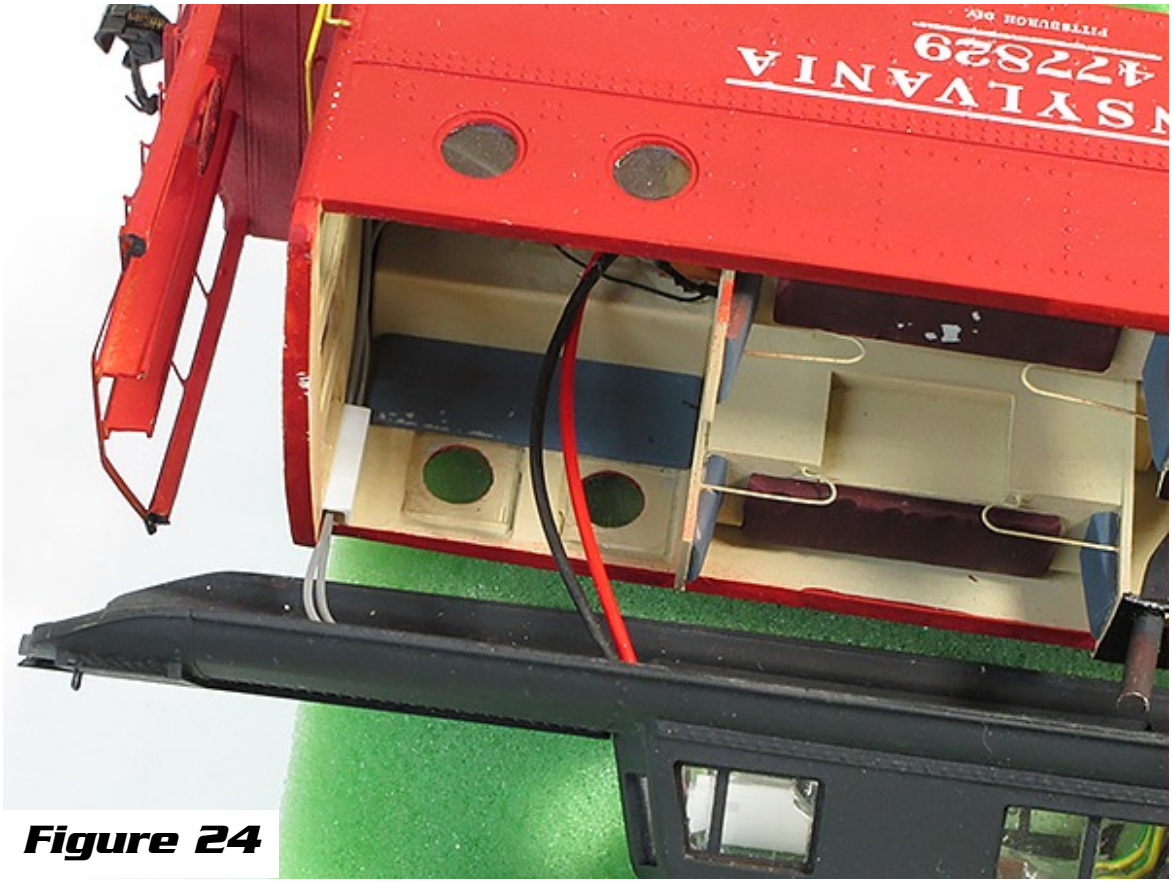


Figure 24

slight gap between the end wall of the car and the bench seat. That was where I squeezed in the gray wires. To keep them close to the top corner of the roof, I cut a section of angle strip styrene and glued it over the wires into the top corner of the car body **(Figure 24)**. The thing to remember about my installation method is that with each wire that I installed, the open space between the roof and the car's body gets smaller and smaller. You want to plan the order in which the wires and parts are installed, keeping that in mind. The gray wires were actually quite a challenge to get them to go where I wanted them to go because it was hard to get the glue and tweezers to go into the nooks and crannies.

I left the gray wires and the truck pick-up wires a little long on purpose because I wanted to allow the wires some play when the trucks swivel. But they were still sticking up and were clearly visible through the porthole

windows. So, for one I made a simple "bridge" out of three pieces of strip styrene, and captured the wire that way when I glued it to the floor. The other wire ran over the battery to get to the other pick-up, so I simply glued it down to the space between the battery and the locker with some Aleene's Tacky glue **(Figure 25)**. A quick test of the charging system worked flawlessly, with the green LED on the board being just barely visible **(Figure 26)**.

Note that all open soldering joints in the wires were coated with a black liquid tape (available at your local hardware stores). This is to prevent any possibility of wires coming into contact with each other, should the glue

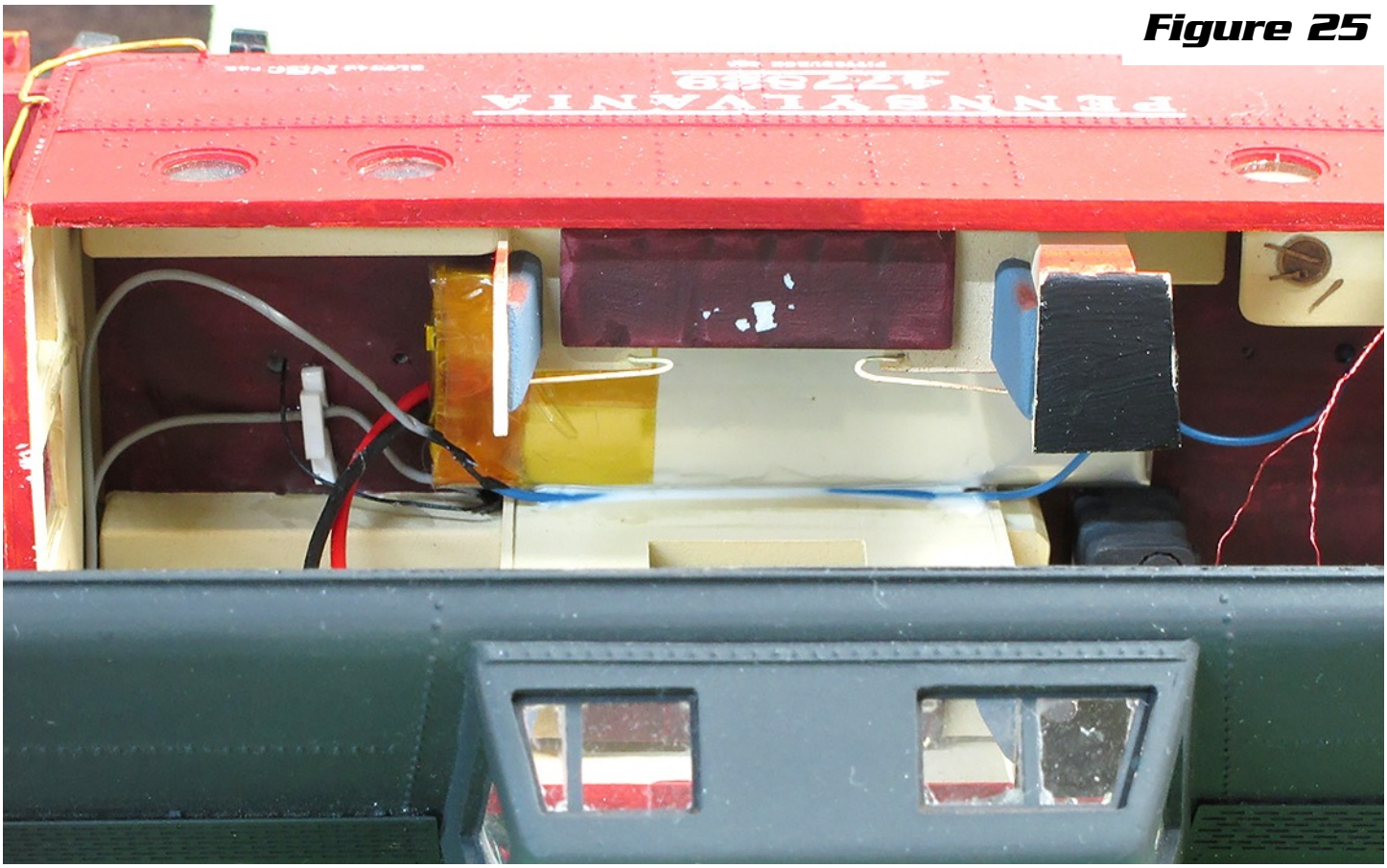
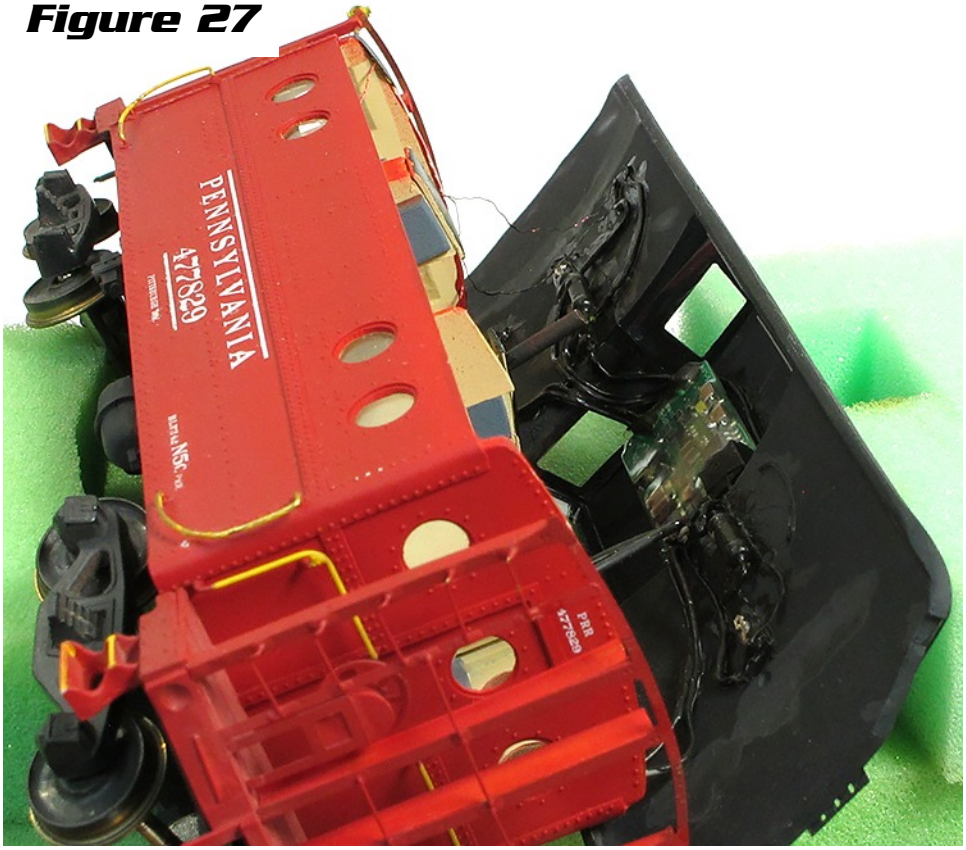


Figure 25

Figure 26

Figure 27

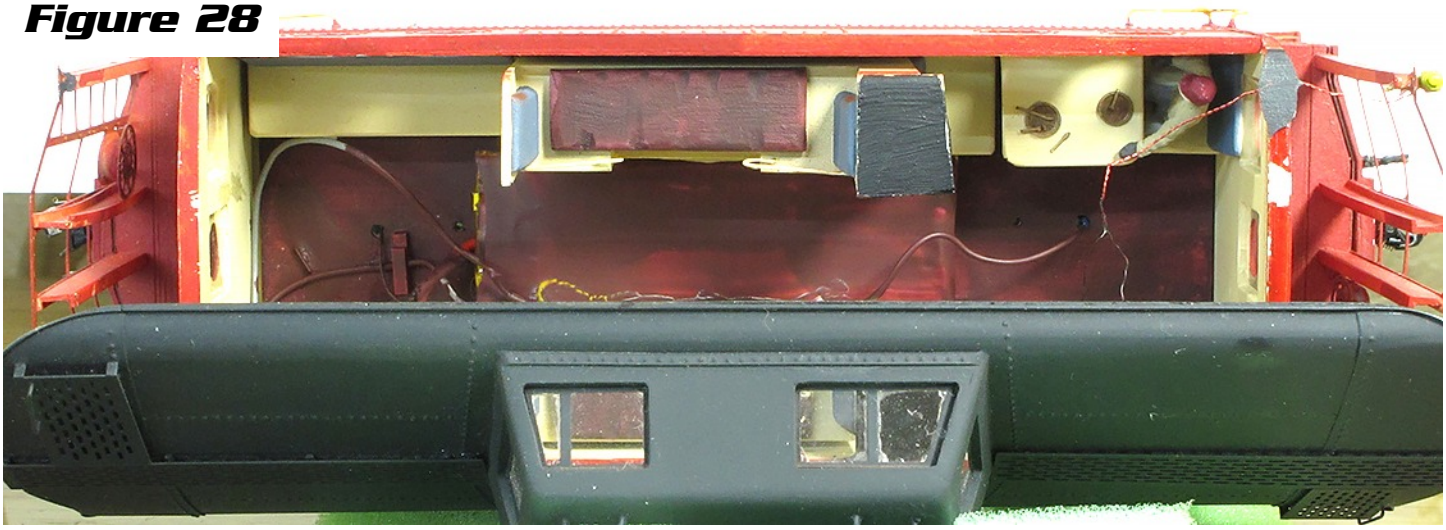


joints break over time and the wires start moving around in the car.

Cleaning Up

The various wires and the big white plug for the battery are noticeable through the windows. To remedy this, I applied a coat of a flat black acrylic paint to parts on the roof that were visible **(Figure 27)**, staying clear of the two SMD LEDs on the printed-circuit boards. The bottom of the car and the top of the battery were painted with the previous floor color I had used, so that they were hidden **(Figure 28)**. The angle piece of styrene near the upper corner guiding the gray wires was painted the interior cream color. The exterior needs a bit of touch-up as well after years of going to the local train shows, but I can do that at any time.

Figure 28



Being happy with the whole installation, I applied a layer of Aleene's Tacky glue to the top of the car's body, and carefully positioned the roof on top of that, adding a few metal weights to hold down the roof while the glue set. Using Aleene's glue allows me to break away the roof in the future to get to the battery.

Conclusion

The S-CAB BPS-Lite board is easy to use. It is simple and intuitive. Installing it is highly dependent on your circumstances. You'll have more room in a passenger car than in a caboose. However, if you don't light the interior of your caboose, you can put a lot of stuff in there without anyone noticing it. So, for me, the installation wasn't complicated, just time-consuming, especially since I wanted to have as many of the wires hidden as possible **(Figure 29 and 30)**.

After making sure the battery was fully charged, I left the lights on one day, just to see how long they would last. For my particular set-up, the LEDs stayed on for 9 hours and 15 minutes. This, then, allowed me to calculate the current draw of my set-up per hour. So, with the 420mAh battery running for 9.25 hours (420 / 9.25 =) came out to 45mA. So, theoretically, had I installed Neil's largest battery, the 1,000mAh one, I would have gotten slightly over 22 hours out of one charge. With 5 LEDs in my set-up, that means each LED, on average, draws about 9mA. Again, your results will vary depending on how many and which LEDs you use. Charging my battery until the green on-board LED went out took 53 minutes.

Let me be clear, Neil did not sponsor my project; I bought two of the BPS-Lite boards. This article is my uncensored opinion. The second board I am planning on using in a scratchbuilt PRR N6b cabin car. When I get

Figure 29

Figure 30

around to building that model, I will have the BPS-Lite board in my hands, and can incorporate that as I am building the model, rather than retrofit it, like I had to do for this N5c cabin car. Also, the Kaslo N5c came as a full-body kit. When I build the N6b car, I will be able to put a lot of the electronics and wiring on to the floor of the car, and perhaps make the floor removable, rather than having to have the roof be removable. A similar approach may be possible with passenger cars.

Even if you don't plan on having a dead-rail layout, you might still look into the BPS-Lite board as a solution for your particular situation. The BPS-Lite board does not interact with a throttle, so it is really a stand-alone and separate product from the rest of the S-CAB system. Consider it as another option available to you if you come across a need to power an LED or two or some small animation, with no steady supply of power available.

For those of us who have or are building a dead-rail layout, this board solves a very real problem. If you have any questions, feel free to send me an e-mail at: peter@fourthray.com. I have been answering people's questions about battery power for several years now, and I am happy to do so.

References

Neil Stanton's S-CAB: http://www.s-cab.com/
My personal web site: http://pmrr.org/
Info about servo current-draw: https://www.pololu.com/blog/16/electrical-characteristics-of-servosand-introduction-to-the-servo-control-interface
Tiny animation motors how-to: https://www.youtube.com/watch?v=w45ugcU6zL4
B.T.S. detailing parts: http://www.btsrr.com/btsdet01.htm
NGineering: http://www.ngineering.com/
Clover House: https://cloverhouse.com/Cart/index.php?cPath=49_50

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

OK, so this is a little larger than a workbench, but I thought we would place it here. Warren Judge is building a new small freestanding Sn2 Narrow gauge Logging/ Mining layout. He sent along a few pictures of construction.

If all goes well, Warren will have this on display at this year's O and S Scale Midwest Show in Indianapolis, IN September 20-22, 2019.

Warren writes: Hey Daniel here are few pics of the layout mostly finished just working on the deciduous trees then ballasting, then finishing up the buildings. Shay and Heisler still need back head detail and some other finishing up pieces like piping and such, but you get the idea of how they run.

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.

O Scale, S Scale, Narrow Gauge West
May 23-25, 2019
Hyatt Regency, Santa Clara
5101 Great America Parkway
Santa Clara, California
O Scale – S Scale – Narrow Gauge West is the largest 2-rail O scale convention west of the Mississippi, the largest S scale convention west of the Mississippi.
Email: info@oscalewest.com
Website: oscalenational.com

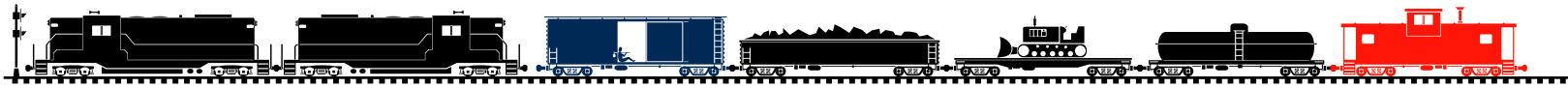
2019 NASG Convention
July 30 through August 3, 2019
"Queen City Express" Hosted by the Central Ohio S Gaugers
NASG comes to the midwest! The 2019 NASG Convention has a beautiful hotel, wonderful tours, exciting events, plus all the fun and excitement that can only be found with a gathering of fellow model railroad fans.
Website: https://2019nasgconvention.com

O & S Scale Midwest Show
Formerly the Indianapolis O Scale Show / S Scale Midwest Show
New name, but the same great show! This year Saturday and Sunday, September 21-22, 2018

It's September! Time to kick off your modeling season. Come enjoy the O & S Scale Midwest Show.

This is a dedicated 2 rail O Scale and S Scale show; however, we encourage and welcome the many modelers and collectors from the 3 rail and high rail side of the hobby to attend. There are many aspects of the hobby, including building, scenery and more that applies to any scale. Moreover, this show is a great place to get inspired while meeting old friends and making new ones!
Website: oscalemidwest.com/
Email: info@oscalemidwest.com

FALL S FEST 2019
November 1-3, 2018
American Flyer S Gaugers of St. Louis will hold this years Fall S Fest to be held at the DoubleTree Westport Hotel by Hilton (FSF room rate $99 per night per room, 1 to 4 occupants; call directly at (314) 434-0100; do not use the 1-800 number).
Website: http://www.trainweb.org/afsgsla/



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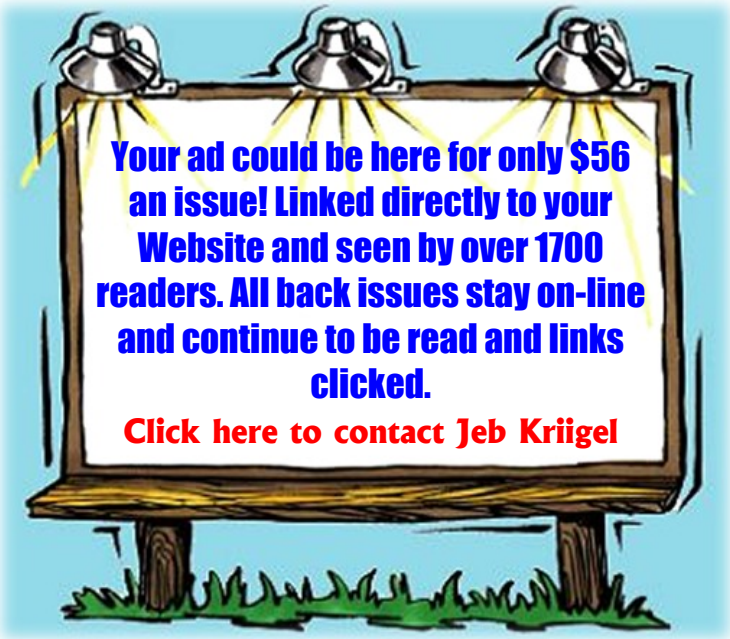

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