

Model Railroad Hobbyist magazine™

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STANDARD
Edition

The model-trains-video.com mediaZine

Jan/Feb 2010

**SP 4449 Excursion on
the Siskiyou Line!**



**Dick Grinyer's On30 Stony Creek
Bullet-proof operating turntable, part 2
Detailing a modern diesel
And much more ... *inside!***



Front Cover: The famed SP GS-4 Daylight steamer pulls an excursion train across the North Umpqua River bridge on MRH Publisher Joe Fugate's HO Siskiyou Line. Joe models the 1980s Southern Pacific in southwestern Oregon, and this scene represents an event on his layout taking place in the fall of 1989.

ISSN Pending

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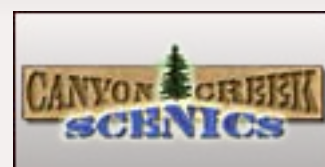
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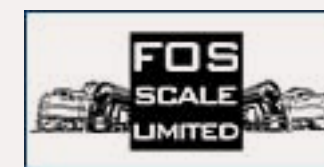
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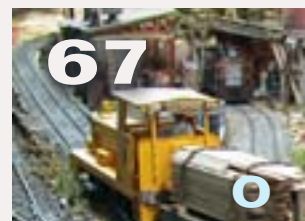
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PUBLISHER'S EDITORIAL: Turn a small project into a large project

Musings from the MRH founder

About the Publisher



Joe Fugate is the featured expert in many Model-Trains-Video.com videos, and he's also the founder and publisher of *Model Railroad Hobbyist Magazine*.

To learn more about Joe, [click here](#).



After 40-some years in the hobby you would think I'd know better. Sometimes nothing seems to go right ...

Watch where most derailments happen on your layout and you'll soon see 99% of them happen at turnouts. This means working to get better performing turnouts will be time well-spent.

I've decided using one of the new jig-built turnout methods is the best way to go. The jig-built products on the market today give you a turnout that follows NMRA trackwork spec recommendations to the letter.

Commercial turnouts all have manufacturing tolerances that allow some variance from the NMRA specs, so they're more of a compromise. Using a jig gives you consistently get spot-on repeatable results with a little practice.

Fast Tracks jigs make highly reliable jig-built turnouts, especially outside of HO scale. However, a Fast Tracks jig-



Fortunately, I almost never have serious derailments on my HO Siskiyou Line. However, a recent serious derailment actually broke a wheelset, resulting in a metal wheel wedged between a turnout's closure rails in staging. The "mystery short" this errant wheel caused made quite a story ...

produced turnout in HO lacks the spike head and tie plate detail I like on my HO trackwork.

I realize I'm being a nit-picker here. Nicely ballasted and weathered Fast Tracks turnouts look fabulous at normal layout viewing distances, and they operate every bit as well as they look.

For many people, the trade-off of fantastic reliability with a slight compromise in superdetail is well worth it.

However, I'm a hard-core user of MicroEngineering (ME) flex track because I like the awesome spikehead and tie

plate detail of this track, not to mention the realistic random variation in tie spacing and tie positioning. So what to do?

Central Valley to the rescue! Central Valley makes some great plastic turnout tie kits in HO. The ties have correctly gauged slots for the rails, which makes it possible to use the plastic ties as a "poor man's" Fast Tracks jig of sorts.

I strategically replace a few of the plastic CV ties with printed circuit board ties. I prefer soldering down the

turnout rails to using the barge cement method advocated by Central Valley.

The CV ties go for about \$6 per turnout, and with some care I can solder down the rails to the PC ties and not even soften the nearby plastic ties.

While I don't use the Fast Tracks soldering jigs, I *do use* the Fast Tracks filing jigs to make quick work of all the rail filing needed when building turnouts.

For more on using the CV turnout ties to build some dandy turnouts that perform as reliably as they look, see my [Siskiyou Line web site](#).

I recently embarked on a project to replace the Eugene staging yard ladder commercial turnouts with Central Valley "jig-built" versions. Things were going great on this project, but I got negligent.

After 40-some years in the hobby I should know better, but I neglected to test the final turnouts for electrical issues *before* I installed them onto the layout.

Oops.

I also neglected to turn on the power and check the electrical status of the staging track area *before* I started hacking up and relaying track.

Double oops!

As a result, I worked for several hours on a Saturday replacing the staging yard ladder turnouts, only to find out when I turned on the power at the end that I had a mystery short in the track!

“While I don't use the Fast Tracks soldering jigs, I do use the Fast Tracks filing jigs to make quick work of all the rail filing needed when building turnouts.”

Great.

Trying to sort out electrical issues in an entire yard ladder of turnouts is difficult at best, and if I need to cut any additional gaps, doing this delicate task *effectively* at extreme arm's length is next to impossible.

So I grimaced and ripped all the turnouts up with a putty knife (I used caulk to put them down). I figured the turnouts were a total loss so I wasn't especially delicate when I pulled them up. Actually: *ripped them up* is more like it.

As if that wasn't enough, once I had removed all the turnouts, the mystery short remained!

Just *great*.

Time to step away from the layout for a few days and get a fresh outlook.

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I finally came back to resolve the staging yard mystery short. I removed all trains from staging by hand, then powered up the yard and my 1156 bulb¹ came on bright – still shorted.

My feeders all go through screw-terminal strips to make debugging easy. Each section of track has its own feeders to each rail, so all I had to do is remove all the feeders from one side of the track for all of staging, which I did.

I reconnected the feeders one track at a time and watched for a short. For each staging track reconnected, I ran a loco on the track to make sure it was fully operational again.

- Reconnected track 1 - no problem.
- Reconnected track 2 - no problem.
- Reconnected track 3 - no problem.
- Reconnected track 4 - short!

I found a broken metal wheel wedged between the track 4 turnout closure rails on the Medford end of staging (the west end on my layout). The metal wheel bridged the two closure rails together, causing a short. That's the errant wheel in the photo on page 11.

I recall a car recently having an axle break during a serious derailment (very rare) and I thought I had removed all the broken parts. But I obviously missed one wheel, since it was wedged down between the two closure rails near the frog of west staging turnout 4!

¹ For more on short management using 1156 auto tail light bulbs, [see this video clip](#).

My staging area is about 80" off the floor and you access it using a raised floor. Even when on the raised floor, your eye is just a few inches above the track height, and staging is dimly lit, so it's difficult to see little parts down in between the rails.

I use a hand mirror to help me "get up and over" the staging tracks to see things. With the mirror in hand – sure enough, there was a metal wheel wedged in between the closure rails!

Mystery short solved – and am I glad I use screw terminals to connect my bus wires to the feeders. All I needed to debug the short was a screw driver.

The 1156 bulbs in the track bus feed light up brightly whenever there's a short, so with the power turned on, the screw driver is all I need. If something gets connected up wrong, the light bulb tells me right away!

I still have to deal with the Eugene end of staging not having any turnouts in the ladder.

What seemed like a quick little project turned into a *major undertaking*, thanks to my "rush" to get it done and missing a couple vital steps in the process.

In the next issue, I'll tell how I was able to do a "save" and get those turnouts replaced more easily than expected.

The saga of how to turn a small project into a large project continues ...

Notes from the MRH Staff

This issue's early download goodies, the MRH CD, George Sellios CD and more



In case you missed it, as of issue 3 we're offering *bonus extras* for those who download the latest issue within the first 30 days of release.

Since we're advertiser-funded, having strong numbers in the first few weeks of an issue release helps us when courting new advertisers.

See the green **Premium Extras box** on the right to for the link to the goodies we're offering this time.

We've been asked by new readers if we're ever going to make any of our previous offerings available through our web site. Yes, eventually we will be doing that, so you won't miss out forever if you're a new reader.

But we're also not in a hurry to get these expired bonus goodies up on the web site because that defeats the value of offering them as early download incentives.

If you want any of these bonus extras, best get with it and download the issue in a timely fashion. Otherwise you will be looking at a very long wait for us to get them onto our web site.

MRH Year 1 CD

Now that we've completed our first year of magazines, we're offering the entire collection on a CD for \$1 (plus shipping and handling). That's over 500 pages of model railroading how-to content for \$1.

As bonus, you also get a coupon code good for \$10 off on Model Trains Video DVDs – so if you don't yet have all our DVDs, you're money ahead to get the MRH year 1 CD.

True, you can download all this content for free over the internet. But if you're on a slow dialup line, the CDs are a painless way to get your hands on MRH.

We wish we could make it completely free, but producing and shipping a physical CD costs a lot more than the internet-downloadable version of MRH.

We're trying to make it as affordable as possible and plan to release each year of MRH in physical media form like this for those with slower internet connections.

George Sellios Photo CD

George Sellios, of Fine Scale Miniatures fame, has kindly allowed us to offer his Volume 1 photo CD for immediate download through Model Trains Video.

The CD has 55 high-quality photos of Filmore Yard on his amazingly detailed Franklin & South Manchester layout, and we're selling it for \$20.

Issue 5 Premium Extras!

Free for the first 30 days after issue release
(After February 4, 2010, these extras will no longer be available)

- Free Scale-converter program
- DVD-quality versions of this issue's videos
- Special money-saving advertiser coupon codes



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Filmore yard is a new area on George's F&SM, so these photos have never before appeared anywhere.

George is donating a portion of the proceeds to Model Railroad Hobbyist magazine, since he thinks the free eZine is a great idea and wants to do what he can to help us succeed. Thanks George, for your generosity!

Click here to get download your photo CD today – and remember you're also helping out MRH in the process.

Reflecting on our first year

Now that we've completed our magazine's first year, let's reflect a little on it.

As to content, the magazine's page count has far exceeded my expectations. I was aiming for around 100 pages per issue and we've instead migrated to about 150 pages per issue now, give or take.

In one sense that's great – as an electronic publication size is much less of a constraint for us than it is for a paper magazine. However, we also can't get too crazy because each page we add of content is not free.

Since we basically pay by the page for articles, the more pages per issue the more it costs us to produce. As long as the ad page count goes up accordingly

then we're good – our income is keeping pace with our costs. However, we've grown our content pages faster than we've grown our ad pages, so we'll be watching this more carefully in year 2.

Expect the issues in year 2 to have a few more ads per pages of content to keep costs and revenue in better alignment. We need to remember the economics of our ad-supported business model if we expect MRH to have a solid future.

Speaking of ads, how are we doing? We have almost 30 advertisers now – but as we enter year 2 we've lost a

few sponsors and we've gained a few. Overall, our sponsor growth has been flat for issue 4 and 5, mostly due to the lack-luster economy.

We're expecting 2010 will have renewed sponsor growth for us and that the economy will show signs a measurable recovery is beginning.

Ad performance observations

Looking at how well ads have performed for our advertisers, we see both better-than-we-ever-dreamed-possible and some disappointing failures.

continued on Page 17 ...

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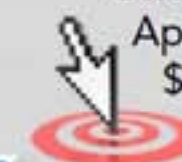
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... continued from Page 15

First, let's review the failures. We track clicks as a key metric to tell us how well an advertiser's ad performs. Some ads, much to our surprise, failed to get many clicks – especially in issue 1.

We quickly realized that for an ad to get clicks, it needs to be obvious we want you to click on the ad. That's one of those "duh" moments. As of issue 2 we put our "click here bulls-eye" logo on all ads to remind our readers to click on ads.

Overnight, the ad clicks *doubled*.

We're learning this new digital magazine medium and which ads do the best in this format. With each issue the overall level of ad clicks has gone up, which shows we're starting to master advertising in a digital 'zine.

We've also seen some amazing click ratios on certain ads – enough that we're getting a good idea how to build a successful ad that will get lots of clicks.

We're offering to create ads for our advertisers and we're seeing some great clicks rates with the ads we build for an advertiser. The better ads get as much as 4 times the industry standard for web-related ad clicks!

First year readership

MRH quickly jumped to over 30,000 downloads with issue 1, then dropped

down to under 20,000 downloads with issue 2. After issue 2, downloads been increasing again every issue. We have yet to top the 30,000 downloads of issue 1 in the first two months of release, however. This issue may put us over 30,000 again.

We're expecting our every-other-month magazine schedule in 2010 will spur new growth as content arrives just that much faster.

We're also seeing a brisk business in back issue downloads. Issue 1, for example, has reached about 45,000 downloads as of this writing – and the downloads of issue 1 continue as new readers discover us.

We must confess that the issue download growth hasn't taken off as fast as we had hoped. On the other hand, our web site is approaching half the unique monthly visits of the *Model Railroader* web site. But our web site is not our magazine.

It helps to remember everything's relative. If we look at the circulation of the now-defunct *Mainline Modeler* magazine, *Railmodel Journal* magazine, and *Model Railroading* magazine, they were all circa 10,000 readership at their peak, and that didn't happen overnight.

Scale Rails and *Model Railroad News* each have a circulation around 15,000. In this light, our 20,000 – 30,000 circulation range for a brand new quarterly



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publication in its first year looks rather impressive by comparison.

Promoting MRH in 2010

We totally depend on word-of-mouth for our growth, so it's worthwhile to talk a bit about our promotion plans for year this year and how you can help.

First, you can print out some flyers and take them to your local hobby shop. Also encourage your local hobby shop to get their free listing with us!

MRH plans more presence at model railroading shows in 2010. We will be attending:

- Amherst Show (Springfield, MA) – January 30-31, 2010

- NMRA National Convention (Milwaukee, WI) – July 11-18, 2010

- National Narrow Gauge Convention (St. Louis, MO) – September 1-4, 2010

- Craftsman Structure Show (Mansfield, MA) – November 10-13, 2010

We'd like a table at the following Railroad Prototype Modelers meets:

- Prototype Rails (Cocoa Beach, FL) – January 7-10, 2010
- RPM San Bernardino (San Bernardino, CA) – March 6, 2010
- RPM Naperville (Naperville, IL) – October 21-24, 2010

So what can you do to help?

First, we're looking for volunteers to help us at any of the above shows (first come, first serve). If you're willing to help us staff our table/booth, we'll train you and give you an official MRH shirt to wear (yours to keep).

We'll also work with you to help cover registration fees.

For some of the smaller events, we may not be able to have our staff attend, so we're also looking for responsible, trustworthy individuals willing to staff a table at the event.

We'll pay for the table, pay for your registration fee, plus give you an official MRH shirt, promotional materials, and guidelines on how to promote us.

Or if you plan to attend any local events and would be willing to put our flyers and free CDs on a flyer table, please contact us.

That's a very effective way for you to help us get the word out and takes very little effort on your part.

Just click here if you're [interested in helping out at a show!](#)

MRH — The future

What's in store for our future? One of the things we're working on is something we're calling the MRH Assistant.

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The MRH Assistant will include various modeling assist programs like a scale converter and a fast clock. We're still discussing what all the toolkit may include, so don't hold us to the precise list right now.

The MRH assistant will also automatically download the next issue of MRH for you while your machine is idle and then automatically inform you that a new issue's available.

You don't have to do a thing – the next issue just shows up! How convenient is that?

If you're on a slow connection, you'll have the option for the assistant to simply inform you the next issue is available and *not* download it.

Also, if you download the issue but haven't yet opened it up for reading, the assistant can remind you the issue is available for reading.

You will be able to set the "nag level" to whatever you like in the assistant. In other words, it's completely configurable to the settings *you* want.

We're also thinking the assistant could include a search feature – you type in the topic, part of the article title, or author name and we'll give you a list of articles that match your search. One click on a search result and we'll put you into the article just like that!

The point is, we can do a lot to enhance your MRH reading

experience by giving you an assistant to run on your local computer.

The online edition of the *New York Times* is doing something similar. If it's good enough for the *Times*, it's good enough for us.

This is just the tip of the iceberg of things we've got planned for MRH.

One promise we can make: you can expect us to continue working to help you leverage the 21st century Internet to your best advantage as you pursue our favorite hobby!

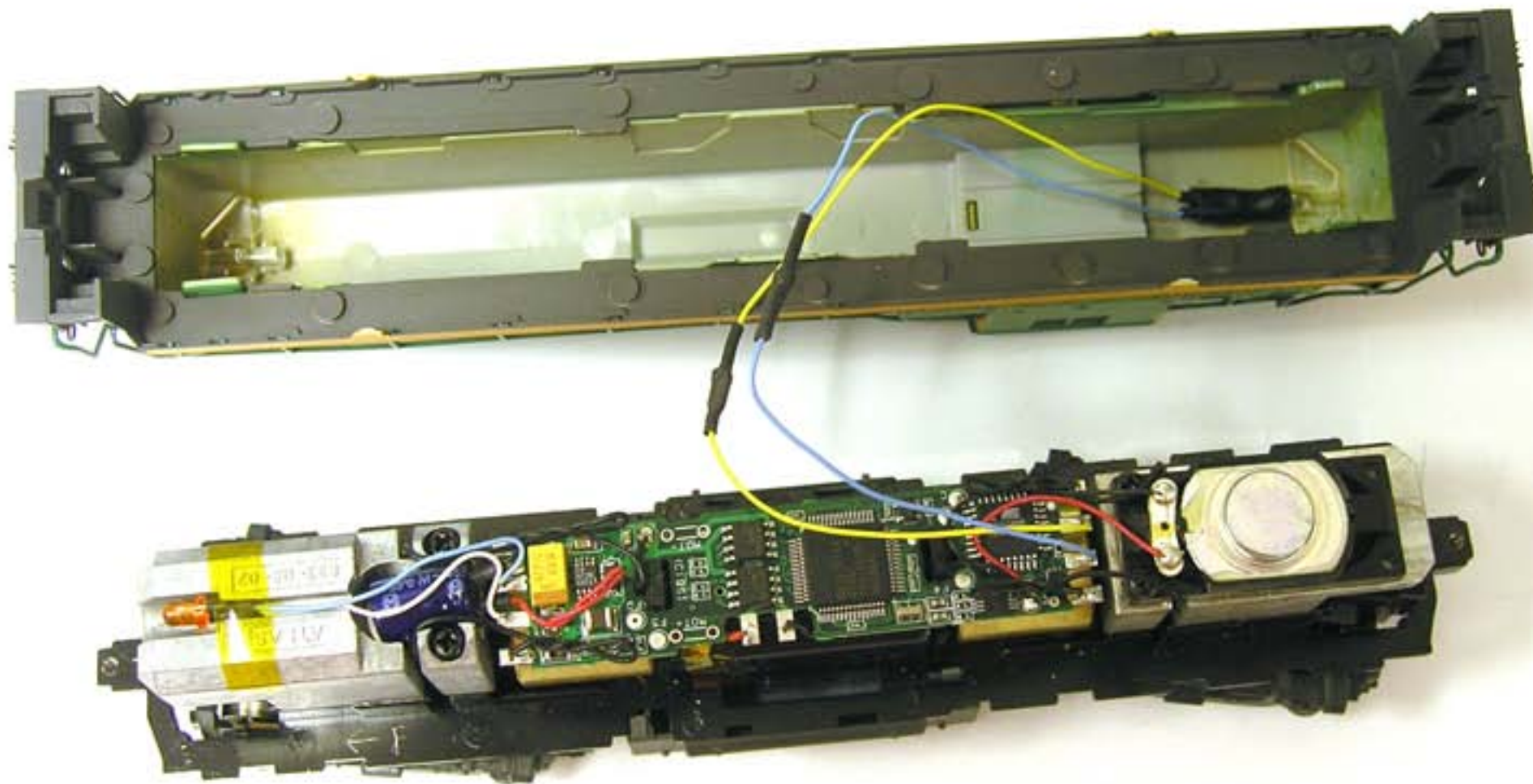
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Model Railroad Hobbyist newsletter™

January 2010

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The Old Yardmaster



News and views from up and down the line...

New **HO scale** releases from **Accurail** (www accurail.com) this month include a newly tooled offset-side twin-hopper car decorated for Chesapeake & Ohio and Baltimore & Ohio; PRR 89-foot partially enclosed bi-level auto racks in mineral-red with silver panels and black, white and red placard; a 41-foot Monon Road steel gondola in oxide red with white graphics in single and three-packs; a Northern Pacific 40-foot single-sheathed wood 6-panel boxcar and a single-door steel NP boxcar both decorated in mineral-red with white, black & red monad graphics; and an Illinois Central 50-foot double plug-door steel boxcar

painted orange with white and black graphics.

Athearn's **N scale** team will have four new F45/FP45 diesels ready for delivery in May. The F45s include Wisconsin Central, Utah Railway in green and black and Utah Railway in red and gray. The FP45 is a Santa Fe Super Fleet painted in the traditional war bonnet scheme. Each of the locos will be available as a DC without sound, DCC-ready with no sound and DCC equipped with Tsunami Sound by SoundTraxx.

Athearn plans to ship four versions of **HO scale** SFRD 50-foot steel reefers to dealers in April. Three

different road numbers will be available for cars with slogans for the Chief, Super Chief, Grand Canyon and Santa Fe All The Way.

Tooling is underway for an **HO scale** Checker Model A8 Taxi to be released in April. Initial schemes will include Checker Taxi in orange, a yellow Checker Taxi with white doors, Beverly Hills Cab Company in white over blue, and Independent Cab Company decorated in red, white and blue. The fully assembled cabs feature rubber tires and clear window glazing.

The crew at **Blackstone Models** (www.blackstonemodels.com) is staying busy this winter as they put the final touches on three significant **HO_{n3}** projects. The company is soliciting dealer reservation through the end of January for a special production run of its class K-27 locomotive that was last produced some 3 years ago.

Road numbers 453, 463 and 464 will be repeated along with three new numbers: 452 (outside cylinder, Flying Grande herald), 458 (inside cylinder, Moffat Tunnel herald) and



FIGURE 1: Atlas (www.atlasrr.com) is quoting a June delivery date for the sixth run of its popular **HO scale** Trainman series GP38-2 diesels. Paint schemes will include Belt Railway of Chicago (gray/black/yellow), Canadian Pacific Railway (red/white "Beaver"), Florida East Coast (blue/white), Illinois Terminal (green/yellow), Long Island Railroad (blue/yellow), and Rock Island (blue/white "Rock"). The locomotives come with an NMRA 8-pin plug to simplify installation of DCC and the body shells will have locating dimples for installing individual grab irons. Locomotives in Atlas' economy Trainman line utilize the same drive train as their upscale Master series. The Union Pacific GP38-2 shown above is from an earlier production run.

462 (outside cylinder, Royal Gorge Route herald, green boiler and aluminum bronze lettering). All units in this limited run will be equipped with sound. Delivery is anticipated sometime this summer.

Also newly announced by Blackstone is a project to produce **HOn3 scale** versions of D&RGW 3000 series boxcars as they appeared after the 1920s rebuild with economy door hardware.

The ready-to-run models will be offered in three schemes (Flying Grande, Moffat Tunnel and Royal Gorge) in three different stages of

aging (freshly shopped, weathered, and sun faded). Delivery is planned for the first quarter of this year.

Completing the trio of new products will be a run of D&RGW double-deck sheep cars with delivery expected in late fall.

California Roadbed Company is offering a sample kit of its popular precut Homosote® roadbed. To obtain a sample call 530-347-9783. Please call during west coast business hours and thanks for mentioning that you heard about this offer from the Old Yardmaster.

For details on the types of roadbed available visit the company web site at www.calroadbed.com.

Carstens Publications has introduced a new book titled “*HOn3 Annual 2009 – A How-To Guide for HO Narrow Gauge Railroading*”. Priced at \$14.95, the 8.5 x 11-inch perfect-bound, 100 page book is targeted at both newcomers to **HO scale** narrow gauge as well as veteran modelers with a wealth of prototype and modeling information including detailed photos and inspiring layouts.

This is the inaugural issue of what Carstens says will be an annual publication similar to its popular On30 Annual. The new Hon3Annual 2009 is available from hobby dealers or direct from the publisher at www.hon3annual.com.

Dave Frary says the book he and Bob Hayden wrote in the 1990s, “*303 Tips For Building Structures & Scenery*,” is now available in PDF

form. It is posted and ready for downloading on Dave’s web site – www.mrscenery.com.

Be advised that this is a large file (107 MB) with over 96 pages and 190 color and black & white photos. If you have a slow internet connection you may prefer purchasing the book on CD. Visit Dave’s web site.

InterMountain Railway (www.imrcmodels.com) is preparing six new paint schemes for its **HO** and **N scale** FT series of EMD diesel locomotives. Road names will include ATSF (blue and yellow cat whisker), Great Northern (Empire Builder), New York Central (lightning stripes), Northern Pacific (green with yellow-orange stripes), Milwaukee Road (orange and maroon) and Reading. Delivery is expected in July or August.

Also coming from IMRC in late summer is a series of **HO scale** class R-40-1 Pacific Fruit Express steel reefers with three different paint schemes including Union Pacific Overland herald in color, SP-UP double herald in color, and SP-UP double herald in black and white. Each scheme will be available in

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FIGURE 2: Here is an early look at an undecorated engineering sample of Bluford Shops (www.bluford-shops.com) forthcoming 70-ton 3-bay hopper. The design of the **N scale** model features a central die-cast assembly that incorporates the slope sheet, hopper-bay and sill assembly. The sides, ends, hopper doors, brake tank, valve and air lines and slope sheet braces are injection molded plastic. A separately molded vertical brake-rod and lever assembly are said to be a first on any N scale open hopper. Other features on this well-engineered model include body mounted brake hose detail, a coal load, body-mounted magnetically operating couplers, and either friction bearing or roller bearing trucks as appropriate for specific road names. Scheduled for availability this spring the cars are tentatively priced at about \$18 each.

Scale Color Key:

Z scale news

N scale news

HO scale news

S scale news

O scale news

G scale news

six road numbers for a total of 18 different PFE reefers.

Model-Trains-Video (www.model-trains-video.com) has a collection of never-before-published digital photos of Fillmore Yard, the newest area of George Sellios' famous Franklin & South Manchester

layout. Priced at \$20, the collection consists of 55 high-resolution (1800 x 1200 pixels each) downloadable digital images.

Following months of research and design engineering **NorthWest Short Line** (www.nwsl.com) has announced two new 12 volt DC

motors to replace the specialized Sagami motors that went out of production two years ago.

Model 1630D-9 is a 12,500 rpm motor that measures 1.106-inch long by .476-inch on the flat side by .610-inch on the round side. It has a 1.5mm stainless steel shaft.

Model 2032D-9 is a high-torque motor rated at 9,500 rpm with a 2.0 mm shaft. The body measures 1.26-inch long by .603-inch (flat) by .803-inch (round).

Other fascinating stuff at NWSL includes an assortment of amazingly flexible hook-up wire that goes a long



FIGURE 3: Builders-In-Scale (www.builders-in-scale.com) has introduced this good looking one-stall wood engine house suitable for any small standard or narrow gauge locomotive – steam or diesel. The approximately 6 x 9-inch foot print includes the main structure with workshop and a shed with laser-cut wood flooring. Construction features the company's new LaserWood planking with nailhead detailing. Construction of the interior framing is over full-sized templates using laser-cut walls and roof. Strips of self-adhesive laser-cut shakes shingles are provided for the roof. White metal detail castings are included along with working hinges for the engine doors. Builders-In-Scale also offers similar structures with two and three engine stalls.



FIGURE 4: Fos Scale Limited (www.foslimited.com) has released this **HO scale** craftsman kit for a small yard office. Called Tower Two, the kit includes the Tichy water column and features laser-cut clapboard walls and roofing material. The finished model occupies a footprint of 2 x 8-inches.

way toward easing the challenge of fine soldering in restricted space. Topping the list of flexible wire is 29 gauge wire made up of 51 strands of fine copper wire that is so flexible it can best be described as limp.

Other offerings include 28 gauge 7 strand wire and a new 28 gauge 44 strand wire available in red, orange gray and black with more colors to be added.

The Pacific Narrow Gauge web site (www.pacificng.com) continues

to expand its reference library with all kinds of obscure data such as a reference for identifying locomotive builder sandbox and dome designs, an early report about the National Locomotive Works, engineering data for several early railroads including the Dayton Sheridan & Grand Ronde, the San Joaquin & Sierra Nevada, the Diamond & Caldor, Mich-Cal, El Dorado Lime & Mineral Company, the Monterey and Salinas Valley Railroad and a Google map of the State Belt Railroad of California.

FIGURE 5: New decals from Highball Graphics (www.highballgraphics.com) include N and HO scale sets for Central Vermont, Duluth Winnipeg & Pacific and Canadian National as repainted to Website Scheme Plate C 50-foot boxcars. Also new are sets for Rail America/ Central Railroad of Indiana GP50 locomotives and Minnesota Dakota & Western ALCo S-2 switchers – both in HO only. Coming soon is an HO scale decal set for “The East Wind” passenger cars. Visit the above web site for full details on Highball Graphics complete line of decals.

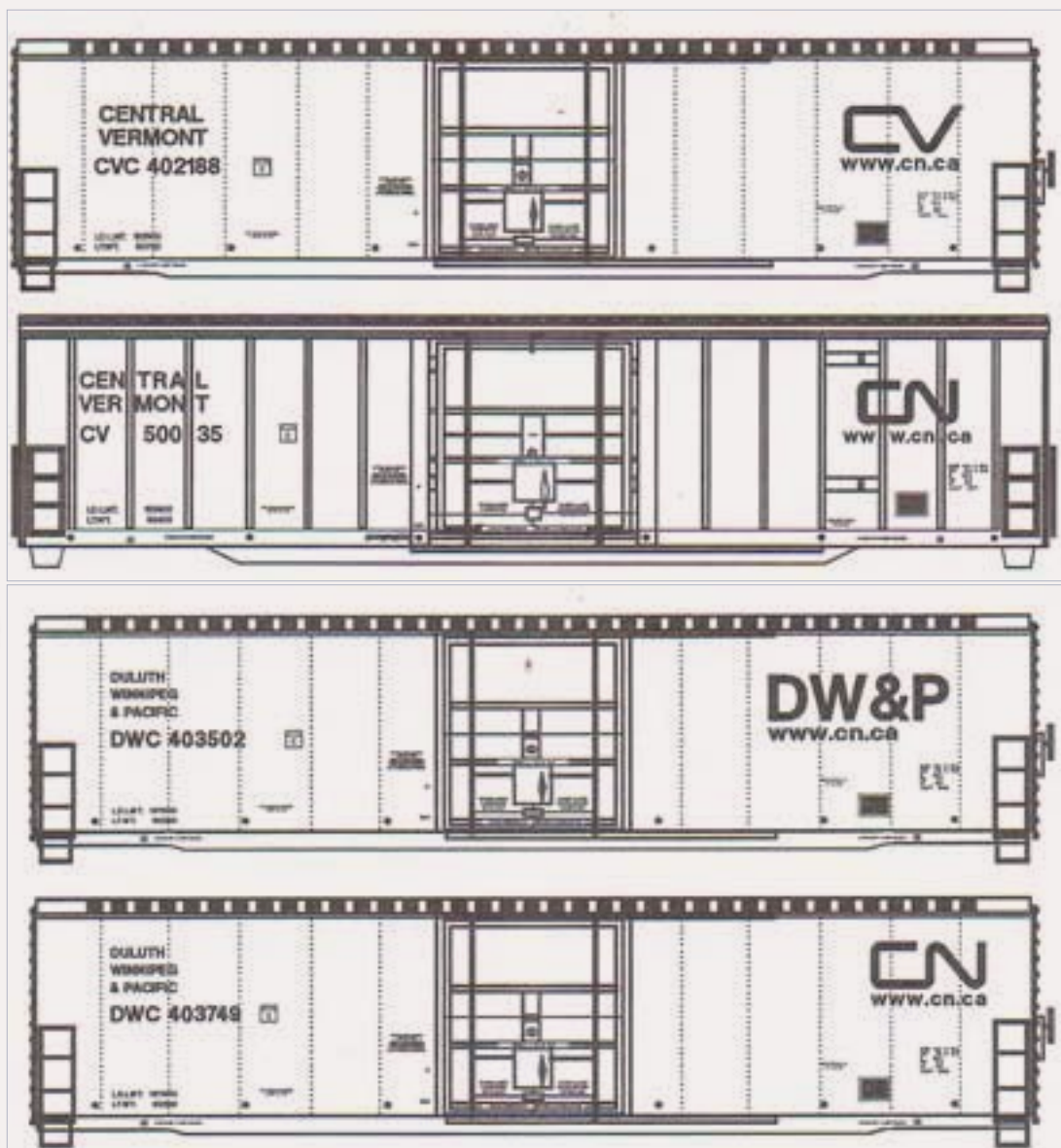


FIGURE 6: Kadee Quality Products (www.kadee.com) has released this HO scale Maine Central PS-2 two-bay covered hopper painted as-built in 1957 with alkali-resisting light gray.



FIGURE 7: Lake Junction Models (www.lakejunctionmodels.com) will soon begin delivery on a series of HO scale wood-side passenger cars for several roads including Missouri Pacific, Nickel Plate and Norfolk & Western. First up will be this combine composed of a one-piece cast resin roof and laser-cut sides with windows that can be modeled either open or closed. In addition to operation on period layouts, the design flexibility of these cars should adapt well as MOW equipment.

Precision Scale (www.precisionscaleco.com) will import a limited run of Milwaukee Road class EP-3 heavy electric "Quill" locomotives. The **HO scale** project will cover the essential stages of the popular "Quills" including early versions painted black with white lettering, red roof and red Milwaukee herald; EP-3s as modified with Delta trailing truck, roof mounted headlight and front mounted bell for single-end

operation; the same modified version decorated in orange, maroon and black livery for operation with the Olympian and Columbian; and EP-14 as modified for single-end operations painted black with white striping, red roof, red Milwaukee Road herald and a special President Harding locomotive plaque.

The ready-to-run brass models are being handcrafted in Korea by Boo-Rim Precision for delivery in May.

The HO scale Plymouth Barracuda muscle-cars we mentioned here last month are now in production, however, **River Point Station** reports that due to lack of response, plans to market selected Toyota vehicles (see MRH Newsletter, page 6, May 2009) have been cancelled.

This is a reminder to readers that when you see an announcement for a future product that interests

you, don't delay in placing a reservation. The model railroad market is relatively small and current economic conditions do not encourage manufacturers to speculate on new products without some assurance of success.

Look for **Roundhouse** to make another release of its 85-foot Pullman Palace cars early this summer in four decorating schemes.



FIGURE 8: LASERkit (www.laserkit.com) is now shipping Garner's Market, an **HO scale** craftsman kit suitable for use on layouts representing a wide range of eras. The kit uses laser-cut components with tab & slot and peel & stick construction. Features include a detailed external stairway to the second floor, interior floors and wall partitions, laser-scribed sidewalk, numerous resin and white metal detail parts, printed window shades, laser-cut curtains and window awnings and a free-standing billboard that may be positioned on the roof as shown or next to the building. The assembled structure (without sidewalk) occupies 7.25 x 3.75 x 3.25-inches high.

FIGURE 9: This impressive **N scale** structure is available now from Lunde Studios (www.lundestudios.com). Schwitters Department Store consists of stone color front, tan brick sides and back. The major components are resin castings from molds created by Bob Lunde (think Design Preservation Models and Magnuson Models). Most details, including windows, are cast in place. The finished structure is 4.75 x 4.8 x 8.4-inches high. Visit the above web site for pricing and ordering information.



Two sleepers with different names/numbers will be available plus a diner, combine and observation car for Chesapeake & Ohio (orange and maroon), Southern Pacific (Daylight scheme), CB&Q (red, white and green) and Pennsy (coach green). See your dealer for reservations.

The recently acquired product lines of **Scale Structures LTD** and **Alloy Forms** are once again available on a regular basis. Both lines were purchased last year by Kansas-based Ad Infinitum LLC, which will market



FIGURE 10: Microscale Decals (www.microscale.com) newly released Urban Graffiti Volume 2 is available now from hobby dealers in both **HO** and **N scale** sets.

the kits, vehicles and detail parts direct from its web site at www.scale-structures.com.

As Smoky Mountain Model Works (www.smokymountainmodelworks.com) puts the final touches on its new GE 44-ton switcher, work will begin toward an early 2010 delivery of B&O class I-5c and I-5d wood side cabooses. We'll keep MRH readers advised of progress on the **S scale** cast resin project.

Stevens Creek continues to expand its selection of correctly-sized laser-cut glazing for Grandt Line



FIGURE 11: Model Memories (www.modelmemories.com) has see-through etched-brass roofwalks (AKA running bars) as replacements for out-of-scale molded plastic roofwalks. The **HO scale** roofwalks come in 2-packs and are available for 40-foot and 50-foot cars. They may be purchased direct through the above web site.

and Tichy windows and doors. In addition to saving time, the precise glazing results in a greatly improved appearance to the finished model. The company's web site (www.hon3.com) includes a list of available glazing plus helpful information regarding installation adhesives.

Trainworx (www.train-worx.com) will begin shipping its **N scale** four-bay hopper in February decorated for Burlington Northern, Missouri Pacific and Indianapolis Power and Light. The company is planning another run this spring of its popular **N scale** Rio Grande 46-foot general service gondola in 24 new road numbers. Look for a similar re-run of Southern Pacific GS gondolas in three new paint schemes to follow.

FIGURE 12: Ragg's...To Riches (www.raggstoriches.biz) has announced the availability of an **O scale** kit for a West Side Logging Company Bunk House. Construction of the laser-cut kit features pre-cut, peel-and-stick vertical siding over a plywood core. Hold-down furring strips on the peel-and-stick tarpaper roof add a bit of funk to the overall look of the structure. The door and window arrangements of the prototype bunk houses differed slightly and the versatility of this kit allows builders to follow a similar random approach in completing their model. This easy-to-assemble kit is also available in **HO** and **S scale**.



Owners of vintage locomotives with broken or missing parts can find help from Yardbird Classic Trains (www.yardbirdtrains.com). The company specializes in repairs and restoration of original Mantua, Tyco, Bowser, Penn Line, Roundhouse and Varney models. ■

See remaining photo and Late Breaking news on next page...



Send us your product announcements!

If you are a hobby manufacturer with a product you want to announce, just [click here](#) and submit your announcement to us!



FIGURE 13: RY Models is currently taking reservations for **O scale** Mathieson class RC and LRC insulated refrigerator cars, more commonly called dry-ice cars. Illustrated above is the handcrafted brass pilot model of the class LRC car. Delivery is planned for the third quarter of this year. For additional information on both the model and the prototype visit www.richyodermodels.com.

Briefly noted at press time...

... Martin Lofton, proprietor of Sunshine Models and founder of the Naperville RPM Meet, suffered a severe attack of poisoning while traveling in December. Tricia Lofton, his wife and business partner, said Martin spent several days under emergency care in late December and would undergo major surgery before the end of the month. She is optimistic about Martin's recovery and has requested customers to be patient since an extended period of recuperation is expected. ■

About our news and events editor



Richard Bale writes our news column under the byline of *The Old Yardmaster*. He has been writing about the model railroad trade for various hobby publications since the 1960s.

He enjoys building models, particularly structures, some of which appeared in the June 2006 issue of *Model Railroader* magazine.



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Selected Events

January 2010

CALIF., SANTA CLARA, January 30-31, Joint Annual Regional Meeting of Pacific Coast Region NMRA and Layout Design and Operations Special Interest Groups, South Bay Historical Railroad Society room, Caltrain Depot. Detail at www.pcrnmra.org/sigs.

FLORIDA, COCOA BEACH, January 7-10, Prototype Rails, prototype modelers meet featuring who's who in clinicians, Hilton Hotel, 1550 N. Atlantic Ave. Details from host Mike Brock at www.prototype Rails.com.

GEORGIA, ATLANTA, January 16, 38th Atlanta Model Train & Railroadiana Show, North Atlanta Trade Center.

MASS., WEST SPRINGFIELD, January 30-31, Amherst Railway Society Railroad Hobby Show, Eastern States Exposition Fairgrounds. Details at www.railroad-hobbyshow.com.

VIRGINIA, CHANTILLY, (Washington D.C.), January 23-24, World's Greatest Hobby on Tour, Dulles Expo Center, Chantilly Shopping Center. Details at www.wghshow.com.

CANADA, ONTARIO, PARIS, January 17, Paris Junction 2010 Model Train Show, Paris Fairgrounds. For details contact John Moseley at Moseley@simpatico.ca.

February 2010

CALIF., LONG BEACH, February 15-16, World's Greatest Hobby on Tour, Long Beach Convention Center. Details at www.wghshow.com.

COLORADO, DENVER, February 20-21, World's Greatest Hobby on Tour, National Western Complex. Details at www.wghshow.com.

GEORGIA, PINE MOUNTAIN, February 6, Narrow Gauge Railroad Day, Mountain Creek Inn. Details at www.themontgomerys.info/NGRDHOME/NGRDindex.html.

TEXAS, HOUSTON, February, 24-27, Sn3 Symposium, Hobby Airport Marriott Hotel. Details at www.sn3-2010.com.

Future 2010

CALIF., STOCKTON, March 13, Winterrail 2010, Scottish Rite Masonic Center, 33 W. Alpine Ave.

COLORADO, LITTLETON, June 11-12, 4th Annual Rocky Mountain Prototype Modelers Meet, Littleton Baptist Church, 1400 W. Caley Avenue. Details at www.rockymountainprototypemodelers.org.

CONN., COLLINSVILLE, June 4-5, New England Prototype Modelers Meet, Canton Community Center. Details at www.neprototypemeet.com.

GEORGIA, PORT WENTWORTH, March 19-20, Savannah Prototype Modeler's Meet, Port Wentworth Recreation Center. Details from Bob Harpe at RHarpe@comcast.net.

ILLINOIS, NAPERVILLE, October 21-24, Naperville RPM Meet, Naperville Holiday Inn.

INDIANA, EDINBURGH (Columbus), April 24, Hoosier On30 Meet, Jonson County Park. Details at www.trainweb.org.

KANSAS, BENTON, November 6-7, Mid-Continent Prototype Modelers Meet, Benton Lions Community Center, 150 S. Main Street. Details at www.mid-continentprototypemodelers.org.

MAINE, GRAY (Portland), March 20, 3rd Annual Maine All-Scale Narrow Gauge Show.

MASS., MANSFIELD, Nov 10-14, Craftsman Structure Show, Mansfield Holiday Inn. Details at www.css2010.com.

MISSOURI, ST LOUIS, September 1-4, 30th National Narrow Gauge Convention, St Charles Convention Center. Details at www.30ngconvention.org.

OHIO, GREENFORD, March 26-29, All Scales Narrow Gauge Meet, Greenford Christian Church. Details at www.narrowtracks.com.

OREGON, ELSIE, March 6, Pacific Model Loggers' Congress, Camp 18 Restaurant (approx.18 miles east of Seaside). Details at www.pacificmodel-loggerscongress.com.

OREGON, MEDFORD, April 30-May 1, National Z-Scale Convention, Ramada Inn Convention Center. Details at www.micro-trains.com/NZC_2010.php.

PENN., VALLEY FORGE, 26-28, Railroad Prototype Modelers Meet, Desmond Great Valley Hotel, Details at www.phillynmra.org/rpmmeet.html.

WISCONSIN, MILWAUKEE, July 11-18, NMRA 75th Anniversary National Convention, details at www.nmra75.org.

WISCONSIN, MILWAUKEE, November 13-14, Trainfest, Wisconsin Exposition Center at State Fair Park. Details at www.trainfest.com.

NEW ZEALAND, CHRISTCHURCH, April 1-5, NZ Association of Model Railroad Clubs National Conventions, St. Andrews College, Merivale. Details at www.gcmrsleeper.org/nzamrc/index.html. ■

MRH Sponsor Spotlight: Railroad Kits



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Railroad Kits, *Model Railroad Hobbyist's* new sponsoring advertiser, specializes in affordable wood craftsman structure kits.

Make a great kit. Make it affordable.

That's the slogan of Railroad Kits, and it's a good one! In a market where good kits can go for hundreds of dollars, Railroad Kits owner Jimmy Deignan felt there was room for affordable, easy-to-build kits.

The simpler, more affordable kits provide an excellent way for you to "get your feet

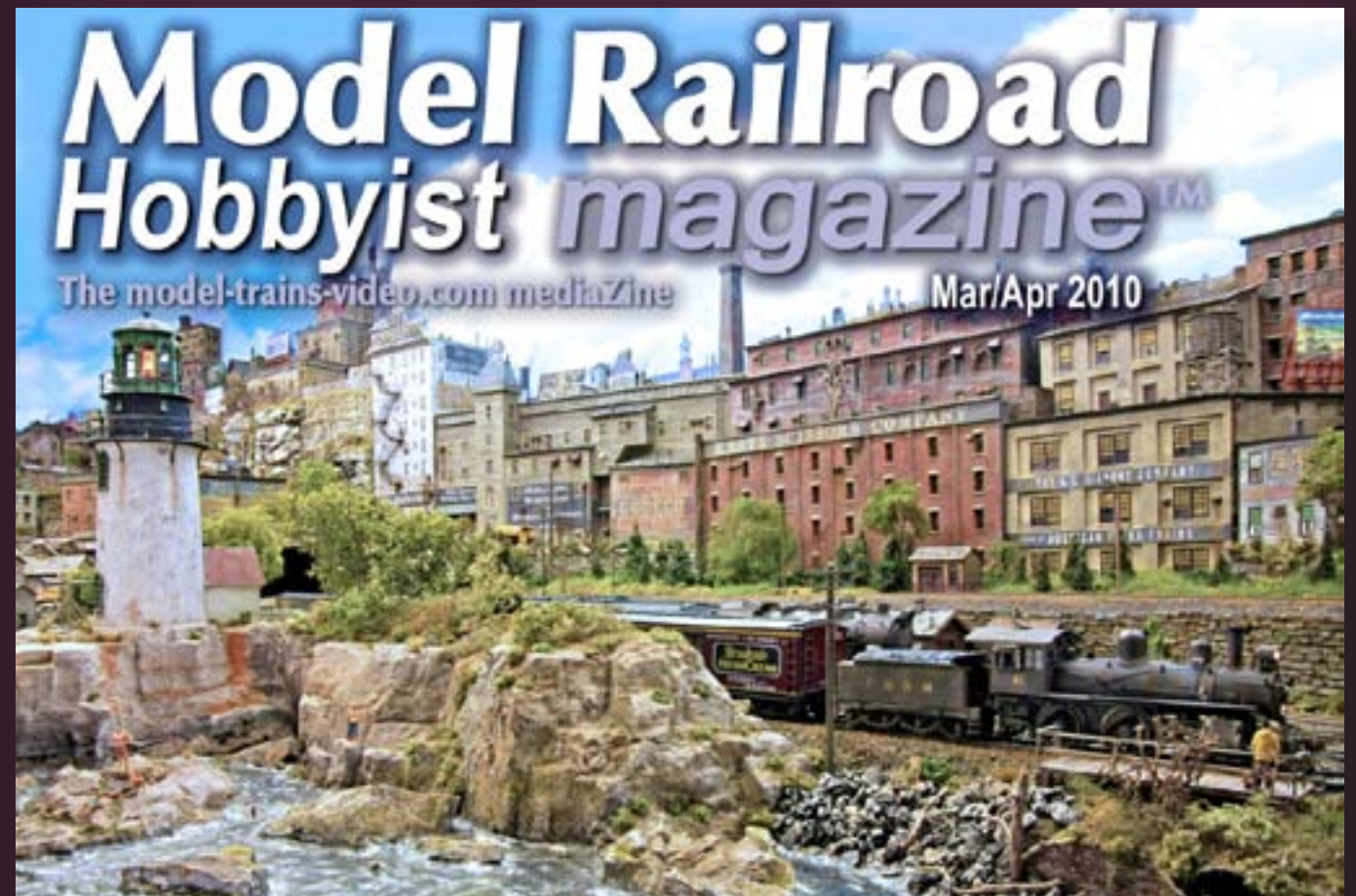
wet" with a craftsman wood kit but not feel pressured because the kit was so costly.

We salute Jimmy for taking this approach to the craftsman structure kit and are proud to have him join the family of MRH sponsors!

Make sure to visit www.railroadkits.com!

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Mar/Apr 2010 issue sneak peek ...



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Craftsman Structure Show 09

Visual Report



Model Railroad Hobbyist attended the 2009 Craftsman Structure Show in Mansfield, MA last November.

Here's a visual report sampling of the many fine structure kits at the show using 3D click-n-spins.

We hope you enjoy this exclusive MRH report from this show, featuring an astounding array of exquisite structure modeling.

For more on the 2009 Craftsman Structure Show, see the exclusive [MRH Theater video report](#) on our web site.



Figure 1. Railroad Kits: Reagan Feed Mill (HO Scale). [Visit the Railroad Kits web site](#) for details.





Figure 2. Railroad Kits: Scott Lumber Co (HO). [Visit the Railroad Kits web site for details.](#)



Figure 3. Railroad Kits: Fisher Fuels (HO). [Visit the Railroad Kits web site](#) for details.



Figure 4. Atlantic Scale Modelers: Harbor Master Office (O scale). [Visit the Atlantic Scale Modelers web site](#) for details.



Figure 5. Scotty Mason Kits: Laskey Cabinet Co (HO). [Visit the Scotty Mason Kits web site](#) for details.



Figure 6. Paw of a Bear: Reaghan Feed Mill (HO scale). [Visit the Paw of a Bear web site](#) for details. In addition to making kits, Paw of a Bear also custom-builds kits for modelers as a service. Compare this custom built Reaghan Feed Mill to the “stock kit” on page 30.



Figure 7. FOS Scale: Hooper's Fresh Oysters (HO scale). [Visit the FOS Scale Limited web site for details.](#)



Figure 8. FOS Scale: H.T.Gordon's Umentionables (HO scale). [Visit the FOS Scale Limited web site for details.](#)



Figure 9. Sierra West: Kevin O'Neill's diorama (HO scale). [Visit the Sierra West web site](#) for details.



Figure 10. Vector Cut: Stanton Street diorama (HO scale). See [Vector Cut web site](#) for details.



Figure 11. Stella Scale Models: Ownens Monumental Co (HO scale). See [Stella Scale Models web site](#) for details.



Figure 12. Sea Port Model Works: Barge With Derrick (HO scale). See [Sea Port Model Works web site](#) for details.



Figure 13. Full Steam Ahead: Troels Kirk Cannery Co (HO scale). See [Full Steam Ahead web site](#) for details.



Figure 14. MinuteMan Scale Models: McCormick Supply Co (HO scale). See [MinuteMan Scale Models web site](#) for details.



Figure 15. Rail Scale Miniatures: Shell Station - Vogue Furniture (HO scale). This huge diorama covers an entire scale city block – to follow the click-n-spin action, watch the water tower and billboard. See [Rail Scale Miniatures web site](#) for more details.

MRH

Questions, Answers and Tips

 **Reader
Feedback**
(click here) 

QUESTIONS AND ANSWERS

Q: How do you hand-lay turnouts? I am in High School and have a limited income. Paying \$15 a turnout is a stretch for me.

A: I can certainly sympathize with your financial predicament. If you are careful with your measurements, patient with your filing and soldering, you can turn out a turnout without spending much money. After you make a few, you may even prefer handlaying to purchasing a ready-to-run turnout.

You will need some basic tools and supplies that may cost you more than \$15.00, but once you have assembled all these materials, you can make as many turnouts as you want.

You will also need to purchase or salvage the rail and other parts for the turnout. Do a Google search on hand laying turnouts, hand laid turnouts, hand lay switches and so on.

There are two different paths you can travel to build your DCC friendly turnouts: using PC ties soldered to the rails, or rails laid directly on the road-bed with wood ties, using spikes to fasten everything in place.

Take a look at the Fast Tracks site (URL: <http://www.handlaidtrack.com>) to get a handle on what to do and where to buy the rail parts you need.

The jigs for sale at this site are great helpers, but with an NMRA gauge, vice, a file, one of Fast Tracks paper templates (which you can download

for free) and some patience you can lay a turnout freehand. Eventually you can purchase the jig and speed up the process.

I remember how intimidating my first turnout was; just getting started was the hardest part.

Don't forget to photograph your end product and post it on the MRH web site so we can share in the accomplishment. And above all, have fun!

— **Lew Matt**

Q: I just became the proud owner of 120 pieces of HO rolling stock and 6 different locos. I'm a skilled cabinet maker, so I'm trying to decide what I should build for a model train layout. Where should I start? What type of track plans should I consider?

A: Welcome to the fascinating hobby of model railroading! The question of where to start is a common one, so let's see if we can help point you in the right direction.

First, it's best to start small and "plan to throw the first layout away". In fact we discussed this approach way back in issue 1 of Model Railroad Hobbyist and even suggested a new term for this approach: chainsaw layout.

When first starting in the hobby, you really don't know what you don't know. The worst thing you could do would be to embark on some mammoth layout project only to discover part way in that your skills and knowledge have so

improved that you'd rather just throw it all out and start over.

So job one is to get some experience, and you do that best by getting some basic hobby training and then doing the hobby in an experimental fashion for a time.

A modular group can be an especially good way to get your feet wet, because the scope of what you're trying to do can be as small as a single module, which is a perfect size for a beginner. You're also likely to have others willing to help show you the ropes.

We also recommend you hook up with other modelers and get some experience running trains on other layouts, especially those who may be into the more serious prototype ops side of the hobby.

You may just find (like some of the MRH staff) that prototype operations is so much fun that it can become a strong motivator for everything else in the hobby – it can build a fire under you to get more done, in other words.

Until you have some operation experience under your belt, you also don't have the insight necessary to understand what all those tracks really do on a track plan. Just going for track arrangements that "look cool" rarely results in a layout that satisfies long-term.

Once you have some experience in the hobby, both in building a layout

and in operating a layout, then you're equipped to make a well-informed decision as to what kind of track plan you would want for your "dream" layout.

Many beginning modelers start too big and want "one of everything" on their layouts. They often abandon those efforts before finishing when they mature in the hobby a bit more.

We're saying go in planning to make as many mistakes as possible on a small-scale first layout and to expect from day one you will be throwing it away.

Also plan to enjoy the learning process and be happy when you mess up, because it's all part of the plan! You're building yourself into an experienced model railroader who will know what they really want.

And don't forget to share your progress on our web site! — *Joe Fugate*

Q: I have found I like doing wood structures and I'd like to know who makes wood kits in N scale? I'd like to avoid a craftsman kit at first, but I am not afraid tackle a craftsman N scale kit eventually.

A: You're in luck! A few years ago wood construction automatically meant a craftsman kit. These days products known as "laser kits" are available in nearly all scales.

A laser kit consists of laser cut wood flats (use a sharp #11 Xacto blade

to remove the parts from the flats) that go together using tab & slot construction. Elmers wood glue can be used to glue it all together.

Thin exterior details frequently use a peel-n-stick technique that doesn't even use glue. Figure 1 shows the contents of a Z scale laser kit from RS Laserkits (<http://rslaserkits.com>) for a small 1880s era shop.

This sort of small, inexpensive kit (N Scale version is \$16.99) allows gaining experience with the techniques and parts sizes you'll need for both larger laser and craftsman kits.

N Scale laser kits makers include:

- [American Model Builders](#) - variety of industries
- [Atlas](#) - two garage kits
- [Bar Mills Models](#) - industries and businesses
- [Blair Line](#) - bridges, structures, signs
- [Branchline](#) - lots of houses, structures
- [GC Laser](#) - Livestock Auction house
- [JL Innovative Design](#) - trestles, structures
- [Model Tech Studios](#) - structures, including background kits
- [Monroe Models](#) - bridges and structures
- [N Scale Architect](#) - towers, industrial structures
- [Paw of a Bear](#) - growing line of structure kits.

— *Jeff Shultz*

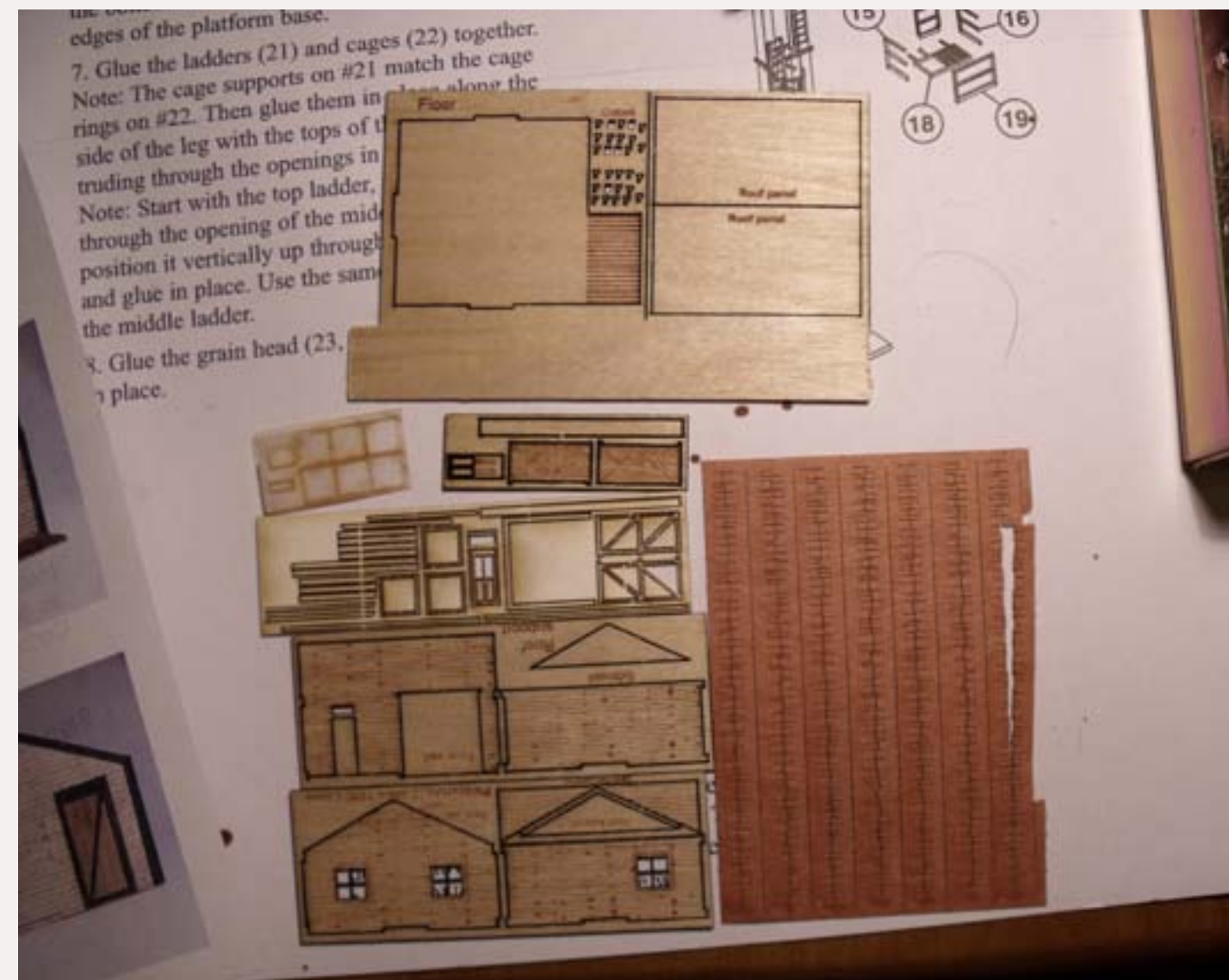


Figure 1: Contents of a Z-scale wood laser kit from RS Lasterkits.

Q: Is there some guideline for how many engines a railway should run? I want to freelance a model railroad, but I'm not sure what the right number of engines should be.

A: The right number of engines is a nebulous figure and depends a lot on what your railroad "does for a living".

The first thing you need to ask yourself are a few questions. Are you modeling a short line railroad, a branch line, a division or a large railroad such as ATSF, PRR or GN?

The size of your railroad and number of industries and the amount of "work" you do on the railroad will determine how much motive power is enough.

If you are using a prototype railroad as your guideline, base your answer on what and how they do.

Other factors that the prototype railroads need to consider are the number of cars they need to move and when, the total weight of a train and the tractive effort of the loco, the curvature of the rails and the steepness of grades.

If the railroad is pulling a lot of weight around sharp curves and steep grades, small locomotives may have to be double-headed. The sharp curves may be too tight for a large, long wheel base locomotive.

A small short line with an out-and-back operation may require only one small road engine or switcher to do all the work. The same engine can be used to alternately switch the yard and interchange tracks, too. This can keep you busy operating with only one engine.

A larger branch line may require two small road engines or switchers to do the same work for a larger number of industries, coupled with more yard work and interchange with the parent or foreign railroad.

A connecting railroad doing “bridge traffic” is situated between two foreign road interchanges and carries interchange traffic from railroad A to railroad B and back the other way.

This operation may require one or two engines to haul blocks of cars from A to B and vice versa, while a third engine may be servicing on-line industries with revenue cars collected at either or both interchange points.

Yard switching may be done by the locos hauling the interchange traffic or you may use separate switchers at either or both interchange yards in addition to the engines assigned to interchange traffic.

Prototype locomotives are expensive and the real railroads try to make the most use of each engine before they add a second loco to the roster.

Often, we model railroaders accumulate too many engines and our problem is generating enough industry and “work” on the layout to make use of them all. Of course, you can always rotate engines at each operating session just to use different motive power from your collection.

Build your layout and operate it like your favorite prototype and you follow the real railroad’s lead in determining how many locos you need.

— **Lew Matt**



TIPS

Better electrical connectors: A number of recent moves have convinced me my new layout must be portable. This means I need to do things

differently than I had in the past: one such change is wiring.

Many people seem to like suitcase type connectors – but I didn’t like them since it seems I often have to pre-cut the wire to get them to work reliably.

I discovered Posi-taps, a product used in car wiring. With these you can tap into a line anywhere without pre-cut-

ting the wire. From the Posi-tap you can run to a buss, etc. They also make other useful products - you can find their web site at: <http://www.posi-lock.com/posiplug.html>. — **Larry S.**

(You can find a nice review of the posi-taps, complete with a demo video here at: <http://www.allpar.com/reviews/other/posi-tap.html> You get the best price if you buy the connectors in larger quantities. We’ve seen them for as little as 75 cents each in quantity. – Ed.)

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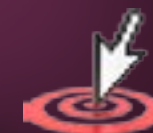
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Black Diamonds and Beer

— by Byron Henderson

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Here's a modern-era N scale layout design inspired by a real-life regional railroad ...

The Schuylkill Haven Railroad (SHRR) is a proto-freelanced modern-day shortline made up of cast-off lines from Class 1 railroads in east-central Pennsylvania. In real life, these “running tracks” and branches make up a portion of the [Reading & Northern](#) (RBMN).

Operations for the SHRR are headquartered at Cressona, on the main running track imagined to be shared with the RBMN. SHRR branch lines connect to St. Clair (site of a large brewery) and Minersville.

Folding in the Trackage

Besides respecting the negotiated boundaries in the room, I had to accommodate my client's existing desk/workbench (in the upper left-hand corner of the layout area). The layout needed to be high and narrow enough here to clear the work area below, so I set this location aside for a future branch – maybe a truck dump or anthracite coal breaker.

Cressona Yard was the first element to be placed. I tried to keep somewhat logical directions and connections, but the final layout doesn't exactly match any real-life map.

What seemed to work best was sort of folding the various lines back and forth like slacks in a suitcase. This made for a lot of parallel tracks that might crowd visible scenes, but narrow forested ridges and differing elevations will help visually separate nearby tracks that are ostensibly headed in different directions.



Figure 1: Cressona Yard on the real-life Reading & Northern was the inspiration for the main Schuylkill Haven yard on the layout. Photo courtesy Reading and Northern Railroad Company.

Modern Industries: Realistically Big, Relatively Few

In keeping with the modern theme of the layout, my client was most interested in area industries still served by rail today. The real-life Yuengling Brewery receives some commodities by rail, so I tried to make the model large enough to justify rail-delivered ingredients and rail-shipped finished product.

The Tredegar plant receives a variety of plastic pellets, and of course the

truck dumps at Minersville and Kohle ship out the coal that led to many of these lines being built originally.

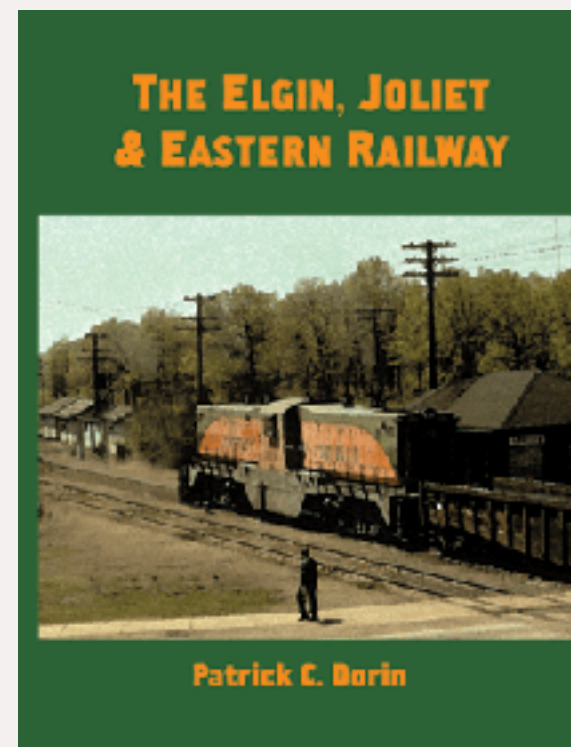
The track plan includes only the major rail-served structures, but more will likely be added during construction. Boarded-up or repurposed stations at Cressona and Blue Mountain would be interesting elements reinforcing the present-day theme.

The Schuylkill Haven interchanges with the RBMN within Cressona Yard, with the Norfolk Southern via an imagined connection at Cressona



Figure 2: The new Yuengling Brewery (opened in 2002) receives grain shipments from the RBMN, but the modeled brewery both receives ingredients and packaging and also ships beer. Photo courtesy Reading and Northern Railroad Company.

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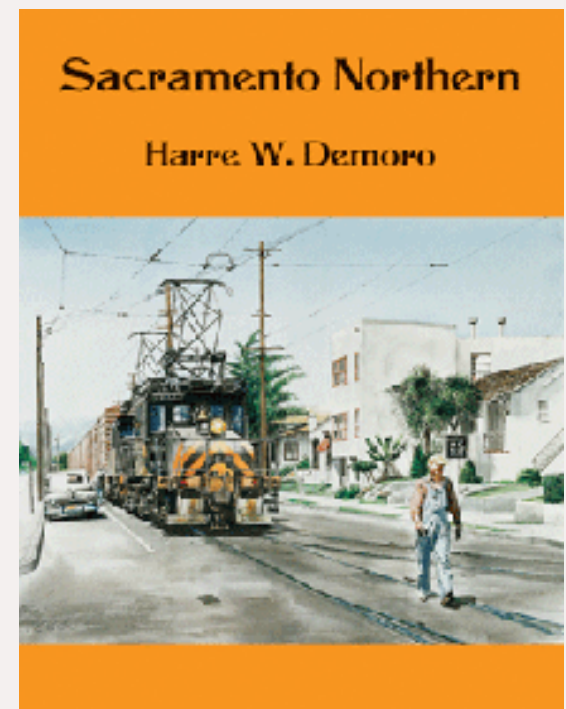


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Figure 3: The imagineered truck dump at Kohle would probably look a lot like this real-life scene loading “black diamonds” on the RBMN. Photo courtesy Reading and Northern Railroad Company.

Tower, and with the Shamokin Valley Railroad via connections through staging. These interchanges provide the sources and destinations for the SHRR’s industrial traffic.

Loop Staging and a Sneaky Route

The client and I settled on loop staging below the visible deck with sufficient length of run for adequate clearance.

In order for this single loop staging yard to function as both ends of the line, a short connection (Route B-C, see Schematic) allows staged trains to enter Cressona from both directions.

Arriving on the layout from staging via “Route A”, an RBMN train may operate straight through Blue Mountain and into Cressona – this simulates an RBMN train from Port Clinton.

In our imagined world, a rail line exists from Mt. Carmel (the real-life Shamokin Valley RR connection) to Good Spring and on to Cressona. Trains from Mt. Carmel sneak through a portion of Blue Mountain (theoretically many miles away) to get to the B-C “back door” path and then enter Cressona.

The B-C route also offers a handy out-and-back reversing connection for display or railfan running.



What's On Your Work Bench?



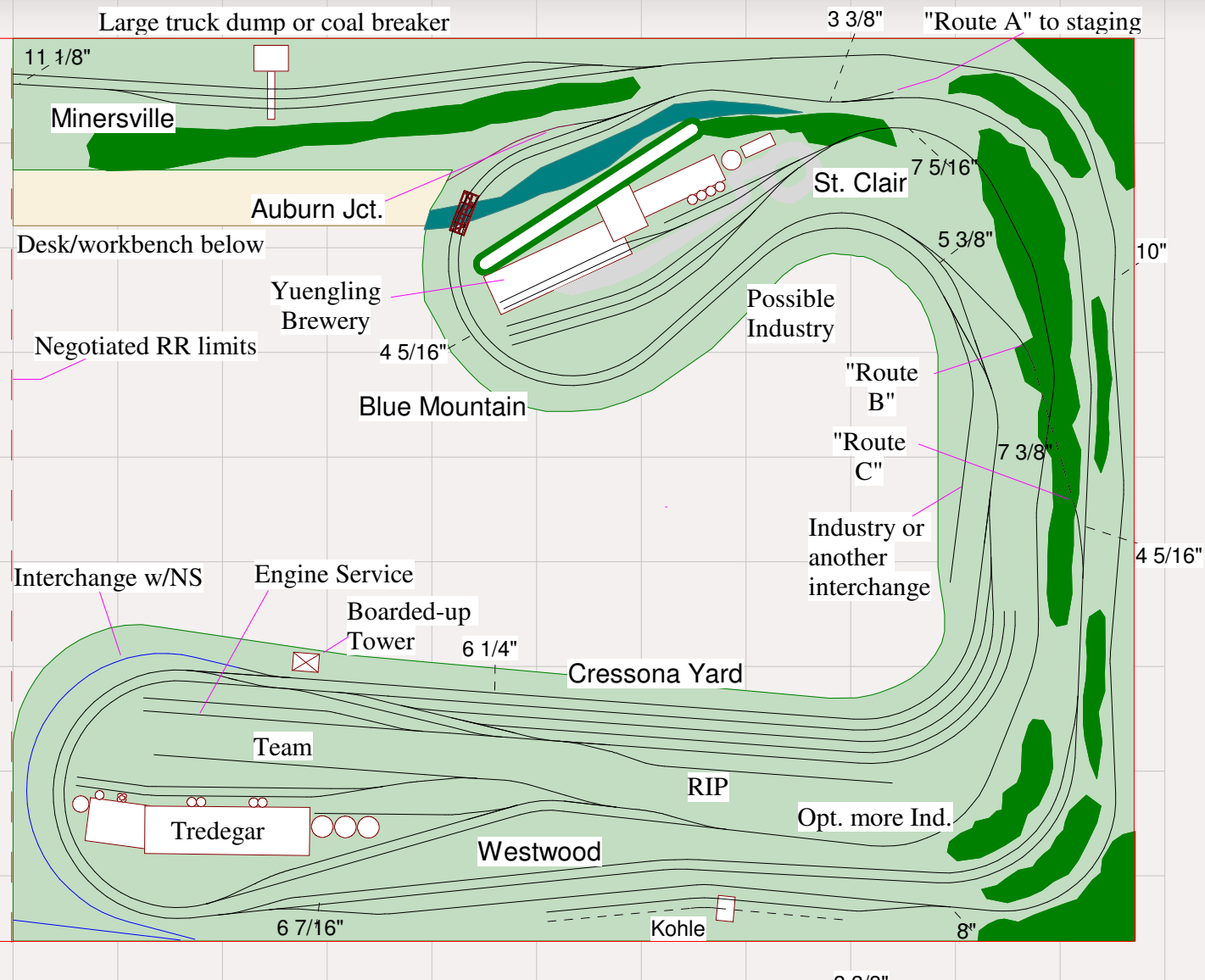
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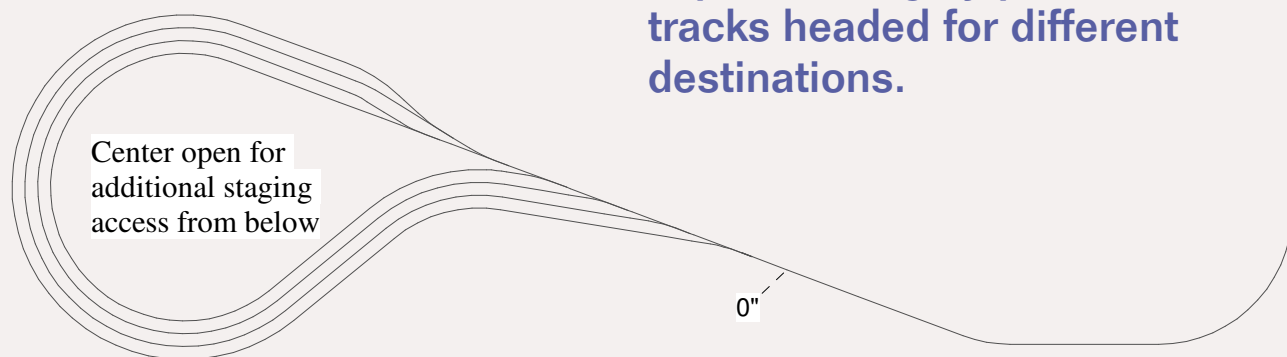
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1-foot grid
 N Scale
 10' 8" X 8' 8" overall
 13" min. radius
 Handlaid AREA #6 turnouts
 Typical maximum grade 2.5%
 Route B-C grade 3%
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Figure 4: The final design uses elevations and narrow forested ridges to visually separate roughly parallel tracks headed for different destinations.



Operating the Schuylkill Haven

The track plan is designed to be flexible enough to support multiple operating scenarios. The Reading & Northern trains may operate as a “Turn” (out-and-back from staging) or a “Through” local (running from Port Clinton to Mt. Carmel and vice-versa). In either case, the RBMN trains bring blocks of cars to Cressona for delivery to SHRR customers and pick-up blocks of cars for delivery “somewhere else” off the modeled layout.

A dedicated SHRR Cressona Job crew builds the Minersville Turn and St. Clair Turn as well as works the interchange traffic with the RBMN and the local industries in Cressona, making up out-bound blocks for the RBMN.

The Minersville Turn is an out-and-back local job that picks up their engine in Cressona, latches on to cars for Minersville (and perhaps Kohle), and runs out to Minersville to work the large truck dump there.

Shoving to St. Clair

The St. Clair Turn is interesting because there is no runaround at the brewery; instead, the train must shove all the way there in reverse. The real-life RBMN maintains at least one “Pushing Platform” (probably a former caboose) for this type of move, so it makes sense for the SHRR to do something similar – and it provides an interesting contrast with the Minersville Turn.

The crew pushes to St. Clair, then shuffles loads and empties at the brewery. The small yard can hold extra grain cars that are moved into position as needed, depending on what the brewery needs that day (hops, barley, etc.).

The imagined tracks inside the main brewery building offer a place to spot loads of can stock, bottles, card-stock, empty kegs, etc., as well as to pick up insulated boxcars of beer. A “sure spots” car spotting diagram will keep the St. Clair Turn crew happily engaged for quite some time.

Adding OPs Variety

The Reading & Northern does host tourist passenger service, so an occasional “Fall Color” special would not be out of place. This could be as simple as a single RDC, or an excuse to run a restored steamer with a few coaches over the layout.

We could also imagine additional Schuylkill Haven RR customers that may be located “off-layout” (perhaps in Good Spring or Mt. Carmel). A train could be made up for these destinations and interchange and then run into staging, retuning at the next session.

Although it takes its inspiration from the real-life Reading & Northern, opting to proto-freelance allows us to trim the Schuylkill Haven to a more manageable scope in the available space. At the same time, key locales and traffic sources are maintained for maximum operating interest – that is, fun!



Byron Henderson is a custom model railroad layout designer from San Jose, CA. Byron is a member of the [Layout Design SIG](#) and [Operations SIG](#), and is a past editor of the LDSIG's *Layout Design Journal*.

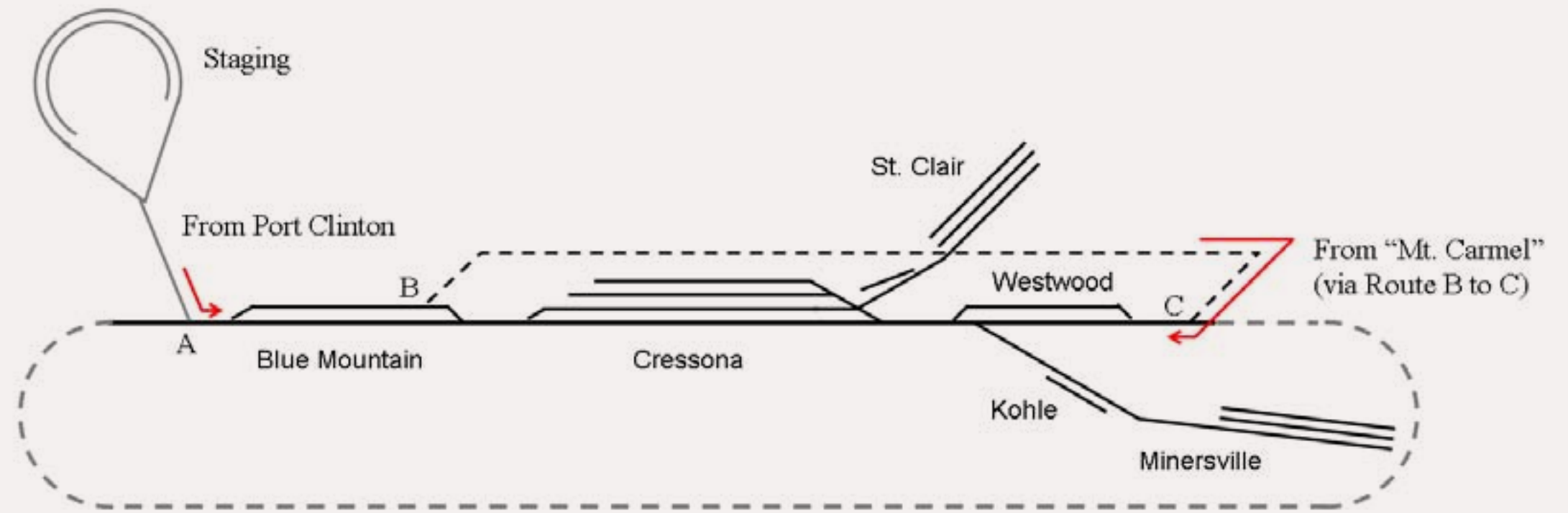


Figure 5: This schematic view unwinds the layout to show the relationships of the various elements. The short B-C cutoff permits trains from staging to enter Cressona Yard from either direction.

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Quick Interiors

- by Charlie Comstock

When modeling buildings, windows can become a problem. It's all too easy for the giants in the aisles to see a building is merely an empty shell.

I wanted to avoid this problem, but I didn't want to take the time to fully detail the interiors of all my structures. I decided to cheat a bit for the Sixth St. Warehouse on my BC&SJ layout.

This warehouse is a 3-story background building, so I first added floors so you can't see out of a 2nd story window when looking in a 3rd story window. The bottom story doesn't have windows at one end but I did model two loading doors as being open.

I made the bottom floor from a piece of .040" styrene. I brush painted it brown leaving the streaks to look like floor boards. The 2nd and 3rd stories have lots of windows, so they got full

FIGURE 1: The finished warehouse complex looks like a busy place with all those crates stacked behind the windows.

floors I made from some stiff cardboard I had.

I glued runners to the inside of the walls so the cardboard floors could slide in and out from the rear. I also glued some scrap stripwood to the underside of these floors to stiffen them.

I put some HO packing crates I had on a flat bed scanner and imported the images into my computer. I combined the pictures of the crates in a photo editing program making random stacks of them. I used a solid black

FIGURE 2: The pallets and barrels around the doorway are real, but the crates stacked inside the door are ink jet prints.



FIGURE 3: Empty windows give away the hollow interior.

background behind the crates. Then I printed them on my ink jet printer and trimmed them to size, did a bit of origami and glued them to their floors with ACC.

I also added a few crates, pallets, and barrels in the doorways where they'd be readily visible.

Not bad for a few hours work.

FIGURE 4: Ink jet 'crates' behind the windows hide the hollow interior of the building from view.





FIGURE 5: I scanned some HO crates I had, replicated them in a photo editing program making more or less random stacks of them. I printed them on an ink jet printer, cut them to a good height for their floor and glued them in place with ACC. Instant interior! This technique can be used for faking many different types of building interiors.

FIGURE 6: Looking into the warehouse from the rear (it's a background building). I glued pieces of 1/8" square styrene to the walls to hold the floors in place. Note the streaky brown paint on the styrene lower floor - a crude but effective representation of floor boards. Also note the stiffeners under the cardboard 2nd and 3rd story floors.



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A photograph of a steam locomotive crossing a truss bridge at night. The locomotive is illuminated by its own headlights, and the bridge structure is visible in the foreground. The background shows a dark, wooded area.

SP 4449 Excursion on *Joe Fugate's* Siskiyou Line

Figure 1 (Joe Fugate): Even though I model the 1980s, I can still run the occasional steam excursion down my SP Siskiyou Line just like the prototype did in the 1980s. There's nothing better than the SP 4449 GS-4 Daylight, and that's what we cover in this article: how I and some of my operations crew planned and executed this steam excursion run on my layout. Photo by Charlie Comstock.

– *by Brandon Thompson,
Keith Ansell, and Joe Fugate*

Who says you can't run steam on a layout modeling the 1980s? Here's how we pulled it off.



SP 4449 & Spirit of the West Shipper's Special

– by Brandon Thompson

In 1988 the Southern Pacific brought the restored SP 4449, a GS-4 class steam locomotive to the prototype Siskiyou line for a shipper's special. The train was called the "Spirit of the West Shipper's Special" and was a part of the railroad's "Adopt-A-Branch" program to promote direct communication between train crews and customers on the line.

Several years ago Joe Fugate mentioned to me that he would like to duplicate the Southern Pacific 4449's visit on his model of the Siskiyou line. The discussion started with, could it be done and would we be able to come up with suitable equipment. Joe asked me if I had a model of the SP 4449 that he could use for the event.

I told him that I didn't have one that was suitable but I knew someone who did. Joe also wanted to have the locomotive wired for sound and be as accurate as possible (see sidebar

about the History of the SP 4449 page 3-4).

I contacted my friend and fellow SP modeler, Keith Ansell to provide a suitable locomotive. Joe models the 1980's and changes the year to correspond with the year of "today's" decade.

The discussion at first was to have the train run in 2008 (1988) on Joe's railroad, as that was the year when the real Spirit of the West Shipper's Special ran. It then shifted to running the train in the last session of 2009 (1989) before Joe returned his railroad to 1980 in 2010 (now 30 years behind and always staying in the 1980s).

The SP 4449 GS-4 Locomotive – by Keith Ansell

I started with a Sunset GS-4, with factory paint. It is closely correct except the lettering on the cab is of poor quality and the finer numbers are missing. Mechanically it was acceptable as it has a good can motor.

I prefer DCC sound in all my locomotives, so that is where I started with the GS-4. I use Tsunami sound decoders and selected the appropriate SP Heavy Steam, as it has the correct whistle and a good Mars light.

The decoder is installed in the tender with a 1" Soundtraxx speaker, facing down in the center of the tender. The speaker is attached to the tender floor with Walther's Goo. I find Goo to be very durable, and it stops any possible buzzing.



Figure 2 (Joe Fugate): The SP 4449 GS-4 excursion rolls across the North Umpqua river bridge on my HO Siskiyou Line. It's September 1989 and we're doing this run as the grand finale for this first march though the decades of the 1980s on my layout – which we keep forever in the 1980s. Photo by Charlie Comstock.

I drilled 8 holes in a round pattern beneath the speaker to allow the sound to escape. Using the complete tender body as a sound box gives good bass and volume.

I do not rely on the drawbar to route power to the motor, so the connection requires one wire from the locomotive. This installation requires six wires to run to and from the tender to the locomotive. I use 0.1" gold connectors and shrink-wrap all connections.

The first 3-prong plug has the track power (red) in the center with the motor leads (grey and orange) on the

outer two contacts. This arrangement makes it virtually impossible to damage the Tsunami decoder by improperly connecting the leads. The worst that can happen if the plug is reversed is that the motor runs backward. Just reverse the plug and it runs correctly. This lead has the female plug on the tender side.

The second three prong plug has the common lighting (blue) in the center with the headlight (white) and Mars light (green) to the outside connections. Again this makes it virtually impossible to damage the decoder. In

Continued on Page 60 ...

History of the SP 4449 – by Brandon Thompson



Figure 3: 1981 at Railfair, the opening of the California State railroad Museum. Note the white tires and white stripes on the pilot. Photo by Dennis Thompson.

The SP 4449 was donated to the City of Portland, Oregon in 1958. It was put on display in Oaks Park, along with SP&S 4-8-4 #700 and Oregon Railway & Navigation 4-6-2 #197 (later Union Pacific #3203). All three of these locomotives were removed from the park between 1974 and 1996. Both the 4449 and 700 are currently operational while the 197 is still undergoing restoration.

The 4449 was restored to operation in 1975 for use on the American Freedom Train. It was first restored to Daylight colors in 1981 for the opening of the California State Railroad Museum. In the years between 1981 and 2000, the 4449 remained in

Daylight Colors but subtle changes were made to the appearance.

I have heard a rumor that the engineer, Doyle McCormack, does this so he can identify when a photo of the locomotive was taken based upon its appearance. For instance in 1981, the 4449 traveled to Sacramento California for the opening of the California State Railroad Museum. At that time, the bands on the front of the pilot were white paint and the tires on the drivers were also painted white.

By the time the Shipper's Special was run in 1988, the stripes on the pilot were no longer white paint, but strips of aluminum. On the front of a GS-4, there is both a headlight and a Mars



Figure 4: The 4449 on the World's Fair Daylight in Klamath Falls, Oregon. In 1984, the 4449 and a matched 13-car Daylight consist traveled to the World's Fair in New Orleans, Louisiana. Photo by Dennis Thompson.



Figure 5: The 4449 in January 1989, with the same paint details as its trip on the Siskiyou Line in December 1988. This photo was taken at Reservation, which is a Junction in Tacoma Washington. The 4449 is on its way to Wenatchee, Washington for the State of Washington Centennial Winter Games. Photo by Brandon Thompson.



Figure 6: The 4449 in Hillsboro, Oregon in 2000. This is a pre-1946 paint scheme with small lettering on the tender. The locomotive was painted black and had the shroud on the headlight as it did during the World War II. This paint scheme was done for the SPH&T (Southern Pacific Historical and Technical Society) convention in Portland that year. Photo by Brandon Thompson.

light above it. In 1988 the door to the Mars light was painted black but the headlight remained silver. In 1989, for a trip to California, the headlight door was also painted black to match the Mars.

Since 1988, the 4449 has worn three other paint schemes, black with white stripes for a Burlington Northern Santa Fe Employee's Appreciation Special in 1999, black with pre-1946 lettering for the SPH&T (Southern Pacific Historical and Technical Society) convention in 2000 and then she was returned to the Red, White and Blue of the American Freedom Train in 2002.

Currently the 4449 is in Daylight colors but details have been altered to make the locomotive look "as delivered" including replacing the twin seal-beamed Mars light with a single globe, moving the number boards closer to the front and applying the smaller pre-1946 lettering. (Photos continued on the next page.) ■

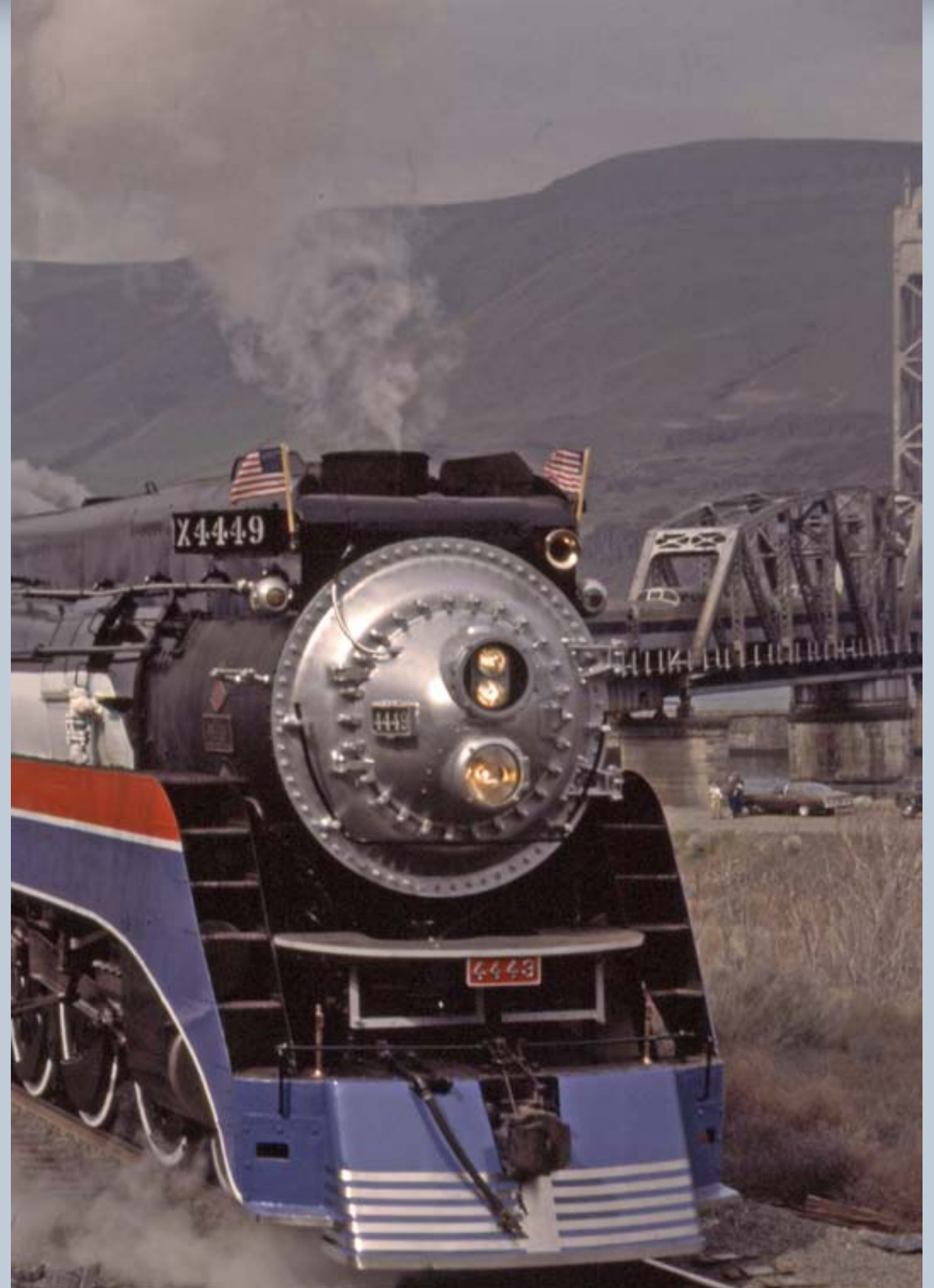


Figure 7: The 4449 at OT Junction just crossing the Columbia River from Washington into Oregon. This was the second time the 4449 would wear the American Freedom Train Red, White and Blue. Photo by Brandon Thompson.



Figure 8: The 4449 on the turntable at Brooklyn Yard, in Portland on June 11, 2005 as the locomotive is preparing for a trip to Sherwood Oregon. Notice the small pre-1946 lettering and that the number boards have been moved from about halfway down the skyline to the front. This gave the locomotive an as-delivered appearance except for the improper twin sealed-beam Mars light that now has been replaced. Photo by Brandon Thompson.



Figure 9: This photo was taken on December 13, 2009 while the 4449 was running a Holiday Express Train which is a fund raiser for the Oregon rail Heritage Foundation. Notice the Mars light is the as-delivered globe instead of the twin sealed-beam. Photo by Brandon Thompson.

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this case the worst that can happen is the headlight has the Mars effect and the Mars becomes a headlight. Again all that has to be done is to turn the plug around. This lead has the male plug on the tender side.

Below the tender deckplate, I created a hole large enough to push the plugs into the tender. I make the wire from the locomotive long enough so there is about ½” of extra wire for this. The wires between the locomotive and tender are painted black. I also have found that for reliable DCC, wipers are needed on the insulated wheels of the tender to give at least 8 wheel pickup. The extra wipers virtually eliminate stalling across power districts.

I used 16 volt bulbs for the Mars, Headlamp and backup lamps – the

bulbs completely filled the castings. I did not find it necessary to use lenses to represent these lights.

When running on anything smaller than 60” radius curves, the Sunset pilot truck shorted against the cylinders. With a Dremel tool, I made large “holes” in the backs of the cylinders so these would clear both at the front and rear of the cylinders and not short. These modifications can not be seen when the locomotive is on the track.

After making sure the pilot could not touch the cylinders, I painted them black, and did the front of the cylinder covers in silver.

The next items I took care of were the drivers, pilot and trailing trucks. The smaller wheels are nickel-plated, so I painted these black. The tires on the

drivers are also nickel plated as well as the axle ends, which I also painted black. The 4449 during this run did not have the tires painted white and there were stars in the center of each driver. I took the stars from a Microscale decal set.

I painted the rods with a “Graphite” paint to get the correct dull raw-steel color of the prototype locomotive. During this time the 4449 also had the door to the Mars light painted black, so I painted it black on the model to match the prototype. I cleaned the paint from the horn, as the 4449’s horn was polished brass at the time of this run.

I also checked and straightened the ladders, blowdowns and other delicate items that had moved out of

position when I was installing the decoder, speaker and touching up the paint.

I applied correct decals from the Microscale GS set to the cab and rear of the tender. I added numbers to the number boards, the panel above the coupler and the smoke box front. I used chrome tape from automobile modeling to the front of the locomotive to represent the chrome stripes: I made them .020” for the horizontal stripes and .100” wide for the vertical elements.

After I finished these items, I painted the engine and tender with “Glosscote” because the 4449 is always well polished and kept in a clean condition (The Sunset factory paint was only semi-gloss).



Figure 10: The Sunset Daylight GS-4 rolls through Rice Hill on its way back to Eugene, Oregon after running to Medford, Oregon earlier. In this section,

Keith Ansell tells how he modified and tuned this steam locomotive with DCC sound, lights, and improved power pickup. Photo by Charlie Comstock.

Unfortunately, my attempt at using the chrome tape ultimately failed because the adhesive did not hold the tape to the pilot for very long. I then used a bright silver paint applied with a brush to the pilot.

The final addition was a scale coupler to the pilot and the 4449 was ready to re-create the Spirit of the West Shipper's Special.

The Train

I spent some time looking on the internet and in old magazines to identify the correct consist in an attempt to assemble the train.

Thankfully *Pacific Rail News*, March 1989, #304, listed the entire consist in detail. The first thing I worked on was the diesel helper locomotives. Over several days in December 1988



Figure 11 (Joe Fugate): Once Keith Ansell had assembled the consist for the 4449 excursion and made his modifications to the GS-4, we did a test run on the Siskiyou Line to see how it would all work. We used two SP tunnel motors in this test and later replaced one of the tunnel motors with the more correct D&RGW SD50 from Ron Smith, one of my regular operators. Photo by Charlie Comstock.

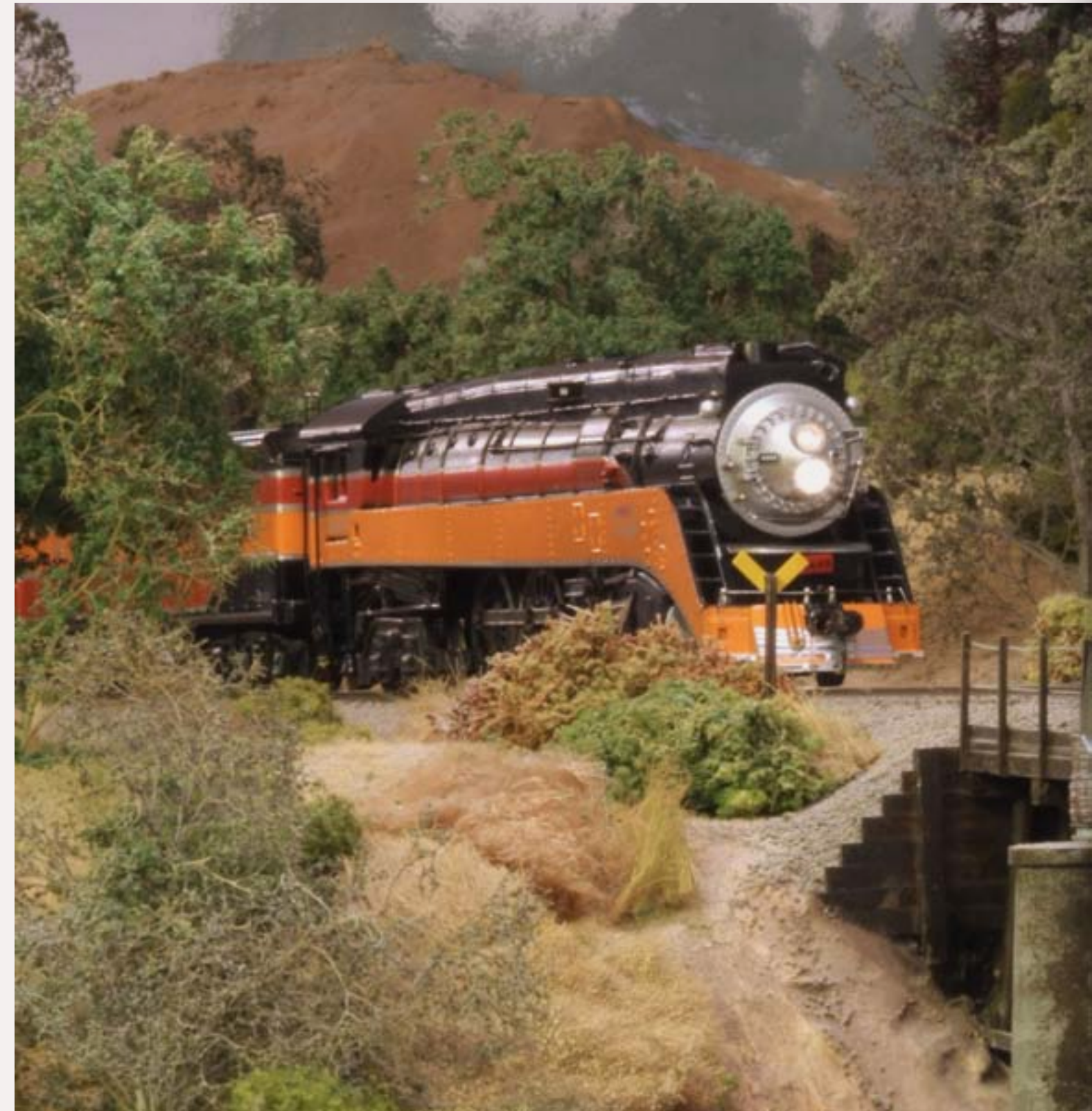


Figure 12 (Joe Fugate): The SP 4449 excursion approaches Roseburg yard limits (as indicated by the sign with the yellow arms) on my layout. Roseburg yard limits are just railroad east of the North Umpqua River bridge. Photo by Charlie Comstock.

three different diesels were used with the 4449.

On the full passenger train, there were two diesel locomotives: one painted for the Southern Pacific and the other painted for the Denver & Rio Grande.

The SP locomotive, number 6826, was an SD45-T2R. We chose to use Joe's Athearn SD-40T-2 #8277 as a stand-in. The D&RG locomotive was an SD50 numbered 5514. Local modeler Ron Smith provided Athearn D&RG SD50 #5502. The third diesel



Keith Ansell was infected with the Railroad disease by his father at 7 when Christmas was accompanied by a complicated American Flier train set around the tree. He became an avid model railroader at 13 with a layout that was dropped from the family's garage ceiling.

Today he has a layout of the SP in Dunsmuir California (1954).

He lives in Battle Ground, Washington. Steam locomotives and DCC Sound are his main joys.

used was SD9E 4429 that assisted the 4449 on its return trip to Portland. We chose to use SD9E #4333 as a stand-in for that part of the trip.

The Spirit of the West Shipper's Special ran for three days, December 14-16, 1988. During this time the train consisted of the two diesels and 14 passenger cars. Assembling an appropriate consist required obtaining cars from several sources.

Most of the train was painted in Southern Pacific's Sunset Limited paint scheme: silver with a red stripe. This is the paint scheme that the Southern Pacific used on all of its business cars at the time. Also, the consist included the Daylight-painted tool car, DLMX 5514, the car *Yes Dear*, and two cars painted for the Denver & Rio Grande.

I started by getting a suitable stand-in for the *Yes Dear*. According to the consist list in *Pacific Rail News*, the *Yes Dear* is an ex-Union Pacific baggage/Railway Post Office Car. Conveniently I had a Con-cor smooth side baggage-RPO painted in Daylight and I only had to make two simple modifications to the car.

First I had to add weight, as the car from the factory was too light. Second, I mounted couplers to the body. I tried using McHenry couplers which attached to a nub on the truck. But they could not support the weight of the other cars behind it in test runs.

The next issue was acquiring the Denver & Rio Grande passenger cars. As luck would have it, my father models the D&RG in the steam-diesel transition era and he has an entire train of passenger cars painted in the correct gold, silver and black passenger scheme.

Two of the cars in the Spirit of the West consist were the Business car *Utah* and the dome *California*. I selected a dome and lounge car, both made by Rivarossi. I had previously made modifications to these cars, including adding McHenry couplers, Proto 2000 wheels and more weight.

Pacific Rail News listed the rest of the SP cars in the consist as follows:

SP 298	Baggage Car
SP 295	Power Baggage
SP 292	10-6 Sleeper
SP 290	48 Seat Dining Car
SP 291	Lounge
SP 289	City of Los Angeles Smooth-side lounge
SP 106, Oregon	Business Car
SP 100, Airslie	Business Car
SP 141, Oakland	Business Car
SP 140, Stanford	Business Car
SP 150, Sunset	Business Car

We assembled the rest of the train from three different sources. Joe and Charlie Comstock supplied several Walthers passenger cars. These included coaches, lounges and a diner.

I provided the only baggage car that we could find. This created a consist 13 cars long. I assembled the consist in the same order as it was listed in *Pacific Rail News* minus the Power-Baggage car to try and represent the real consist.

The real Spirit of the West operated for three days, and then the 4449 deadheaded from Medford to Eugene, Oregon with a 3-car consist. That consist included the two D&RG painted cars, the *Yes Dear* and SD-9E 4429. We recreated this consist during the test runs but not during the op-session on October 24, 2009. ✓



Brandon is an attorney and lives in Portland with his wife and two children. He has been interested in trains for as long as he can remember. He joined an HO modular club, in Tacoma Washington, when he was 13. Keith Ansell was already a member and they have been friends ever since. He models the Southern Pacific in the Portland area in 1952.

Fun With Photo Shop – by Joe Fugate

Figure 13: Here's the SP 4449 Daylight as she might have looked running in the moonlight on the Siskiyou Line circa September 1989. Of course, this has been "Photoshopped", but still it's a fun "what might have been" image. See figure 14 for the original before image. Photo by Charlie Comstock (and altered in Photoshop by Joe Fugate).

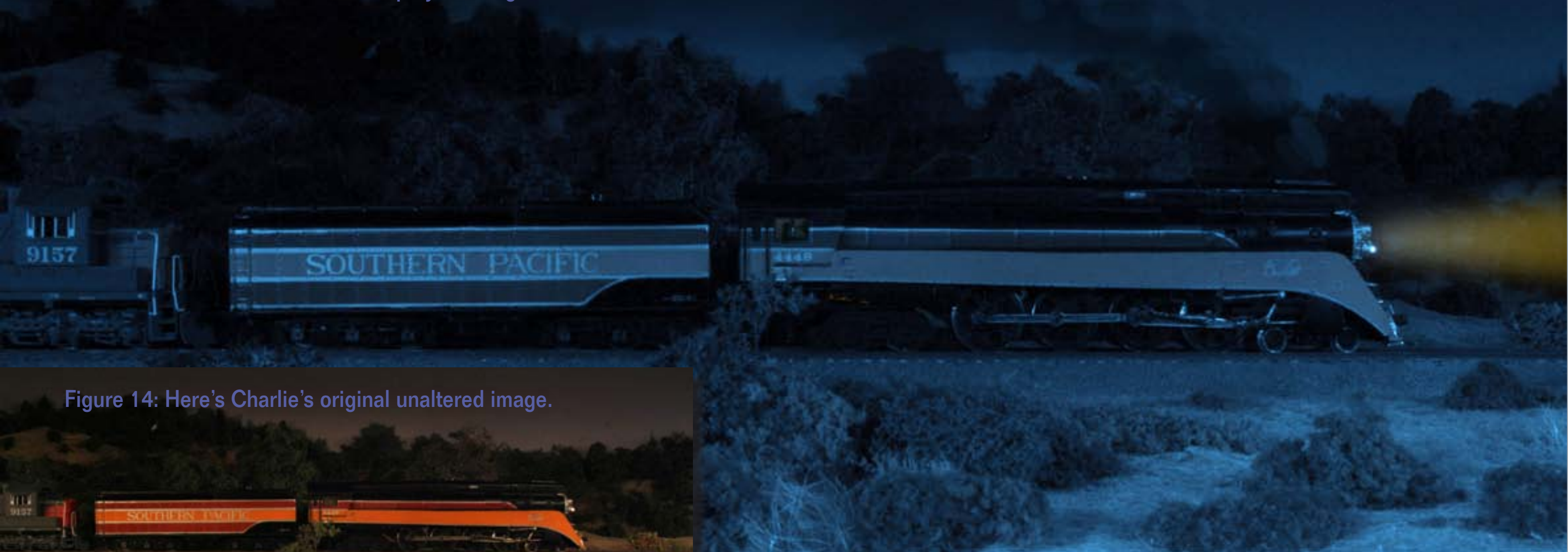


Figure 14: Here's Charlie's original unaltered image.



When I saw Charlie Comstock's original "sunset lighting" image of the SP 4449 running on my layout, I couldn't resist playing with the picture in Photoshop to create a somewhat fanciful moonlit image of the SP 4449.

My standard backdrop painting approach of feathering my sky backdrop horizon using white in an

airbrush really shows up in this photo taken by Charlie.

Using Photoshop, I altered the image colors to all dark blue-green tones to simulate moonlight. I used a brush to add some stars to the sky and I also used a large brush set to about 25% (75% transparency) to dab in the smoke.

I also used a slightly lighter color and a much smaller brush to add some faint moonlit highlights to the smoke. I then did a slight gaussian blur on the smoke to soften it still more.

For the headlight beam, I used a yellow orange gradient, then set it to about 20% opacity (80% transparent), and then applied a strong

gaussian blur to give it a more ethereal appearance.

The resulting image really feels like it's something you might have seen on a pleasant late summer evening on the real Siskiyou Line with the actual 4449! ■

Video of Full Excursion Train – by Joe Fugate



Figure 15: The SP 4449 Daylight rolls by to the delight of Siskiyou Line railfans. Who says you can't enjoy some steam power once in a while on a 1980s diesel layout? Photo by Charlie Comstock.

When we ran the test run of the official excursion consist, I pulled out the video camera and we shot some footage of the run.

A 13-car train, plus two long diesels and the steamer with tender creates quite a long train – easily as long as any of the typical freights on my HO Siskiyou Line. I originally designed the layout to handle a freight train of nearly 30 50-foot cars with helpers, since the SP likes to run long trains.

As a result, this special excursion train, while quite long, also easily fits into the longer siding on my layout, making dispatching the train not that much different from the freights.

However, to add interest to this specific excursion train, I've added some operational challenges for the crew to meet. The crew gets awarded

points depending on how well they get this particular train over the road. The goal is to get as many points as possible for the run to be considered a success.

Here's the train sheet for this train:

EUMEX, Business Special

Start Eugene 7:30 am – **Must depart on time!**

25 mph speed limit must be strictly observed! Sudden starts or stops count as crew mishap.

Cottage Grove:

No work

Roseburg (arrive 9:30:am – Depart 10 am – Must be on time!):

Unload at station

Depart 10 am – **On time!**

Terminate Medford at Noon – **Must be on time!**

NOTES: No rookie engineer (must have run at least one other train).

Must have 100 points upon arriving in Medford for trip to be a success.



Figure 16: The operators of the SP 4449 excursion watch the clocks closely as the train rumbles across the North Umpqua River bridge at a calm 25 mph – the speed limit on this SP branch line.

Points ...

Arrive/Depart on time: **+30 pts**

Arrive ahead of time: **+35 pts**

Arrive/Depart 1-15 min late: **+25 pts**

Arrive/Depart 16+ minutes late: **0 pts**

Bonus: Make up time after departing late: **+30 pts**

Depart ahead of time: **-10 pts**

Crew error / mishap with special: **-10 pts**

Equipment malfunction with special: **-5 pts**

Issue with another train near special: **-5 pts**

Notice if the train departs Eugene on time you get 30 points, arrives in Roseburg on or ahead of schedule, that's another 30-35 points. Then if you depart Roseburg on time, there's another 30 points, and upon arriving in Medford before noon, there's another 30 points – for a total of 120-125 points easy. There's even room for a few crew errors or equipment malfunctions and you'll still get the required 100 points.

But if you mess up and depart late or arrive late, you'll have tough time keeping to the 25 mph speed limit and making up time.

A smart dispatcher starts planning ahead to make way for this run. As the time approaches for the excursion run, a good dispatcher starts issuing all other train's track warrants as "not in effect until after the arrival of SP 4449" ...

It's better for the freights to wait than to later have to explain to the brass why you delayed the Business Special! ■



Joe Fugate is the founder and publisher of *Model Railroad Hobbyist magazine*. Joe's been a model railroader since the late 1960s and is a published model railroad author.

Joe's HO Siskiyou Line layout, a pioneering mushroom benchwork configuration, was first discussed in depth by Joe in the January and February 1997 issues of *Model Railroader* magazine.



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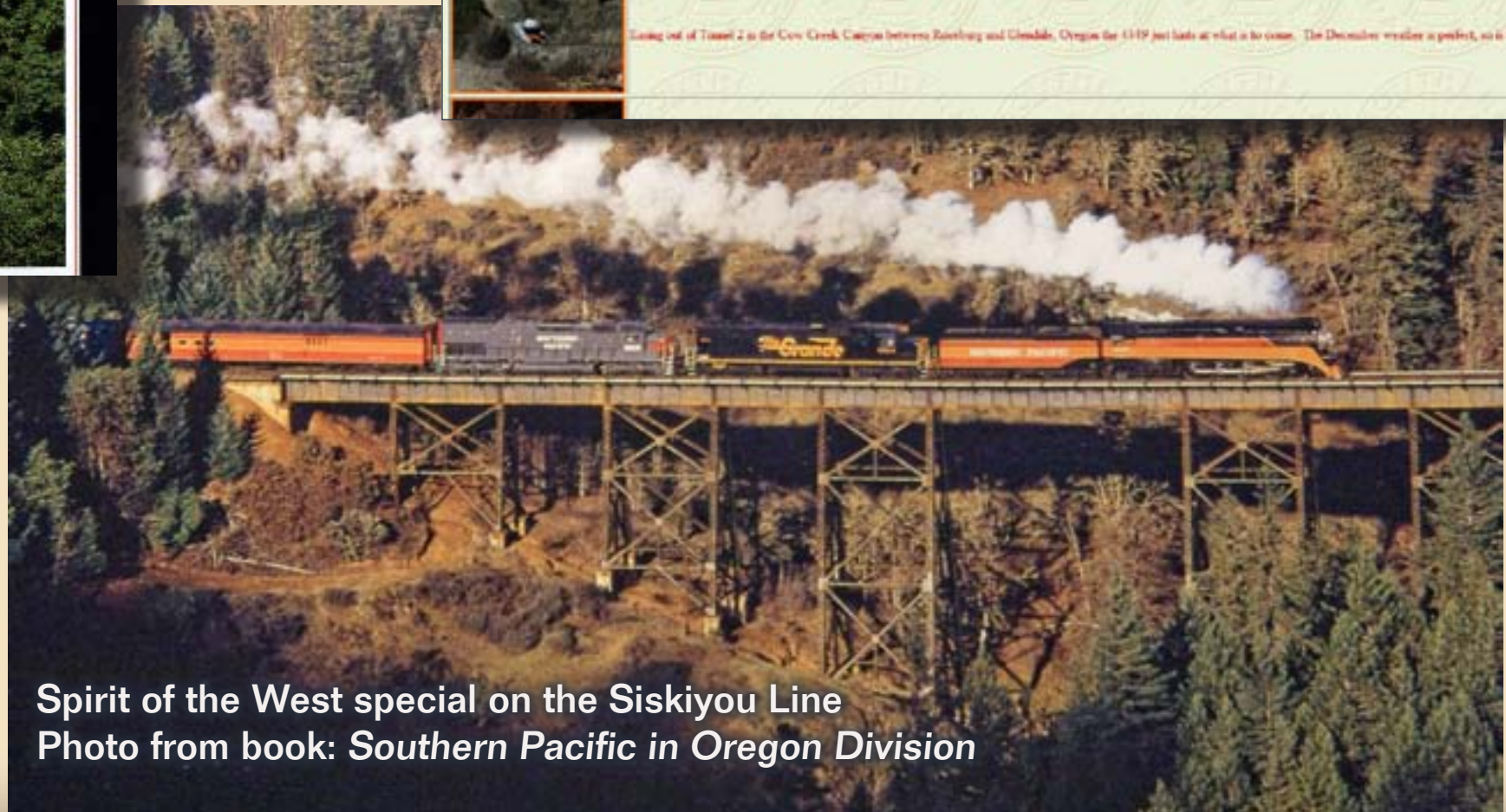
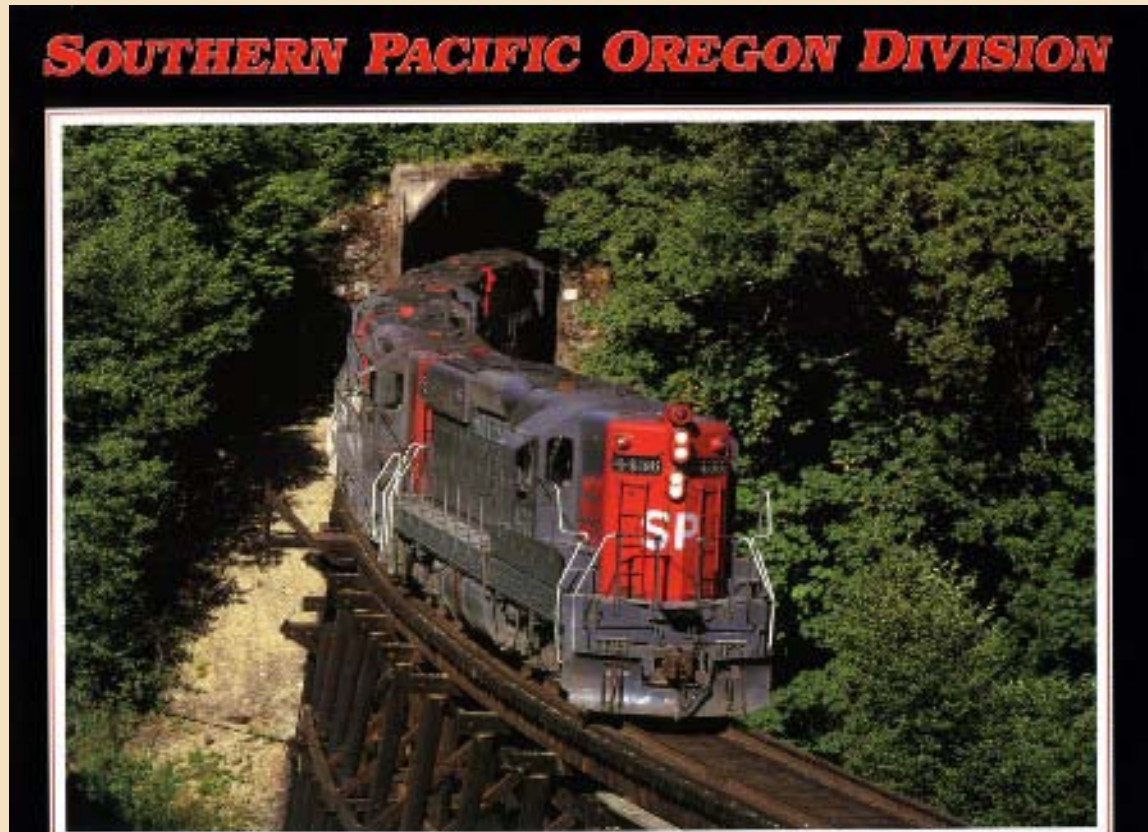
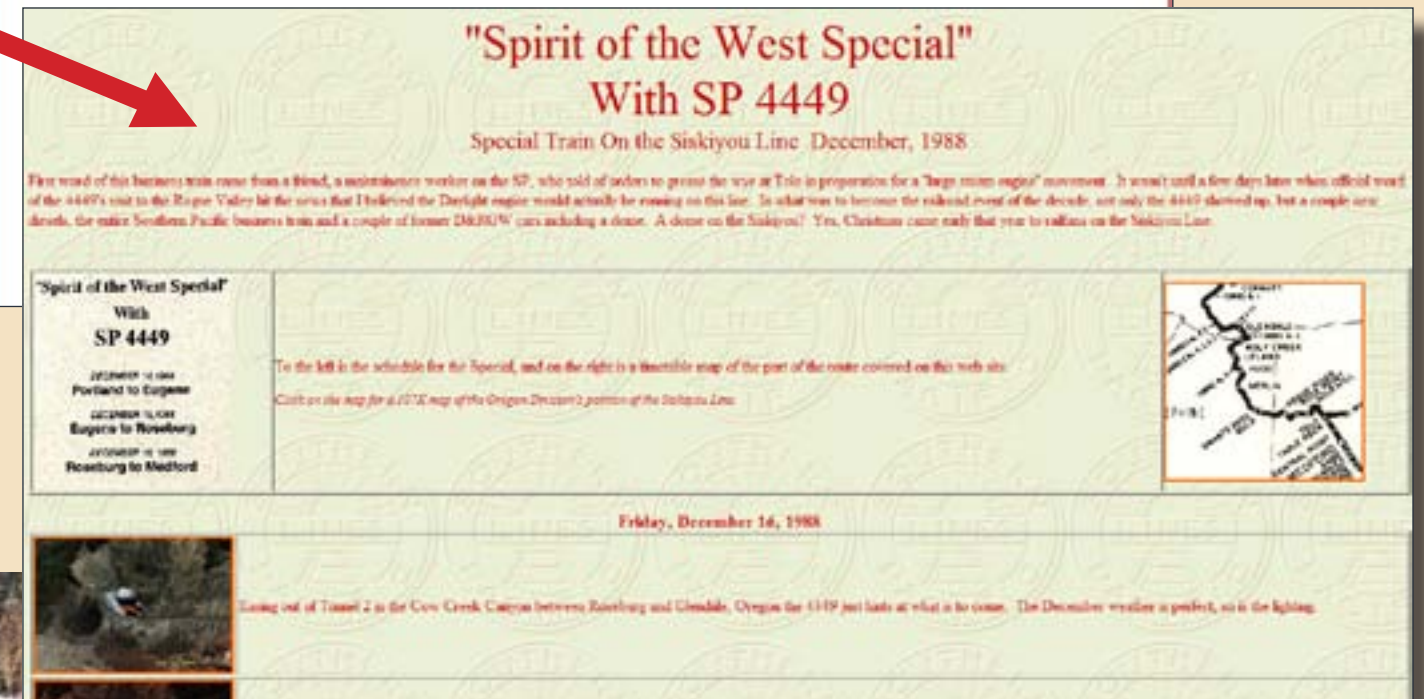
Click to visit our web site

More information on the Spirit of the West Shipper's Special As run on the prototype Siskiyou Line in 1988

You can find more details about this excursion at the following links:

<http://www.sp4449.com/03photos/featured/88adopt/gallery1/index.html>

<http://www.alpharail.net/spsisq/4449rog.htm>



Spirit of the West special on the Siskiyou Line
Photo from book: *Southern Pacific in Oregon Division*

There's also some great information on this special and about the SP Siskiyou Line of the 1980s in the book *Southern Pacific Oregon Division*.

You can [purchase a copy of this book here](#).



The *Stony Creek* Railroad

by Dick Grinyer, photos by the author

 **Reader Feedback**
(click here) 

G'day, my name is Dick Grinyer and I come from Melbourne Australia. I have been modeling now for about 20 years, starting in N scale, and after a couple of layouts I moved into HOn30. It was here that my passion for narrow gauge developed. In the more recent years I started to see some On30 layouts appearing on the scene and thought "wow!" I was hooked, and never looked back. At that time I still had my HOn30 and not having enough room to build another setup, I built a few On30 dioramas instead. Later on I did put together a small layout in the same scale - it was not much more than a

FIGURE 1 (prev page): Only a small load this time as a north bound diesel heads off on the last run of the day.

three-foot circle, with a bit of scenery, and I was happy to watch my little Porter run 'round in circles. Further down the track (pardon the pun) I was able to sell my HOn30 layout, and from there on my new dream went full steam ahead in the shape of what is now my current layout, "Stony Creek." Stony Creek does not represent a real place. It is 100% freelanced, and not built from a particular plan, just a few ideas I have collected here and there. I started building and it just grew to



FIGURE 3: A collection of disused signs decorate the back of an old building

what it is today. I adopted the name of Stony Creek from the creek that runs through the little township of Halls Gap, in Grampians National Park, Victoria, one of our favorite holiday places. I photographed one of the advertising signs there, and with a little work in Photoshop was able to produce a master print which I used to trace the letters onto my fascia, then painted it in.

I don't belong to any clubs or organizations, but enjoy traveling around to various railway modeling exhibitions and have made quite a few friends along the way. My interest in railways, modeling or otherwise, is around the 1920 to 1940 era more so than the

modern day. I picture a single narrow gauge line twisting its way through the hills, with a smallish loco puffing smoke out through the tree tops as he chuffs along over an old log trestle bridge. In my modeling I try to stick to a rustic effect. I don't want it to look too new. I like my corrugated iron to have a bit of rust on it, along with a few boards hanging off the side of the buildings showing the framework underneath - maybe not on every building but enough to illustrate the passing of time. I also try to cram in as much detail as possible. To me this not only adds more realism to the subject but creates a lot of mini scenes which catch the eye.



FIGURE 2: An obsolete carriage now sits track side and serves as a workman's shed.

Layout Summary

Layout name: Stony Creek

Locale: A small town in the Australian outback

Era: 1920-1940

Scale: On30 (1:48, 30" gauge)

Track style: loop with branchline

Mainline length: 20'

Size: 9 1/2' x 40" plus a 3' x 14" branchline area, L shaped

Turnouts: Peco

Min radius: 16" main, 7" branch - made possible by the tiny rolling stock

Max grade: essentially flat

Control: DC

Turnout control: manual

Track elevation: 51"

And now join me as we take a short run along the Stony Creek line. We're on board the No.5 gas-mechanical pulling three coal skips as it exits the tunnel and crosses the only road out of town. To our right we see a swaggie leaving town on his never-ending journey. Our train slows early about here because there are always a couple of stray kangaroos grazing in this area. Next we pass Stony Creek's only diesel that has backed up on the side track to load up from J W Wallace, the long-distance haulage contractor. He's got quite a mixed load there: hay bales, sacks of something, maybe flour or wheat, plenty of crates and barrels. On from there, we pass an oil tank and workmen's hut. Behind them is James



FIGURE 5: A small Porter moves in to re-fill his water supply on the branchline.



FIGURE 4: A worker stops to make friends with the local wildlife.

Goldman the assayer's office with an eager miner outside, perhaps waiting on some good news from his diggings. Now we are passing an old building; who knows what that has been in its past life. The old advertising signs outside hint of the many trades that may have occupied it in the past. Don't miss a quick wave to the retired railroad worker sitting on his verandah way back high. He sits there all day watching the trains go by. By now, we're passing Stony Creek Seafoods with Mr. Fisher outside contemplating the workmen who have spilled his fresh barrel of ice.

Just along from here near the old boiler we meet up with the turnout that allows us to back-up and switch

Glossary

Terminology from the Land Down Under:

Caneite - a pre-primed pulp board suitable for interior notice boards, sound absorption ceiling linings etc.

Coal skips - mine cars

Swaggie - an Australian hobo

Carriages - normally for carrying people (as in 'coach'), sometimes referring to rolling stock in general.

PVA glue - polyvinyl acetate is water soluble, goes on white and dries clear, otherwise known as white glue



over to the track that runs past the Gippsland & Northern Co-op and down that part of the line to the Stony Creek Maintenance Workshops.

If you look off to the right you will get a clear view of the last embers from the bush-fire that threatened the town recently. We won't be taking that

line today: our engine is running very sweet and doesn't need maintenance.

Pushing on, we start our climb up a slight rise, and rattle over an old trestle bridge above Stony Creek. On the left, we can see another line which leads off to the sand house and ash pit.

Crossing the bridge we pass the sign post showing Wombat Gully is 25 miles ahead, and into the tunnel to continue our regular run.

Bench work

I made the bench work as four wooden box frames that are free-standing. On

FIGURE 6: Crossing the old trestle bridge over Stony Creek this little train heads off on its outward journey.

top sits the layout, which is made up of four individual modules, consisting of a light pine wood frame that holds a half inch thick sheet of Caneite

to form the base. The layout is in an "L" shape measuring a total of 13½ feet, with a viewing height of four feet three inches. For the lighting, I installed seven energy efficient fluorescent globes that provide an excellent flood of light throughout. They are set behind a fascia panel that runs the length of the layout and the fascia also displays the layout's name. Stony Creek is situated in a spare room in our house. I wouldn't mind another twenty feet or so but unfortunately that's not the case. My wife gets worried whenever I bring out the tape measure. "You're not knocking that wall down" she says.

After creating the base, I laid the track using Peco O16.5 flexi-track along with the matching turnouts. The maximum radius used is sixteen inches and the minimum is 7 inches. In unseen areas, such as the tunnels, and behind the sky back-drop I used standard HO flexi-track, and then Woodland Scenics ballast was laid accordingly.

Terrain

Styrene foam was glued to the frame to form the basis of my terrain. I shaped it to form a pleasing contour. Next I finished it off with plaster cloth to give me the required hard shell, and then I was ready to build up the rock faces.

Rock work

All of the rock is a combination of "soft rocks" and plaster castings made from Woodland Scenics or home-made flexible moulds. I painted the rocks with Floquil antique white for a base color

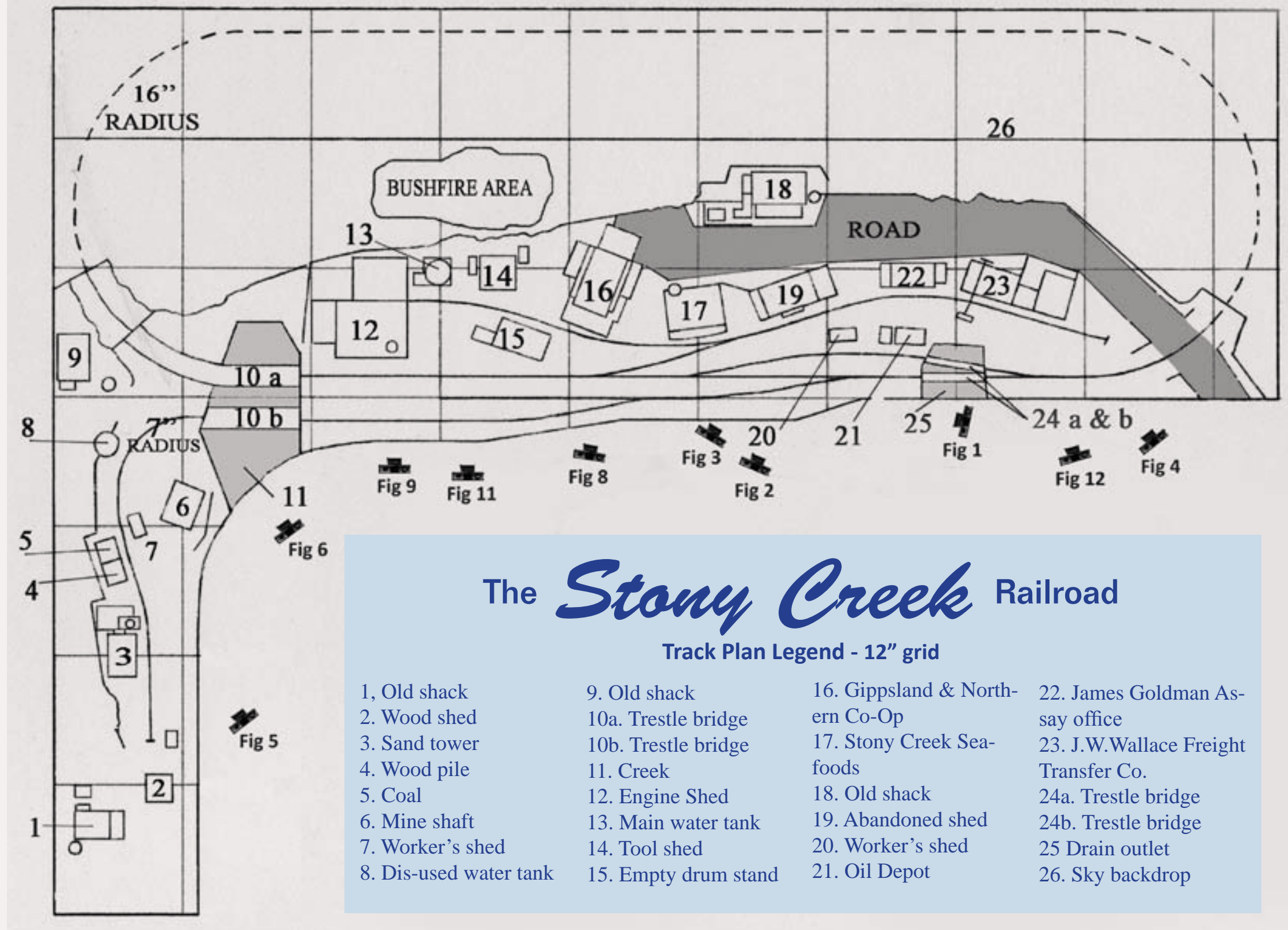
and randomly selected areas which I highlighted with Floquil rust, blending it with brush and thinners. When dry, I brought out the detail in various nooks and crannies with a wash of alcohol and some darker shades of weathering powder which is further accentuated by the layout's lighting, giving an overall pleasing effect.

Ground cover and water

For ground cover I used a combination of dirt and clay, in conjunction with a variety of Woodland Scenics products. I put the dirt and clay through a sieve a number of times to obtain different gradings, which I find produces a more natural effect than having it all the

FIGURE 7: Track plan of Dick Grinyer's On30 Stony Creek railroad

same size. Sometimes the dirt and clay are blended together, sometimes they are used on their own. Then I applied a mixture of white glue and water to glue it all down.



The *Stony Creek* Railroad

Track Plan Legend - 12" grid

1. Old shack	9. Old shack	16. Gippsland & North-	22. James Goldman As-
2. Wood shed	10a. Trestle bridge	ern Co-Op	say office
3. Sand tower	10b. Trestle bridge	17. Stony Creek Sea-	23. J.W. Wallace Freight
4. Wood pile	11. Creek	foods	Transfer Co.
5. Coal	12. Engine Shed	18. Old shack	24a. Trestle bridge
6. Mine shaft	13. Main water tank	19. Abandoned shed	24b. Trestle bridge
7. Worker's shed	14. Tool shed	20. Worker's shed	25 Drain outlet
8. Dis-used water tank	15. Empty drum stand	21. Oil Depot	26. Sky backdrop

On30, On3, On2¹/₂?

Standard gauge track is 4' 8¹/₂" between the rails. On30 is O-scale (1/48th full size) but with a gauge of only 30".

To make things more confusing On3 is O-scale but with 3' between the rails!

Sometimes On30 is referred to as On2¹/₂ meaning 2¹/₂ feet (which is 30").

The same conventions apply to HOn30, HOn3, and HOn2¹/₂ but in HO scale, and to Nn3, Sn3, etc.

Of the materials available to simulate water, I prefer to use a two part product called Liquid Gloss, mainly because it gives a high gloss finish just like water, but that can also depend on which way the light hits it, and it can be tinted to suit the color of water in an area.

Trees

Because there are many different ways to make trees for a layout I am always ready to give a new method a try. This time, on Stony Creek, I made the trees from a plant known locally as Sedum Autumn Joy, which I imagine would be readily available at your local plant nursery. It produces a pink colored flower and as it dies off, the stem darkens slightly and the flower head turns dark brown. At this point I harvest the flowers and hang them in an airy place, (the garage is good) to completely dry out. They can remain there for many months, and that gives me a steady supply of material when needed.



When ready to use, I cut the stem to length and check to see if I'm happy with its general appearance, adding a few more branches if needed. I leave the stem its natural color and spray the flower head with a spray adhesive, then sprinkle on Woodland Scenics burnt grass colored ground foam. Next I give it another light spray of adhesive

to seal it. With a little bit of work and imagination you can come up with quite a good looking tree.

Motive Power

On the operating side of things, I have stuck with a standard system instead of going DCC. Generally I'm the only one who operates the layout, and I'm

FIGURE 8: An engineer and his trusty companion delivers a supply of wood for the maintenance crew.

happy to run one train at a time, past the township, through a few tunnels, pick up some carriages, and away we go again. I run a couple of 0-4-2 Porters, a Gas Mechanical, a larger 4-4-0 steam



loco plus a scratchbuilt diesel. Its body is partly HO, with a few additional modifications to bring it up to On30. It started life as an HO scale Proto 2000 Series S1 switcher.

All motive power has been weathered with a few dress up bits and pieces added to give a "backwoods" sort of feel.

“... Another thing I enjoy doing is scratchbuilding small rolling stock, such as my hay wagon, sand car and little utility car ...”

My rolling stock is scratchbuilt, with each unit running on a combination of Bachmann and Steam Era wheel sets. I have also bought a couple of second-hand pieces of HO rolling stock, of which I introduced the top sections to the rubbish bin and made

some slight changes to the bases. I usually use Kadee No. 5 or No. 46 couplers. Another thing I enjoy is scratchbuilding small rolling stock, such as my hay wagon, sand car and little utility car with all the bits and pieces in it, which are a perfect size to go behind a Porter or even a Gas Mechanical.

Structures

While I enjoy operating trains, I admit my main interest is the construction

FIGURE 9: An old weathered Porter moves out to start his track inspection run. In the background the remains of a brush fire smolder away.

side of the hobby. There is certainly nothing wrong with kits, if that's your preference that's fine. However I'm totally into scratchbuilding. I get a lot of enjoyment by starting with raw



FIGURE 10: Three examples of Dick's scratch built On30 rolling stock.

(top left) Hay wagon - fun to build. The hay is balsa strips cut to size, dipped in white glue and covered in fine sawdust.

(left) Sand wagon - This is my own design. It has a false bottom about quarter of an inch under the hatch opening and filled with sand that has been through the sieve a couple of times to make it nice and fine. It has been detailed a bit with the addition of a bucket and spade and numerous nut and bolt castings.

(bottom left) Utility car - This car is used by the workmen to transport their tools and materials to where ever needed.

materials and working on them to see something develop in front of me.

My structures are generally built over a simple wood frame, but sometimes I make a cardboard substructure. As I mentioned earlier, I like my structures to have a bit of a rustic character about them - missing boards and some rust here and there. All timber is pre-stained with a solution of alcohol and artist's ink to give an aged effect. The roofs are usually made from individually laid shingles of model aircraft 0.4mm thick ply or corrugated alloy sheeting. When I'm using the sheeting, I cut it to the required size, and dip it in hydrochloric acid to get rid of the "new look" and this also provides a better surface for glue to adhere.



FIGURE 11: This bush fire could have been disaster for the town.



FIGURE 12: Horace the railway cat stands guard over the next delivery. These bags are actually 1:35 scale sandbags from a military kit.



FIGURE 13 (above) and 14 (below): Click on these images of the Stony Creek layout for interactive panoramas letting you see the railroad in great detail!



About the Author



Dick Grinyer lives in Melbourne Australia with his wife Gwen. A generous redundancy (severance) package from his lifetime employer allowed him to retire early.

He's been a modeler for most of his life starting with model aircraft but shifted to trains about 20 years ago. "Trains" Dick says, "are a great all-weather hobby".

I use a lot of commercially available weathering powders, and even finely ground sticks of pastel from the local craft shop. This is usually applied dry with a brush, or sometimes I mix it with a little alcohol.

The figures on my layout, along with hundreds of the little detail items such as tools and hardware, come from various local and overseas suppliers. I also have a collection of homemade silicon moulds that enable me to make some other detail parts.

All of my structures except one have interior lighting and are individually equipped with a tiny inexpensive variable resistor to adjust the lighting intensity as I desire.

Over time I have collected quite an extensive file of signs from a vast number of sources. Books and the Internet can give a great range of suitable advertising posters, and my camera is with me whenever I'm out and about. You will be surprised at just how many suitable signs can be found in your neighborhood.

As well as traditional advertisements, those "back in 5 min" and "closed for lunch" signs we take for granted can only add to the atmosphere, so don't forget to include them. I believe all types of signs play an

important role in setting the time and place on your layout.

It is always interesting to see what alternative materials other modelers use when making something. As an example, in the locomotive ash pit I used finely chopped ashes from the barbecue. I have seen different ways of making hay-bales, but my method was to cut balsa

strips to size, dip them in PVA (white) glue, then cover them with fine sawdust. On the platform of the Seafood Company, I used sugar to represent blocks of ice. The sacks stacked up opposite the freight station are actually 1:35 scale sandbags, taken from a military accessory kit (see [Figure 12](#)).

The Brush Fire

Something I enjoyed doing was the small burnt-out area on the hill just up

“It is always interesting to see what alternative materials other modelers use when making something ...”

“On the platform of my Seafood Company, I used sugar to represent the ice ...”



FIGURE 15: View of main layout section showing valence and skirting.

from the engine shed. I sprayed the area with flat black enamel paint and included a few small rocks here and there. I collected a small supply of cinders and burnt wood from a bush-fire that went through one of our national parks a couple of years ago and scattered them around the area. I sprayed small sticks from the garden black to represent burnt trunks, then painted a few spots with a touch of red paint. Other places I lightly brushed with white pastel to simulate areas that were still smoldering (see



Figure 11). In general I am very happy with the final result and with the comments from those who have seen it.

Being retired, I am able to spend plenty of time working on my hobby, overall it took me about fourteen months to build Stony Creek to what I once thought was "finished". But even now I am adding or modifying little things here and there, and will probably go on doing so for a long time yet.

Ah Ha! The Search is over!



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– by *Les Halmos*
Photos by the author



Building an Operating Turntable and Roundhouse: My Modular Adventure – Part 2



**Reader
Feedback**
(click here)

Now that I've done the module construction, built the turntable pit, and mounted the New York Railway Supply system, it's time to do the wiring, install the track, and program the NYRS system.

Follow along in part 2 of this series as we go through this one step at a time ...

In the good old days, it seemed like wiring a model railroad was easier – but not really, it just seemed like it! Today with DCC, stationary decoders, sound, and computers you would think the wiring should be easier. Makes me think of when Bill Gates said life gets better with a paperless world. Well guess again: wiring can still get complex and we still use reams of paper.

But to borrow from Confucius, a journey of a thousand wires starts with only one! Or that's what I think he really meant! In our eagerness to get the trains rolling on our layouts,

we often rush the wiring, and live to regret it later. I am sure everyone just loves wiring (what's that I hear... moaning?). I for one have decided that wiring will not be the boss of me!

Part 2 of this series deals a lot with wiring. As you might have guessed, connecting 21 tracks to a sophisticated control system might just get a little complex. Actually, it's connecting 1 track 21 times plus some additional wires for power and communications ... but I'm getting ahead of myself here.

The secret to bullet-proof wiring is planning, and using readily-available products, making it go together simply and allow for easy troubleshooting and maintenance! Doing the wiring in a careful, deliberate manner is a "necessary evil" if this turntable assembly is to work well and not just gather dust from disuse.

Putting identifying marks on all wiring pays off in the long run should you need to troubleshoot an electrical problem or make modifications at a later date.

The wiring differs slightly depending on if you're using DC or DCC control. Because I'm using Digitrax DCC, I'm wiring for DCC. If you are using another DCC System like NCE, Lenz, CVP or another, the components will be different but the wiring should be almost identical. So here we go, one step at the time ...



Figure 1: As we start into Part 2, we'll install the control wiring, the track, the feeders and program the NYRS system.

Covered Material in Parts 1 and 2

In Part 1 (see the October 2009 issue of MRH), I covered:

- Framing
- Roadbed and subroadbed
- Turntable & Roundhouse (Preparation)
- NYRS Control (Hardware installation)

Here in Part 2, I do the:

- Electrical & DCC wiring (Preparation)
- Track installation (ME Rail & CV Ties)
- Final wiring (Track and NYRS APR)
- NYRS Control Programming and Turntable fine tuning

STEP 1: Plan the Control and Track Wiring

First, I figured out where to mount all the components. I use terminal blocks and wire fasteners to organize the wiring (as shown in Figure 1). I determined where to place the DCC components like the DS64 (Digitrax stationary decoder), selected the Tortoise switch machine locations, and decided where to place the solder terminals for track feeders.

According to the Free-mo specifications, all controls need to be accessible from both sides of the module. The NYRS System normally uses only one keypad to control the turntable, but the owner designed a special multiplex board for my requirement. To install this on my module, I had to route a flat cable the entire length of the module without it being in the way of components or feeder wires. This routing is shown on Figure 2 in red.

I used tie wraps with 2 mounting bases (http://www.tiewraps.com/mount-base_medium.html) and some double-stick tape to fix it in place at strategic spots. The red lines show the routing of the flat cable, the blue dots show the feeder locations for the tracks, and the red dots show the feeders for the frogs for each of the three turnouts.

I used eight screw type terminal blocks to manage and keep the wiring neat. TB-1 & TB-2 carry the DCC Main Bus and Auxiliary A/C Bus from the East to the West interface through TB-4 & TB-5 (for locations refer to Figure 2). The DCC bus splits at TB-5 to allow for track feeder wiring, while the Auxiliary A/C Bus goes to TB-4 where it is converted to D/C through a Bridge Rectifier. This is detailed later in Step 10 starting on page 13.

See the Free-mo Electrical Specs sidebar (next page) for more details.

On Figure 2 I also show the location of the NYRS Keypads, PTCIII Controller, APR Relays, and the Digitrax UP5's & DS64 (stationary Decoder).

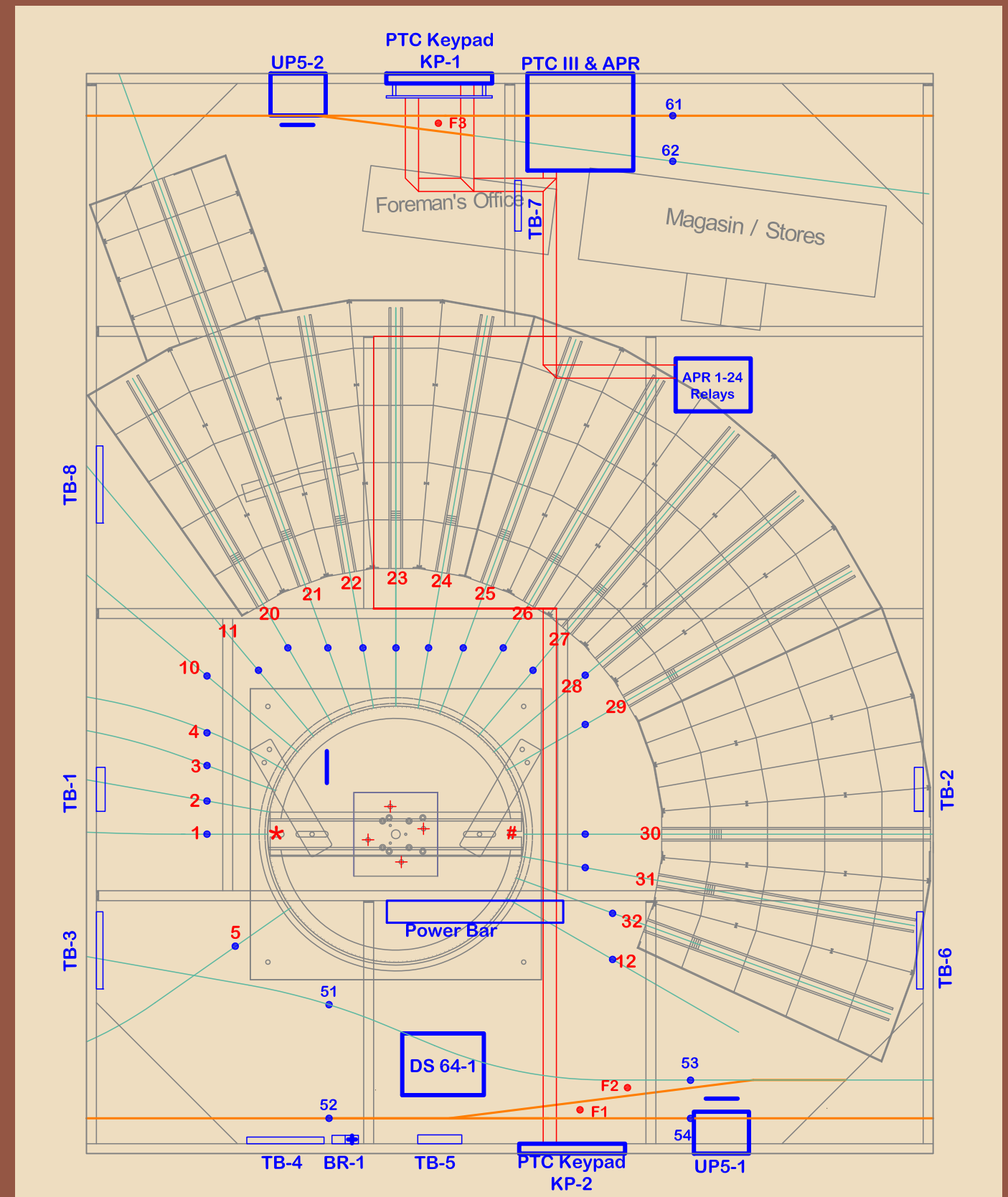


Figure 2: Component placement drawing – the red line shows the routing of the flat cable. It's important to plan this ahead of time so I could avoid drilling holes for the feeder or frog wires right through the flat cable!

Free-mo Electrical Specifications

Let's look at what the Free-mo electrical requirements are. (By the way, I wrote the specs for the Free-Modu-Rail Group based on North American Free-mo standards (<http://www.free-mo.org/>).

1. DCC interface wiring must be such as to allow the module to be inverted when installed as part of a layout.

My module (#3) is part of a 7 module set. Only (#7) which will connect to the Free-mo layout needs double Cinch/Jones connectors.

This set of 7 modules will never be inverted.

2. Main bus must be supplied with Jones plugs on both ends of the module (Figure A).

3. Auxiliary power bus must be supplied throughout the length of the module terminated at both ends by

with a Radio Shack trailer connector (Figure B).

4. Digitrax LocoNet dual RJ12 (UP5 or equivalent) connections must be supplied on both sides of the module (Figure C).

Figure C shows the interconnection between several modules of the same group, a female to female adapter is used instead of a second UP5, if I were to build a single module then I would need to supply two UP5's, one on each side of the module.

For more detailed information on wiring, visit the Free-Modu-Rail Specs and recommended practices section (http://www.free-modu-rail.com/modurail4_E2.htm#Electrical) on the web.

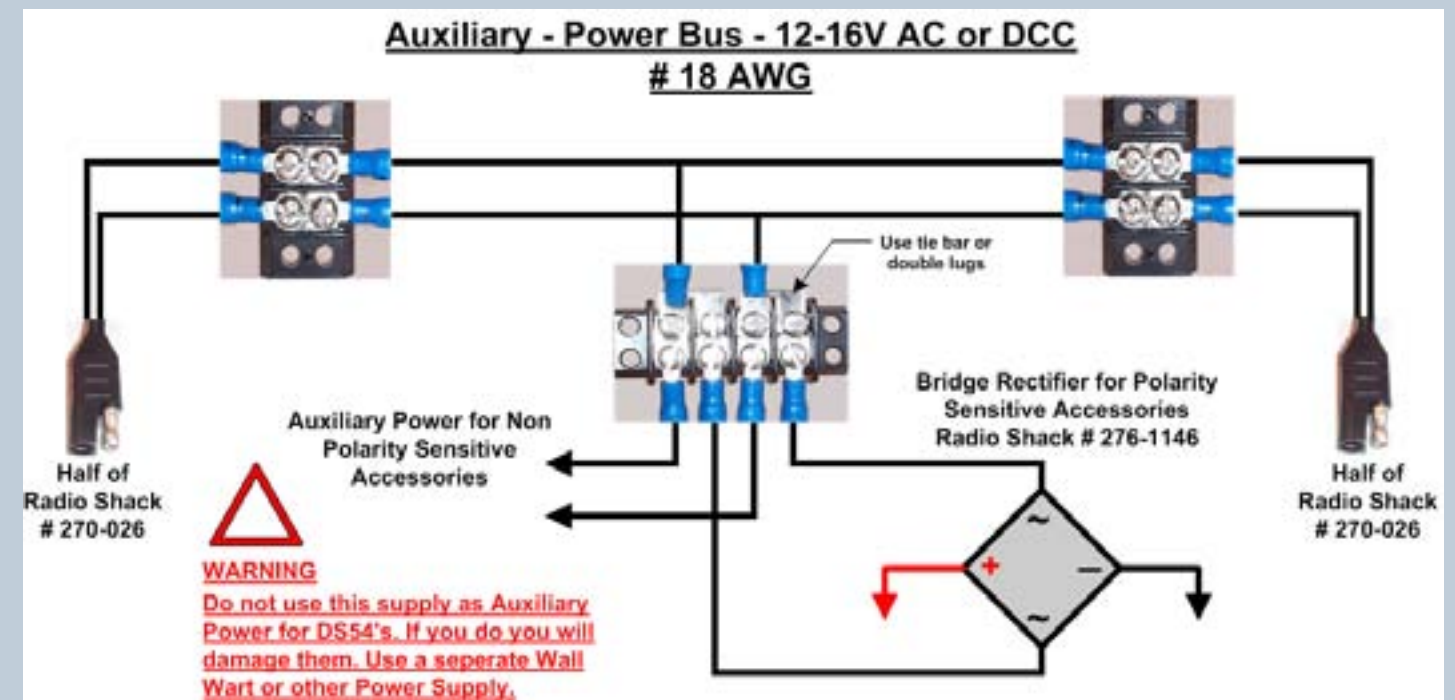


Figure B: Auxiliary - Power bus.

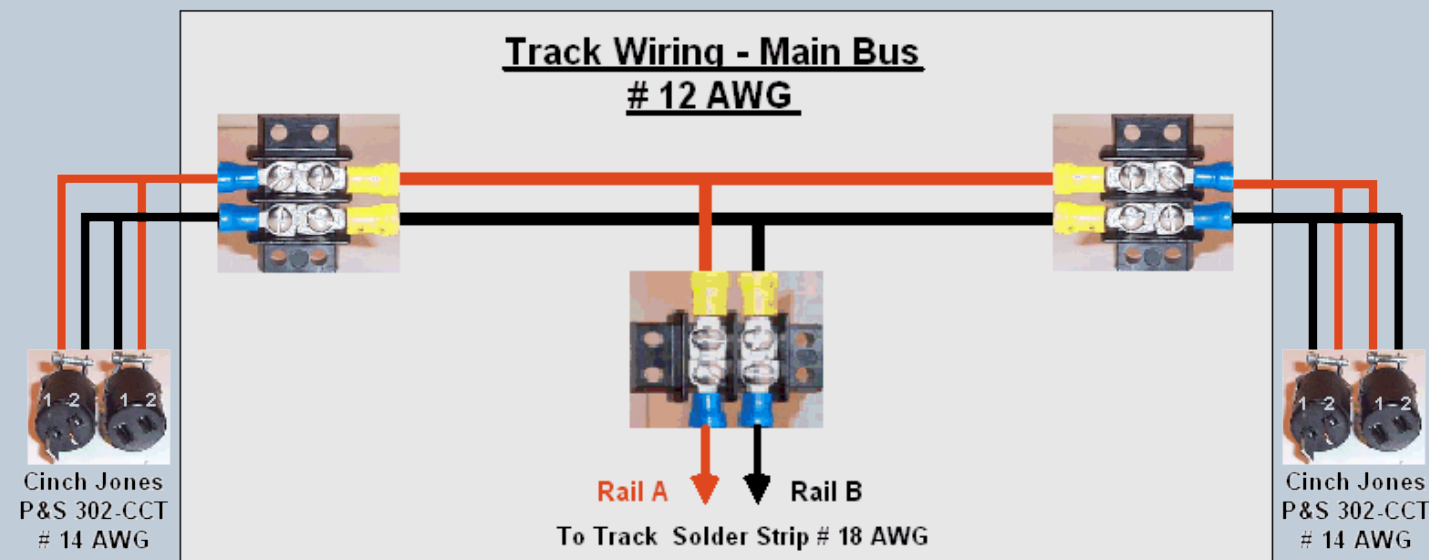


Figure A: Track wiring - Main bus.

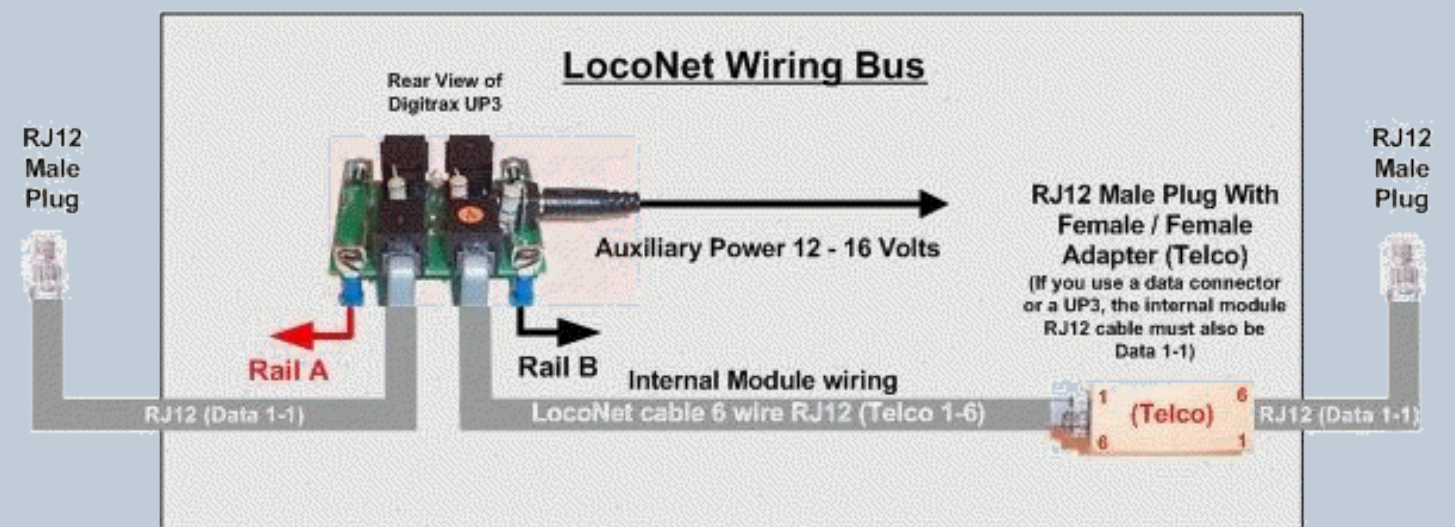


Figure C: LocoNet wiring bus.

STEP 1: Plan the Control and Track Wiring *continued*

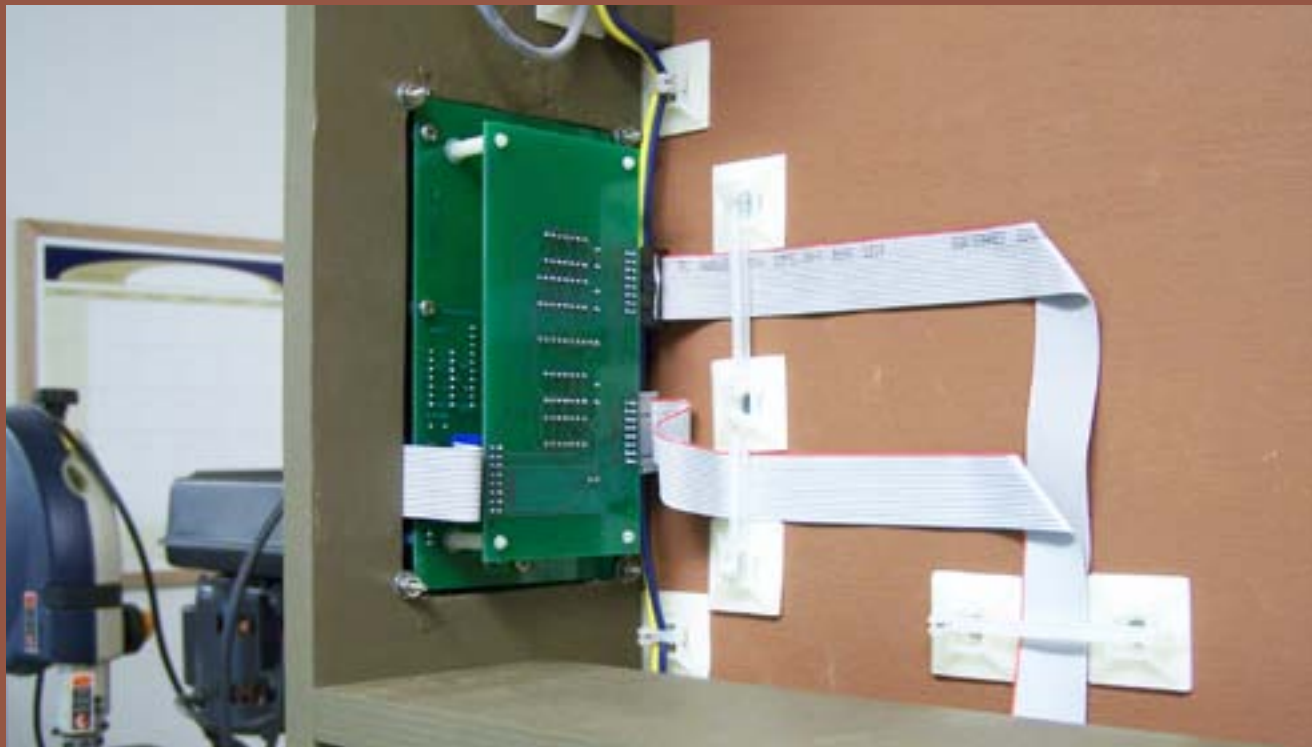


Figure 3: Flat cable from remote keypad.

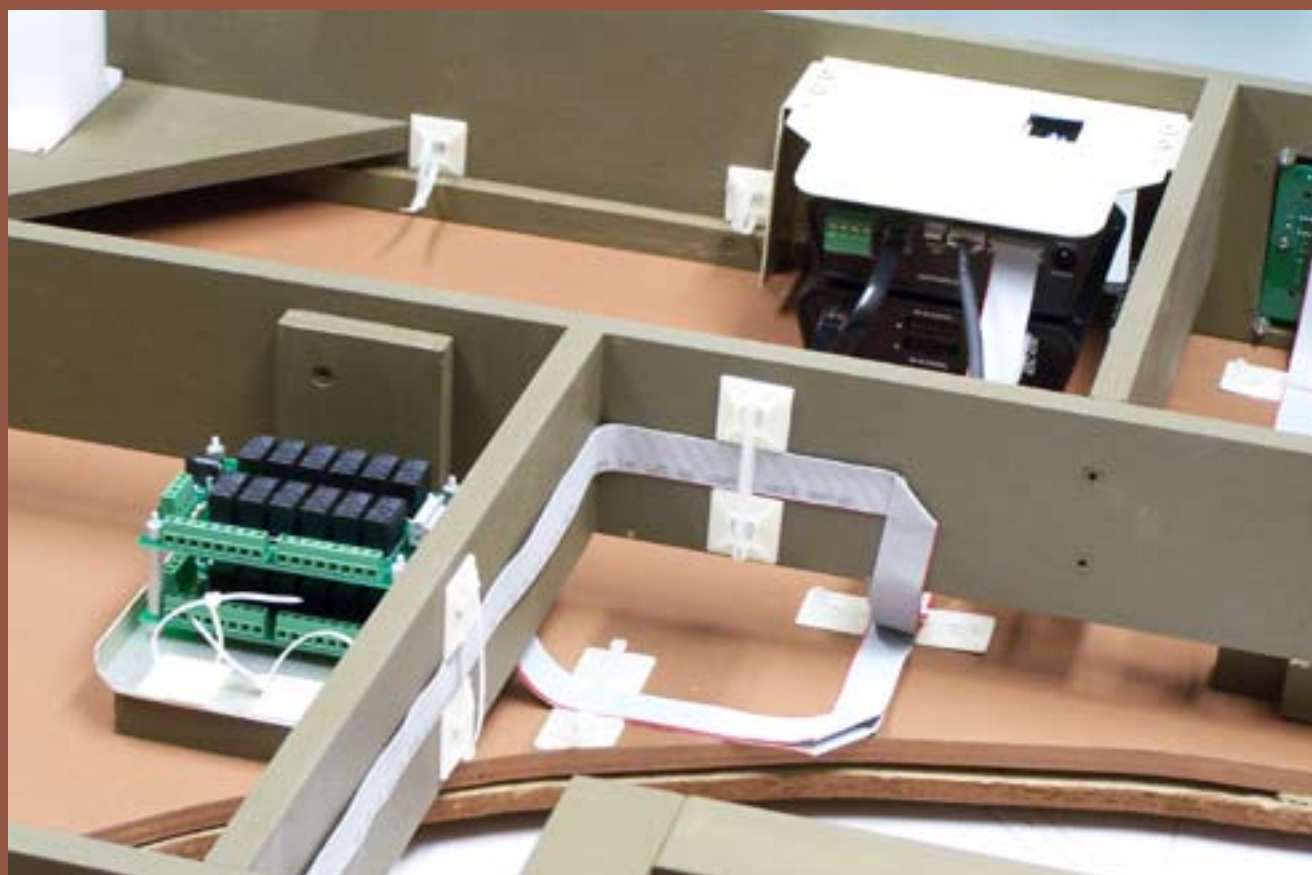


Figure 4: Flat cable from Automatic Power Router to Controller.

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STEP 2: Planning the Turntable Wiring

I used the following identification to differentiate the two rails. One rail is marked "A" and the other "B". For the turntable wiring things may get a little confusing so I identified each rail showing the "A" & "B" locations. See Figure 5. One bridge rail (A) is fed from ring rail and the other (B) from the center shaft.

On Figure 5, I show the orientation of each rail feeder, thanks to the ATR (Automatic Track Reversing) feature of the NYRS Control, which automatically changes polarity at the 90 and 270 degree positions, so I don't need to use a "split rail" wiring scheme. The ring rail (Track A) and center shaft (Track B) are fed through the PTC III C & D terminals, which also take care of the reversing. That's just one of the many great features of this control system.

Note: A well detailed description of the "split rail" turntable wiring can be found on Allan Gartner's (Wiring for DCC) site at the following URL: http://www.wiringfordcc.com/track_2.htm#a44.

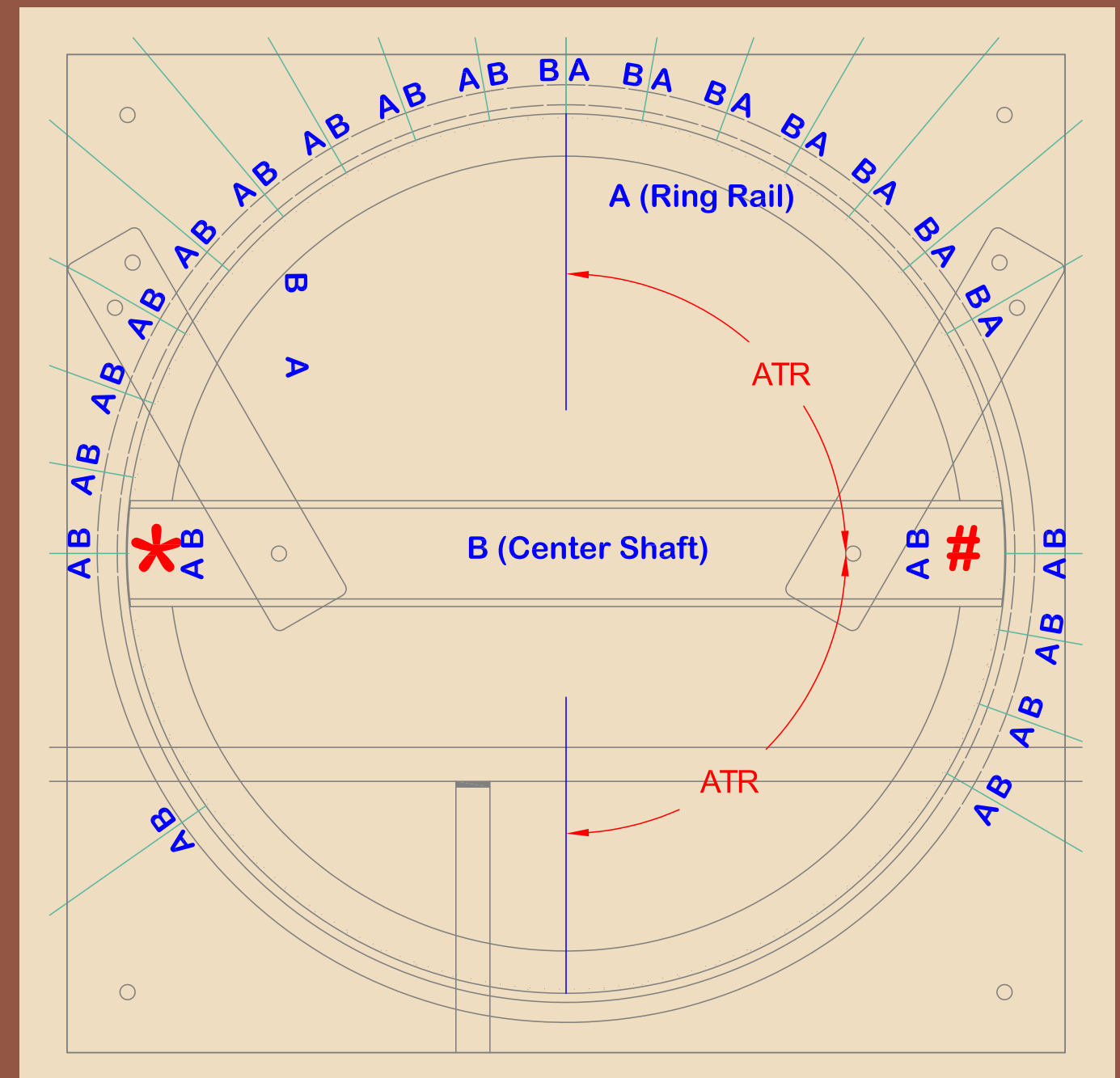


Figure 5: DCC Track wiring & Automatic Track Reversing. Notice the orientation of each feeder is identified: the trucks rolling along the ring rail feed Track A on the bridge and the pivoting center shaft feeds Rail B. The ATR red arrows show the points where the system reverses polarity, this way the bridge, stall and approach A&B rails are always the correct polarity. View of turntable is from above. The red * identifies head end, and the red # identifies the tail end of the bridge.

STEP 3: Doing the Turntable Wiring (Module Underside)

Both the stepper motor wires and the bridge rail feeders plug in, so that the whole turntable assembly can be removed from the module should it be required.



Figure 6: I used the NYRS 6' plug-in extension cable here. Don't try to "roll your own" extension, it just doesn't work, trust me!

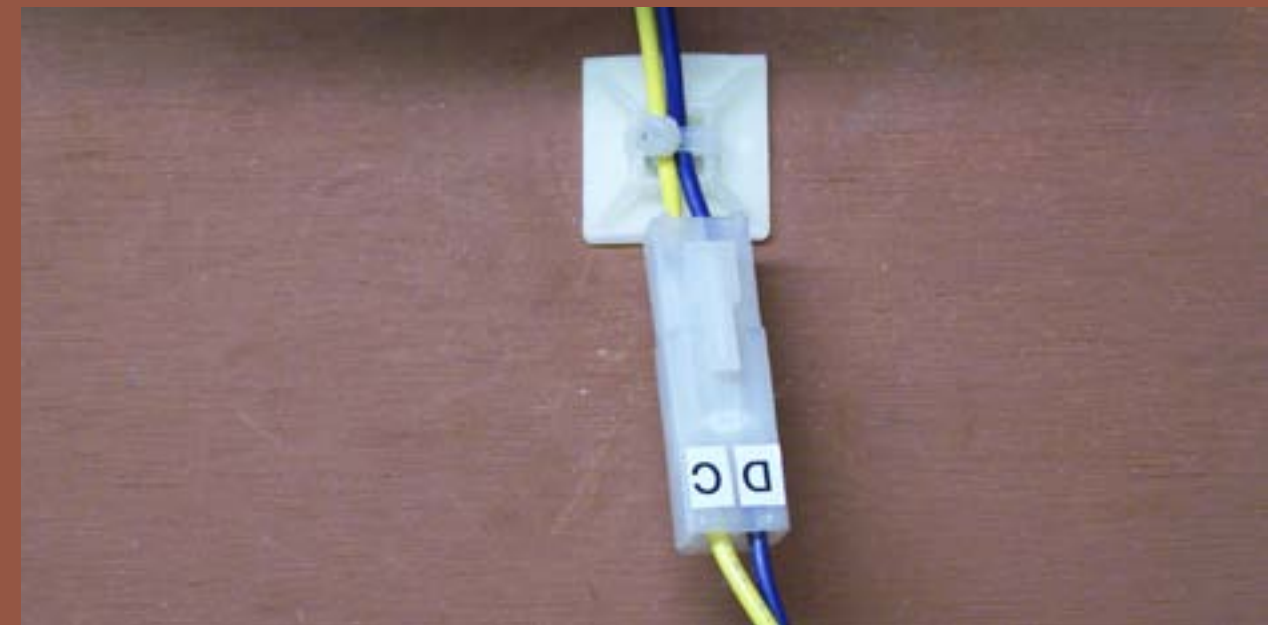


Figure 7: I built a Molex (<http://tinyurl.com/yl4cx99>) 2 pin plug-in connector for the C&D wires coming from the PTCIII. These feed the bridge rails and provide automatic reversing.

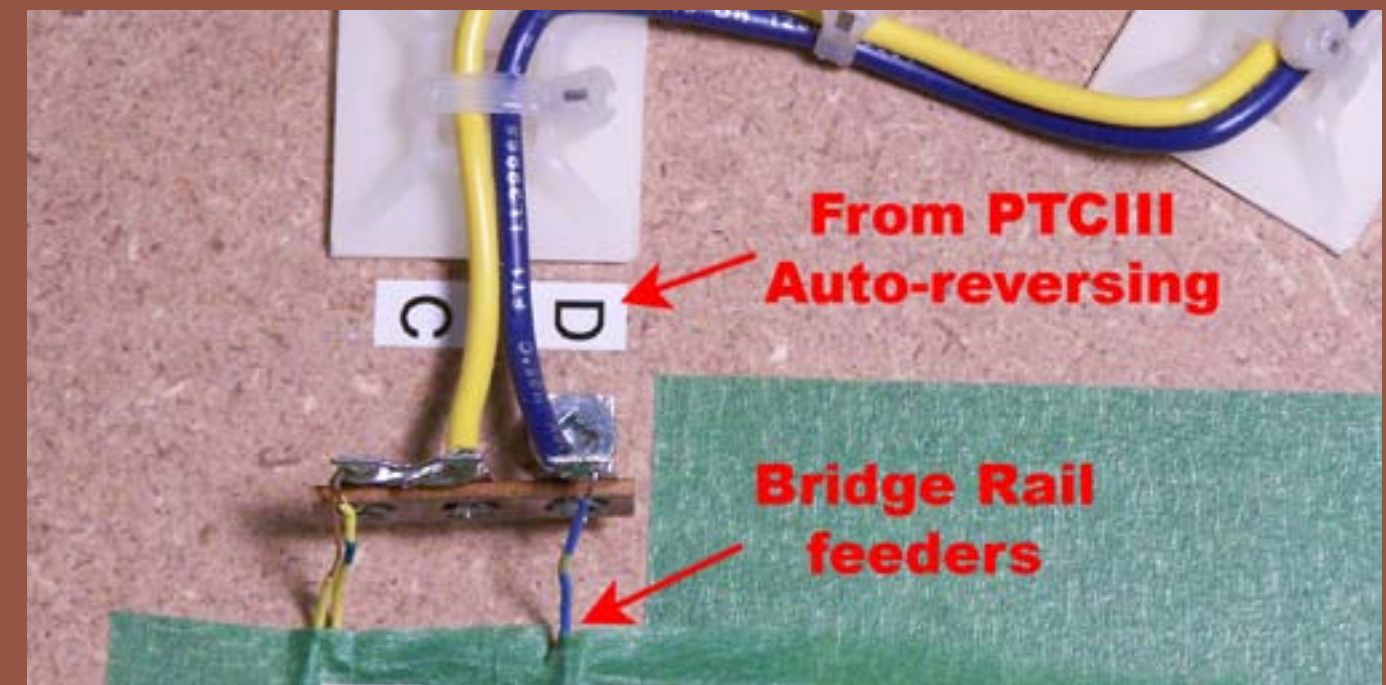


Figure 8: I routed the wiring on the bottom of the turntable base to a solder terminal, Ring Rail "A" & Wiper Rail "B" are soldered to the terminal on the backside of the MDF turntable base. Both rails feed through C & D terminals on PTC III ATR. This way the bridge rails are always powered.

STEP 4: Doing the Turntable Wiring (Pit Rail)

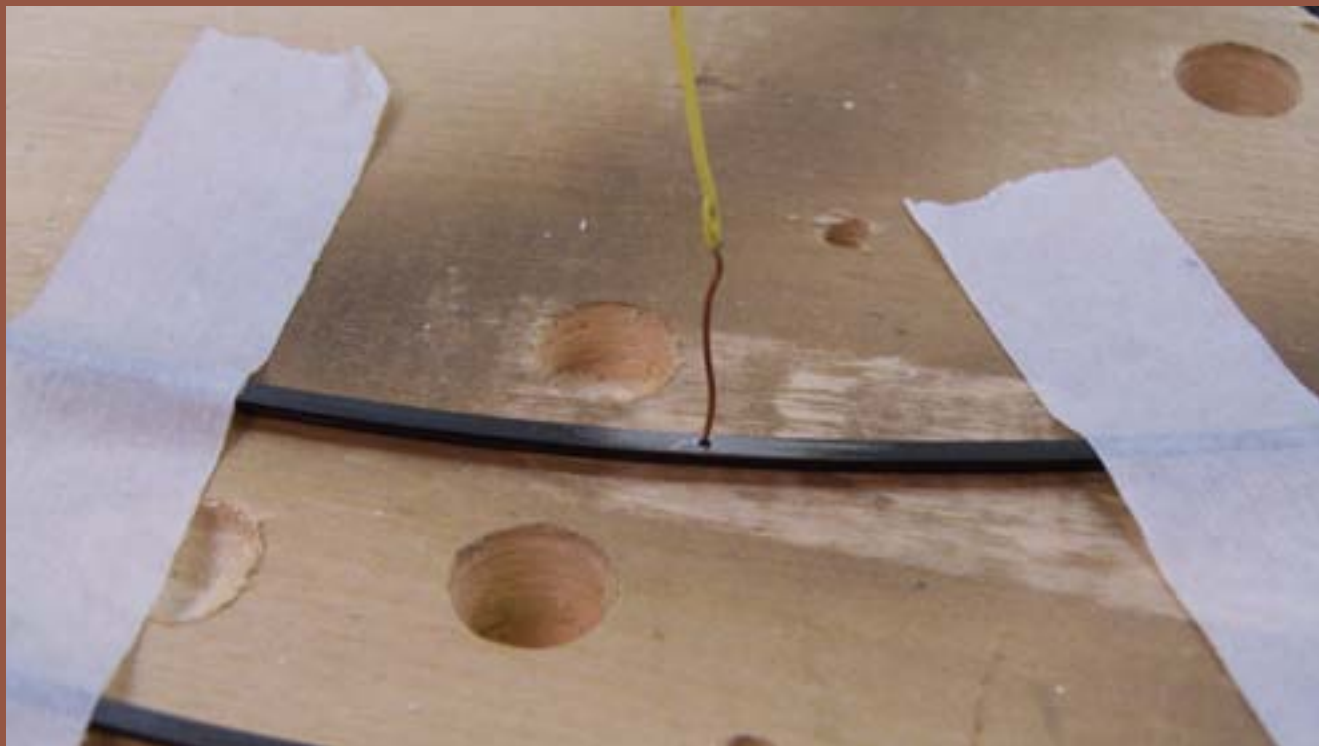


Figure 9: I drilled a hole for a 24 gauge wire in each ring rail then soldered it in place.

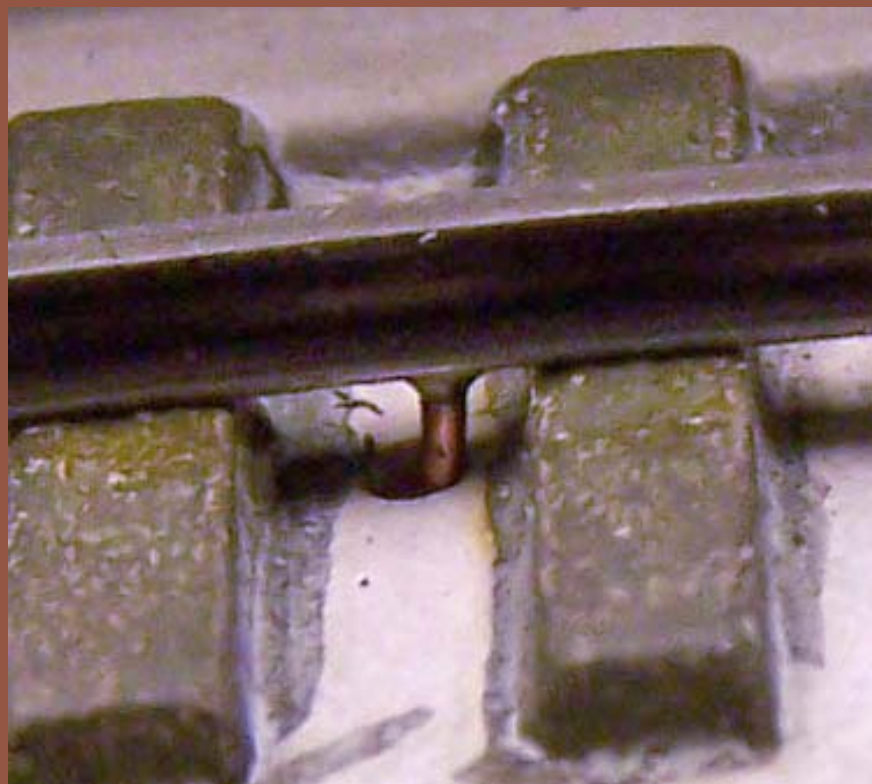


Figure 10: I then threaded the wires through their predrilled holes and secured them on the ties in the pit base.

STEP 5: Doing the Turntable Wiring (Turntable Shaft)



Figure 11: I soldered two 1/4" strips of phosphor bronze to two brass screws and bent them to act as wipers on the turntable shaft which I will use to power rail B of the bridge. I also soldered a wire between the two screws as insurance for a constant wiping action. I adjusted the tension on the phosphor bronze wipers by turning the screws and then added a drop of ACC to the bottom of each screw to secure them in place.

STEP 6: Doing the Turntable Wiring (Turntable Bridge Rail A)

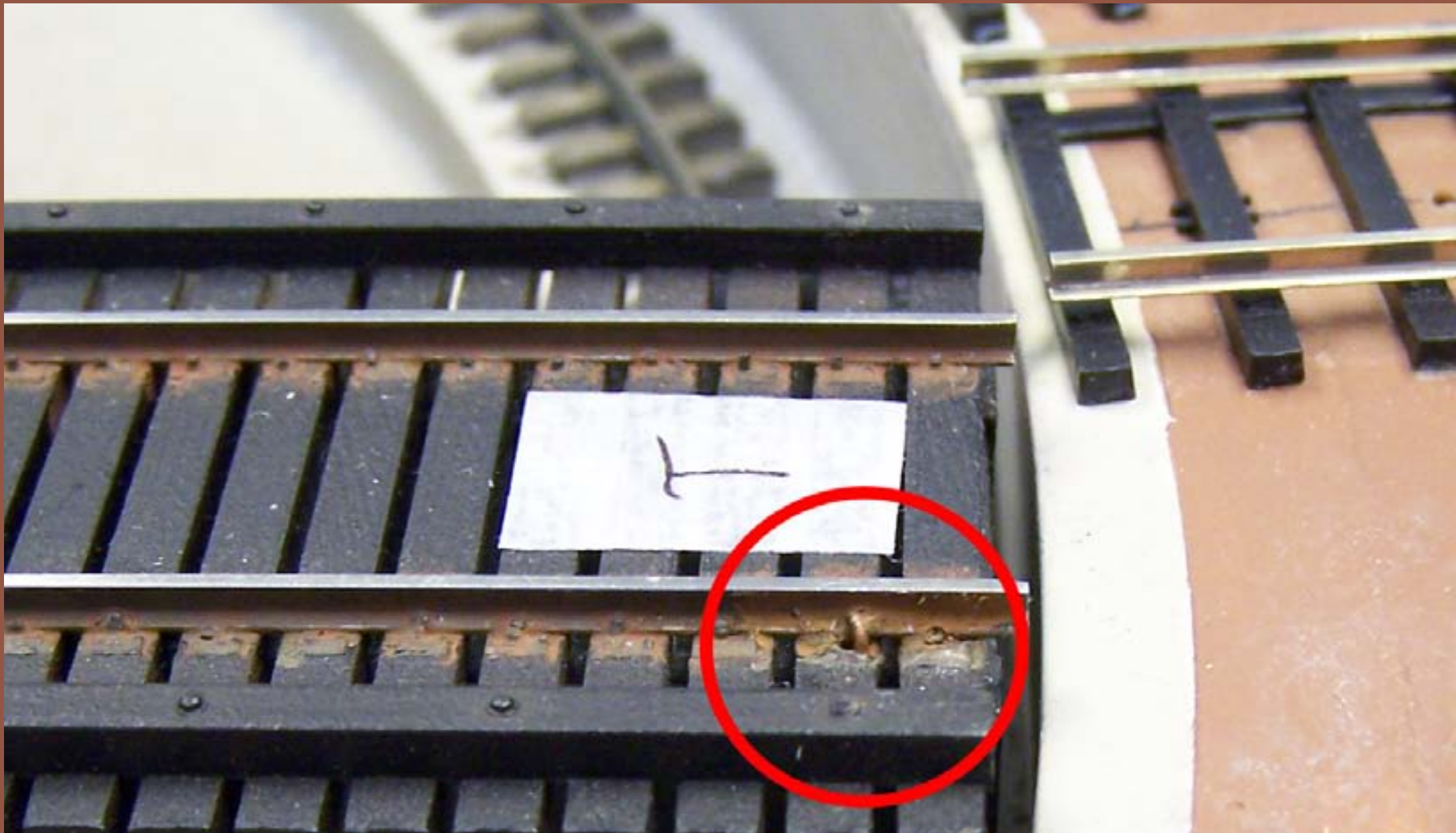


Figure 12: Next I soldered wires from both truck frames to rail A on the bridge (red circle). The “T” identifies the tail end of the bridge. Each truck on both the tail and the head ends has two brass wheels which provide contact for rail A.

STEP 7: Doing the Turntable Wiring (Turntable Bridge Rail B)

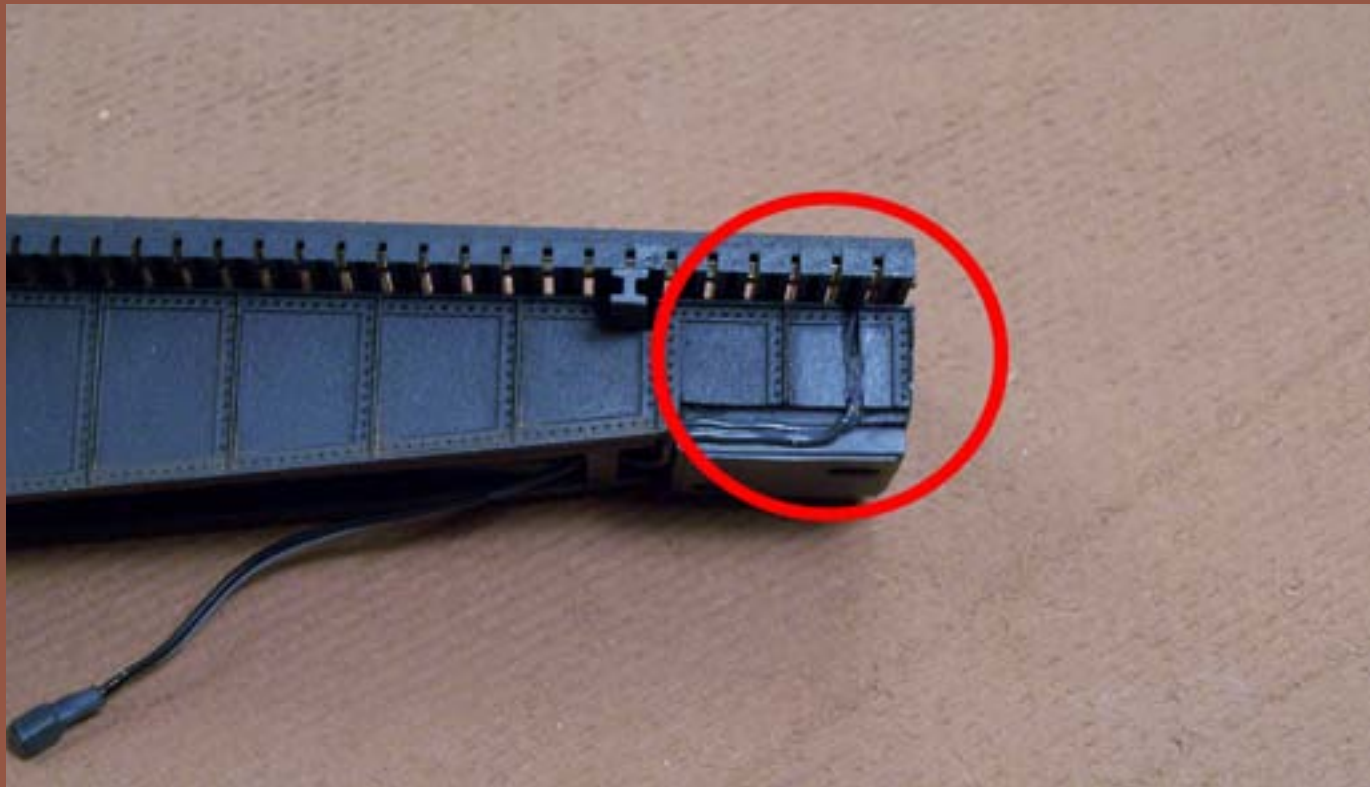
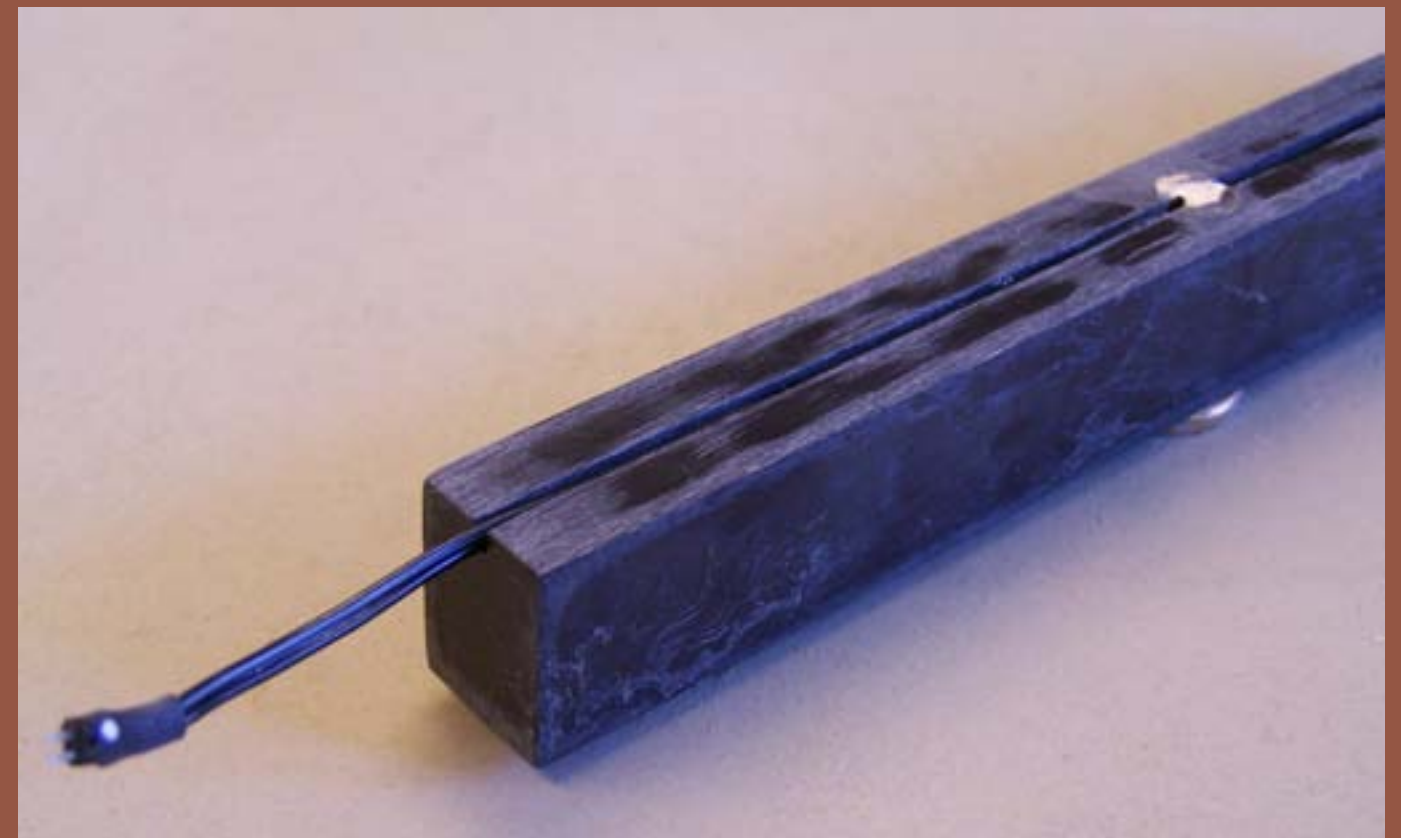


Figure 13: I then soldered a wire from rail B to the female side of a micro connector.



Figures 14, 15: I cut a slot down the center of the center of the bridge shaft and soldered the male end of the micro connector to the steel pivot shaft.

STEP 8: Final Mounting of Turntable Assembly



Figure 16: This is the final resting place of the turntable assembly. Due to the height of the stepper motor exceeding the 6" clearance available on the module, I had to add 2 by 2 pine shims all around it for protection.

STEP 9: Mount Remaining Components

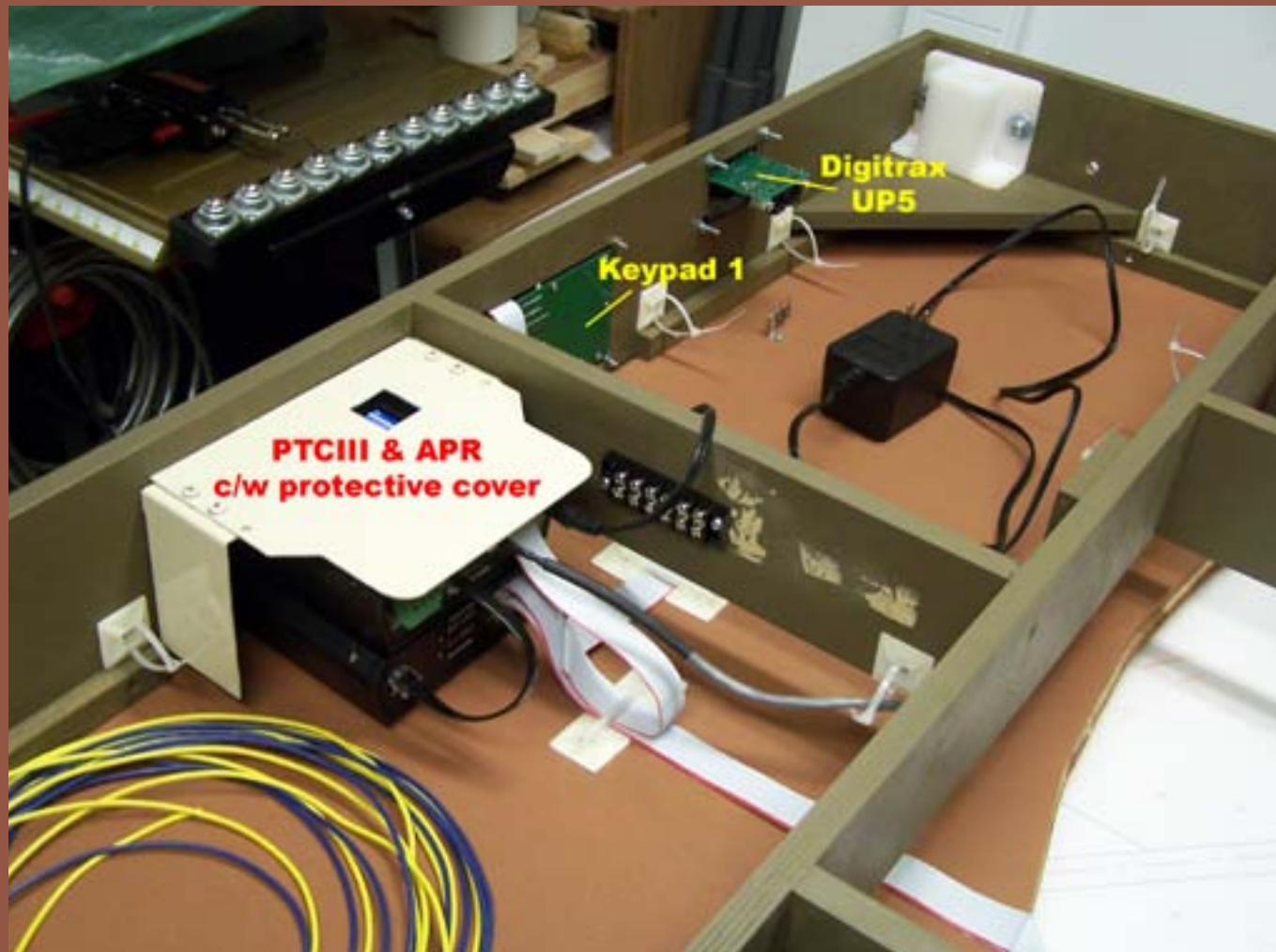


Figure 17: Keypad, Controller and Power router installed. I added the aluminum metal protective shields on the Keypad and UP5 later.



Figure 18: The APR (Automatic Power Router) 24 relays control turns power on or off according to bridge position for approach, storage and stall tracks.

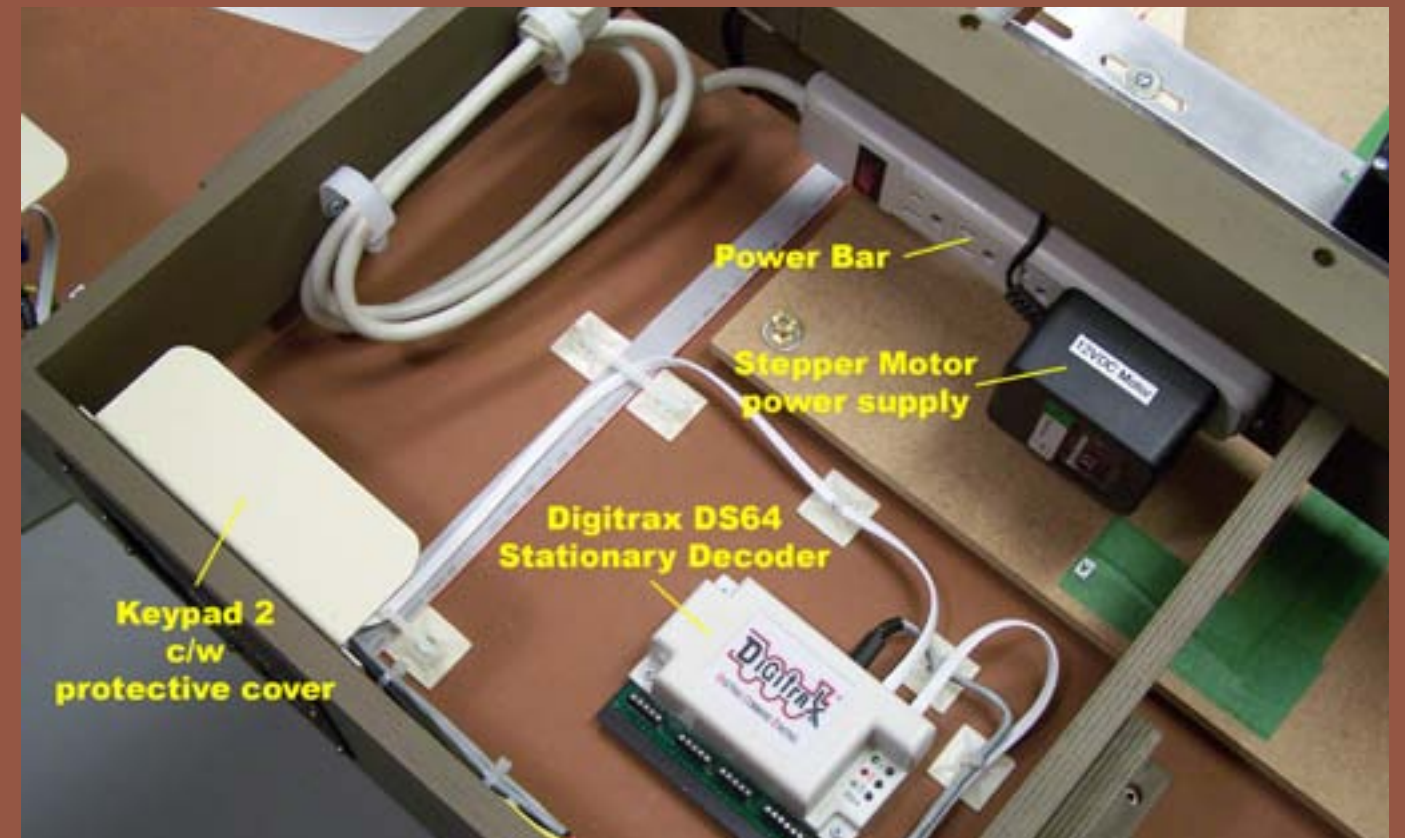


Figure 19: Power Bar, NYRS stepper motor power supply, Digitrax stationary decoder DS64 (remote control for turnouts), keypad and protective cover installed.

STEP 10: Routing the Main DCC Bus

Now that all the components have been installed, the basic preparation for the final wiring is completed. At this point I routed and installed all the wiring required for the DCC Bus: Auxiliary Bus, power, LocoNet (communications) and Free-mo interface wiring which is detailed at the following URL: http://www.free-modu-rail.com/modurail4_E2.htm#Electrical. Neatness and record keeping at this stage pays off in the long run and especially at troubleshooting time. Your components may vary according to the type of DCC you are using; in this series, I am using the Digitrax DCC system.

Using the Free-mo and our own Free-Modu-Rail Specifications, I installed the main DCC bus (12 ga.) red & black wires around the inner edges of the module from the East (TB-2) to the West (TB-1) interfaces through (TB-5) at the middle of the module. I also added an Auxiliary AC bus (16 ga.) dual conductor wire from the same Terminal Blocks as the main DCC bus only through (TB-4). See Figures 20-23 following for details.

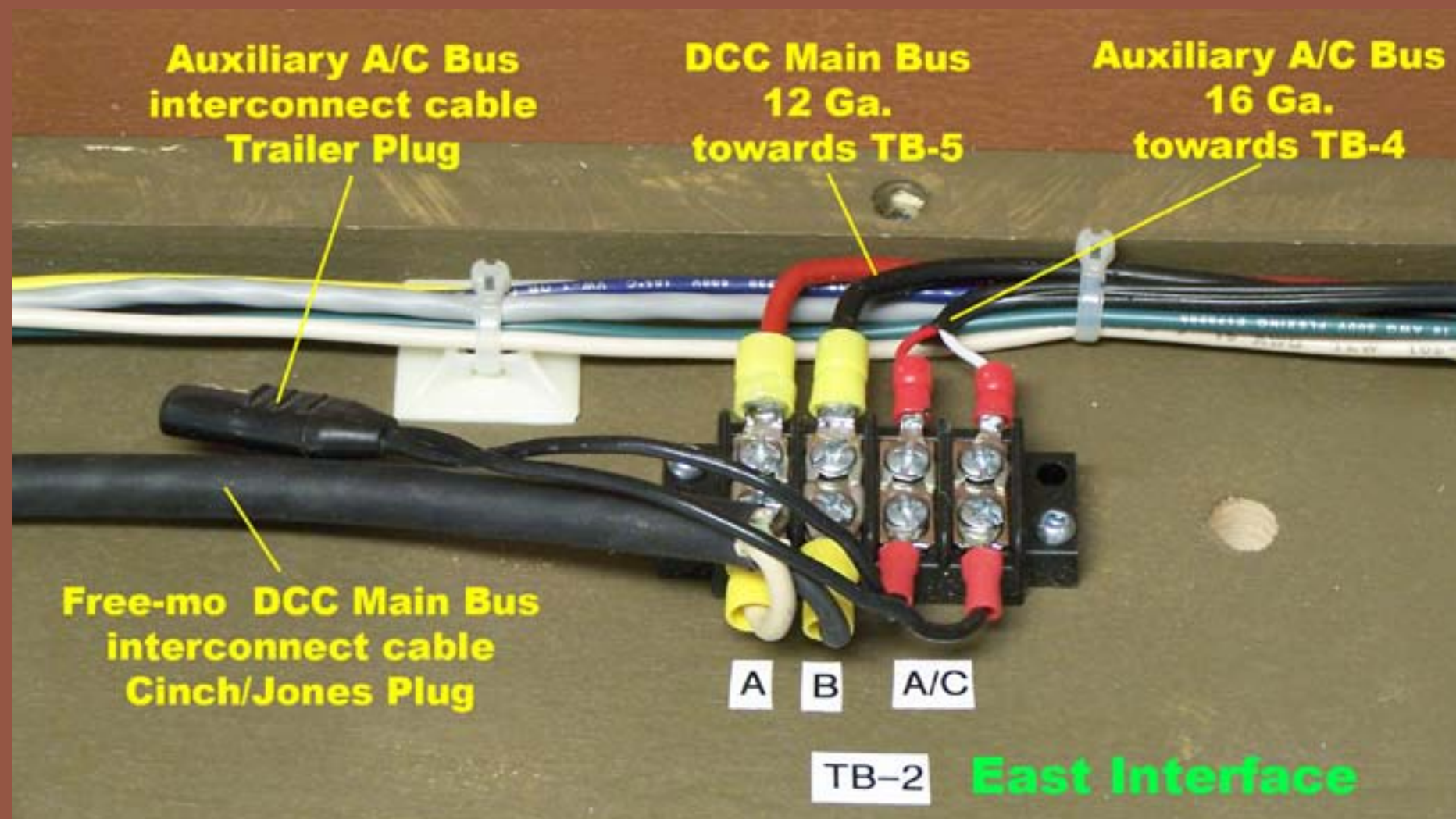


Figure 20: East interface Terminal Block TB-2, DCC Main Bus wiring goes from here to Terminal Block TB-5 and Auxiliary A/C Bus wiring goes to Terminal Block TB-4 both located at the center of the module.

STEP 10: Routing the Main DCC Bus *continued*

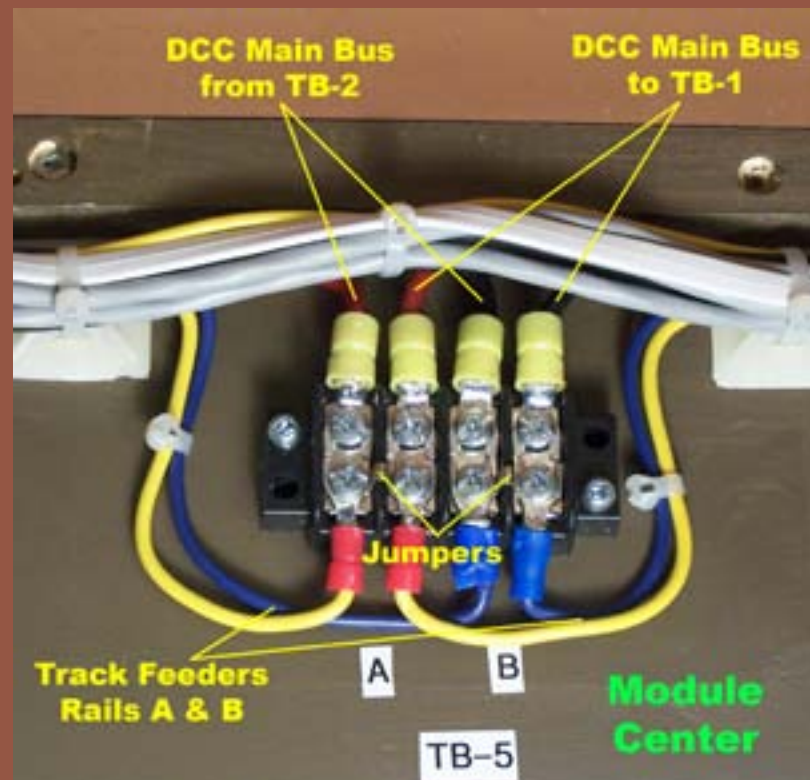


Figure 21: Module Center, Terminal Block TB-5 splits the Main DCC Bus to allow Track Feeders to be connected. Note the jumpers on the Terminal Block, this allows Track Feeders to go to both sides of the module.

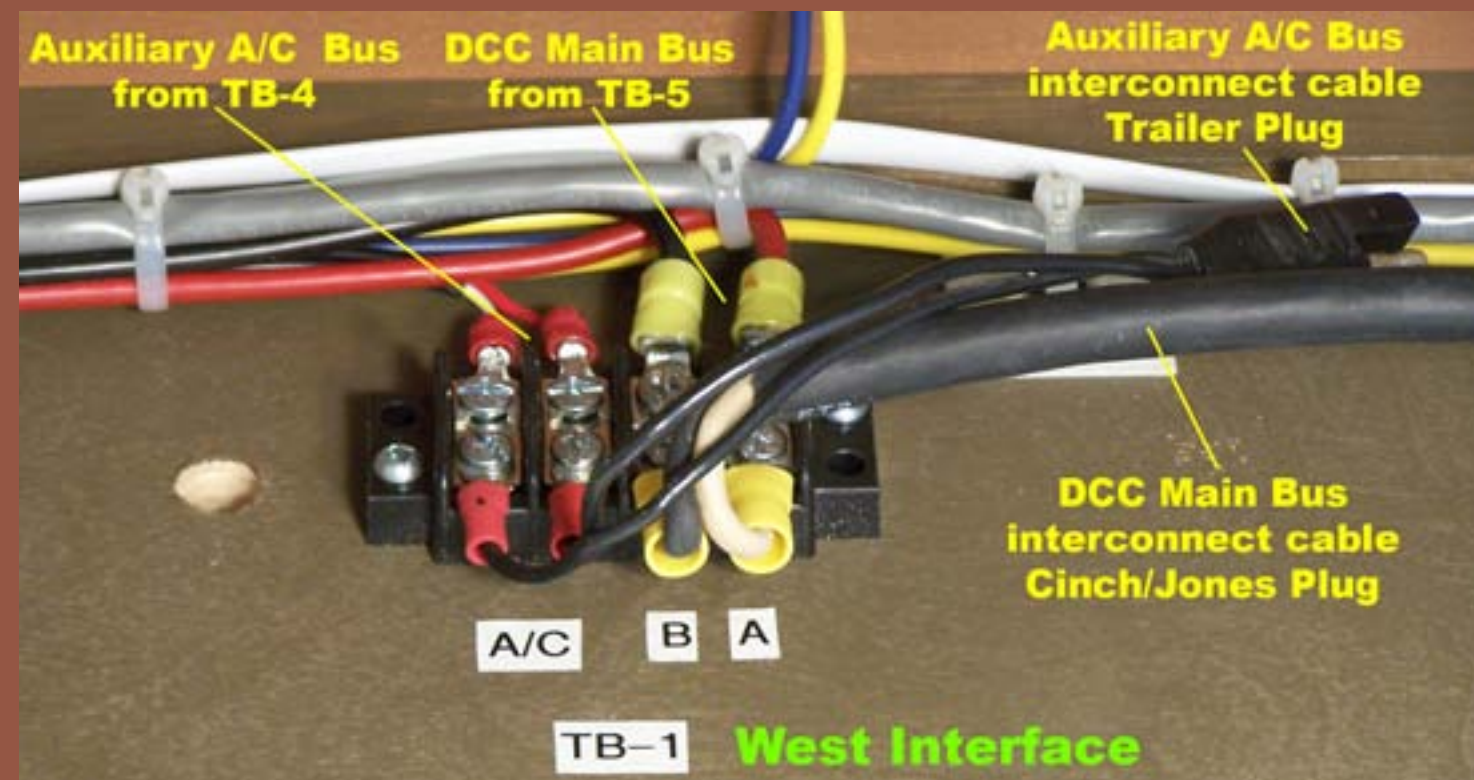


Figure 22: West Interface Terminal Block TB-1, DCC Main Bus wiring comes from Terminal Block TB-5 and Auxiliary A/C Bus from Terminal Block TB-4 located at the center of the module.

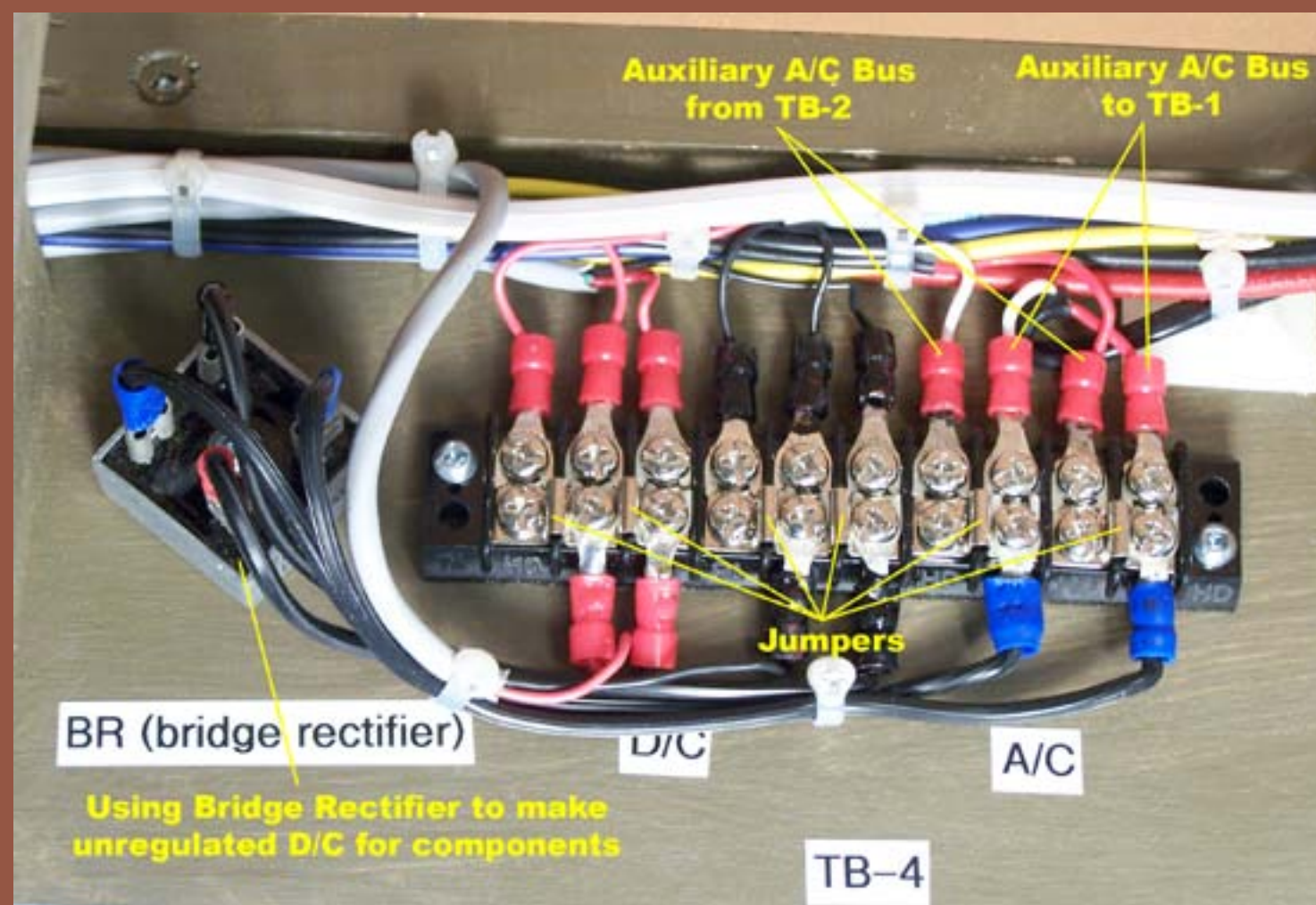


Figure 23: Terminal Block TB-4 is where the Auxiliary A/C bus is converted to D/C with the help of a Bridge Rectifier. Jumpers on the Terminal block allows multiple components to receive D/C current like the UP5's, the DS64 and the APR Relays.

STEP 11: Routing the Rail A and B Feeders

Each (rail A) of the approach and stall tracks is attached directly to the APR (Automatic Power Router Relay Boards). The track power will be turned on and off automatically as the bridge turns and aligns with each approach, storage or stall track. It also prevents your expensive, highly detailed plastic RTR engine (normally I would have said brass engine) biting the dust on the bottom of the pit and turning itself into a kit requiring re-assembly should the bridge not be aligned with the respective track. The (rail B) blue wire on the other hand is daisy chained from one rail to the other.

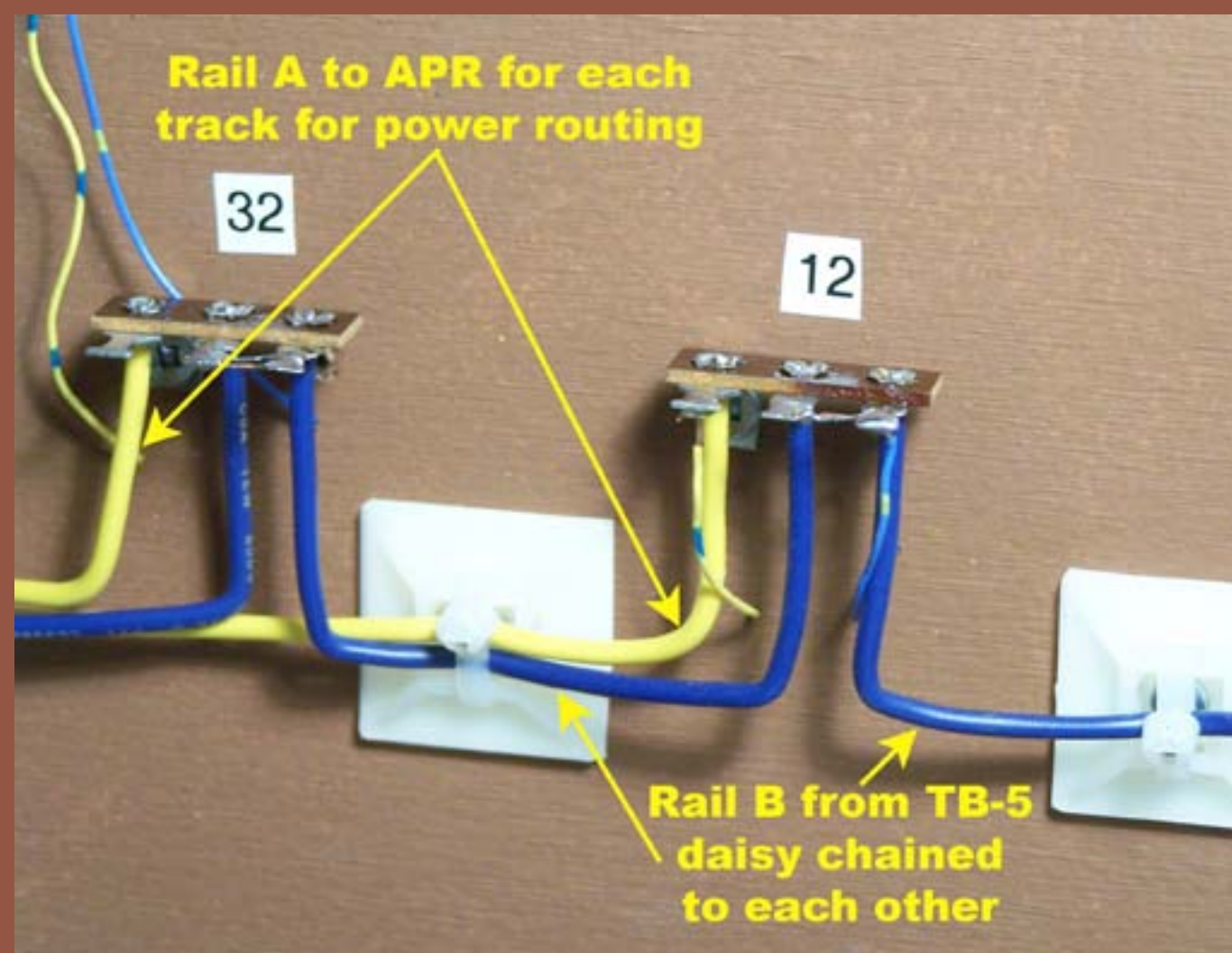


Figure 24: Track feeder wiring.

The LocoNet ([Digitrax Peer to Peer communications network](#)) requires a 6 conductor flat cable see Figure C, page 80 (Free-mo Electrical Specifications) sidebar. This requires installing a UP5 on both East and West interfaces of the module. On modules made up of several sections a female to female adapter is permitted as long as the complete set has UP5's on both interfaces.

In my case I could have used adapters instead of UP5's at both interfaces, but as the module is part of a seven section set, I elected to use UP5's to provide more access points for throttles.

Due to the fact that I am using the Digitrax Full Duplex Radio system, UP5's are not really required. But not all throttles that are used on Free-mo layouts have radio capabilities, so that was my rationale behind using UP5's on each side of the module.

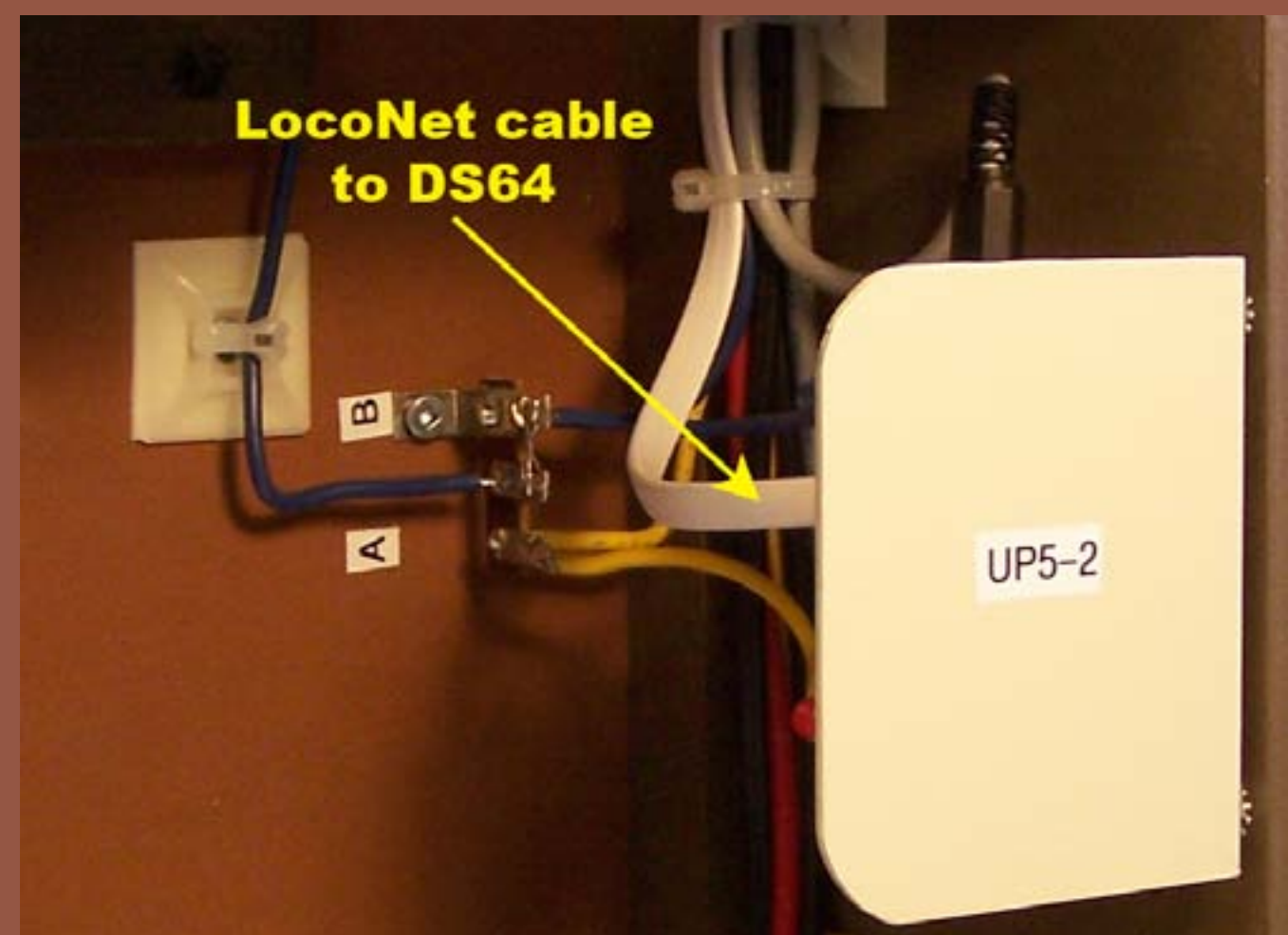


Figure 25: UP5-1 LocoNet cable to one socket in DS-64 and the other socket is for the connecting module.

STEP 11: Routing the Rail A and B Feeders *continued*

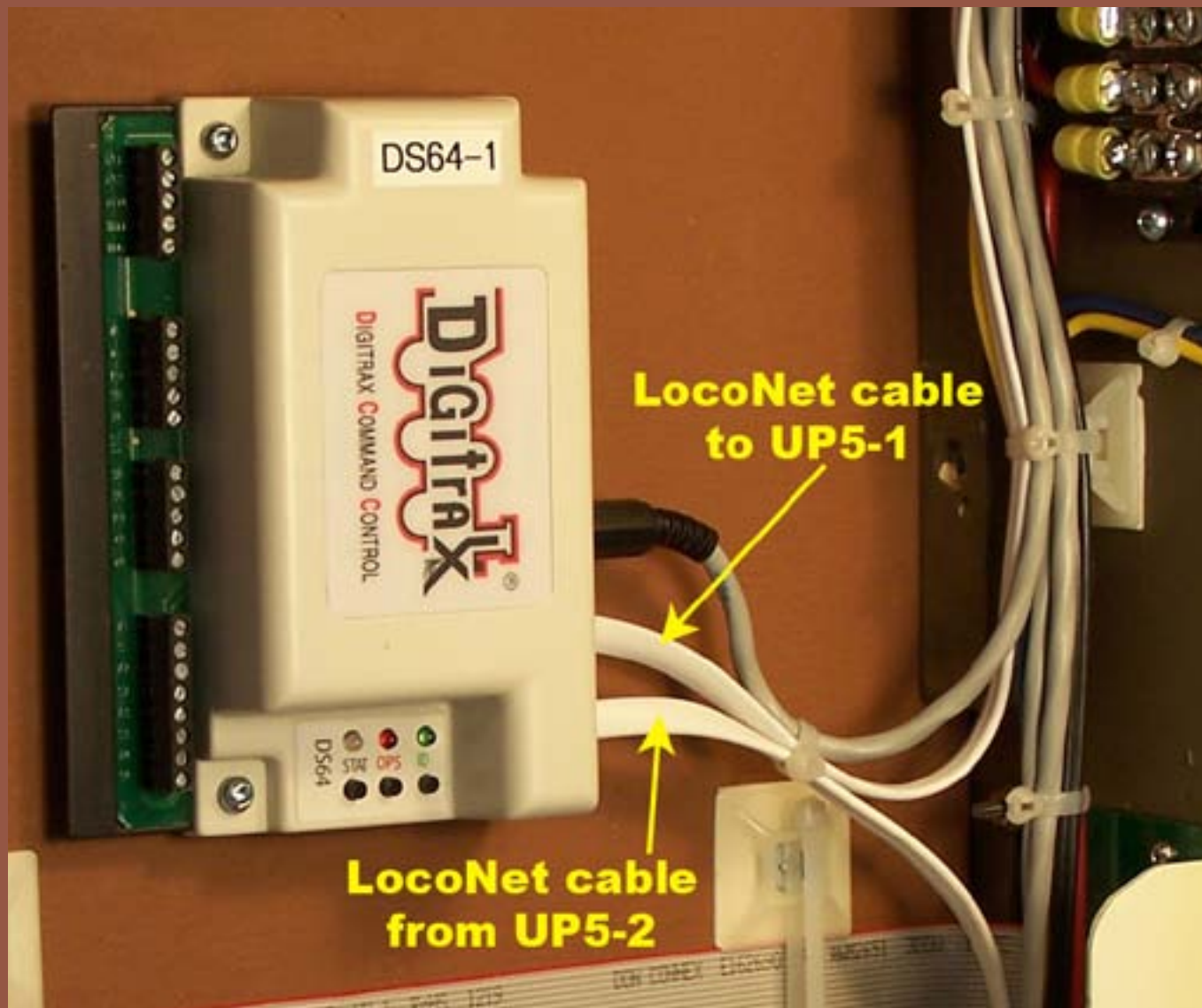


Figure 26: The DS64 has two LocoNet Sockets as opposed to the older DS54 model. This allows for daisy chaining of the communications cable.

That completes the Free-mo requirements for Bus and Track wiring and LocoNet communications wiring. Now let's go on with the tie and track installation.

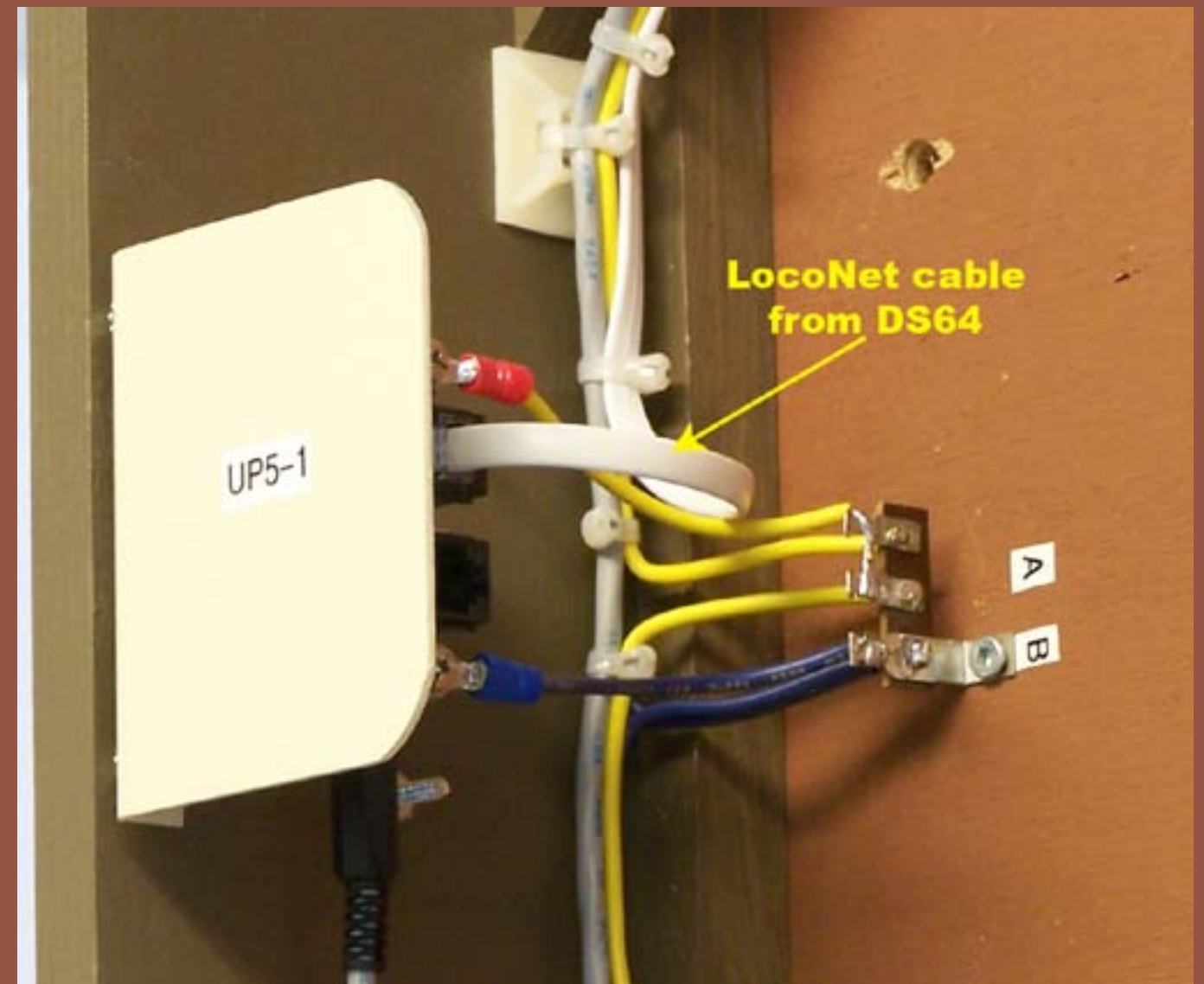


Figure 27: UP5-1 LocoNet cable to one socket from DS-64. The other socket is for the connecting module.

STEP 12: Final Installation of Turntable Ring Rail

Track installation begins with the turntable ring rail, two pieces of ME Code 70 weathered ring rails come with the Diamond Scale Turntable. There are two pieces because the 105' table circumference is longer than a standard 36" length of code 70 rail. The pit has Hydrocal ties with a recess in each tie to facilitate installation: see Figure 28. Before soldering wires to the rails I curved them using the [Fast Tracks](#) tool shown in Figure 29.

I use the [Central Valley](#) recommended 1 part Barge Cement and 2 parts MEK mixture to glue the rails to the pit ties (Figures 30 and 31, next page). This works very well: I simply coat both the ties and the bottom of the rails and let them dry (for approximately 5 minutes). When I lay the rail, it acts somewhat like contact cement but permits adjusting the rail position to a degree.

When I am satisfied with the positioning, I simply apply full strength MEK to the rail and ties to reactivate the barge cement and voila! I get a perfect secure bond. Once I add ballast and matte medium the rail is very secure.

I earlier had problems on our Modular Layout where rail glued down with barge cement would later pop up in some areas and not in others. I noticed that after 3 years, where ballast and a solution of 1 part wet water, 1 part alcohol and 1 part matte medium mix was used to secure the ballast, not a single rail popped up. So after using the CV Barge Cement method to glue the track down, I immediately apply a generous coating of the matte medium mix to the rails and CV ties even before ballasting. Believe it or not, this works! I have used this matte medium trick on our 31 Free-Modu-Rail modules and not had any further issues with rail glued down with Barge Cement later popping up.



Figure 28: Tie recess for rail installation and hole drilled for feeder wire.



Figure 29: Bending the iron with the Fast Tracks rail bender.

STEP 12: Final Installation of Turntable Ring Rail *continued*



Figure 30: Barge Cement and MEK mixture in spill proof base.

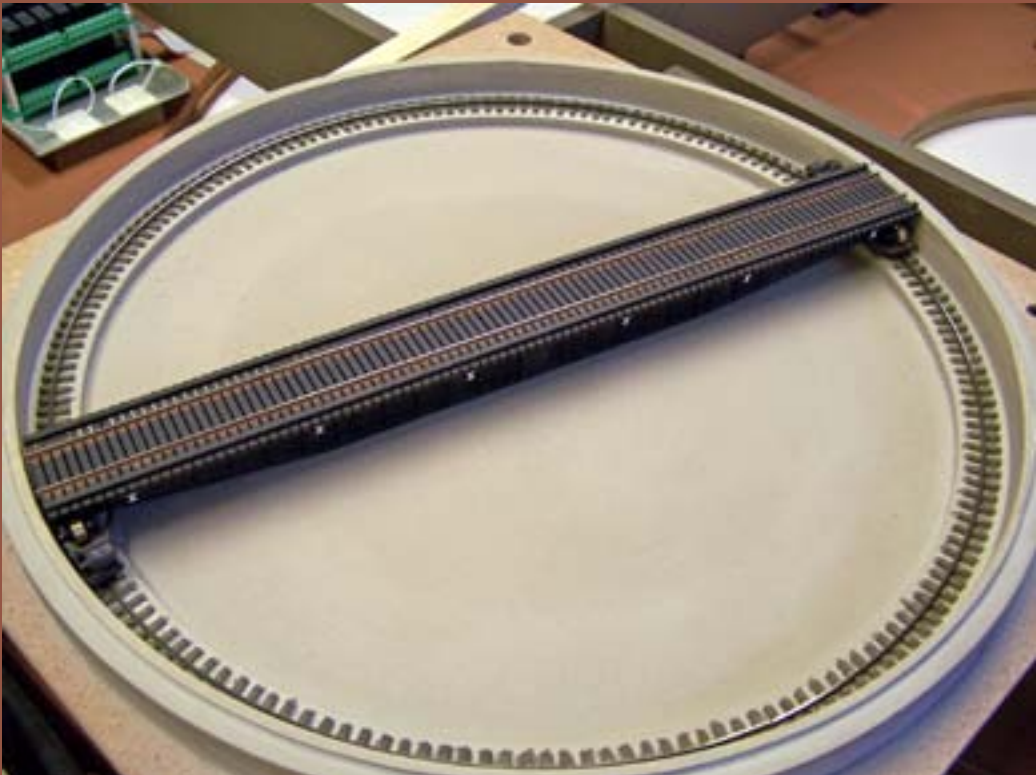
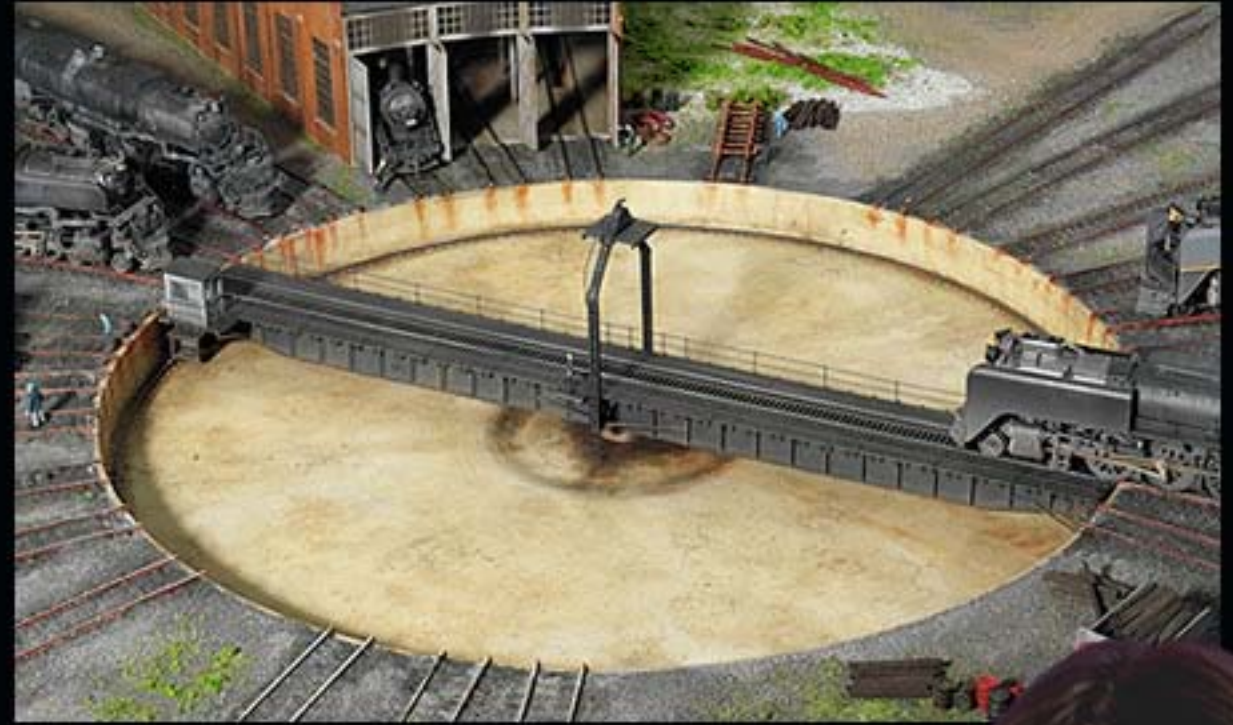


Figure 31: I installed the two ring rails and MEK'd them to re-activate the Barge Cement, then applied a liberal coating of the matte medium solution. Put the bridge assembly in place. I gave it a spin to see if everything ran smoothly, and it did!

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STEP 13: Finish the Roundhouse Base

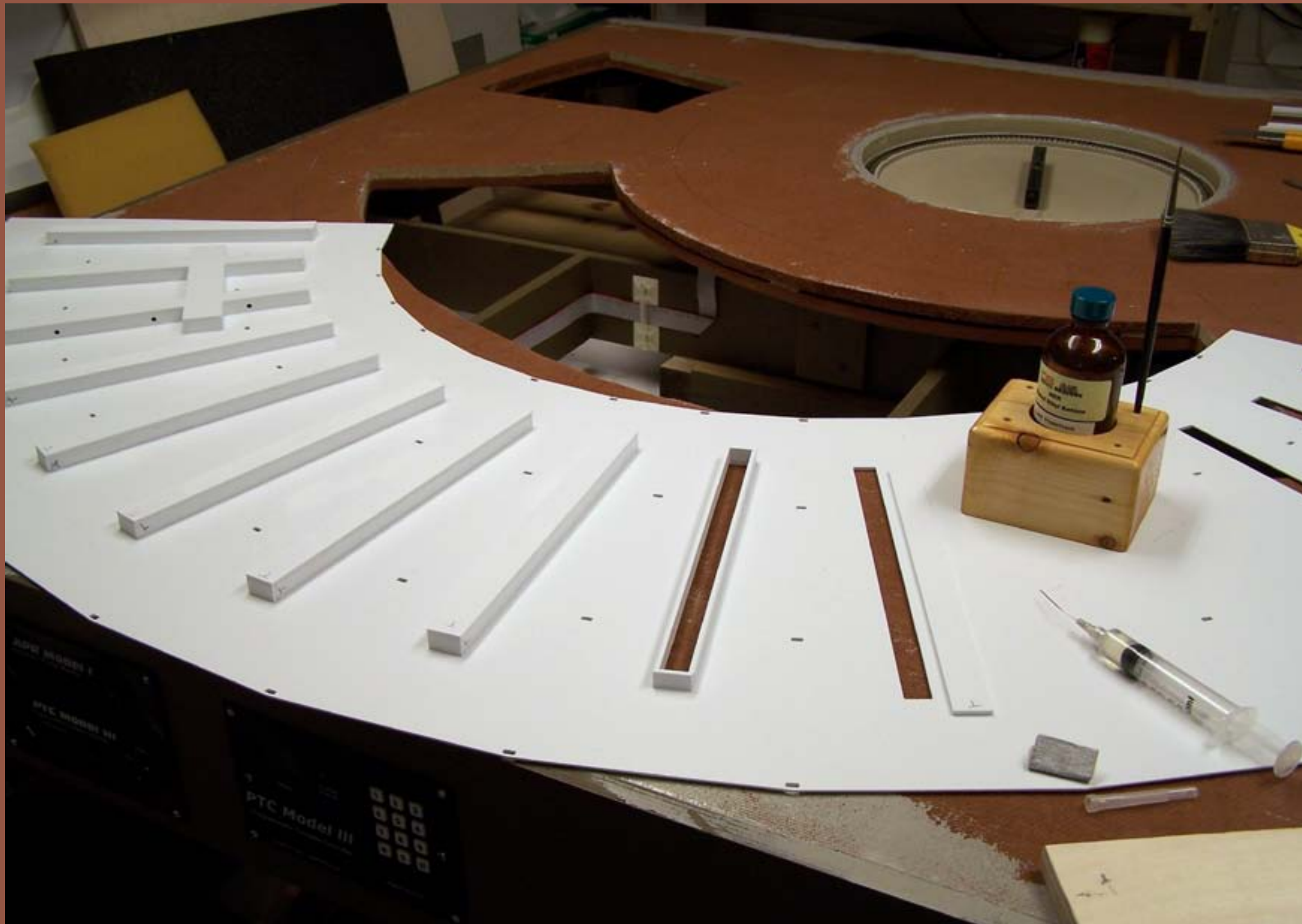


Figure 32: I assembled the pit bottoms and installed the roundhouse base. Each pit consists of four separate pieces, two sides and two ends which I glued to the base with MEK. The large crescent-shaped cut-out in the sub roadbed and roadbed above the styrene roundhouse base in the photo allows clearance for the pits.

STEP 13: Finish the Roundhouse Base *continued*

Figure 33: I painted the roundhouse floor a concrete colour with latex paint which I had prepared by the local hardware store from a swatch of Woodland Scenics concrete pigment. I have a whole pint, which should last me for an entire layout and then some!

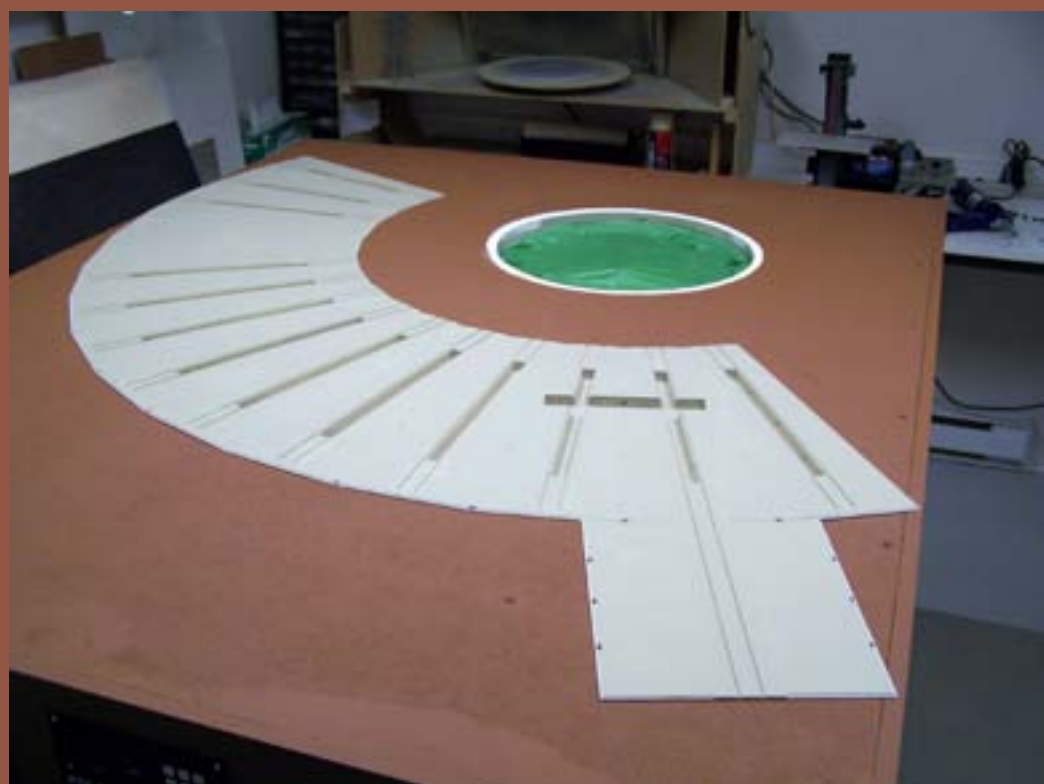


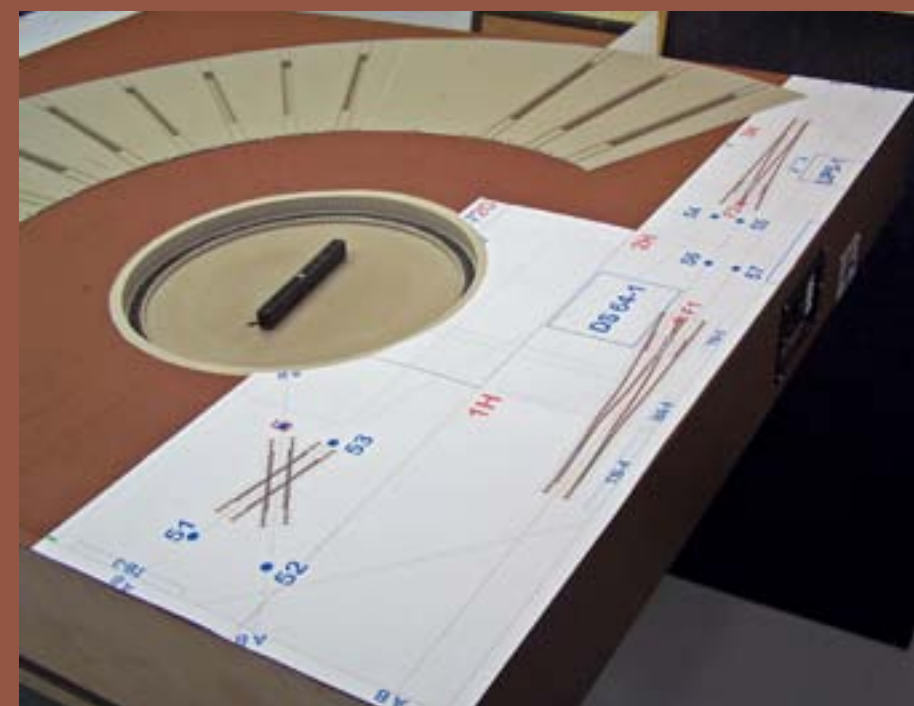
Figure 34: Using the previously drawn lines on the roadbed, I installed the floor into its final position and secured it in place with concrete coloured latex caulk.

STEP 14: Check the Track Locations on the Module

Figure 35: Many methods can be used to determine planned track locations on the full-sized module. Some of these methods only approximate the actual location of turnouts and curves. My favourite approach is to print out my track plan full size onto 11" x 14" legal paper and then tape them together.



Figure 36: I number each paper sheet and once assembled it helps me ensure my track plan fits onto my module. I find this method makes it easy to precisely lay out curves, easements, and turnouts as well as to position buildings. Any



mistakes or modifications can be easily corrected on the drawing before anything is committed – which beats later tearing up track and roadbed. Central Valley tie and turnout strips and Micro Engineering rail are the only track components I use. I like Code 83 for mainline and Code 70 for sidings. I drew the track plan and turnouts using templates provided by Central Valley Works.

STEP 15: Transfer Track Locations to the Module

Figure 37: To transfer the track center from my drawing to the roadbed, I simply cut along the center line, place the cutout on the roadbed and using a Sharpie with the paper as a template, transfer the line.



Figure 38: I know – what a waste of paper. But I'd rather waste paper than tie strips and roadbed (and of course, I recycle all used paper). This area was tricky because the placement of the turnouts did not look right



when I saw it full-sized - so I lifted the tie and turnout strips that I had glued down and repositioned them. This is fairly easy to do and I did not have to scrap any tie or turnout strips in the process due to my method of fastening the tie strips. (Read on to learn the secret!)

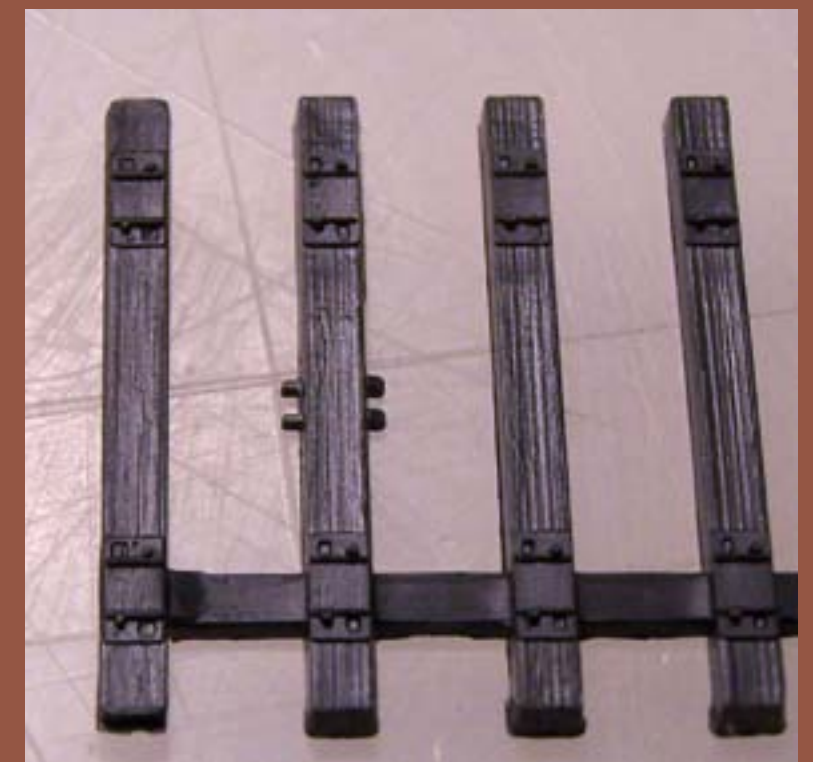
STEP 16: Prepare the Turnout Tie Strips

Central Valley ties strips have small bosses on several tie centers (Figure 40), this comes in handy when positioning them along the centerline (Figures 41 and 42 - Step 17 next page). Gluing the tie strips onto the roadbed using a steel ruler and sighting down the strip assures proper alignment. I also put a piece of 36" rail on one side of the ties and eyeball the alignment; nothing beats the human eye for this.

Figure 39: #8 Turnout Tie Strip, modified to use PC Board ties at strategic places. I have been successfully using this method with my turnouts since 2003.



Figure 40: Siding Tie Strip with positioning bosses. I really like the molded tie plates, the wood grain and the self gauging feature of the CV Ties.



STEP 17: Gluing Down the Tie Strips

Figure 41: With the exception of the 30° Shinohara Crossing where I used latex caulk, I glued all other ties down with LePage Carpenter's yellow glue. First I position all the ties on the center line and then tape the edge with masking tape. I remove the ties and apply a liberal amount of glue, smoothing it out with a brush as shown in Figure 42. I carefully place the tie strip into its final position, pin the strip down with push pins, and then remove the masking tape.



Figure 42: Spreading the glue evenly using a brush.

I secure the strips with push pins until the glue dries, Figures 42-44 (see this page and subsequent pages) show this procedure quite clearly. The Central Valley ties have hollow space below each tie (as shown in Figure 45), which allows the glue to creep in under and makes for a more secure bond. This method has advantages and disadvantages. As for the advantages: if any changes need to be made it's a simple matter to lift the (Styrene) tie strips with a putty knife; they lift up quite easily without any damage. As for the disadvantages: the tie strips can come loose if disturbed (I explain how to counteract this below).

Not all model companies' ties are the same thickness – see the sidebar *Dealing with different tie thicknesses* (page 26) for how I get the different kinds of tie strips and PC board ties to all match.



Figure 43: Remove masking tape, install turnout strip on center line and secure with push pins between the ties.

STEP 17: Gluing Down the Tie Strips *continued*



Figure 44: Masking tape removed – the tie strips remain pinned down while waiting for glue to dry.



Figure 45: Bottom of CV tie strip showing hollow space.

Dealing with Different Tie Thicknesses

One thing I had to deal with when installing CV tie strips is tie thickness “transitions”. There are transitions from mainline to siding, transitions from turnout to either siding or mainline, and places where I use PC board ties for extra strength and durability.

All CV ties and PC board ties are not created equal. Shimming ties is required so that when laying rail the track has no sudden drops or bumps.

I shim the thinner ties by adding one or more strips of masking tape to the bottom of each tie. At transitions between mainline and sidings, I shim a certain quantity of siding ties to make for a smooth transition. I also use several PC board ties at module ends and on all turnouts at strategic points. The PC board ties are the

thinnest of them all, so they must be shimmed!

I measured each type of tie with my trusty caliper. Measure the CV ties where the rail will sit, between the moulded tie plates. Figures A-D show the differences in thickness.



Figure B. CV mainline tie is the thickest.



Figure C. CV siding tie is thinner.

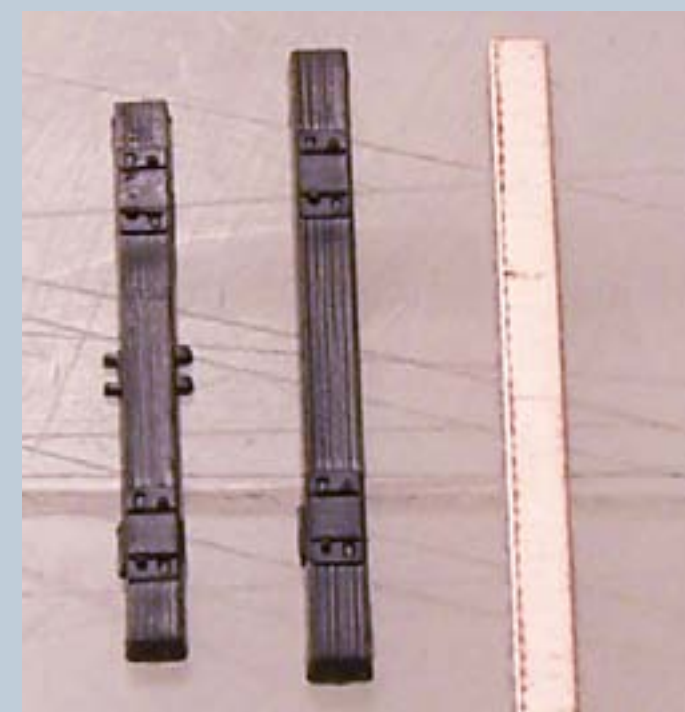


Figure A. CV siding, CV mainline, and PC Board ties.



Figure D. PC Board tie is the thinnest.

STEP 18: Install Stall and Turntable Lead Tracks



Figure 46: Use a straight edge to line up ties.

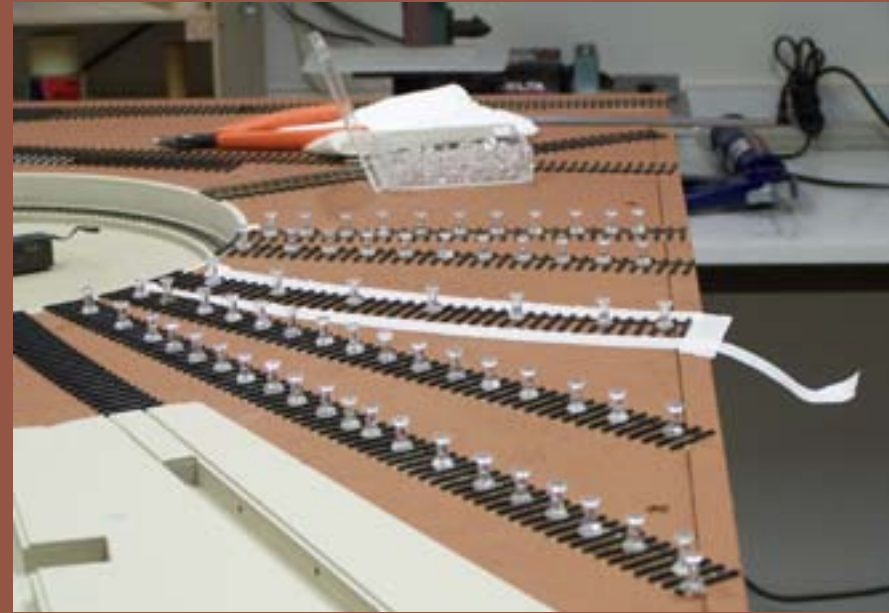


Figure 47: Install ties on center line and mask around them.



Figure 48: Apply a liberal amount of LePage yellow glue and smooth out with a brush.



Figure 49: Remove masking tape and replace tie strip on centerline.

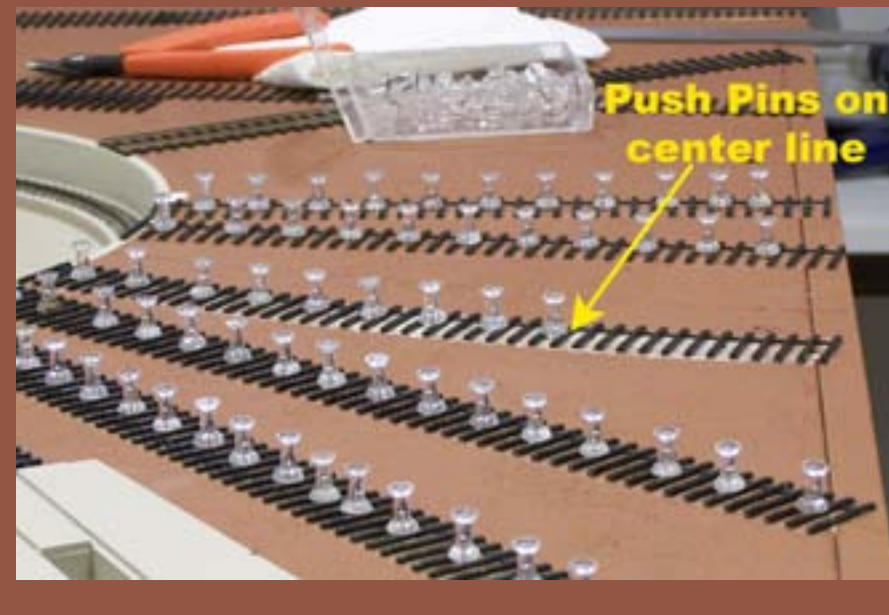


Figure 50: Once ties are aligned use push pins to hold everything in place.



Figure 51: For curved tie strips, sight down using a mirror and adjust if necessary. Once completed let everything dry for several hours.

STEP 19: Prepare and Install PC Board Ties

Next I have to prepare and install the PC board ties at all critical places, for example at module ends and on all turnouts. Figure 52 shows where some CV ties were omitted and will be replaced by PC board ties.

Figure 53 shows where the PC board ties are placed on the module. Doing this insures that the rail will not lift if accidentally snagged. This is where it the rails will connect to the adjacent module. Of course I take precautions when moving the module to protect these ends.

These PC board ties usually have one side that is slightly burred where they were sheared. I sand all edges. Be careful and use gloves because you can get hard to remove fiberglass shards under your skin. Ask me how I know...

Once sanded, I remove most of the foil with a file and leave only the “tie plate” part to solder to (See Figure 56 on next page). Maybe I’m a little anal about filling my PC board ties – but fear not, I don’t believe it’s contagious.

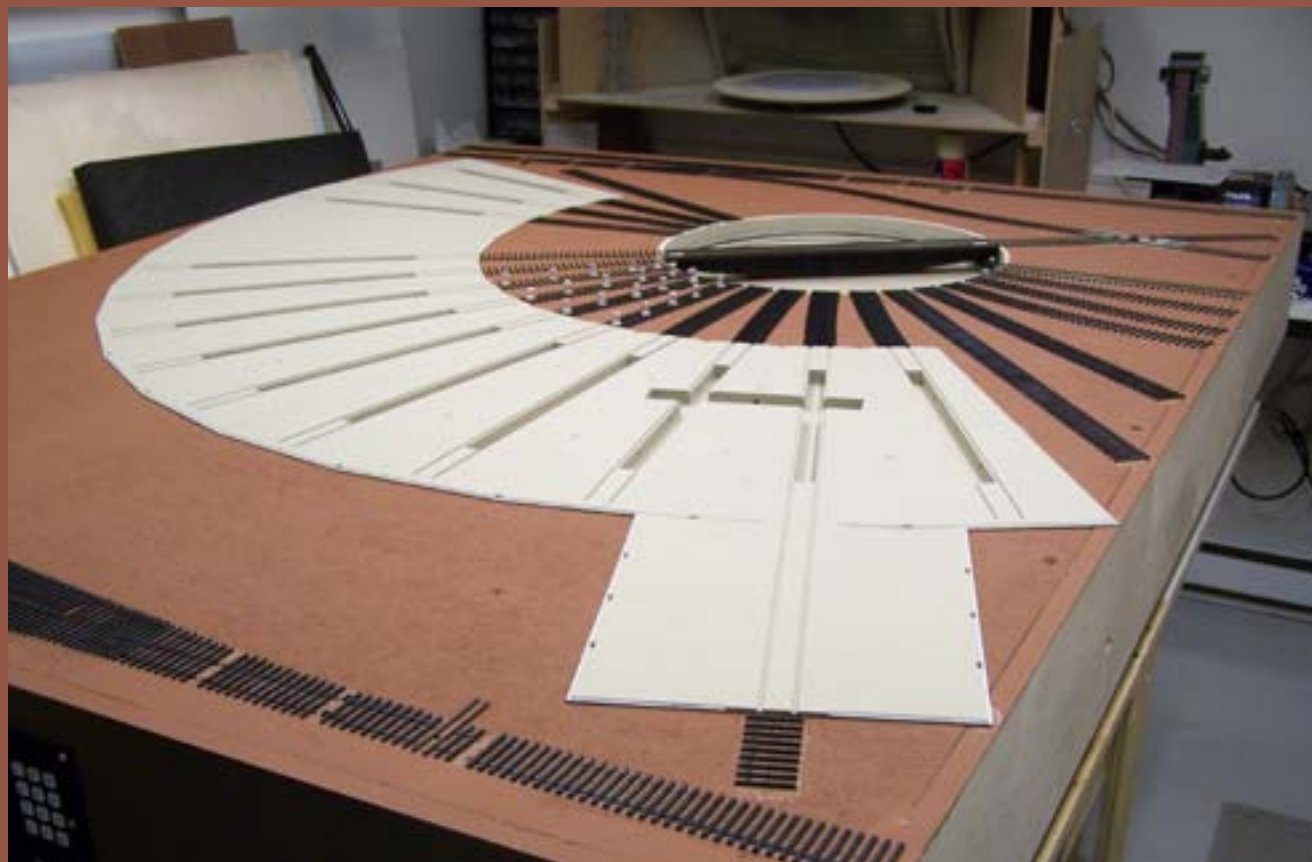


Figure 52: Final styrene CV ties installed – gaps get PC board tie.

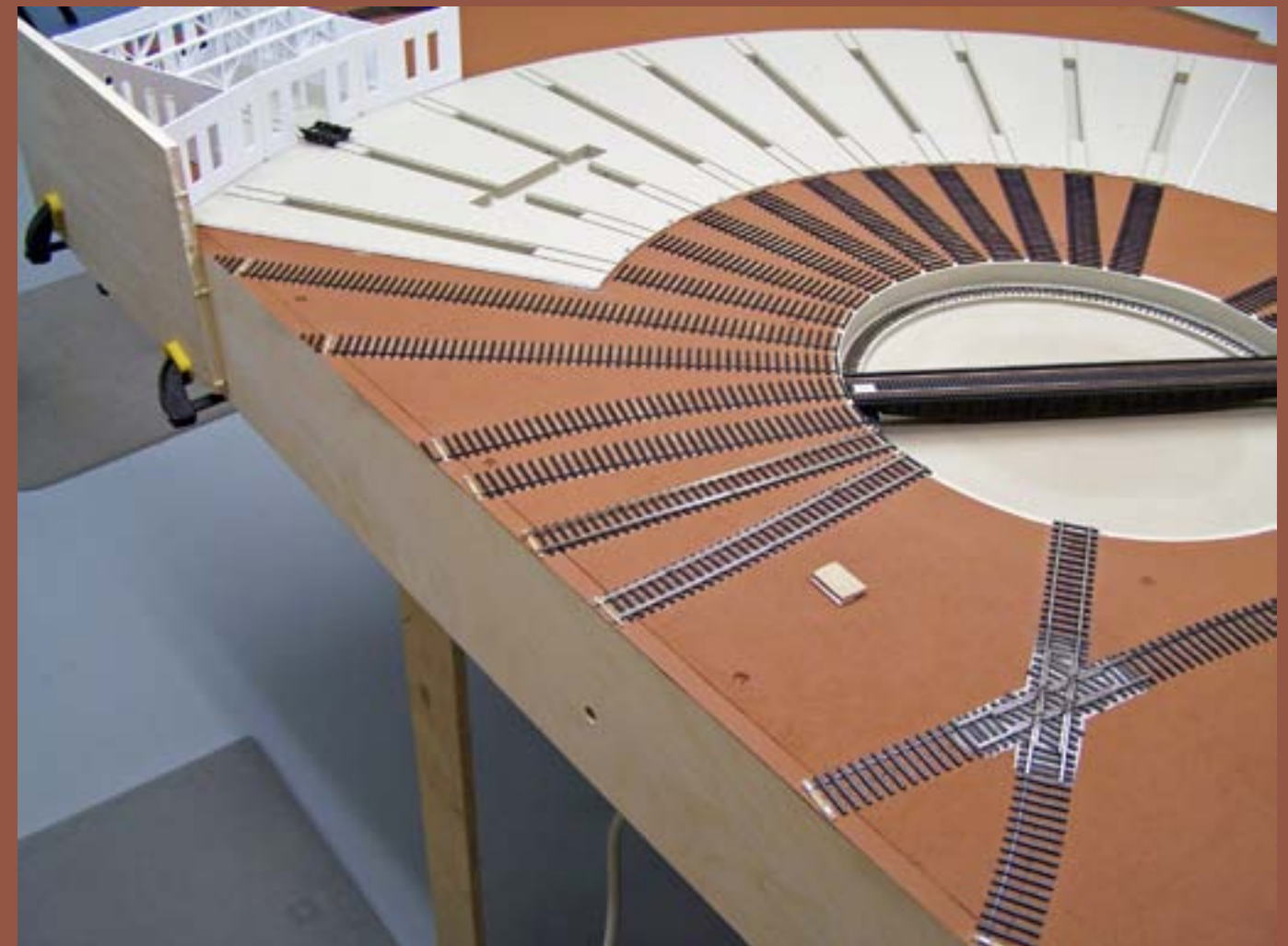


Figure 53: Positioning PC board ties at the edge of the module joint.

STEP 19: Prepare and Install PC Board Ties *continued*

With several PC board ties to file, I built a jig (see Figure 54) which allows me to speed up the filing process. Figure 55 shows the finished product. I also pre-tin each "tie plate", which eases the process of soldering the rail. Pre-tinning also avoids having to overheat the "tie plate" and loosen the foil from the fiberglass base. I like using a Weller butane soldering gun because there are no wires to get in the way. It also comes in handy when soldering on the layout!

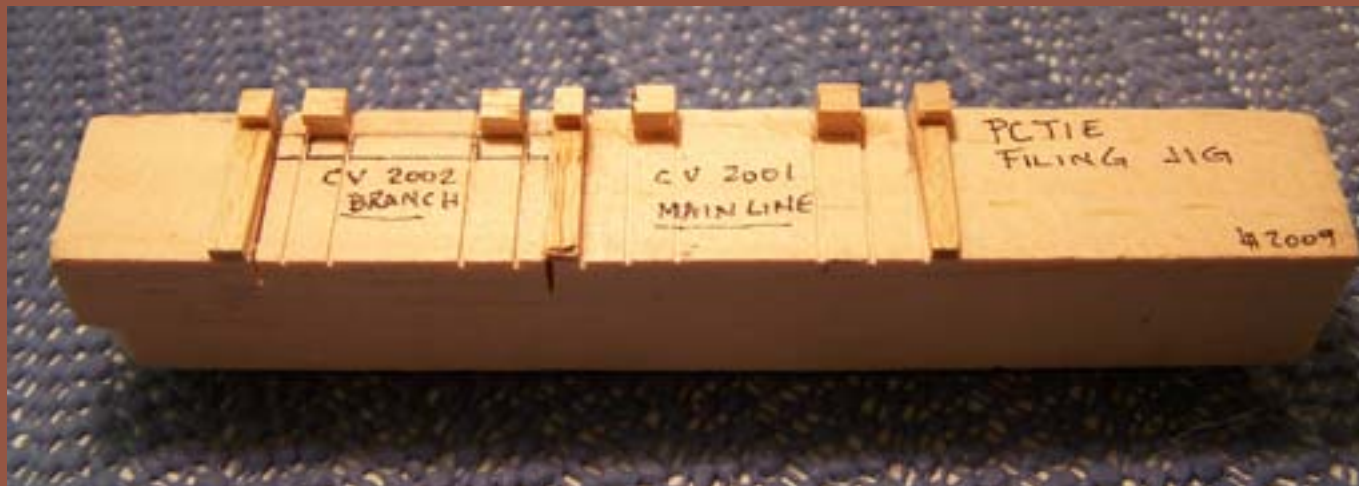


Figure 54: PC Board tie-filing jig.



Figure 55: All that's left are the tie plates.

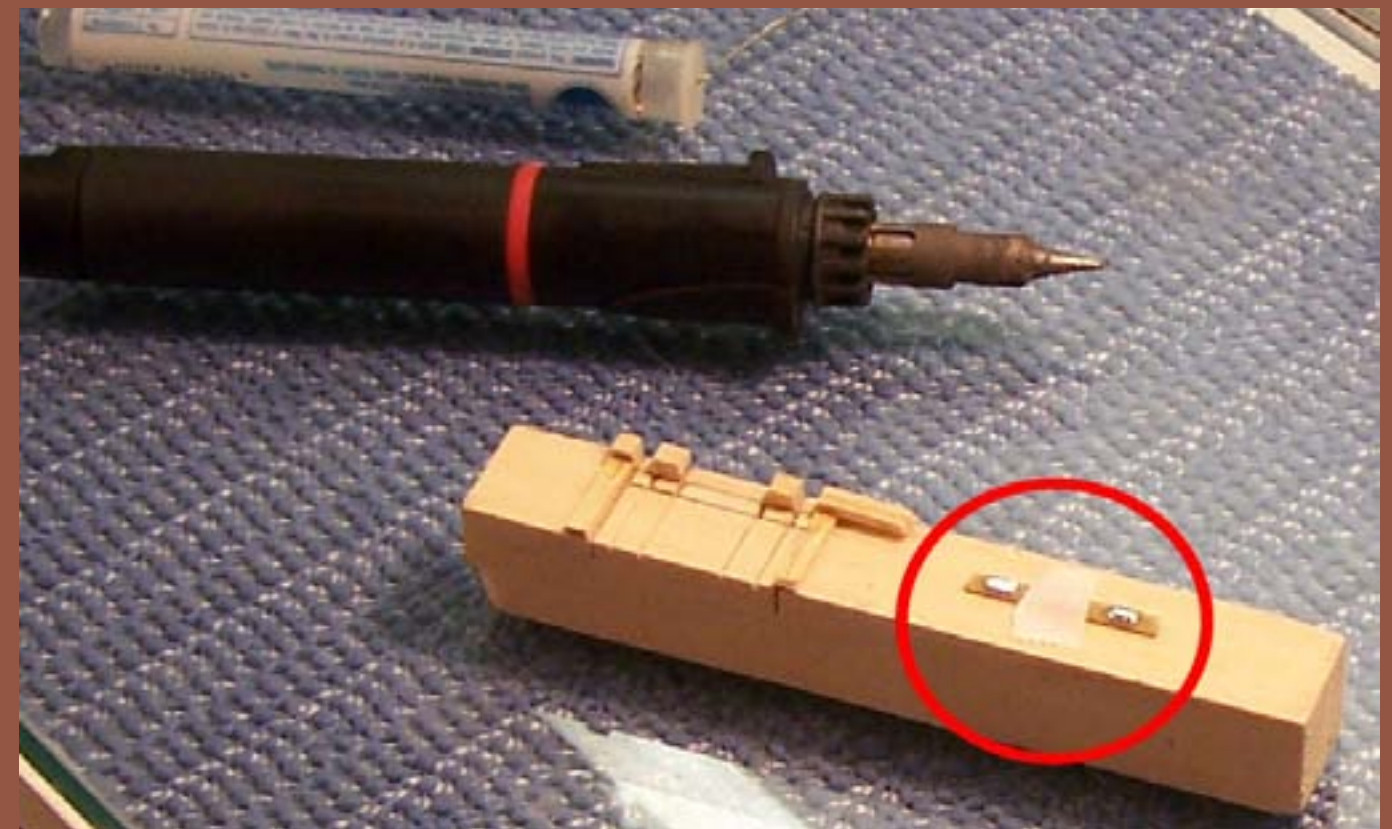


Figure 56: Each tie plate is pre-tinned. All that is left is to add masking tape shims to the bottom to bring it up to the same thickness as the adjacent tie.

STEP 20: Preparing the Rail

I measure, cut and prepare each rail by filing a small chamfer on each end. I cut part way thru each rail head every scale 39 feet to simulate a rail joint. I find a Fast Tracks Point Form tool makes it quite easy to hold the rail while doing this (Figure 57). Then I glue joint bars on each side of the cut. Overkill, you say? Maybe so, but I like the looks of the final result (Figure 59) and it's not that hard to do!



Figure 57: Cutting notch in rail head at 39' intervals.



Figure 58: Simulated rail joint, it looks a lot smaller from a distance!



Figure 59: Rail joint bars glued at simulated rail joint.

STEP 21: Add the matte medium mixture to the unballasted track (it works!)

Once the rail is secured in place via the previously mentioned Barge/MEK mixture as recommended by Central Valley Works, I add a liberal amount of, 1 Part Alcohol, 1 Part Wet Water and 1 Part Matte Medium mixture to both rails and ties. This method has proven to work extremely well to hold everything in place. Since having applied this method to the entire unballasted track on our Free-Modu-Rail layout we have not had any more problems with track lifting.



Figure 60: Adding Matte Medium mixture to track.

STEP 22: Adjust Turntable Bridge Height

After installing all the approach, stall and external storage tracks, it became clear the turntable bridge track height needed adjusting.

The bridge needs to be shimmed to adjust the height of the rail and prevent misalignment as shown on Figure 61. To do this I made a styrene shim of the required thickness and glued it at each end to the bottom of the bridge.

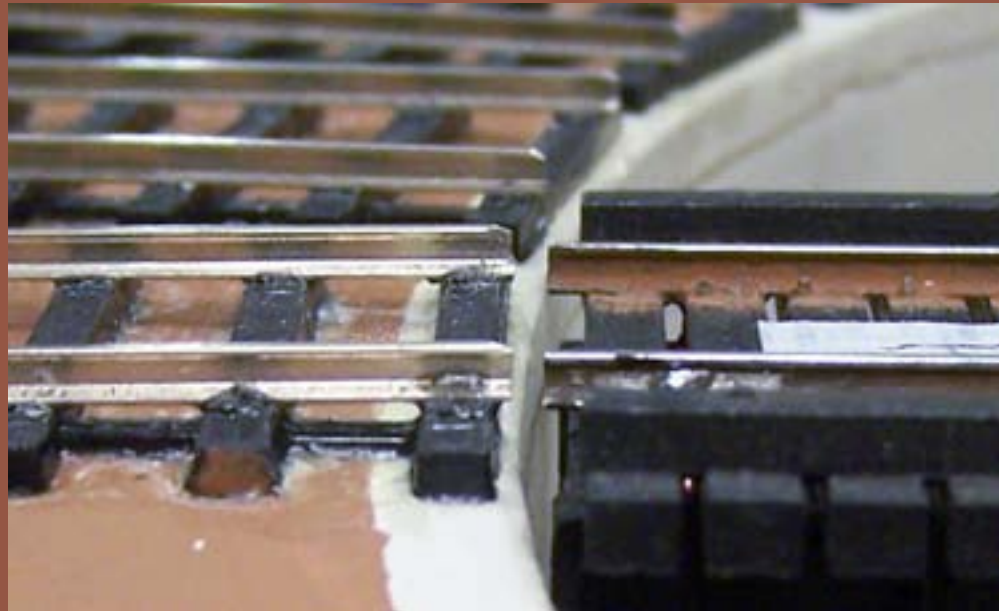


Figure 61: Bridge track height needs adjustment!



Figure 63: Laminated shims now ready for installation.



Figure 62: I prepared the styrene shims by using several thicknesses to get the right height.



Figure 64: I installed the shims on the ends of the turntable bridge.

STEP 22: Adjust Turntable Bridge Height *continued*

Now that the rail tops are aligned, there is just one more little problem to take of, and that is the huge ugly gap between the approach and bridge tracks. A little more planning ahead would have been in order, but as it stands now I have two options. One is to replace the bridge rails, or the shorter approach rails. I decided on the approach rails. I will take care of this later!

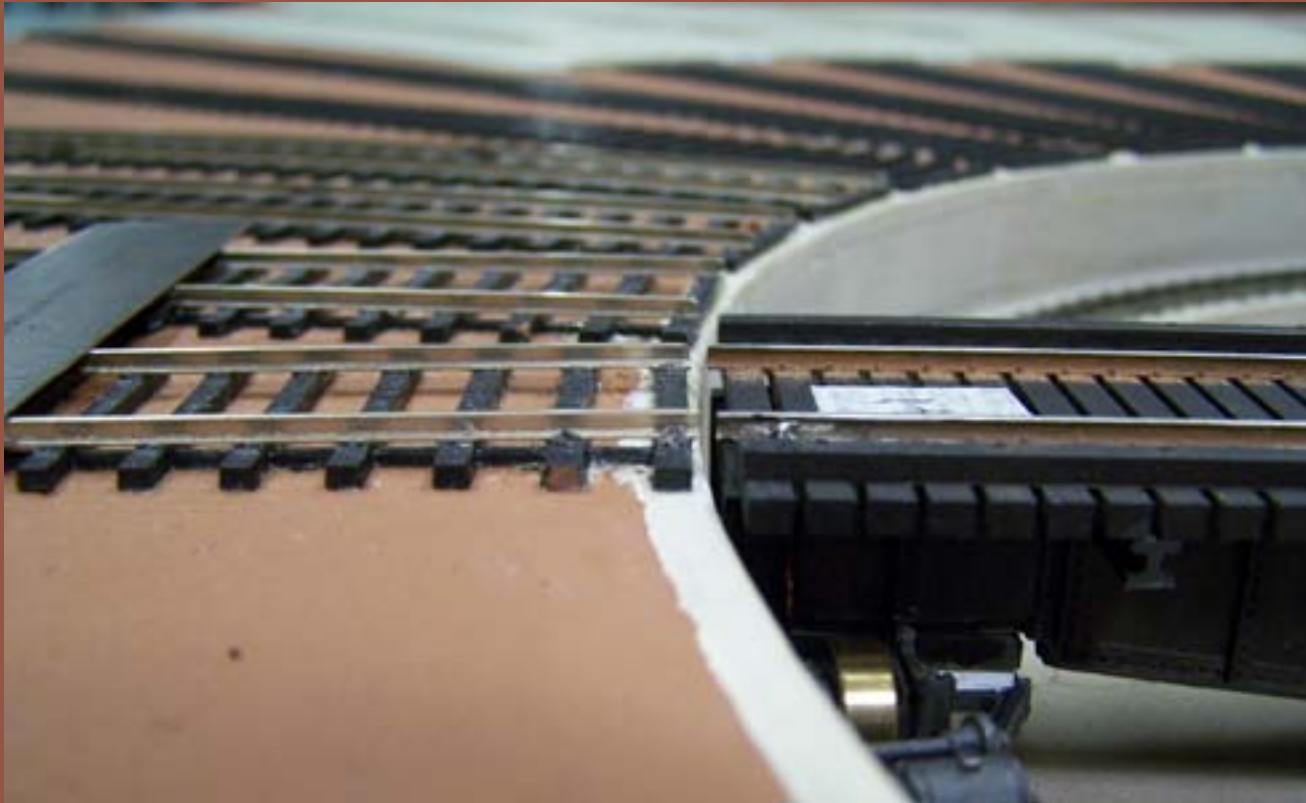


Figure 65: All lined up, but, there's too much of a gap!

STEP 23: Make Sure the Turntable is Centered in the Pit



Figure 66: I noticed that the distances were unequal from either side of the center bridge support to the edge of the turntable pit. To help this situation, I identified one side as the head end and the other the tail end of the bridge.

Diamond Scale built it this way to make sure that you install the bridge in the correct orientation. Identification of both the head and the tail ends of the bridge will be necessary when it comes to programming the NYRS system later.

STEP 23: Make Sure the Turntable is Centered in the Pit *continued*

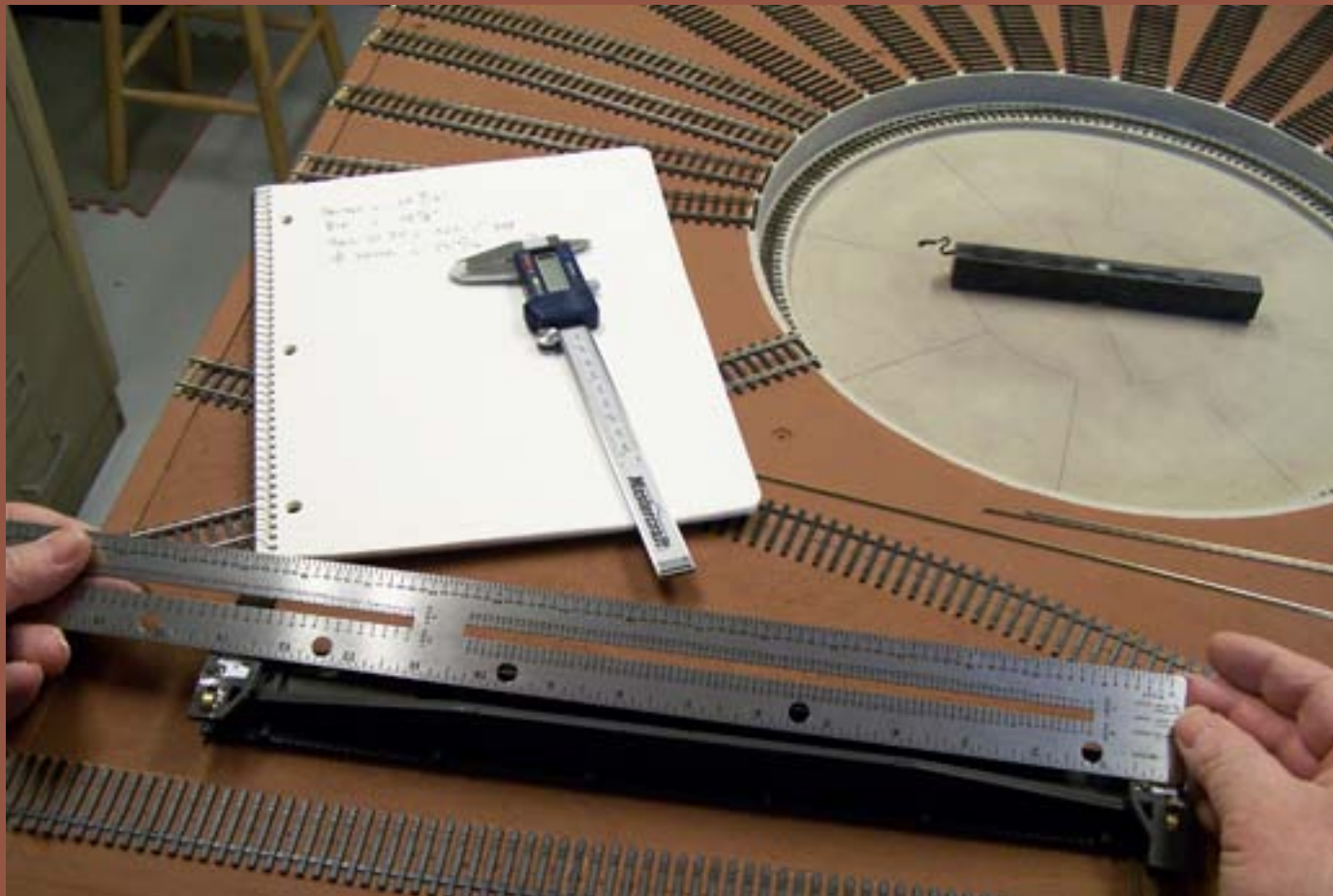


Figure 67: I transferred the dimensions to the bridge and identified each end. Diamond Scale recommends adding keying strips to both ends of the bridge as a method of keying.



Figure 68: To accomplish the proper keying, I glued 2 basswood strips at both ends of the bridge at the previously marked locations. This way the bridge can only be installed one way.

STEP 23: Make Sure the Turntable is Centered in the Pit *continued*

Although NYRS Control system takes care of track misalignment problems by allowing you to program both the head and tail ends of the bridge to have different positions for a given track, I decided to align both ends anyway. I'd already installed my approach track rails so the question was how to move my track now that it had already been installed and glued down.

The secret to moving CV ties and rails already installed with yellow glue is to soak the whole assembly with some alcohol. After about 10 minutes, all the glue and the matte medium mixture softened and the track could now be moved!

Then I slipped a painter's trowel under the approach track ties and rail assembly and lined it up with the bridge rails. Just like that!

This way both the head end and tail ends of the bridge line up with their respective tracks! I adjusted four of the approach tracks, the ones with directly opposing stall or storage tracks on the opposite end of the turntable. I thought I was being extremely careful in installing the ties on the approach and opposing tracks. Murphy made sure tiny errors crept in once the glue had all dried.

When turntable and adjoining tracks were all aligned, I applied some weights to the track and let the whole thing dry. To my surprise it all bonded just as securely as before! Making mistakes is not necessary bad, they do yield some clever solutions. By the way, the alcohol trick comes from my friend Ray Asselin, who discovered it by accident!



Figure 69: When the tie and rail assembly had soaked in the alcohol for about 10 minutes, lifting the whole assembly and moving it slightly was a snap.

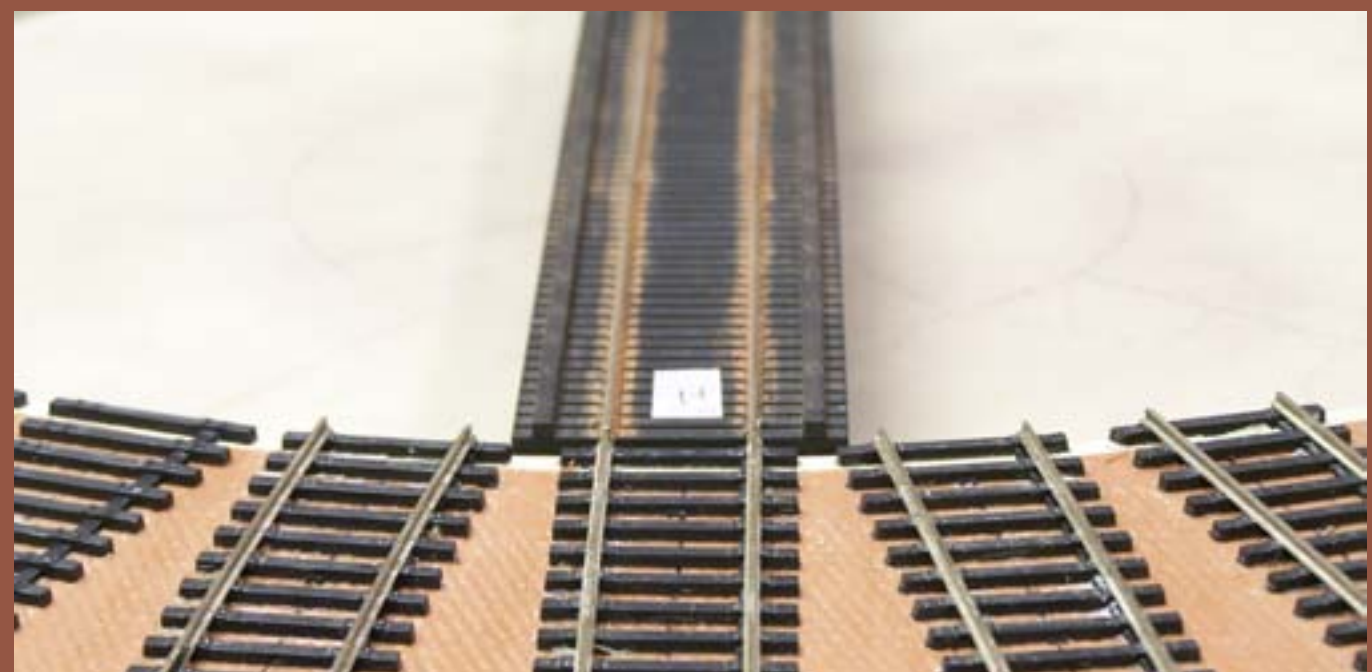


Figure 70: Once dry it all bonded as solidly as before and now lines up perfectly with the opposing track. One less headache to worry about!

STEP 24: Drill Feeder Holes

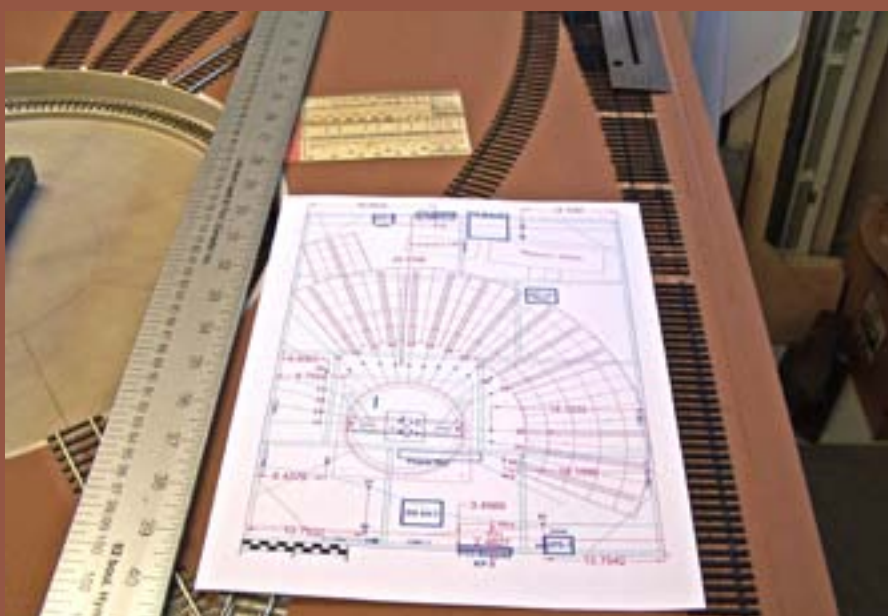


Figure 71: I produced a dimensioned version of the drawing (Figure 3) to identify where to drill for the feeder wires.

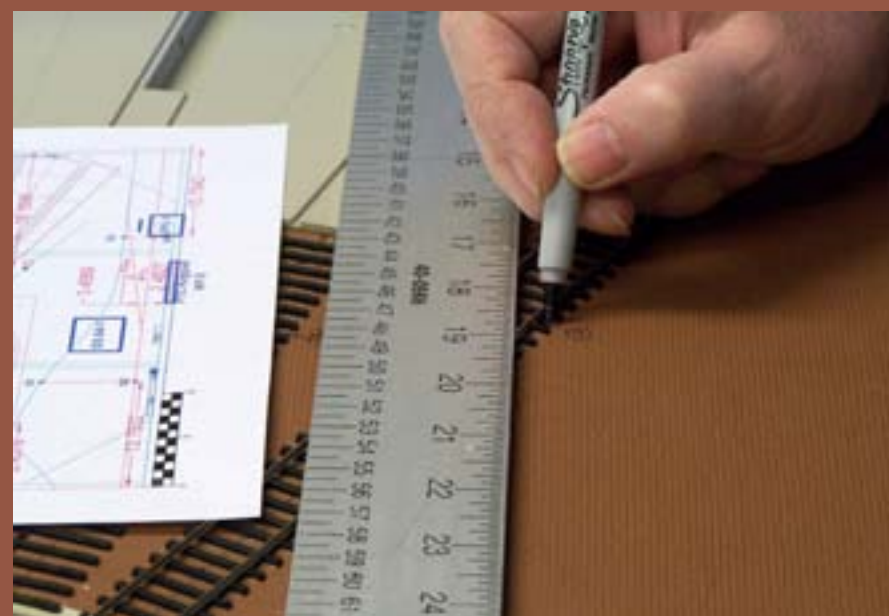


Figure 72: I measured and marked each individual point with a Sharpie.



Figure 73: I measured the diameter of the feeder wires.



Figure 74: I then chose a slightly larger sized drill.



Figure 75: I made sure to adjust the length of the drill to penetrate my 1" thick subroadbed and roadbed.



Figure 76: I drilled a hole close to each rail so the feeder would rest snug against the rail.

STEP 25: Attach the Feeders Mechanically to the Rail



Figure 77: I left about 2 inches of feeder above the roadbed and stripped each wire,



Figure 78: I measured the bare copper feeder wire and chose a # 72 drill.

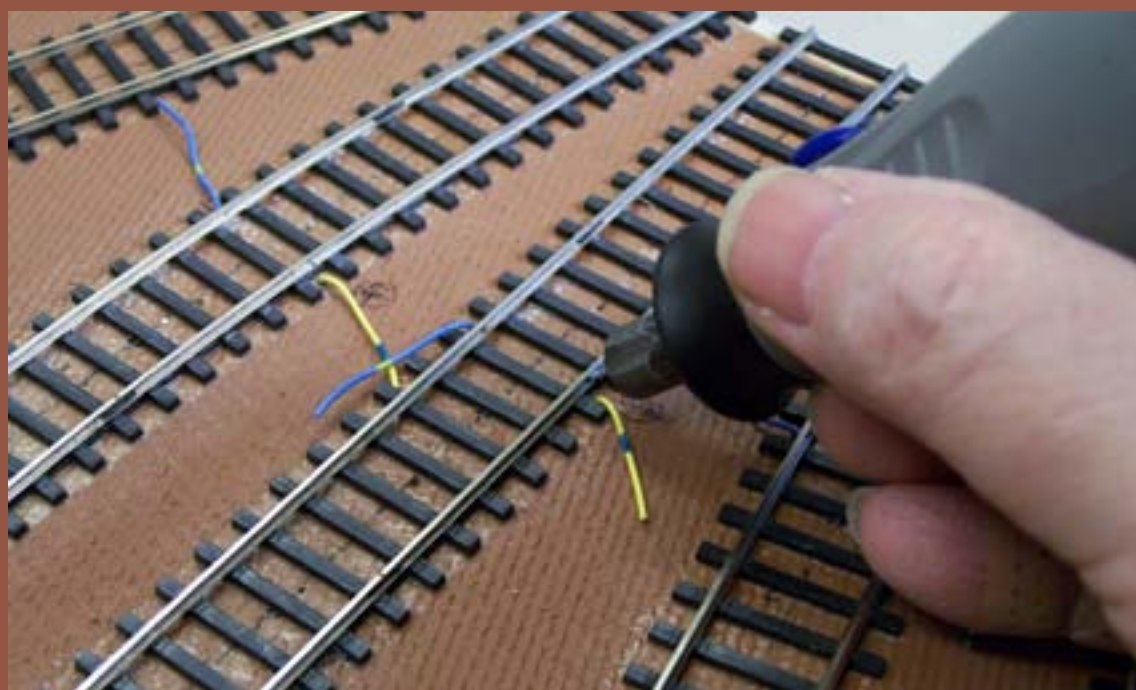


Figure 79: Using my Dremel with some cutting fluid on the drill, I drilled a hole at an angle of just over 45 degrees through the web of each rail.

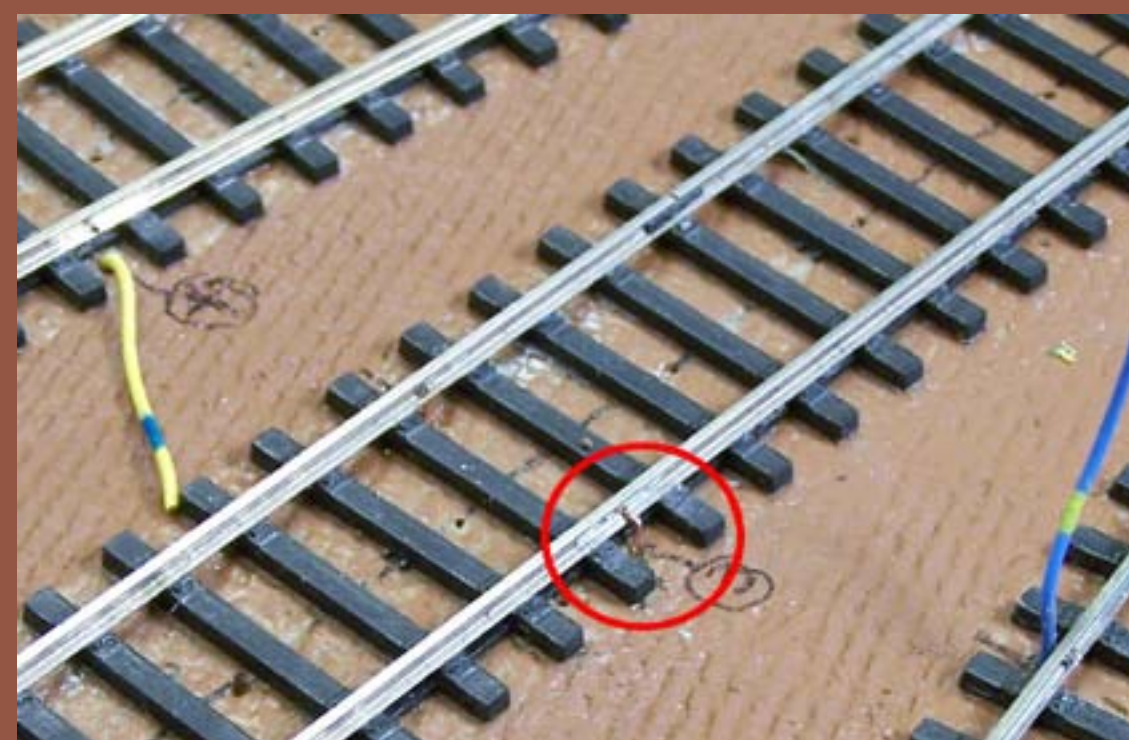


Figure 80: I then inserted the bare wire end into the hole and seated it by pulling down on the wire from below.

STEP 26: Solder the Feeders to the Rail



Figure 81: I used my Weller Cordless Butane soldering Iron, some heat sinks, rosin core solder and liquid flux to solder the feeder to the rail.

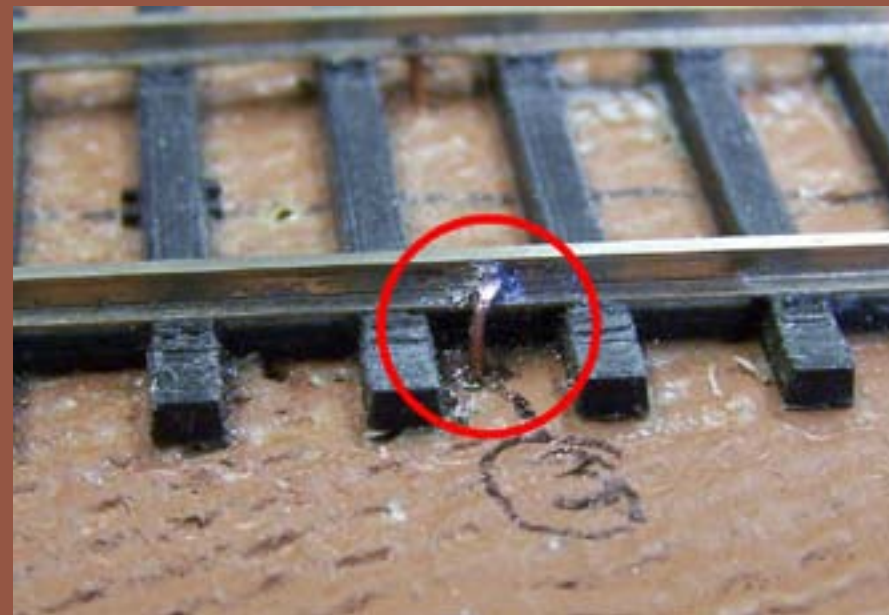


Figure 82: Here's the final feeder after a little cleaning with a wire brush.

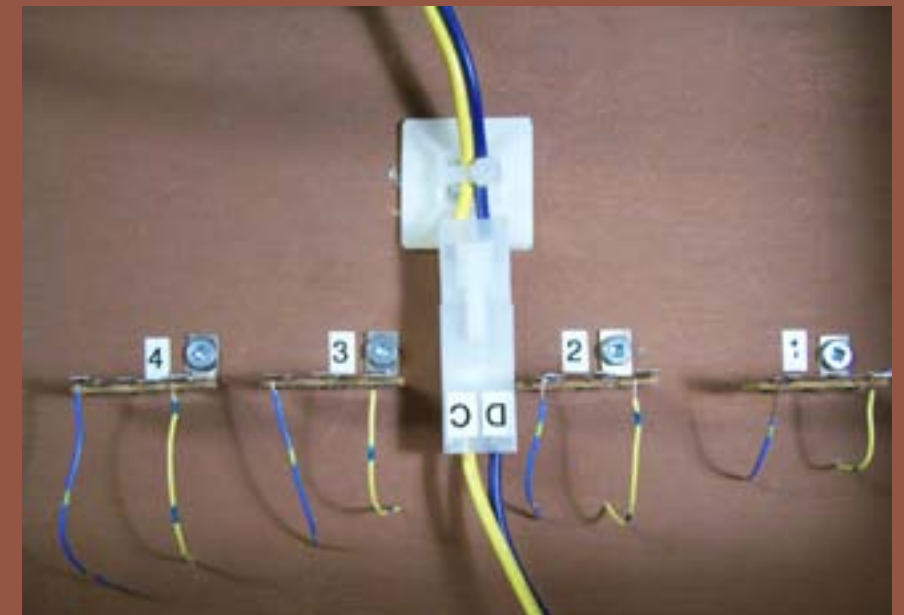


Figure 83: Each Track Feeder under the module (yellow with blue marker for Rail A and blue with yellow marker for Rail B) is soldered to a terminal. The Plug-in Molex connector in the middle comes from the PTCIII Auto Reversing terminal.



Figure 84: Once weathered and ballasted, this is what my feeders look like.



Figure 85: Prototype photo – gee this looks a lot like one of my rail feeders!

STEP 27: Connect the Feeders to the Bus Source Wires

I soldered each Rail A yellow feeder wire from the APR to its respective track terminal. The Blue Rail B wire on the other hand is daisy-chained from one terminal to the next.

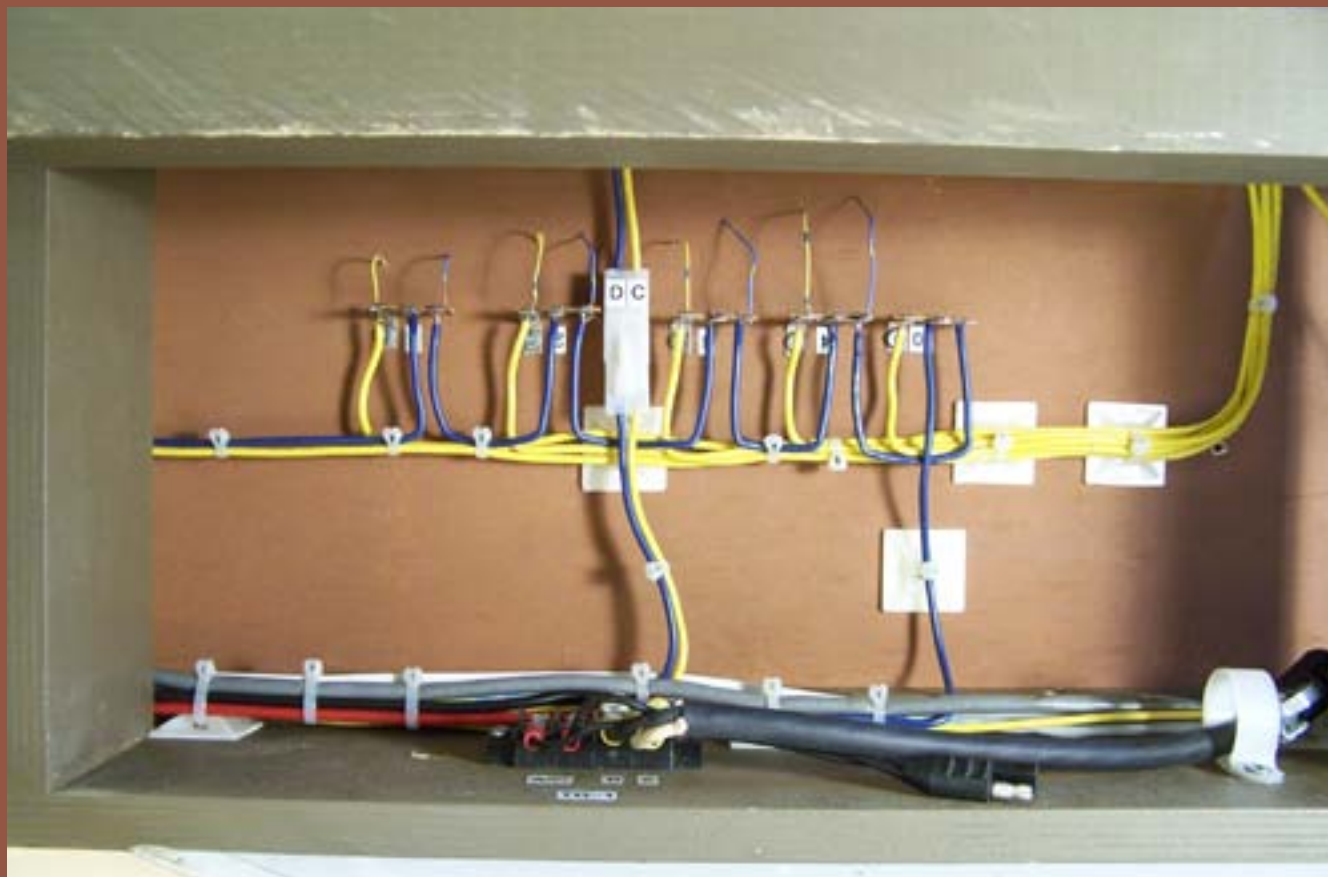


Figure 86: Final wiring with the yellow wire going to the APR and the Blue wire to Rail B.

Article continued on the next page...



Les Halmos has been a model railroader since 1979. He rewrote and published the Modular Standards for the Northeastern Region of the NMRA in 1981 (Modu-Rail Standards).

In 2001, he founded the Free-Modu-Rail Group and has been active in building modules, documenting and

promoting the Free-mo standards.

Les likes computer layout design, electronic gadgets, DCC, and building models - and he's very pro-NMRA.

Les has a solid background in drafting, computers and High Tech Industrial Controls Sales & Marketing.

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STEP 28: Connect the Yellow Feed Wires to the APR



Figure 87: I had 21 wires going to the APR's, so I took the APR board and fastened it temporarily to my workbench. I routed, measured, numbered and cut each wire, then screwed it to the appropriate APR terminal.



Figure 88: There are 21 wires coming in to the APR from each track. I used 18 gauge wire and made a neat bundle, identifying each on both ends. This is where proper documentation and neatness count should I need to troubleshoot later.

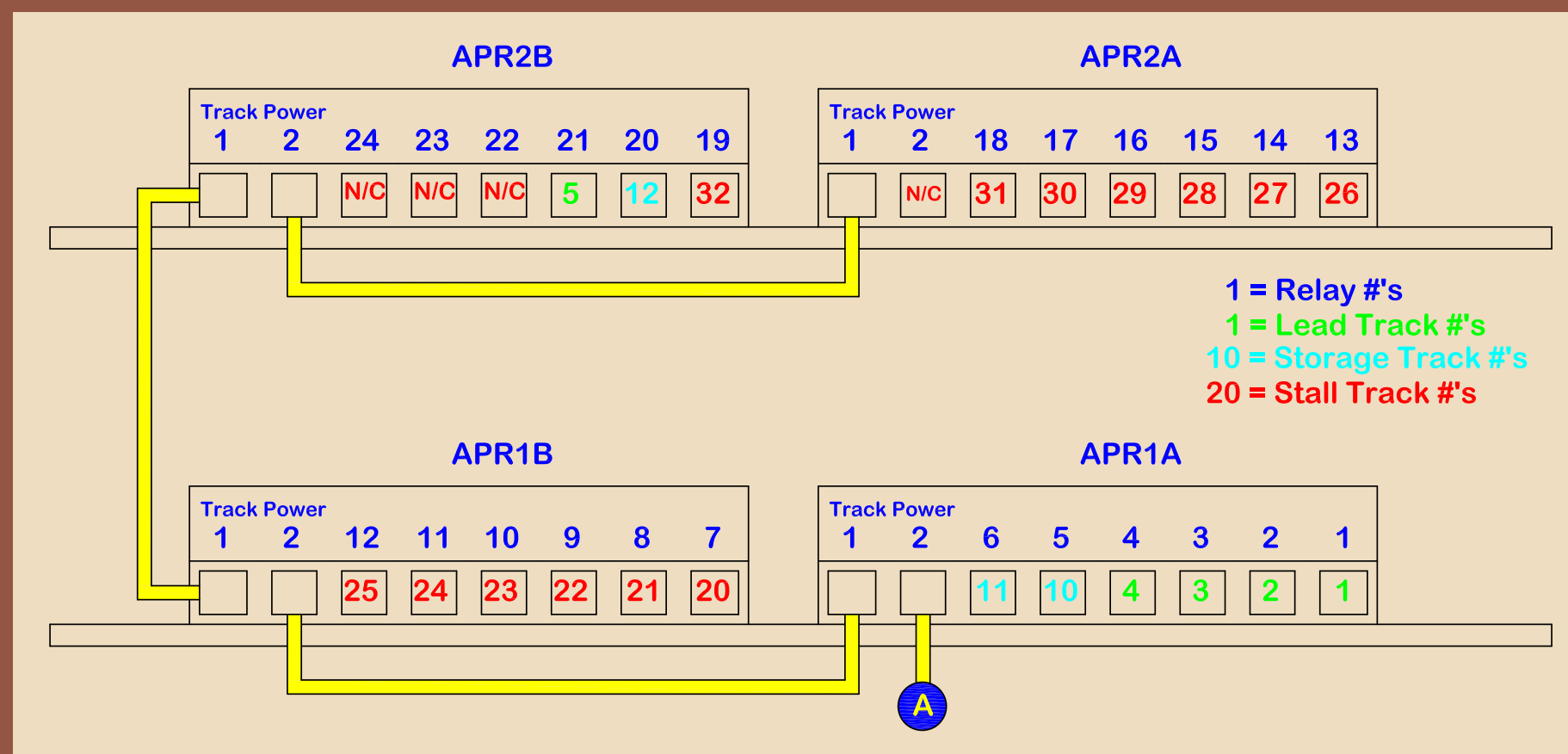


Figure 89: This is what the APR screw terminals look like. There are two sets of terminals per APR for 12 individual tracks. I am using two APR's, one stacked on top of the other, for a total of 24 individual tracks. This is where the Rail A yellow feeders from each track emanate. The DCC Rail A Main feeder must be connected as shown on the diagram.

STEP 29: Programming the NYRS System



This completes the track wiring for this module. If you go slowly, installing one wire at a time, keeping things neat by planning ahead, it will simplify the whole wiring “ordeal”! Believe me though, you won’t be sorry when you come to operate it, because it will work flawlessly.

Now let’s go on to programming this controller. I first began by writing a full explanation of how to program the PTCIII in text, but I changed my mind. As they say 1 picture is worth a thousand words, and 1 video is worth a whole lot more. So please watch the video for a complete tutorial on programming the NYRS system.

Thank you for bearing with me through this lengthy Part 2 of the article. Next time in Part 3, coming in the March/April issue of MRH 2010, I will be covering:

- Turnout control (Installation and wiring)
- Construction of the roundhouse and buildings

Originally this was to be a three-part article but I’ve decided to split the last part in two, so in Part 4, coming in the May/June issue 2010, I will cover:

- Scenery and weathering
- Operating the turntable.

Note: For a future installment of this series I am preparing a detailed wiring diagram showing the location of each and every wire on the module. It will be in .pdf printable format and available as a bonus download!

Build an Operating Switch Stand:

– by **Wolfgang Dudler**

Photos by the author



Do you want a simple way to make operating scale switch stands which move when your turnouts are thrown? Then read on ...

I like the look of an operating scale switch stand, and they're not that hard to make. Follow along as I describe how I build mine.

STEP 1: Drilling a Hole for the Switch Stand

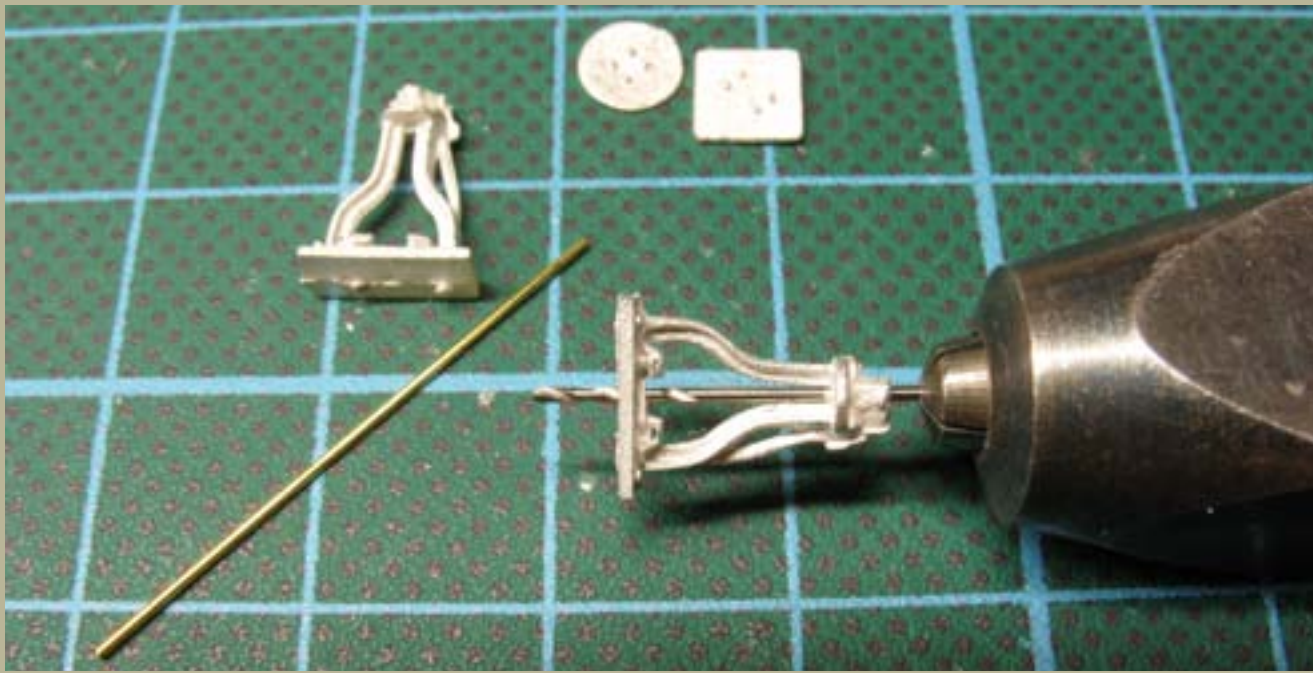


Figure 1: Setting up for drilling.



Figure 2: Rod in place.

I've used the Details West SS-914 switch stand:

I drill a hole for the switch stand rod with a #76 bit in a pin vice. There are small marks at the bottom and top of the switch stand for the rod location, which makes it easy to locate the spot to drill. I use 0.5mm (0.20") brass wire for the switch stand rod.

STEP 2: Drilling the Brass Strip and Throw Bar



Figure 3: Drilling the #76 hole in the brass strip.



Figure 4: These are the parts needed, and you see one finished assembly.



Figure 5: Ready for soldering.

The trickiest part is the tiny brass strip. It needs two holes, one for the switch stand rod and one for the throw bar rod. These holes are very close to one another. I drill the hole for the throw bar rod when the brass strip is soldered to the switch stand rod. It acts as a lever.

Next, I paint the switch stand and rod.

STEP 2: Drilling the Brass Strip and Throw Bar *continued*

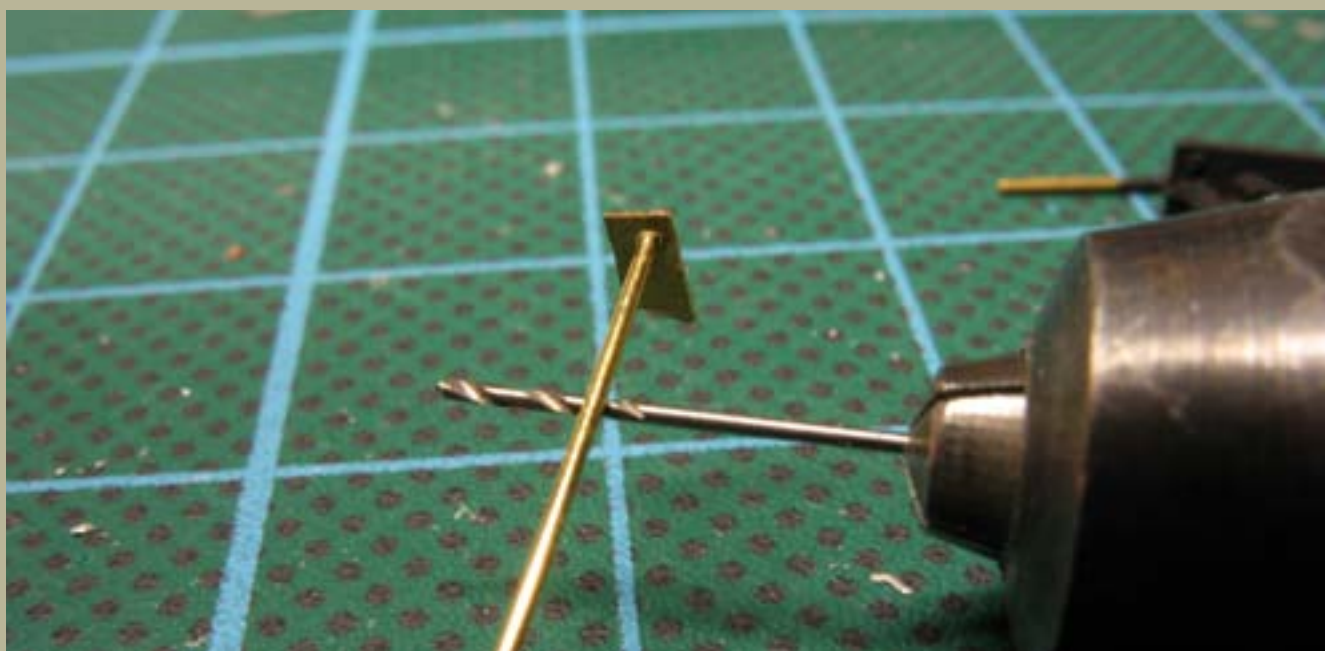


Figure 6: The rod and lever together, ready for soldering.



Figure 7: Soldered.

Next drill a hole into the throw bar for the connection rod, which I make from 0.3mm piano wire (0.012"). I use a #80 drill bit to drill the hole in the throw bar and in the end of the lever.



Figure 8: The steel wire from the throwbar to the switch stand.

Then I bend this wire into a Z shape and glue it into the throwbar hole with superglue. Sometimes I have to clean the space between the switch stand ties of stray ballast.

STEP 3: Testing and Aligning the Switch Stand Target



Figure 9: Video testing the movement.

For testing and aligning the switch stand target, I use a small brass tube instead of the switch stand itself. This way I can see the tiny parts as they move while I'm testing.

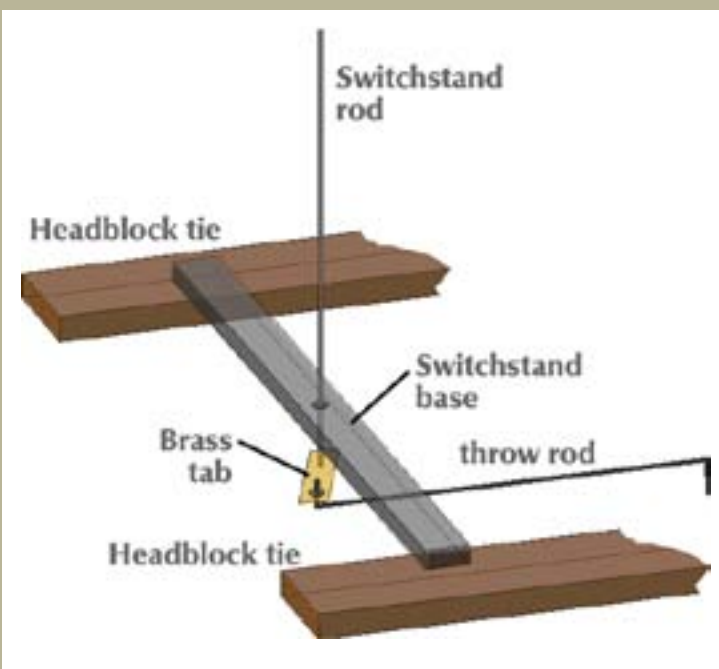


Figure 10: Schematic (not to scale).

In the alignment video, you can see the movement of the throw bar and the connecting rod as well as the switch stand rod and the lever. The key to getting the switch stand target to turn properly is to establish the correct distance between the switch stand rod and hole for the connecting rod. This distance should be about 70% of the point movement.



Figure 11: Testing.



Figure 12: Close up of test.

Pay close attention to how the rod and target should move, either clockwise or counter clockwise. While one can ponder this for quite a while – I've found the best way is to just test it before gluing the switch stand in place.



Figure 13: Switch stand glued with CA.



Figure 14: Switch stand minus the target.

When I get the target to move about 90° with the two end positions of the paper stand-in target being correct, I glue the switch stand with superglue to the ties.

STEP 4: Finishing the Project



Figure 15: Another view of the switch stand.



Figure 16: Switch stand finished.

Once the glue on the base of the switch stand has set completely (so it won't accidentally come loose) I paint the top of the target rod and the connection rod black. Then I glue the target to the rod, also with superglue, and paint the target.

And there it is, my switch stand is all finished and ready for operation. Watch the video clip to see my finished switch stand in action! It really wasn't that hard, was it?



Figure 17: Final switch stand video.

Wolfgang Dudler

Wolfgang got his first toy train at the age of 3 in 1949. In 1961, the Wall was built in Berlin and he and his family started a new life in West Germany.

When he married and started a job as a teacher, he got back into railroading with an N-scale layout. In 1980 he moved and began another layout in H0.

Wolfgang had several European style layouts which he operated. When the operation characteristics of a layout didn't satisfy him, Wolfgang started a new one.

His current layout (the Westport Terminal RR) is a modular layout. Modular style allows him to adjust his layout easily.

You will find many pictures at his homepage <http://www.westportterminal.de/>.



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PAINING A MODERN DIESEL:

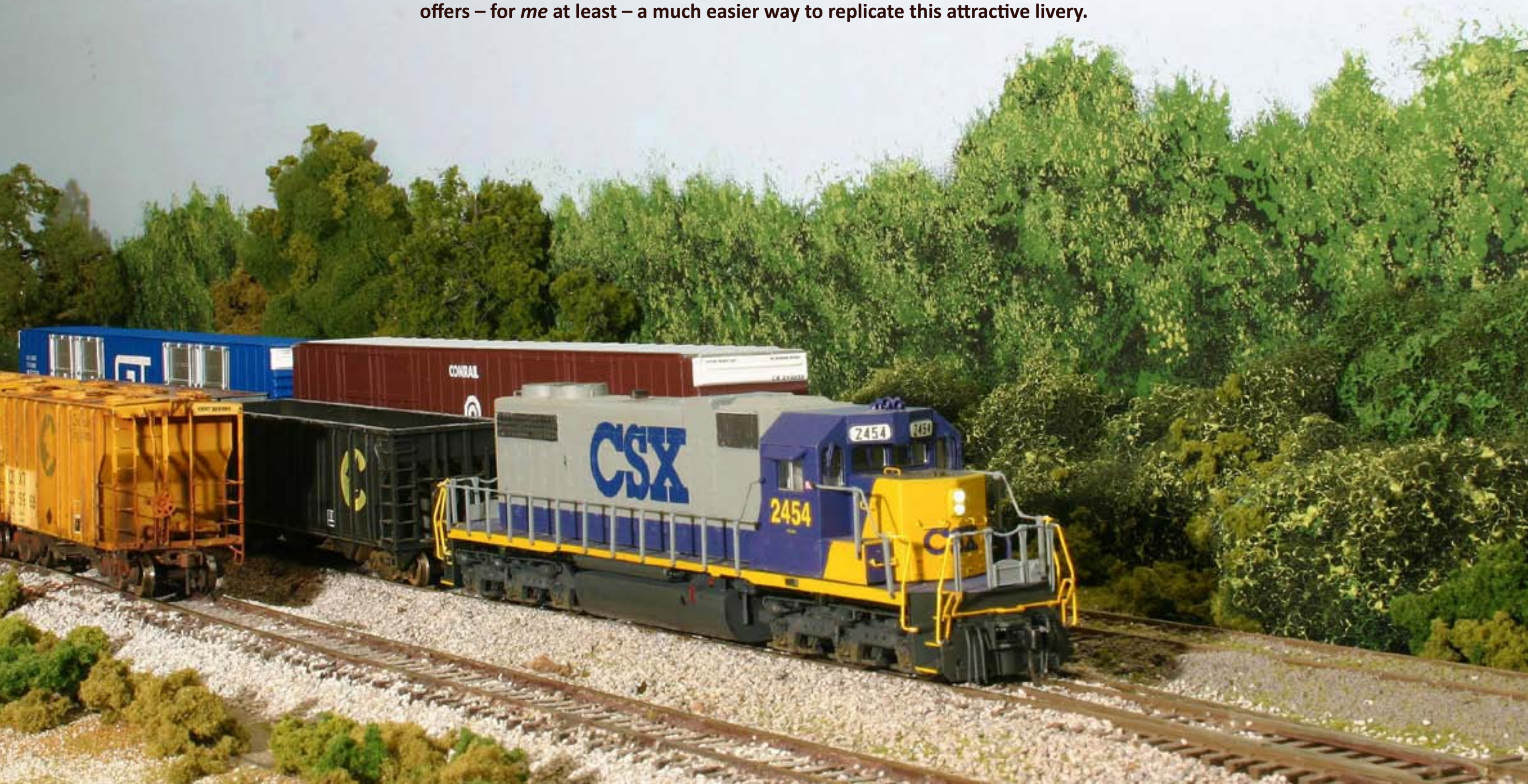
Would you like a much easier way to paint large loco surfaces without masking? Then read on ...

When Kato USA first announced its production of the SD38-2 in HO scale, CSX was not among the road names they were offering. I needed to paint one myself, and here is how I did it.

I've been experimenting with an alternative method of painting using home-painted decals. The CSX YN2 Bright Future paint scheme, with its angular patterns, requires a lot of masking over rugged surfaces. Decal-based painting offers – for *me* at least – a much easier way to replicate this attractive livery.

– *by Ken Larsen*

Photos by the author except where otherwise noted.





Reader Feedback
(click here)

The Prototype and the Source Model

Kato offered several variations of the SD38-2 to accurately reflect the roads for which they were painted. Of these, I found that their Chicago

& North Western model (Figure 2) bears the closest resemblance to CSX #2454 (Figure 1), with its 4000-gallon fuel tank, 3-brake-cylinder truck side-frames, and no dynamic brakes.

However, because all the CSX SD38-2's were originally owned by the Louisville & Nashville, their headlights are mounted on the nose instead of on the cab between the number boards. None of the Kato choices are available with this spotting feature.



Figure 1: CSX SD38-2 #2454 at Boyles Yard near Birmingham, AL, on September 2, 1993. Photo by Dean J Heacock. Visit his CSX Photo Archives at <http://trainweb.org/csxphotos> to view an image library of over 6800 CSX locomotives.

STEP 1: Stripping off the Factory Paint



Figure 2: The model in its original Chicago & North Western factory colors.



Figure 3: Body shell after stripping.

Unlike other leading railroad model manufacturers, the plastic used by Kato is notorious for being easily damaged when brake fluid is used to strip paint. For that reason I soaked the shell components in 91% isopropyl alcohol for a few hours to loosen the C&NW paint, using a stubby-bristled toothbrush to scrub it off. My primary concern was to eliminate the high-contrast areas between the yellow and dark green – I wasn't quite as concerned about the cab because the CSX Yn2 "Bright Future" scheme cabs were fully covered in dark blue, which would easily cover the remnant of C&NW green.

STEP 2: Installing a Nose-Mounted Headlight



Figure 4: Steel epoxy applied to inner surface of nose section.

With the shell freshly stripped, now was the optimal time to make the necessary modifications for relocating the forward headlight to the nose. Before filing or cutting, however, I needed to reinforce the target area. This involved applying a liberal layer of J-B Kwik™ ‘steel’ epoxy to the inside surface of the nose, covering the front, top and sides (Figure 4). (J-B Kwik is a fast-setting formula of J-B Weld™ epoxy.)

The purpose of the epoxy is threefold: First, it thickens the shell at the pointed end, so you don’t end up with a gaping hole when you grind it down; second, the opaque property of the dark-gray J-B Kwik™ prevents this part of the shell from glowing with the stray light of the bulb or LED. Finally, if you are using a filament bulb, the epoxy serves as a heat shield/diffuser to keep the plastic from melting.

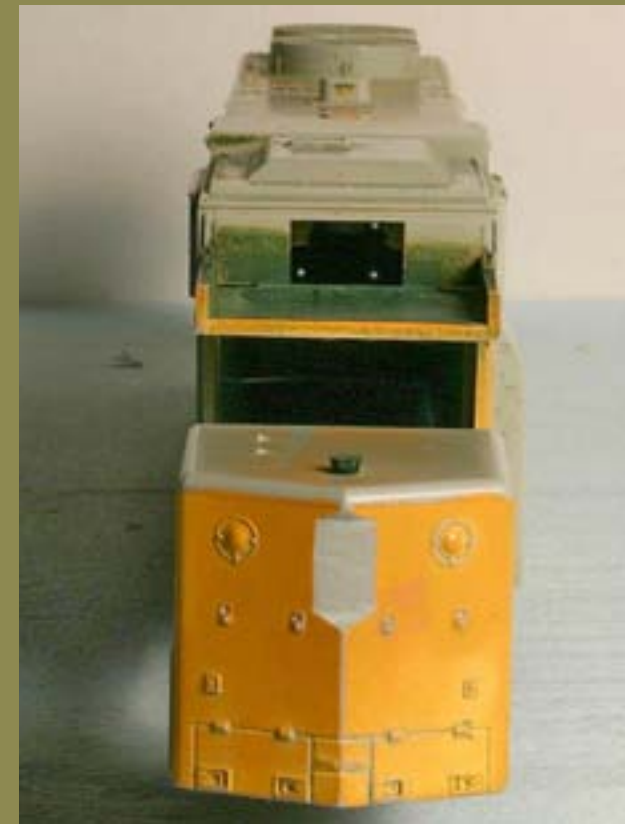


Figure 5: Nose headlight cavity.



Figure 6: Headlight attached.

For the outer headlight cavity, I used a flat needle file to grind away an area just tall enough and wide enough to accommodate a Details West EMD twin headlight bracket. Then I carved out the sloped ends with an X-acto blade. The finished cavity is shown in Figure 5.

My next step was to cement the headlight bracket onto the newly-ground surface. Since I needed to attach metal to plastic, J-B Kwik™ was the ideal bonding agent – the four-minute setting period allowed me plenty of time to do the final alignment.

As soon as the epoxy was sufficiently hardened I drilled two holes through the soft metal bracket and the interior epoxy layer behind it, so I could fit in a pair of Details West HO scale 6-inch diameter headlight lenses. Since marker lights were no longer used on CSX diesels by the early nineties, I needed to grind those away as well (Figure 6).

With the nose headlight fixture installed, my final kitbashing task was to grind down the cab headlight brackets and cover them with a rectangular piece of .005”-thick sheet styrene.

STEP 3: Painting

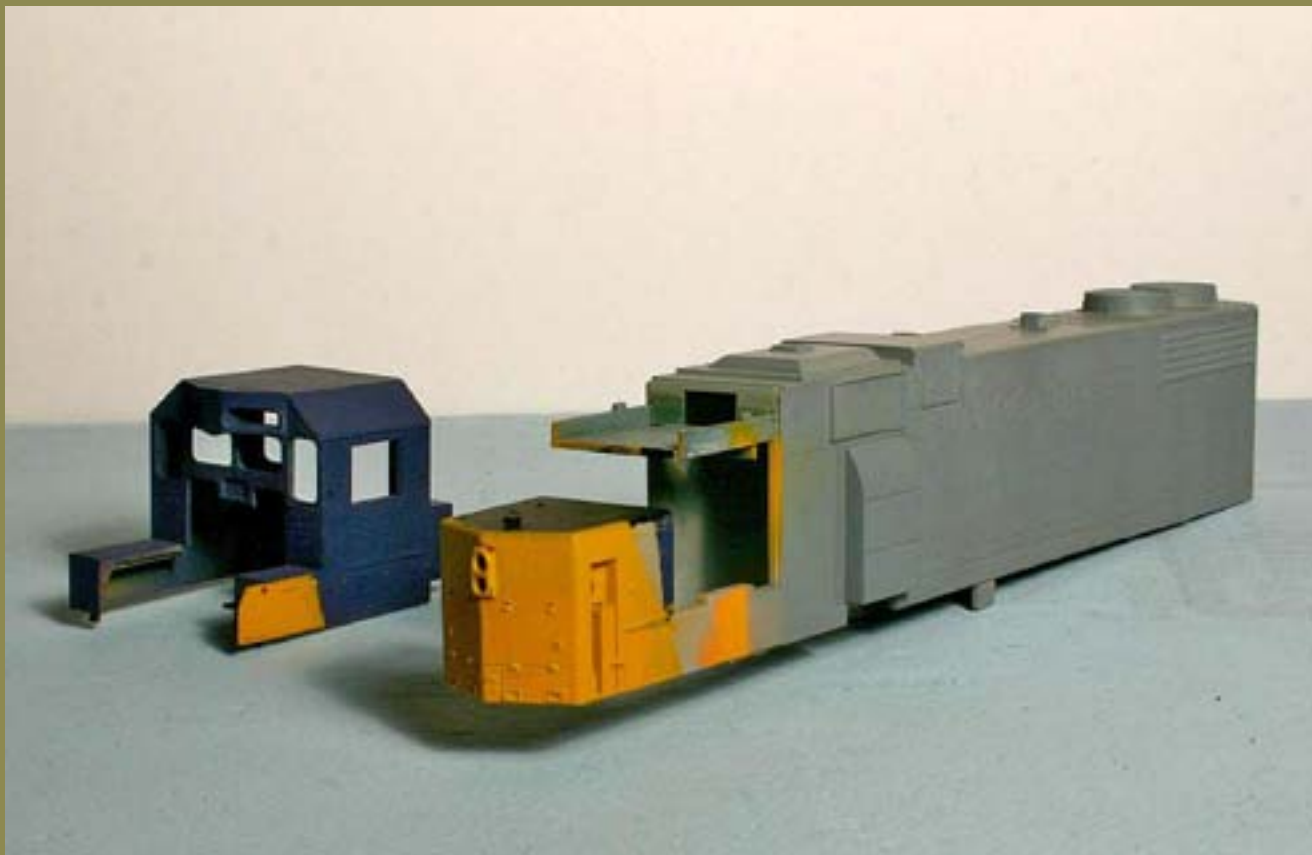


Figure 7: Base colors applied to hood and cab.

With the headlight conversion finished, the two upper sections of the shell were ready to be air brushed with their dominant Polly Scale colors: CSX Blue for the cab, CSX Gray for the long hood, and CSX Yellow for the short hood (Figure 7). As I was spray painting the nose, I realized that I should have left the original C&NW yellow paint covering the entire side surfaces instead of stripping to the bare plastic between the middle and the rear edge – it took me numerous coats to equally cover both the gray plastic and the yellow.

STEP 4: Home-Painted Decals



Figure 8: Decal paper for inkjet printers, and bonding solution.

For adding the overlapping CSX Blue sections, I opted to apply a nonstandard approach. The typical modeler normally uses masking tape to cover the bordering unpainted area; but I have always experienced frustration with that method. The border area has numerous doors and hinges that prevent the masking tape from sticking properly and leave microscopic holes which suck the paint underneath via capillary action. Then I have to hand-paint over the stray tentacles – and the touch-up paint never gives me a perfectly straight, crisp border.

STEP 4: Home-Painted* Decals *continued*

One time after a failed masking project, I remembered how some yellow stripe decals I had once applied to a C&O GP-7 were so much easier to work with. All I'd had to do was wet them, peel them, and lay them in the general vicinity of the target surface, where I could then slide them into their exact position. An application of decal-setting solution had made them snuggle over the protrusions and into the crevices, making them appear painted-on after covering with a matte finish.

The homemade decals I used to decorate locos for my freelanced short line were printed on an inkjet printer, then covered with a bonding solution to keep the dried ink from being dissolved by the water. Printing works fine for lettering; but when covering broad areas, random straight lines form a grid-like pattern which is difficult to hide when the model is viewed up close. What would happen if I were to airbrush some of my own acrylic paint onto a blank decal? I tested my idea on a discarded Athearn GP40-2 shell and found the results, though not perfect, were still preferable to the mask-and-spray method.

My local hobby shop carried a line of home-decaling materials known as the Testors Decal System, consisting of 8 ½" by 5 ½" sheets of decal-ing paper and a bonding solution (Figure 8) to make them waterproof. Any brand of decal paper would probably work. I simply chose Testors because it was conveniently available and I was already familiar with it. Both white and transparent or "clear" sheets are available; I used the clear version because it doesn't leave a telltale line along the edges as the white does.

The normal procedure to prepare Testors custom decals is to print them first, then spray on the bonding solution. I reversed these two steps in order to be able to spray the paint directly onto the "finished" decal film. This would ensure that the decal-applied paint would maintain the same texture as the paint it was covering.

I needed to create dark blue decals for the body and yellow ones for the sill stripe. Luckily the total combined surface area to be covered was small; this enabled me to fit both colors onto a single sheet (Figure 9).



Figure 9: Painted decal sheet.

STEP 5: Decorating the Sill and Walkway



Figure 10: Sill stripe decal segments being applied.

One section I've always had trouble masking is the sill and walkway. I first tried this when I modeled pre-Chessie B&O, whose locomotives had a deep yellow sill stripe on a dark blue background. If I was lucky enough to get the masking right the first time, I wound up with a great-looking stripe; but more often than not, I found myself hand-painting the stripe and retouching the imperfections with blue.

With the painted decal approach, all I need to do is make sure to cut two lengths of yellow stripe at the correct width, top and bottom edges perfectly parallel. (NOTE: A straight cut is much easier to achieve with a platform paper trimmer than with scissors.) Applying the stripe was no different than working with conventional decals: soak, peel, and slide into position – followed by a dab of Micro-Sol. Figure 10 shows the frame as the home-painted decals are being applied, while Figure 11 shows the completed sill stripe after touching-up the corners with a brush.



Figure 11: Sill stripe after full application of decals and touch-up paint.

You may be wondering, “Wouldn't it be easier to buy a set of pre-packaged stripe decals from Champ or Microscale?” Perhaps it would, if this was plain white paint. However, I've always had trouble finding the exact shade of yellow stripes to match the yellow on the nose. Making decals with paint from the same batch eliminates that problem.

The remaining surface areas of the frame – the blue walkways and black ends – were small enough to be brush-painted.

STEP 6: Blue on the Long Hood



Figure 12: Right side bottom blue decal applied to long hood.

I created the thick blue line along the bottom edge of the long hood by slicing a ¼" wide strip of decal for each side. The challenge was to keep the decal's top edge perfectly straight – I had to spend some time aligning, and then re-aligning it (Figure 12). I waited until the decal was nearly dry before carefully applying the Micro-Sol, doing only one small area at a time to prevent distortion. As soon as both the top and bottom edges had been treated and dried, I pierced whatever air bubbles I found and doused them in Micro-Sol.



Figure 13: Left side bottom blue decal applied to long hood.

Eventually I had the entire decal hugging the door seams and rivets. However, there were a few spots where the paint failed to stretch along with the underlying decal (Figure 13). A few dabs of touch-up paint took care of that problem.

STEP 7: Angle Templates



Figure 14: Marking-off a template for the angled blue section behind the cab.

The distinctive feature of CSX's YN2 paint scheme is the parallel-angled coat of dark blue over the cab. I would have had an incredibly difficult time trying to mask the boundaries on either end; but with painted decals, it was just a matter of measuring and cutting a template, verifying its correct shape (Figure 14), then cutting out the decals to match (Figure 15).

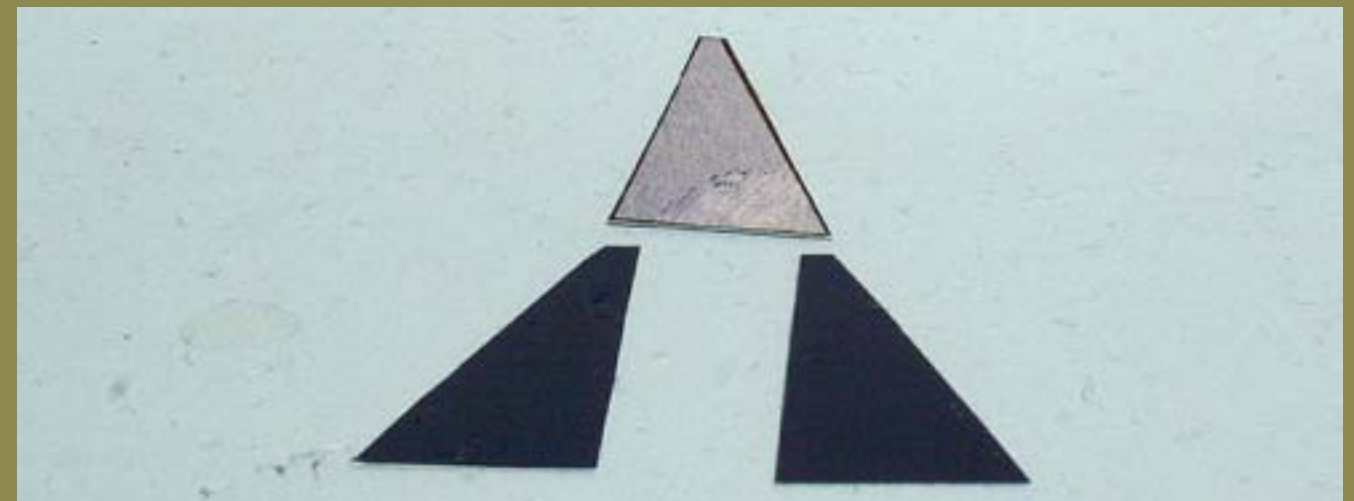


Figure 15: Behind-the-cab decals for right and left side, cut from template.

STEP 7: Angle Templates *continued*



Figure 16: Invert template to trace forward angle decals.

As soon as the rear sail-shaped pieces were in place, I took the first template and turned it upside-down for the area in front of the cab. This ensured that the angled boundary lines would be parallel (Figure 16). Figure 17 shows the right-side forward decal wedge being slid into position.



Figure 17: Application of right side forward angle decal.

STEP 8: Finalizing the Paint Job



Figure 18: The fully-painted body shell prior to gloss coating. Note the subtle stains from dried decal setting solution.

Once the Micro-Sol was dry on the very last decal, I proceeded to paint over all of the stretch gaps. The texture of the brush-applied paint was a bit more shiny than the surrounding decal paint that had been sprayed on; also, the Micro-Sol had left some ugly stains that were especially visible on the gray paint (Figure 18). This ironically resembled the appearance of many aging prototype YN2-decorated locos I've seen in recent years!

A thorough covering of clear gloss lacquer hid the stains (Figure 19) and made the shell ready for the Microscale lettering decals (Figure 20).

Figure 19: Painted body shell after gloss covering.



Figure 20: Body shell with Microscale decals applied.



STEP 9: Handrails and Grabs



Figure 21: Installing the grab irons.

I've always loved Kato locomotive models for their smooth, quiet drives – in fact I have more of these on my roster than any other single brand – but their Number One drawback is that you need to cut the handrails off of sprues and install them yourself. In this instance, however, that turned out to be an advantage. Painting the lower sides of the long hood would have been a pain if I'd had to remove (or work around) pre-installed handrails.

As luck would have it, the grab irons for the yellow ends were cast in C&NW Yellow plastic, which blended perfectly with the CSX Yellow mounting surface (Figure 21) – this saved me the trouble of painting them. (NOTE: I later replaced the 17-inch factory grabs with Detail Associates formed-wire grab irons, because I had difficulty removing the flash.) The handrails, however, were cast in the other C&NW color, dark green. I covered them with the same batch of Polly Scale CSX Gray and CSX Yellow acrylic and, as of this writing, the paint hasn't flaked off yet. I realize that there are other brands of paint better-suited for painting vinyl. I'll invest in those if the current paint fails.

STEP 10: Relocating the Forward Headlight LED

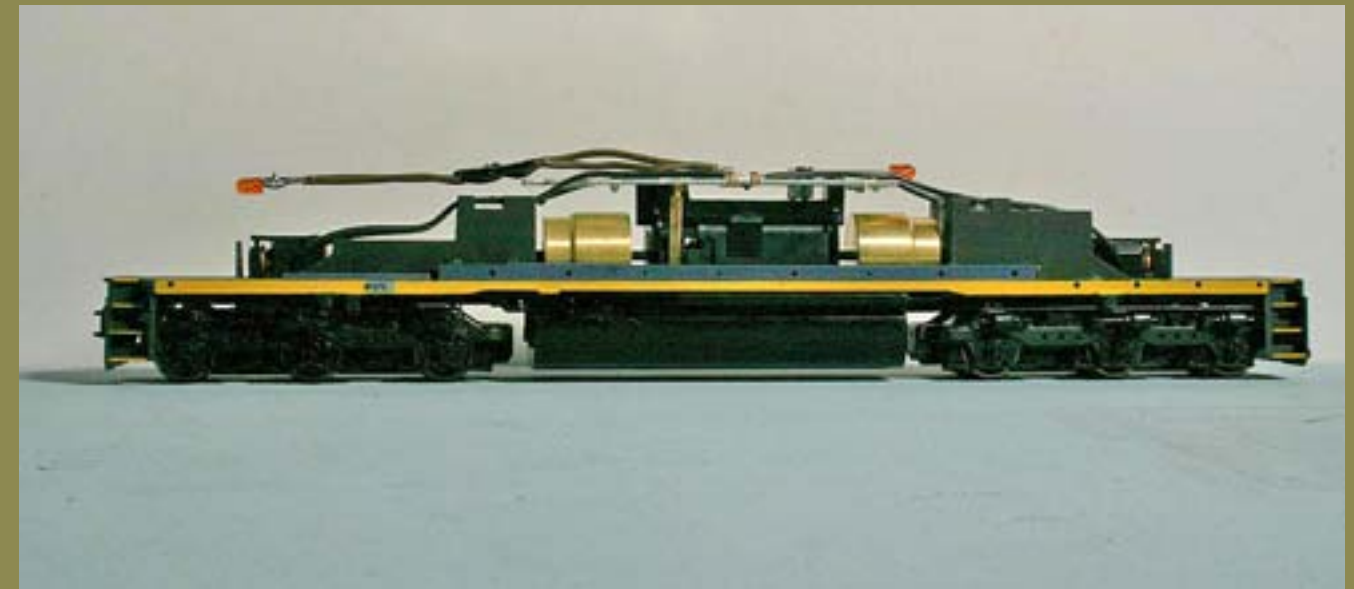


Figure 22: Extended leads on front headlight LED.

Cutting up the shell to accommodate the nose-mounted headlight was only half the battle – I still needed to reposition the LED. Only $\frac{1}{4}$ " of its leads were visible above the constant-lighting circuit board and I had no quick way of distinguishing the cathode from the anode. So, before snipping off the leads, I placed a black dot on the top of the diode with a permanent marker.

I used a pair of 22AWG wires, solid-strand to keep their shape and hold the LED in position at the top of the nose interior. Unfortunately, I had overestimated the length and cut them too long the first time; I needed to splice each one midway to get the LED in exactly the right position (Figure 22). At least my strategy of marking the top of the LED paid off – it glowed brightly the first time I tested it.

STEP 11: Dullcote, Details and Weathering



Figure 23: Finished model viewed from front at a $\frac{3}{4}$ angle.

Before replacing the cab window “glass”, I applied a layer of Dullcote to the shell. Then, after re-mounting the shell onto the chassis, I installed a few after-market detail parts to make the model appear identical to the unit shown in Figure 2. These included: scratch-built cab window awnings, a Nathan K5LA horn, and a hood-mounted bell to go on the left side – slightly behind the rear exhaust stack (Figure 23). A complete bill-of-materials appears in the appendix.



Figure 24: Finished model, viewed head-on.



Figure 25: Finished model, viewed from rear at a $\frac{3}{4}$ angle.

I also painted black the radiator grilles, air filter coverings, and the tops of the roof fans. Because this type of unit rarely runs over the main line through tunnels, I opted to skip the “grungy” look and just apply some soot-colored weathering powder on and around the exhaust stacks. I also applied a layer of Polly Scale Grimy Black to the trucks and fuel tank, then dusted the lower areas of the truck sideframes with rust and dirt-colored powders. A covering of Dullcote gave the model a slightly sun-faded appearance (Figures 23-26).



Figure 26: Finished model, direct tail-end view.



Figure 27: 3D look at the CSX finished model.


Recap

That covers everything I did to transform a stock HO scale Kato SD38-2 from a Chicago & North Western model to a CSX prototype in the YN2 Bright Future scheme.

Given my lack of airbrushing skill, I never could have completed this project without being able to apply some of the paint colors via decals. Perhaps now you, too, can attempt one of those more interesting paint schemes that might otherwise be too daunting!

Epilogue

Approximately six months after finishing this project, I replaced the constant-lighting circuit board with a decoder, and the factory LEDs with a pair of Miniaturics YelloGlo™ ultra-bright LEDs.

In the near future I hope to install a SoundTraxx Tsunami™ first-generation EMD sound decoder (the prime mover is normally-aspirated, not turbo-charged). #2454 is currently assigned to shoving duty in my layout's south end staging yard. 

Appendix I: Bill of Materials

*Note: All items available via Wm. K. Wathers, **except** Testors custom decal products.*

Item#	Description	Manufacturer	MSRP
37-6522	Diesel EMD SD38-2; Powered -- C&NW #6656	Kato	145.00
AH-343	Air Horn -- Nathan K5LA23 w/Stand	Details West	3.25
BE-129	Bells -- Hood-Side Mount (pair)	Details West	1.25
HL-114	Headlight -- "Pyle" Twin Sealed-beam, Early (pair)	Details West	1.00
MU-221	MU Cable w/Receptacle & Dummy Receptacle**	Details West	2.15
LN-341	Headlight Lenses pkg(10) -- Clear Acrylic 6" Diameter	Details West	1.75
2202	Drop-Type Grab Irons 17" -- pkg(24) (optional)	Detail Associates	4.00
87-575	HO Decals, CSX -- Blue, Yellow & Gray Diesels, 1989+	Microscale	6.50
F414215	Polly Scale Acrylic RR Colors -- CSX Yellow -- 1oz Jar	Floquil	5.39
F414218	Polly Scale Acrylic RR Colors -- CSX Gray -- 1oz Jar	Floquil	5.39
F414221	Polly Scale Acrylic RR Colors -- CSX Blue -- 1oz Jar	Floquil	5.39
F414290	Polly Scale Acrylic RR Colors -- Engine Black -- 1oz Jar	Floquil	5.39
F414137	Polly Scale Acrylic RR Colors -- Grimy Black -- 1oz Jar	Floquil	5.39
9201	Decal Paper -- Clear	Testors	9.99
9200	Decal Bonder	Testors	4.59

** Not yet installed when model was being photographed

Appendix II: Tools and Supplies Used

Air Brush and Compressor
Isopropyl Rubbing Alcohol 91%
Toothbrush with bristles cut to 1/8" or shorter
Paint Brushes, fine- and medium-point
Jewelers Screwdrivers Set
Pin Vise and Drill Bits
Paper Trimmer (optional)
Scissors
Decal Setting Solution (Micro-Sol™ or Solvaset™)
Miniature Needle-Nose Pliers
X-acto™ or compatible hobby knife
Needle File - flat, fine-grit
Xuron™ Rail Nipper or Sprue Cutter
Steel Epoxy Cement
Bragdon™ Weathering Powders
Dullcote™ and Glosscote™ or compatible spray finishes
Evergreen™ sheet styrene ■



Ken Larsen, who was born and raised in southeast Michigan, discovered model trains at age 4. Ken currently lives in central Maryland with wife Vicky, 2 daughters and a son at home and

one daughter in college. His other interests include: skiing, nature hiking, oil painting, and photography.



SmartSwitch Turnout Control



It's about time model railroaders catch up to what other hobbies have done with micro servos – in this *First Look*, MRH staffer Jeff Shultz outlines his experiences with a new servo-based turnout control mechanism from ANE.

ANE Model (<http://www.anemodel.com>) recently released its SmartSwitch Slow-motion turnout machine system. Designed for remote turnout control via either fascia switch or DCC, it also allows for wiring up turnouts for power routing and powering metal frogs. This system is built around servo mechanisms and a 4-servo controller.

The package I received is the A004 SmartSwitch + SmartFrog + Stationary Decoder set.

As seen in Figure 1, this set contains (clockwise from lower left) 4 mounting brackets, a user guide, 4 servos, a bag of screws and 4 toggle switches, two short and two long extension cables, a 4-connection SmartSwitch servo controller, a stationary decoder, and 4 SmartFrog power-routing controllers.

The instructions state that the system can be used with either 9v to 20v DC or up to 25V of DCC track power – straight AC current will not work. I confirmed that it will work with both DC and DCC but settled on using a 12v DC transformer that I had sitting around.

I installed the servo following the instructions, first hooking up the power and testing it before mounting under the layout.

When mounting the SmartSwitch, SmartFrog, or the SmartSwitch stationary decoder, I needed to use either the included plastic spacers or double-sided foam tape.

Installing the included toggle switch is straightforward – I drilled an appropriately-sized hole in my fascia and inserted the toggle switch from



Figure 1: Contents of the A004 SmartSwitch + SmartFrog + Stationary Decoder set.

the back, locking it in place with the nut on the front.

To install the servo itself, the instructions say to drill a 1/4" (6mm) hole directly below the turnout throwbar midpoint. As can

be seen in Figure 2, I made the hole twice as large. My original thought was to do this because I had both 3/8 plywood and 2-1/2 inches of foam to pivot through. As Figure 3 shows, after mounting the bracket

<http://www.anemodel.com>





Figure 2: 1/2" hole drilled through plywood and foam for the control wire.



Figure 3: Servo bracket installed.



Figure 4: Servo installed in the bracket.

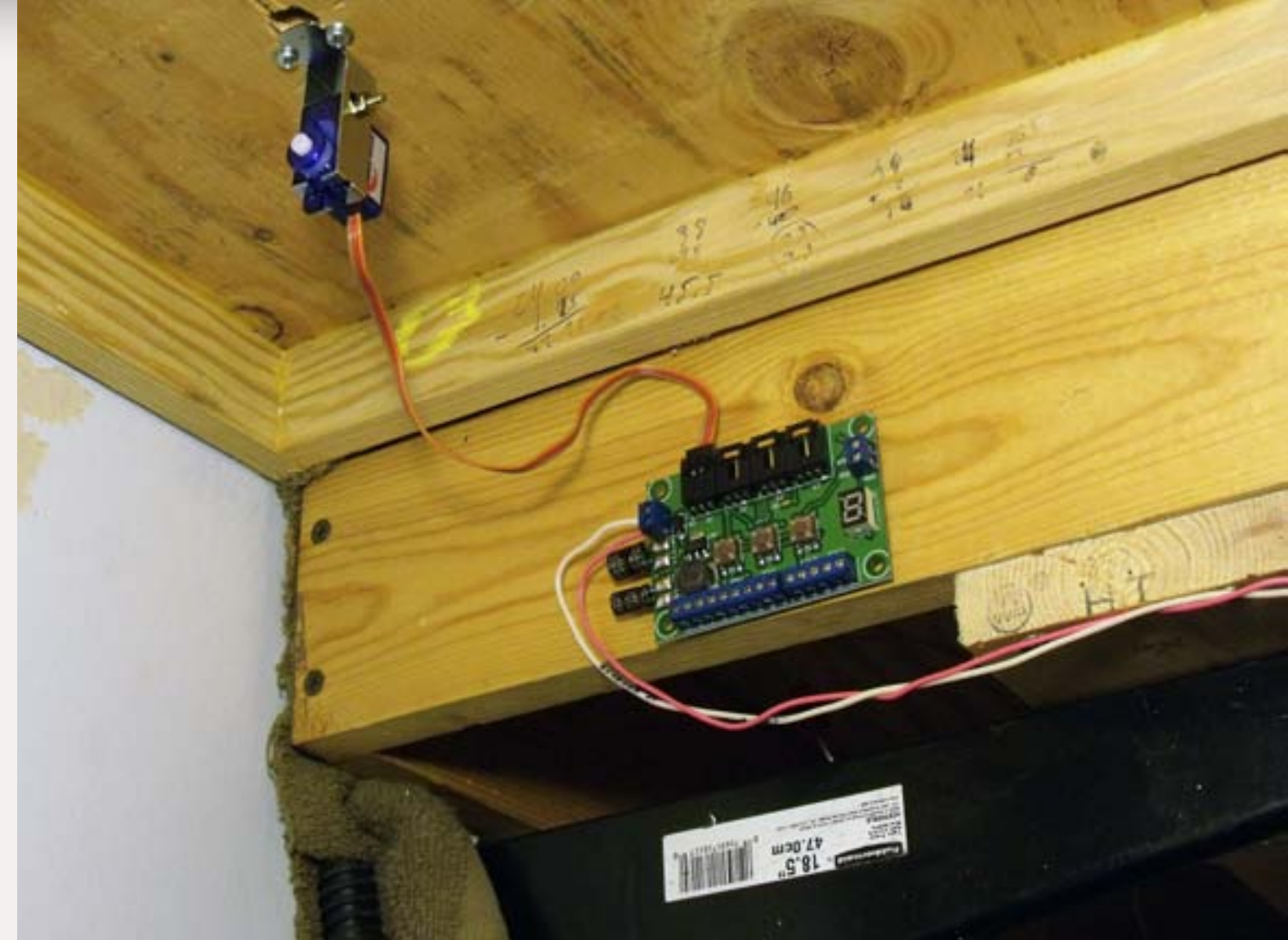


Figure 5: Servo hooked up to SmartSwitch controller and power.

it appears that a 1/4" hole probably would have been sufficient.

The servo fits securely in the bracket using the molded ears on the servo and is locked into place with a screw (Figures 4 & 5).

I installed the servo horn and followed the instructions to center it vertically. I've learned to insert the control wire from the top when installing turnout machines, and it helps to have a second person underneath the layout to guide it into place (Figure 6).

At this point I adjusted the throw of the servo by pressing buttons on the controller (these are not

stall-current motors). This procedure is explained in the instructions and tells the servo to stop rotating after the turnout is thrown.

To see the servo in operation, see Video 1.

The instructions outline a couple of alternative mounting positions, including one on top of the layout beside the turnout and another under-layout in a horizontal position. I plan to try the horizontal mounting alternative on another turnout that is already installed.

Be sure to visit the article feedback thread on the MRH forums to see how that works out for me!

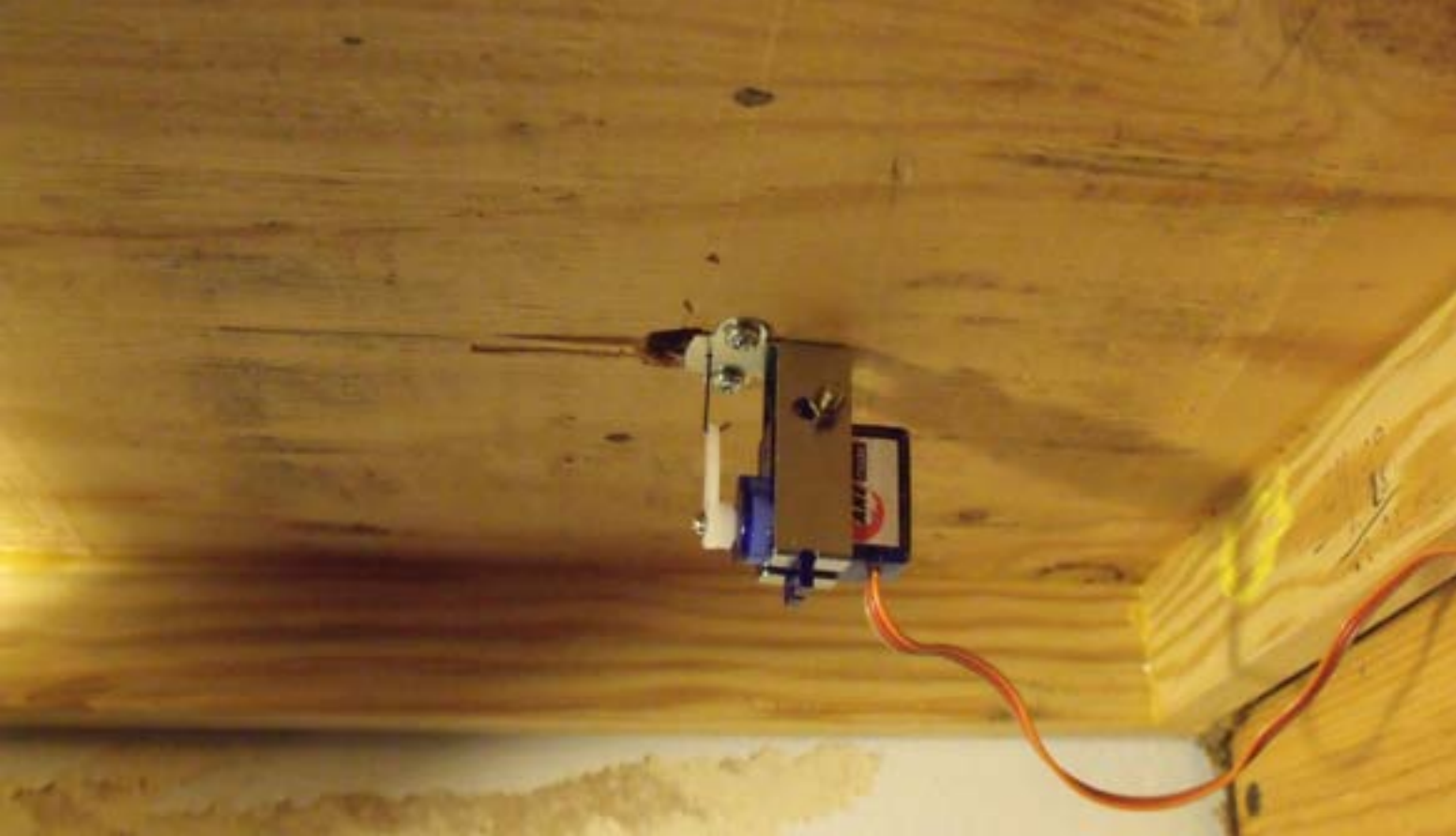


Figure 6: Servo with horn and control wire installed.

The SmartSwitch servo controller will also run indicator lights or signals directly – it can be used, for instance, with either two- or three-leg bi-color LEDs and does not require resistors to be installed in the circuit.

The controller can also be used to adjust the speed of the servo motors for faster or slower turnout throws.

The A004 set includes both SmartFrog power routing controllers and a SmartSwitch stationary decoder.

The SmartFrog is wired between the SmartSwitch controller and the servo to route track power down whichever leg of the turnout the turnout is thrown to,

preventing shorts. It can be used with both live and insulated (dead) frogs. The SmartSwitch stationary decoder is used in place of the toggle switches and can control up to 4 servos through the SmartSwitch controller.

I plan on at least testing it on my layout, although I tend more towards the toggle switch school of remote turnout control.

One fascinating option mentioned in the instructions that I'd like to try involves using the stationary decoder in tandem with a push-button switch – the instructions say to look for further details on the product website, but they aren't there as of this writing.



Video 1: Demonstration of the ANE slow motion turnout servo action.

You program the decoder addresses using the DCC controller and a button on the decoder. The instructions cover the steps for Digitrax, NCE, Lenz and MRC DCC systems.

Other systems will also work, you'll just need to follow their instructions for how to switch to accessory mode and execute the required commands for the decoder to recognize it.

The A004 SmartSwitch + SmartFrog + Stationary Decoder set as well as their other sets are available through the ANE Model website (<http://www.anemodel.com>) and retail for \$149.99, which can control 4 turnouts. If you get just the SmartSwitch set, it's \$85.99 for 4 turnouts.



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About our layouts columnist



Charlie Comstock is our layouts editor and columnist.

This column documents the 3rd version of his Bear Creek & South Jackson railroad.

[Click here](#) to learn more about Charlie.

Charlie Comstock is ...

UP THE CREEK: Night time - layout and structure lighting

A regular report on the construction of a 1950s-something layout

 **Reader Feedback**
(click here) 

Simulating the night adds a exciting new feel to an existing layout. I explain the ways I achieve this type of ambiance on my BC&SJ layout ...

I'm a night-owl. If you're like me you're fascinated by street lights and the light spilling from windows and doors, all contrasted against the dark.

Moonlight

Poets have written about it, Beethoven wrote the Moonlight Sonata, and movie studios have struggled to simulate it. Real moonlight is too dim to shoot movie film - the result would be nearly black. Cinema-

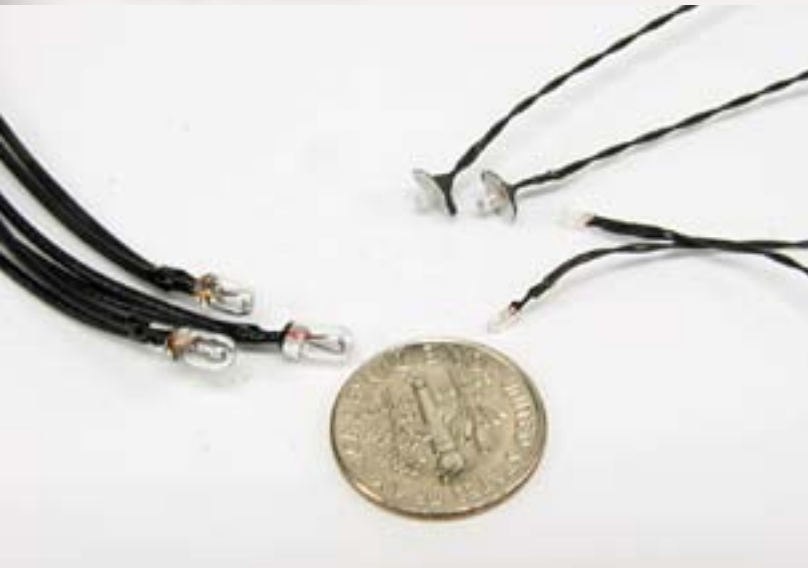
tographers long ago discovered that bluish lighting looks like moonlight and that's what I'm using on my Bear Creek and South Jackson.

Blue rope lights usually go on sale after Christmas at big-box stores (figure 2). I strung this stuff around the ceiling. It works fairly well - the room is definitely dark and the bluish light suggests moon light. Not quite the feeling that inspired poets to write endless verses, but good enough.





FIGURE 2 (above): blue rope lights.
FIGURE 3 (below): Miniature light bulbs - (left) grain of wheat (12V), (right) grain of rice bulbs (1.5V), (center) grain of rice bulbs with lamp shades.



Rope lights work well with standard incandescent light dimmers giving fine control of brightness.

If I get a budget that will permit it, someday I may replace all the fluorescent ballasts in my ceiling with 1% dimmable ballasts and dimmers (these special electronic ballasts allow dimming fluorescent lamps to 1% of full brightness) instead of using rope lights. But at around \$80 or more *each* for ballasts, that day is not now!

Screw-in compact fluorescent lights can't be dimmed enough to create a good nighttime effect, and dimmed standard incandescent bulbs are too reddish, so I chose not to use them.

Structure lighting

Buildings with lights on (inside and outside) are nice during the day. At night, however these lights fill a scene with drama (see figure 19).

There are two major types of lights used in model buildings - LEDs and incandescent bulbs. I use mostly incandescent lights so they're what I'll write about here.

Things to watch out for...

- Always verify that you have the correct voltage before connecting any lights or a power supply for the first time.
- Verify polarity is correct. Plus and minus can be important. I've blown out a building full of 1.5V lights by reversing polarity on a regulator circuit...
- Set up a color code for wiring and stick to it. This will help avoid confusion about whether a building should be hooked up to 12V or 1.5V.
- Don't glue lamps in place. If they fail and need replacement, you'll be sorry.
- Don't make the room too dark or people will bump into things or trip. Both the layout and crewmen are likely to suffer.

Nothing looks more like an incandescent lamp than an incandescent lamp. LEDs don't come close (though LEDs are good for emulating high intensity mercury and sodium vapor lights used in warehouses or gymnasiums).

Incandescent lights are categorized by size, voltage, and current draw. It's usually (but not always) the case that the smaller lamps run on 1.5V while the larger ones use 12V or even 16V (figure 3). Bulbs last much longer if they are operated at less than their rated voltages.

Getting the right voltages

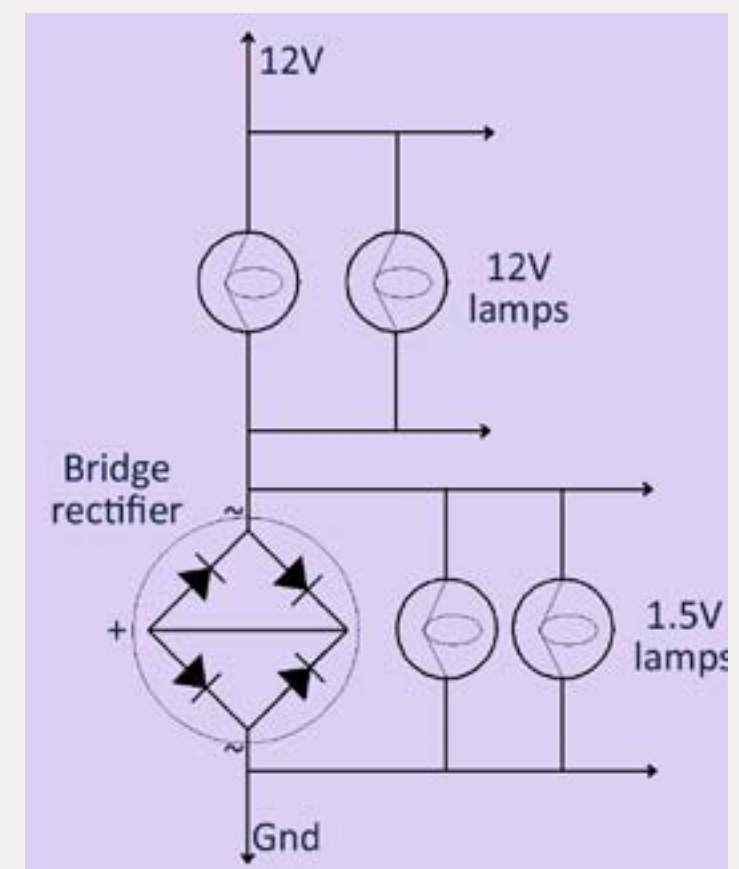
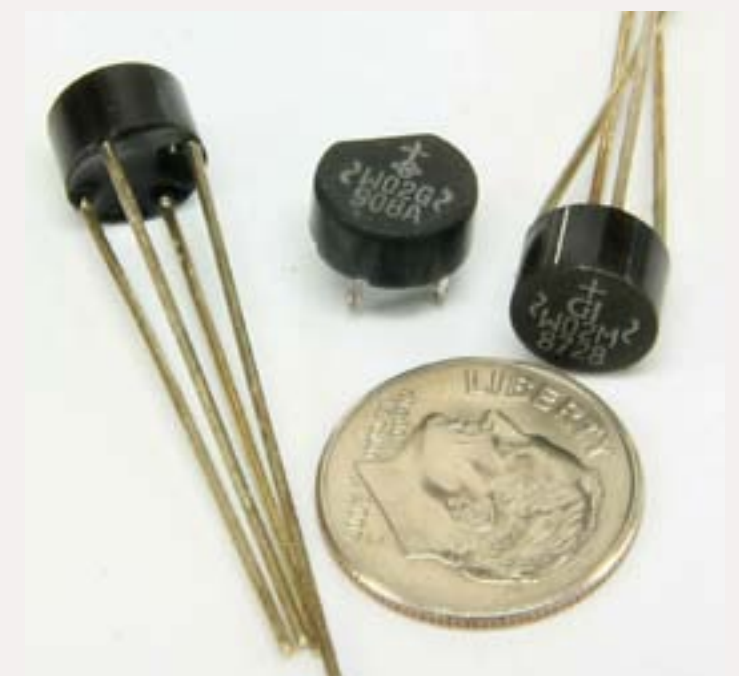
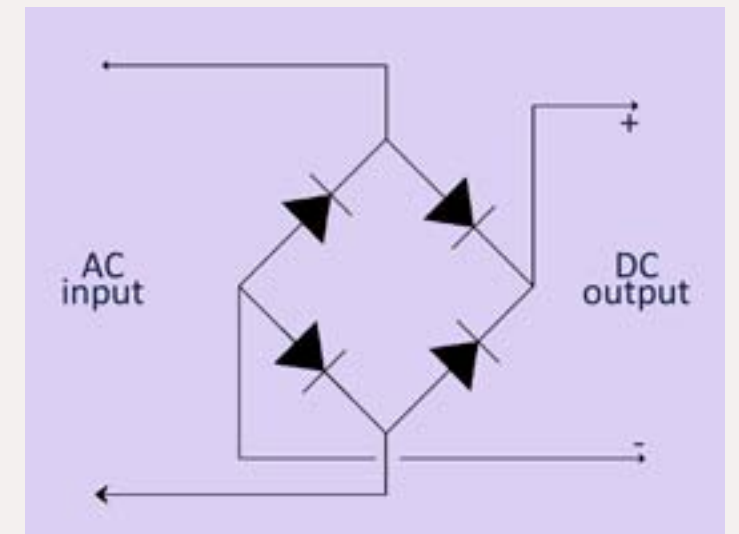
If all the lamps in a building are 12V, life (and the building wiring) is easy. When I'm mixing 12V and 1.5V lamps it's trickier, but there is a relatively simple solution I use.

It turns out that silicon diodes require about 0.7V before they'll start conducting. Once they're conducting, that voltage barely increases no matter how much current is pushed through the diode (until too much power is applied and they fry). Two diodes in series have a voltage drop of about 1.4V across them. That's a good voltage for 1.5V lamps - it's high enough to light

FIGURE 4: (right/top) Diodes configured as a bridge rectifier

FIGURE 5: (right/middle) 1 amp bridge rectifiers. Note the ~ and + markings on their cases!

FIGURE 6: (right/bottom) Wiring for a building with both 12V and 1.5V lamps. Note the connection between the + and - terminals of the rectifier.



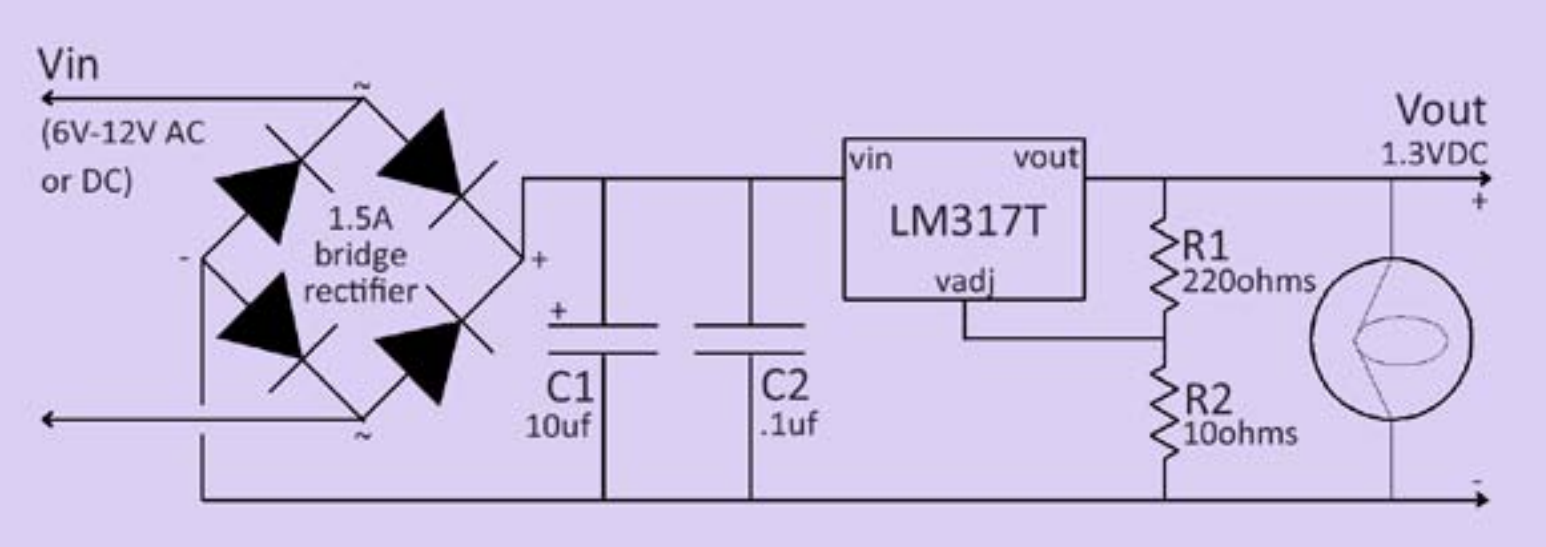


FIGURE 7: Circuit for a 1.3V power regulator. It will function with an input voltage from 6V to 16V either AC or DC (inputs are polarity independent). Capacitor C1 is only needed if AC input voltage is used. C2 suppresses ringing on the output if the wires from the input power source are longer than 6 inches. Output voltage is set by resistors R1 and R2 as follows:

$$V_{out} = 1.25 (1 + R2/R1).$$

A LM317T in a TO-220 package with a suitable heat sink will regulate up to 1.5 amps at 1.3V (with the proper power input). Figures 18b and c show the Mill Bend cold storage building with 1.5V lamps powered by such a regulator.

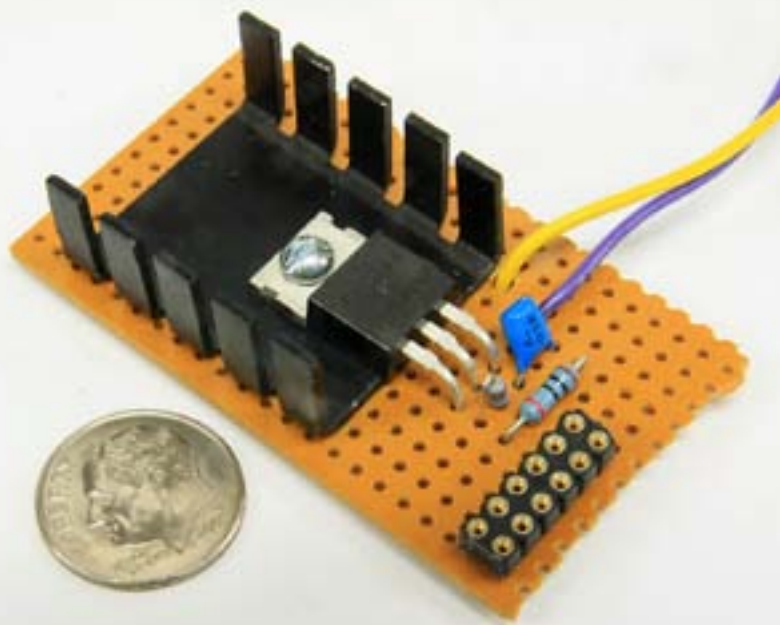


FIGURE 8: My prototype 1.3V power regulator. It is connected to a 6-12 VDC or VAC power source (via the yellow and violet wires). Up to 75 30ma 1.5V lamps can be connected to this device in 6 circuits (plugged into the 12 pin connector). The heat sink on the TO-220 chip allows this circuit to handle up to 1.5 amp.

them up, but low enough that they last a long time. Model Railroaders have been taking advantage of this phenomena for decades to get constant intensity lighting circuits in DC locomotives.

There is a special configuration of 4 diodes called a bridge rectifier (Figures 3 and 4). That's a fancy name for a way to convert AC to DC power. We can use the diodes in a bridge rectifier for our lighting circuit by connecting the + and - outputs together (see Figure 5). Since there are two conducting diodes in series (whether current is top to bottom or bottom to top) there will never be more than 1.4V across the bridge rectifier and the 1.5V lamps across it.

By connecting our 1.5V lamps across the diodes we guarantee they'll never get too much voltage (an important consideration with those 1.5V lamps!).

There is a potential problem with the circuit in Figure 3 though - it will only work if the total current through the 12V lamps is greater than the total current needed by the 1.5V lamps.

If there are four 30mA 1.5V lamps and two 50mA lamps that's 120mA in the 1.5V lamps, but only 100mA in the 12V lamps (mA stands for milliamp or 1/1,000th of an Amp). There won't be enough current flowing through the diodes to bring them up to 1.4V and the 1.5V lamps will be very dim. The answer is to add some more 12V lamps or remove some 1.5V lamps. Or the 1.5V and 12V lamps could be powered separately.

A 1.5 volt power source

A D-cell battery makes an excellent 1.5V power source. It will never generate too high a voltage and burn out all those tricky-to-install-bulbs. However batteries go dead and need replacement so a power supply connected to grid power is generally needed.

I worry about my 1.5V lamps. If a power supply fails and somehow puts 12V on them they'll become flash bulbs. Big oops! I chose to use a LM317T voltage regulator chip to produce a 1.3V output. This voltage will light the bulbs but is low enough to give them long life. The circuit is shown in Figures 6 and 7. To change the voltage output select appropriate values for R1 and R2.

$$V_{out} = 1.25 (1 + R2/R1)$$

Changing R2 to 26 ohms yields:



FIGURE 9: Lamp shades cut from .010" styrene. I twist the wires together to approximate the conduit that would support these lights.

$$V_{out} = 1.25 (1 + 26/220) = 1.4V$$

I strongly advise checking the output of each regulator circuit BEFORE connecting it to your structures.

Adding the optional diode bridge will protect the output from overvoltage, but it will draw current, reducing what's available for the lamps. I chose not to use it.

The cost of an LM317T is under \$.50 at [Allied Electronics](#) or [Digi-Key](#). The total parts cost for a 1.5 amp regulator is under \$2 including the perf-board and connectors.

Interior vs Exterior lights

I often use 12V bulbs inside my structures and use the 1.5V bulbs outside where their smaller size is more suitable for HO scale (sometimes I use 1.5V bulbs inside, too). If you model in a larger scale the bigger bulbs may be a good choice for you.



FIGURE 10: Mounting ceiling lights in the BCSJ office at Oakhill. Note the wiring closet in the lower right.

FIGURE 11: An operating desk lamp. I had to drill a hole through the desk to mount this guy!

Exterior lights

Exterior lighting often has a lamp shade. If I'm using 'shaded' lights I prepare the bulbs by twisting their leads together. I use a punch for a 3-ring binder to cut out lamp shade blanks from 0.010" styrene. I use a jig to give the lamp shades a conical shape.

I made my jig by drilling a very shallow hole in a scrap of wood with a $\frac{5}{16}$ " bit. The hole is not even $\frac{1}{8}$ " deep. I press the lamp shade blank into hole and burnish it. Then I drill a hole in the center of the shade big enough for the leads of the 1.5V bulb to pass through. I thread the leads through the hole and ACC the shade in place. When the ACC dries, I paint the top of the lamp

shade a dark color (so light won't show through the thin styrene). See Figure 9.

I drill a small hole in the side of a building where the light will be installed, thread the lamp's wires through the hole, and tape the wires inside to hold them in place (don't glue the wires, it will be a problem if you ever need to replace the light!). See figure

Mounting interior lights

I mount interior lights in different ways. For ceiling lights I'll put strips of styrene across a ceiling and thread the bulbs' wires through them, leading to a wiring closet (figure 10)

I make desk lamps by drilling holes in bits of $\frac{1}{8}$ " round stock. I file the top piece to look like a lamp shade and paint it tan.

FIGURE 12: With the lights on at night it's obvious there's nothing inside the South Jackson Mill and Feed if someone looks through the windows...





The Junior Hoghead says ...

I really like the way night time lighting looks. I love seeing all the lights and getting a good look inside the buildings I made with detailed interiors.

I love to run trains at night too because it looks so cool and I want to start having some night-lighting time during my op sessions. I can't wait to show my pals the new night lighting!

Someday I plan to install a system to automatically go from day to night and back to day again with sunrises and sunsets all under computer control. ■



FIGURE 13: Interior details are clearly visible at night. Each story in this building has its own floor and interior wall assembly complete with wiring.



The Old-Timer says ...

I like to see what I've put all my hard work into creating and night scenes look neat, but the darkness hides my work except building interiors, and it just gets real old real fast.

Having operations in the dark is a real pain. I don't like needing a flash light to see what's going on - not to mention it's harder than heck to re-rail a car when you can't see where the wheels are!

As far as lighting automation goes, the equipment for that is pretty spendy. I'd rather use my hard earned \$\$ to build more railroad. ■

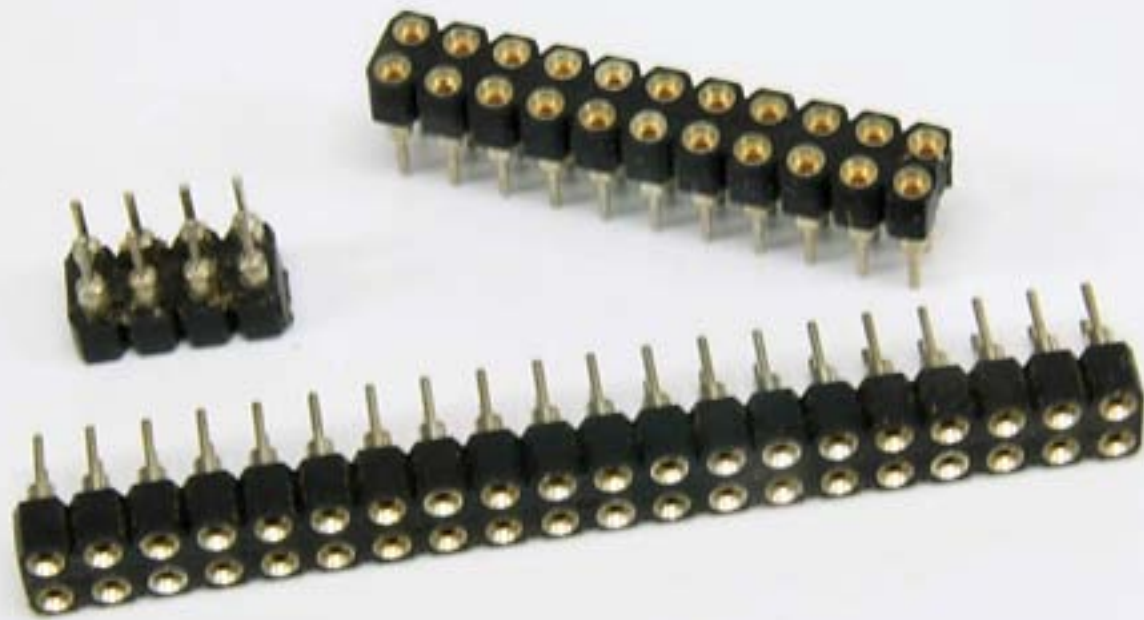


FIGURE 14 (left): Socket strips with pins on 1/10" centers. These strips are a bit flexible. I cut them with an X-acto blade to get the number of circuits I need - two for a single building light circuit.

FIGURE 15 (right): Building wiring with a homemade connector.

FIGURE 16 (below) The depot and plywood mill lit up in Mill Bend at night.



The lower piece is filed to look like a lamp base (figure 11). I thread a bulb's wires through the bottom piece and set the shade on top of the bulb.

Building Interiors

Interior illumination in buildings looks pretty cool when the train room is darkened and lit by 'moonlight'. I love the look of light spilling out a window across the ground below.

However, if light can get out, visitors or crewmen can see in, and notice the building is merely an empty shell (figure 12).

Buildings at eye level with interior lighting are especially prone to 'empty building syndrome' - either frost their windows so onlookers can't see what's missing inside, or add some interior details (or a facsimile of detail!). I detailed the BC&SJ office in Oakhill using components from SS Ltd. They look great but are a bit expensive. In the smaller scales (N and HO) visibility through windows is pretty restricted,



FIGURE 17: The Mill Bend depot and plywood mill at night

so it's OK to approximate interiors instead of going nuts with details (if you do add a bunch of details consider entering a modeling contest!)

Wiring

Wiring is crucial. I want to keep my buildings removable for maintenance (or if they move to a new layout - again).

That implies making the wiring unpluggable. There are lots of different connectors available but most of them are too big or too expensive.

I found some socket strips at a local electronics retailer (figure 14). I sawed them apart and made mini connectors (figures 15 and 18a). They're relatively economical and are small enough to

A clipping from the South Jackson Gazette

Burglaries Baffle Railroad Police!

Railroad police in Mill Bend are baffled by a series of burglaries. In each case thieves made off with furniture, plumbing, carpets, stoves, fixtures and wall paper.

Said Horace Fithers, a local of neighboring Oakhill, "Heck, all them dad-gum thieves left were the paint on the walls and the ceiling lights!"

Indeed the burglarized buildings look almost as though there was never any furniture present at all!

"Ya know", sighed Abe Euhnett, engineer on the BC&SJ. "Us railroad personnel were really looking forward to finally using these buildings once the electricians got the lights installed in them. Used to be so dark in 'em, there wasn't any point going inside. Then just when it got so we could see something, this happened. Heck, I'd never even been in the Mill Bend depot before."

Meanwhile, an ugly rumor is circulating that the railroad never bothered to install any furniture or fixtures at all in some of their buildings! Certainly no one in their right senses would believe such a wild story?



Burglarized building in South Jackson

All this reporter knows is that the area is quite unsettled and is likely to remain that way until the crime is solved and the culprits are brought to justice. ☒

* If you like the South Jackson Gazette, you can read more at bcsjrr.com.

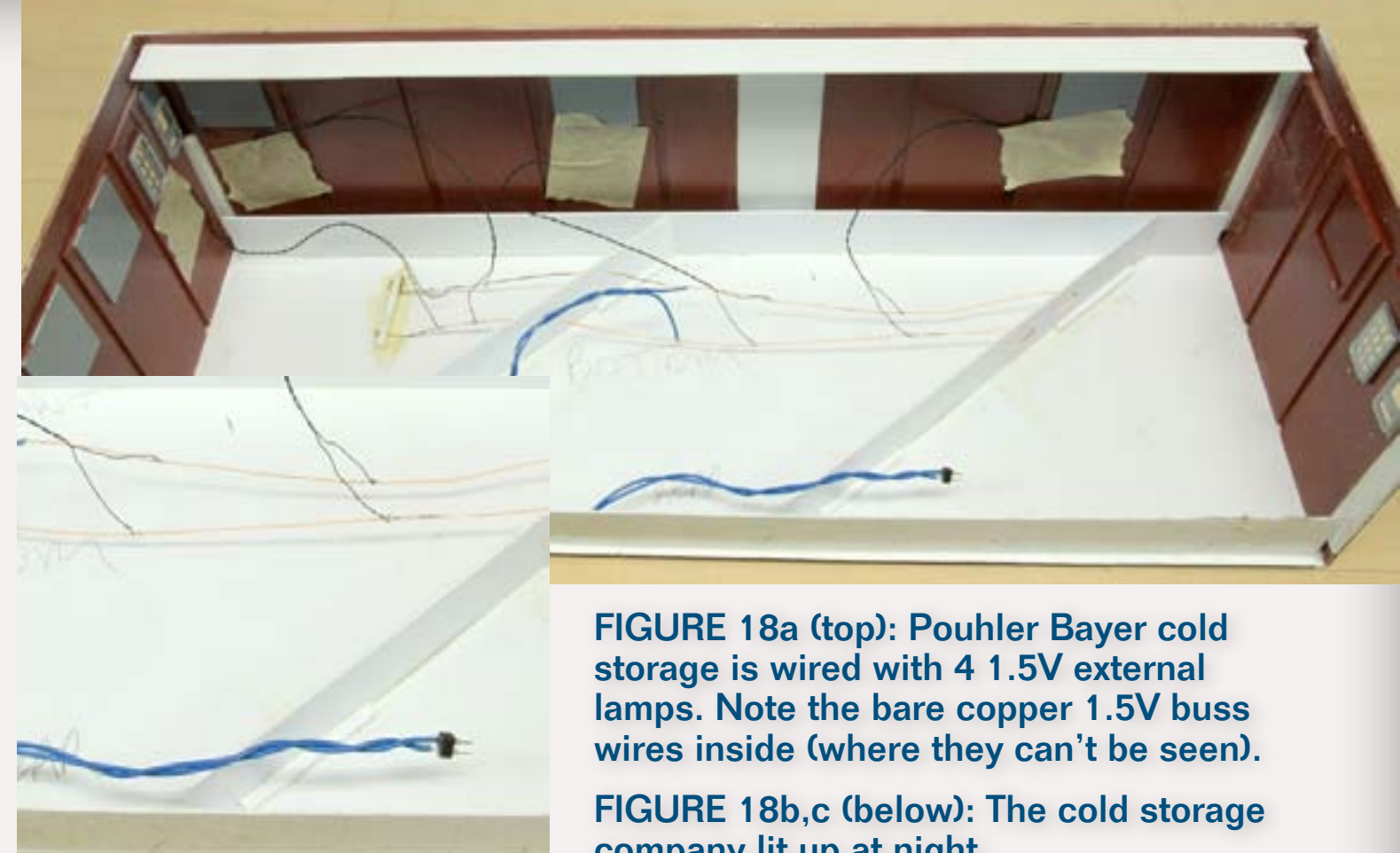


FIGURE 18a (top): Pouhler Bayer cold storage is wired with 4 1.5V external lamps. Note the bare copper 1.5V buss wires inside (where they can't be seen).

FIGURE 18b,c (below): The cold storage company lit up at night.





FIGURE 19: The railroad never sleeps - SP&S 79 passing Deschutes Jct. after sun down.

easily fit through a 3/8" hole drilled in the subroadbed under a building.

Figure 18a shows how I wire buildings where the interior can't be seen. I strip the insulation from 2 pieces of solid 22 ga wire and use them as buss wires. I solder the lamp's leads to the buss wires and attach a length of feeder wiring terminating in one of my home-made connectors. I use blue for 1.5V and orange for 12V feeder wires.

For buildings where lots of windows show off their detailed interiors, bus wires are not practical. Instead I build a wiring closet (figure 10) and keep as much of the wiring as possible hidden away in it.

For multi-story buildings with detailed interiors, I find it easiest to make the

floor and interior walls for each story as a separate assembly with its own wiring. Each floor assembly has a wiring closet stacked above the closet on the lower floors. I use my home-made connectors to plug the floors together. This way if any bulbs burn out I can disassemble the building for repairs.

Summary

With moon glow from above and buildings lit up below, the drama of nighttime railroading has come to the Bear Creek and South Jackson Railway Co. It may not be the lighting you'd choose for an op session, but I highly recommend you give it a try, even in a small area - the results can really make your eyes pop!



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GETTING REAL: Scratchbuilding Brick Structures

Adventures in Prototype Modeling

About our
prototype modeling
columnist



Marty McGuirk is an avid Central Vermont fan, modeling the “Southern New England” – an HO scale proto-freelanced railroad set in the 1950s and based in part on the real Central Vermont Ry.

[Click here](#) to learn more about Marty.

Photos and illustrations by the author unless otherwise credited.



Ever wished for some straightforward techniques to duplicate a simple brick building? Then read on ...

Face it, if you want to model a prototype railroad somewhat faithfully you're going to have to do some honest-to-goodness scratchbuilding.

With all the wonderful ready-to-run and craftsman rolling stock kits and the like that are available today you may be able to model some prototype railroads without facing the need to scratchbuild rolling stock. But if you have any desire to model a scene or actual place you're going to have to learn to scratchbuild structures.

The techniques used to build a model of a frame (wood) structure and a brick or masonry structure are different. In this column I'll show you how I built a small brick storage shed for my model of the Central Vermont's East New London, Connecticut yard. In a future column I'll show you how I scratchbuild models of frame buildings.



FIGURE 1: This small brick shed was used to store flammable materials by the Central Vermont Railway in New London, Connecticut. It had been a while since I'd built a structure, meaning this offered a perfect prototype to shake the rusty edges off my structure building skills.

I won't bore you with a lot of the details of this somewhat non-descript building. That's a good thing, since I really don't know all that much about it. I do know it shows up on the 1921 Sanborn Map of New London. And, although it's almost completely covered with weeds and overgrowth, the thing was still there as of last summer. Its purpose was obvious.

The New London roundhouse (at least the most modern portion of it)

was a wood-framed structure. A brick shed like this (it's about the size of a detached garage) provided a safer place to store oil, grease, paint, etc., and minimizes fire danger to the larger roundhouse.

As buildings go it would be hard to find one a great deal simpler – it's just a rectangle. But in building it we'll cover all the basic steps needed for almost any masonry structure.

Continued on Page 3



FIGURE 2: Since the building is still standing in the New London yard, it was available to measure. My friend, and fellow CV modeler John Paganoni, took this photo, measured the building, and drew up a set of plans. John is also modeling the CV's Southern Division and lives in the same town as I do . . . in Virginia. What are the chances of that?

FIGURE 3: Starting with John's HO scale print out of the drawings, I transferred the dimensions of the walls to the .040" plain styrene subwalls. Then I used my caliper to locate the position of each door and window relative to the corner of the building.

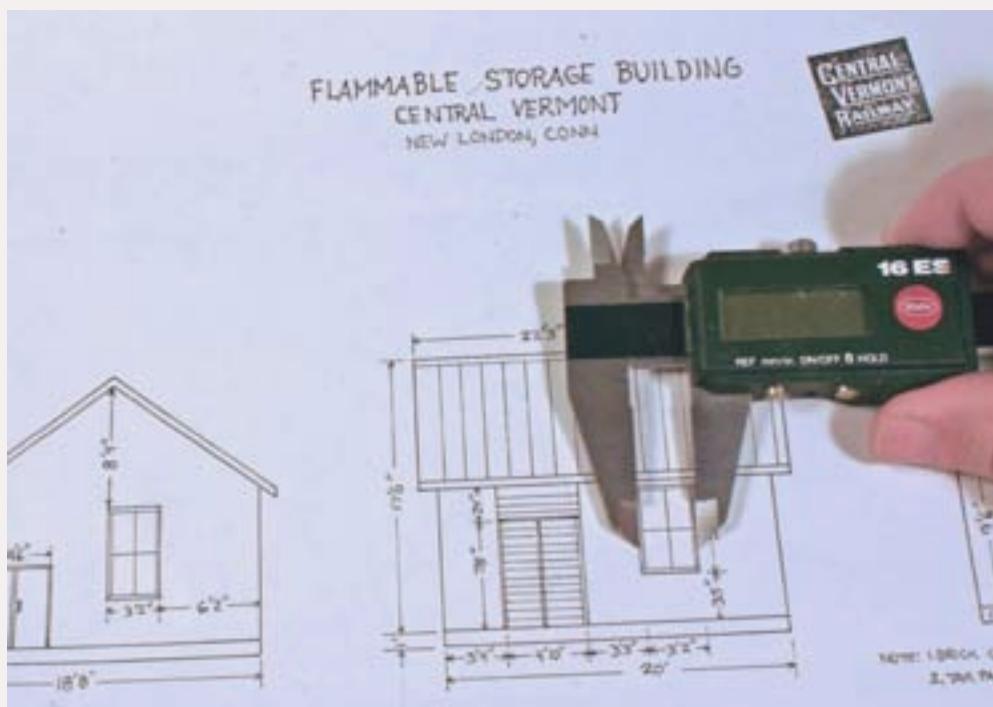


FIGURE 4: Here are the basic components of the building arranged on subwalls. If you plan to use commercial castings, it's important to use the dimensions of the window and door castings instead of the prototype dimensions. I found Grandt Line windows and a Tichy door that were close enough to the dimensions of the prototype to use without modification.

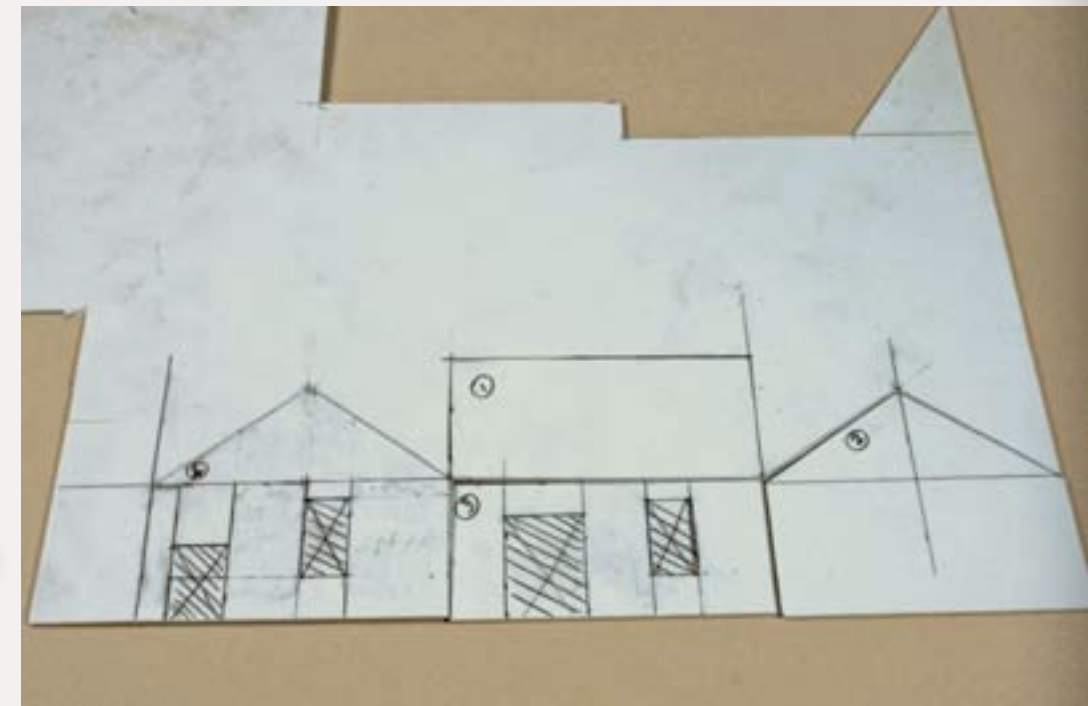


FIGURE 5: To determine the size of the window and door openings, I measured the castings with a caliper. Since this particular window is made for a frame building, I mounted it from the inside of the building (masonry structures don't have visible window frames on the exterior) and inverted the window so the upper sash is beyond the lower sash.



I acquired the techniques I used to build this building from a variety of places. The “scribe and snap” styrene wall technique was first published, if I recall correctly, by John Nehrich of NEB&W fame. It’s an easy and quick way to cut out window openings for brick walls.

The painting and weathering techniques I’ve picked up over the years – frankly I don’t remember which I came up with and which ones I learned from someone else.

The model consists of a .040” Evergreen plain styrene subshell with HO

Scale Modern Brick embossed styrene overlaid on top of it (available from N Scale Architect). I created the wall and door openings by measuring the window and door castings, transferring those dimensions to the plain styrene, and then scribing and snapping the styrene. The easiest thing to do is to

show you how I built this structure from the beginning. Follow along with the photo captions (previous page and following).

Once the basic brick walls were assembled and painted, I added a roof made from Evergreen standing-seam

FIGURE 6: I transferred the measurement of the window casting directly to the plain styrene.



FIGURE 8: It’s better to make several light cuts rather than one heavy cut. Once the styrene has been scribed, simply bend the styrene – it will snap right at the scribe line and create a smooth edge.

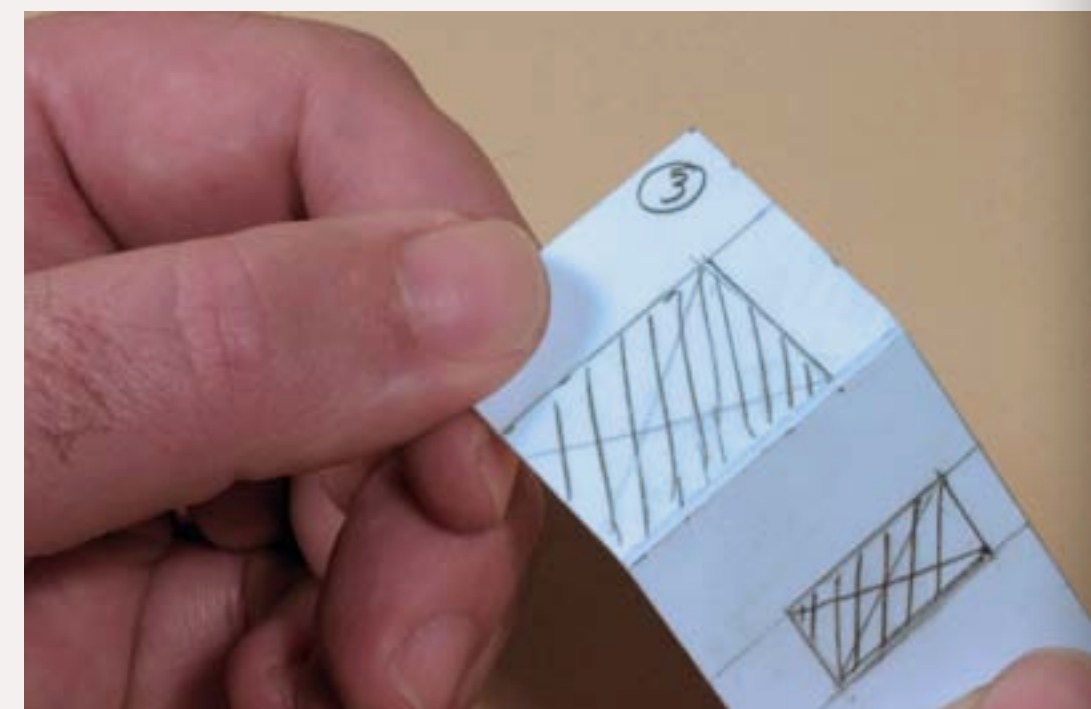


FIGURE 7: Using a sharp no. 11 blade and steel rule I scribed along the guidelines. The idea is to break the wall apart, remove the sections (with the cross-hatch marks) for the window and door openings, and then reassemble the wall pieces.



FIGURE 9: Discard the areas where windows and doors are going to be installed and then reassemble the walls. Here’s one of the walls showing the individual segments before the subwall has been reassembled.



roof material. I painted the roof black and then drybrushed various shades of brown and rust-colored paint. I also brushed some Bragdon's weathering powders onto the roof. Then I

mounted the completed building on a piece of styrene with cinder ballast and placed a variety of barrels and pallets from my box of detail around the model. I also included a

Rix telephone pole since a pole was located next to the shed on the prototype. A few weeds (from Silflor) at the base of the shed completed the model. When it comes time to install it

on the layout it will be a simple matter to blend this little building on its base with the surrounding ground cover.

FIGURE 10:
Carefully align the edges of the individual pieces and then dab a few drops of liquid styrene cement along each seam. Nudge the pieces together as needed. (Note: Reassembling subwalls is the only time I use the brush that comes in the styrene cement bottle).

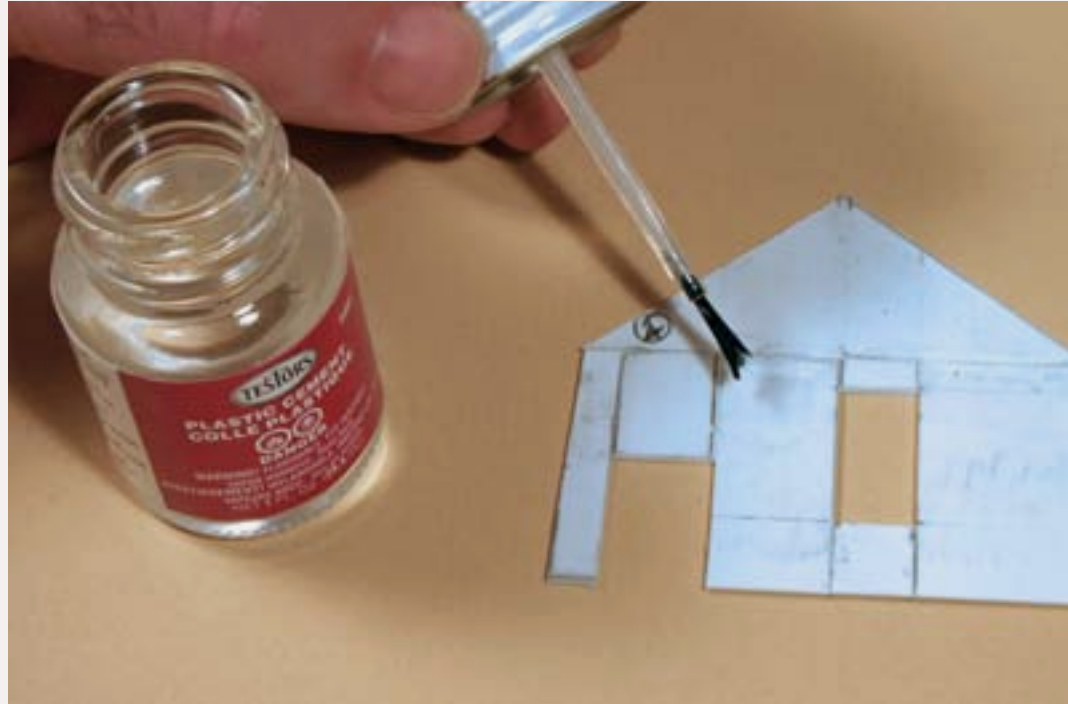


FIGURE 11:
I've completely reassembled the subwalls. If there are rough edges along the weld lines, lightly sand the surface of the subwall.

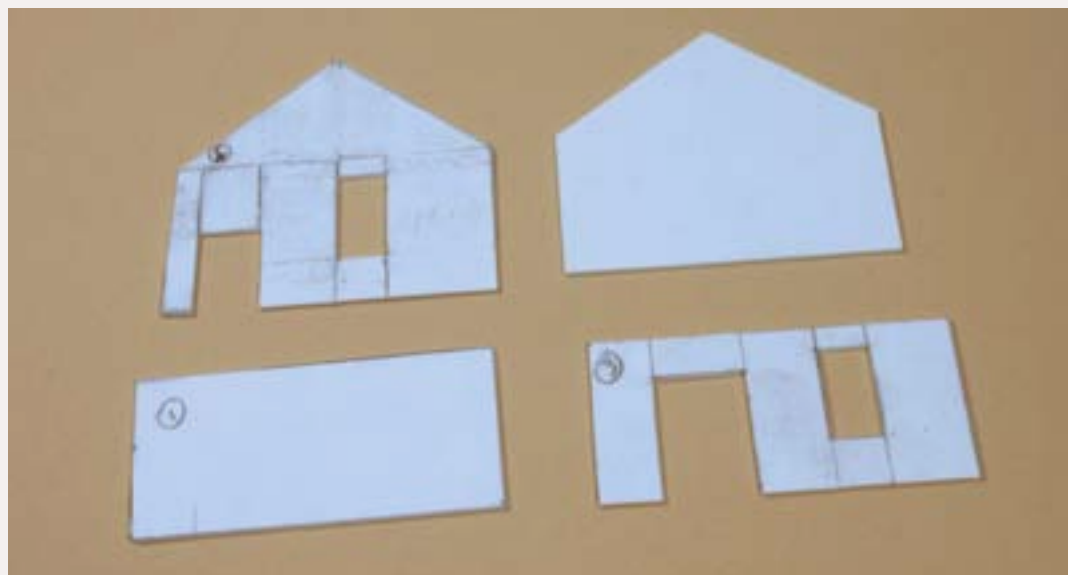


FIGURE 12: Once the subwalls have dried completely, place each one face down on the rear of the brick sheet. Carefully run a bead of cement along the edges and then wait a few minutes until it has bonded the two pieces together. For larger walls, I brush some cement on the back of the wall before placing it on the brick sheet.



FIGURE 13: Once the brick sheet is bonded to the subwall, I used a sharp knife to carefully cut out the window and door openings. Note the brick sheet is left long on two of the walls so the brick pattern will cover the end of the plain styrene on the completed model.

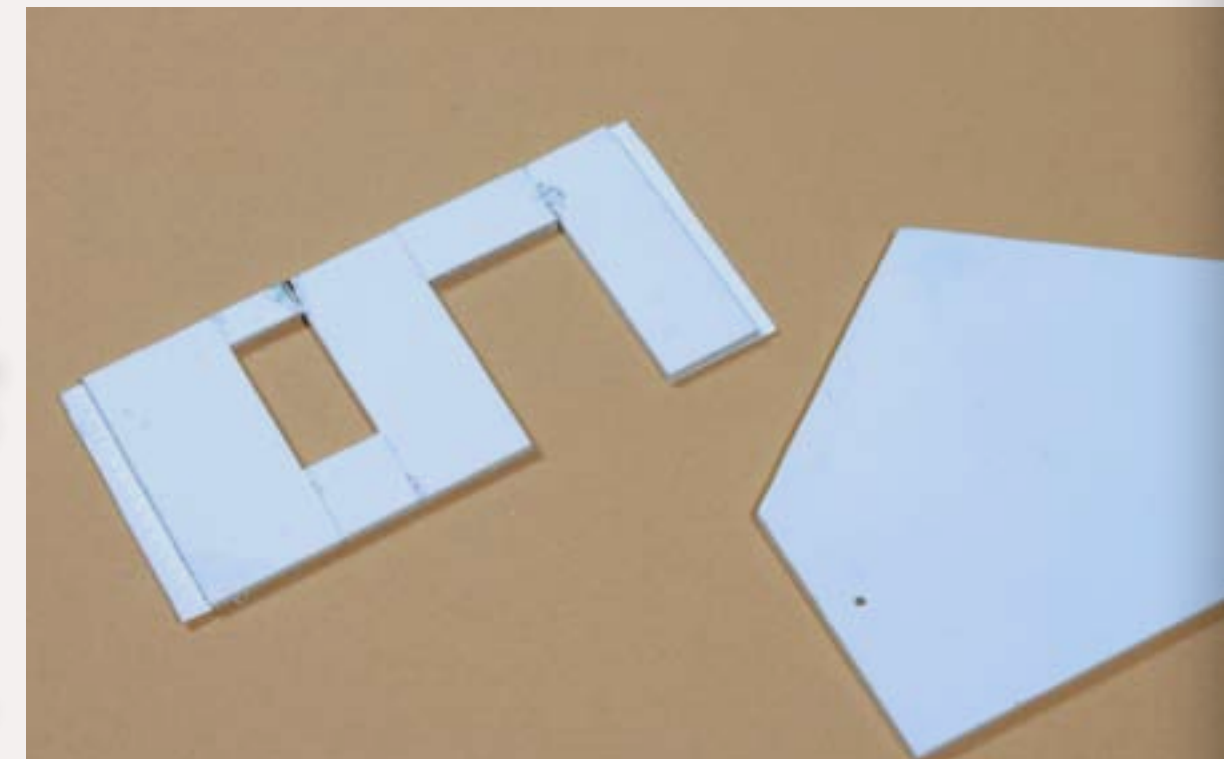
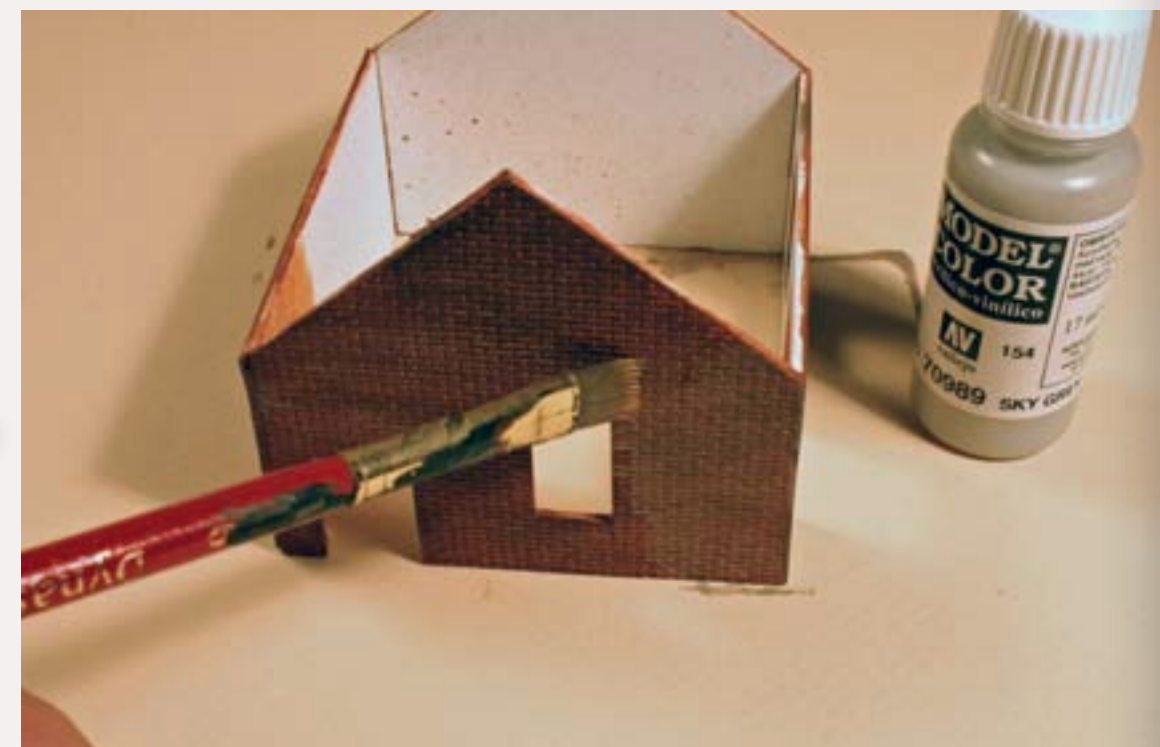


FIGURE 14: Once the brick sheet was trimmed, I glued the four walls together. Here's the model ready for brick painting.

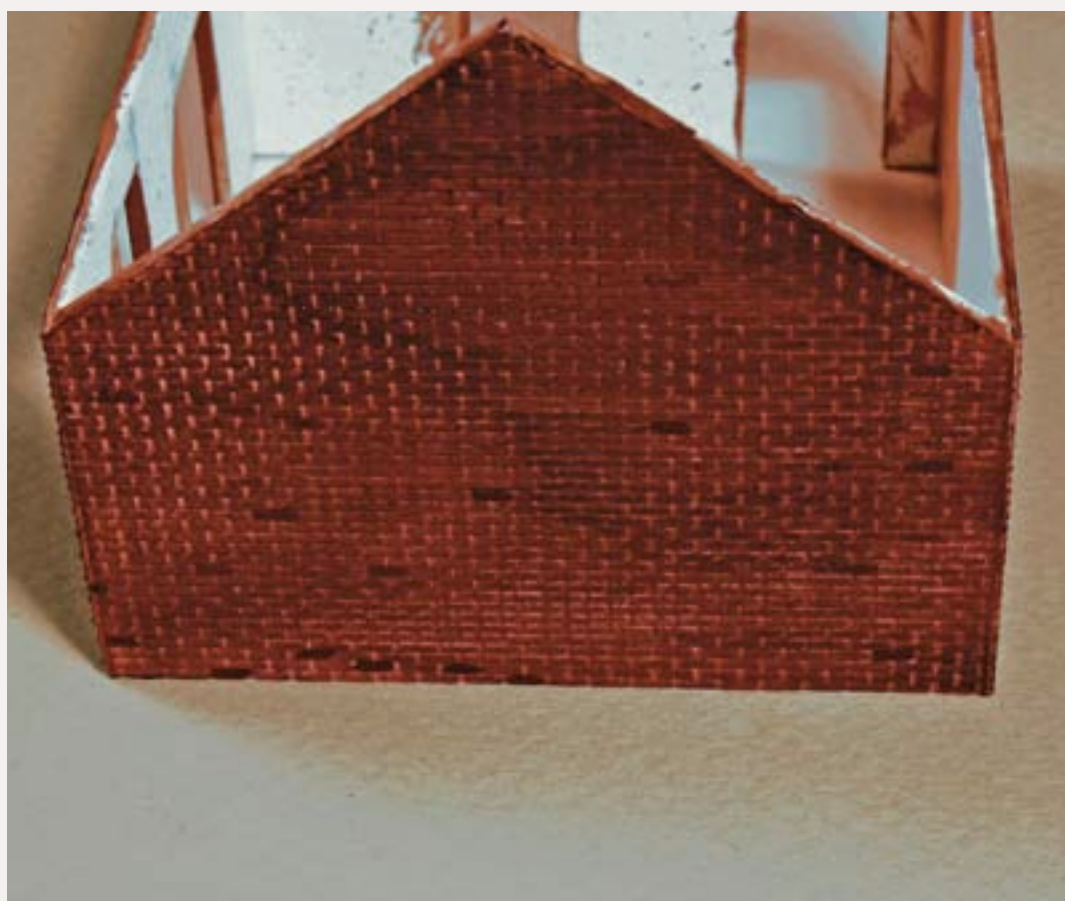


FIGURE 16: To blend the bricks together, I used a very thin wash of gray paint, in this case thinned Valejo Sky Grey (but any light gray will work). Dip your brush in the paint, and very gently run the brush across the brick surfaces.



The capillary action causes the paint to flow into the mortar lines and also tones down the brick surface.

FIGURE 15: The key to realistic model brickwork is subtle variations in color. I started by painting the bricks a fairly light red – in this case a random combination of Red Iron Oxide and Barn Red, both from Delta



Ceramcoat paints available at most craft stores. Once the initial coat had dried completely, I used various shades of brown, red, and gray to highlight individual bricks.

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FIGURE 17: 3D Click-n-spin of the completed HO brick storage shed based on a Central Vermont prototype.



About our N-scale columnist



John Drye is our N scale editor and columnist.

[Click here](#) to learn more about John.

COMME-N-TARY: Kit-bashing, Kit-stretching and Kit-mingling

Modeling in the hobby's most eNgaging scale



Different ways to combine parts from two or more kits to create a unique, prototype-sized industry for your layout ...

One of the characteristics of N scale layouts is that there often is lots of room for industrial structures. Since most model railroaders are 12" to the foot scale, aisles and benchwork elements are constructed to match that size. The smaller the trains, generally, the more space for structures and scenery.

This article focuses on plastic models of industrial structures such as those offered by Atlas, Design Preservation Models, Faller, Kato, Pikestuff, Vollmer, Walthers, and others.

Many of the structures represent pretty small industries in N scale; around 100 by 200 scale feet. Fortunately, many are designed for expansion or can be easily modified. A few tricks can result in an



FIGURE 1: Several Walthers Paper Mill brick warehouse kits have been combined to create this large structure on Bernie Kempinski's NTRAK Module (B. Kempinski photo).

easily-modified structure to fill a larger (scale-sized) lot.

Basics

The simplest approach is to combine two identical kits to double the length or width of the structure. This results in an industry that looks ready to ship or receive several carloads a day.

The most common approach is to join the two long walls to double the

trackside length of the structure.

In many cases, the extended walls can be joined with a simple splice. A styrene brace to reinforce the joint between the wall sections is usually all that is necessary.

For more strength, a square styrene rod along the length of the combined walls can help keep the walls straight and aligned (Figure 2 next page).

Some walls butt together seamlessly, especially if the splice coincides with the brickwork. For some structures, a cut coinciding with the brickwork, pilasters or other trim can disguise the joint (Figure 3).

In other cases, the design of the kit makes it harder to hide the splice. It is possible to carefully carve brickwork to match the kit, but it is usually easier to cover the splice with vents, pipes or other industrial equipment. The splice can be further disguised by adding pipes, vents or ducts near the splice to draw attention away from the seam (Figure 4 next page).

The structure is completed by adding the kit end walls to the extended long walls, usually requiring little or no modification to that part of the intended assembly.

The new dimensions of the structure require a longer roof. In some cases the roofing from the two kits can be spliced together. However, it is sometimes easier to build a completely new roof from styrene or other materials large enough to avoid the need for a splice. The new roof also disguises the origin of the structure, creating a unique industry (Figure 5 next page).



FIGURE 3: Splice on brick structure coincides with pilasters. The splice is just to the left of the loading door.

Example: Keystone Pipe and Steel

Keystone Pipe and Steel consists of a pair of Walthers Vulcan Manufacturing kits joined end-to-end. The splice was made where the vertical pilasters join the basic brickwork of the building and pretty much disappears at normal viewing angles. Styrene strip reinforces the joint.

The clerestory roof was constructed by gently sanding the ends of two kit window pieces and butting the flat ends together.

Two of the four end walls were used per the kit directions and the others added to the parts box. A new roof was

made from long pieces of sheet styrene and styrene strips, representing metal roofing. A few windows were boarded up and loading doors, vents and piping added. When the kit is placed on the new layout, it will sit next to a yard filled with pipe, structural steel, loading cranes and a few flatbed trailers (see Figure 6 next page).

Example: Andersen Plumbing Supply

Andersen Plumbing Supply (named for one of the crew who helped build the last railroad and was foolish enough to come back for more) is built from a Walthers Sunrise Feed Mill and a DPM Goodnight Mattress kit.



FIGURE 2: Styrene bracing on the Walthers George Roberts Printing walls.

The industry represents a structure that was built in several segments over a period of time. The DPM brick kit is the center part of the structure, representing the original building. The Walthers kit is built in two segments and is easily split, one part going on each side of the original brick structure.

The brick part of the industry uses the three-story walls in the DPM kit. The loading dock doors were raised to



FIGURE 4: Splice covered with ductwork and disguised with additional ducting.

boxcar door-level by cutting out the two ground-level doors on the three-story wall and replacing them with the doors from the single-story section. Vents were used to cover the rough splice. The rest of the structure was built per kit instructions, with the addition of a few roof details.

The 1-½ -story part of the Walthers kit was built per kit instructions, up to the roof. The single-story section was doubled in length by splicing the two identical kit front and back walls end-to-end. In this case, the splice “hides in plain sight” with the addition of a small vertical styrene strip (Figure 7 next page).

A new “back” wall was scratchbuilt from a piece of clapboard siding. For both of the wooden sections of the structure, a new metal roof was constructed from HO board-and-batten siding.

A few cyclone vents were added to the roof. The entire structure was painted a sickly shade of industrial yellow to tie the elements together. A custom decal lets us know who owns the building and weathering tells us it has seen heavy use (Figure 8 next page).

Example: Mechanical Building

More than two kits can be combined to make an even larger structure. A previous layout included a power plant with a loads in – empties out arrangement and was placed against the center backdrop.

A Walthers Northern Light and Power kit provided the furnace and this



FIGURE 5: HO scale styrene board and batten siding represents a rolled aluminum sheet roof on the Walther's Sunrise Feed Mill.



FIGURE 6: Keystone Pipe and Steel.

mechanical building was built from three DPM Goodnight Mattress kits. This is the same kit used as part of Andersen Plumbing Supply, but the two industries don't look anything alike, showing the variety that can be achieved through kit-bashing.

Two "front" and one "back" wall were spliced together to make the aisle-side of the structure. The disguising ductwork for the splice on the left was removed for the photo, to show how pipes and other material can cover the

gap. A few windows were bricked up and vents added to the wall.

The trackside wall was spliced from two leftover kit walls and the end wall is the "left" wall from the kit. One of the ground-level doors was opened up, allowing a view of the equipment inside (the equipment will be replaced when the building is reinstalled on the new layout).

The roof was cut from a single piece of styrene sheet to match the odd



FIGURE 7: Sometimes, a splice can be hidden in plain sight by simply adding material to cover the joint. Here, a styrene strip covers the gap between two clapboard wall sections by representing a vertical 2 x 12.



FIGURE 8: Andersen Plumbing Supply. This long building was constructed from Walthers and DPM kits, with a new roof for the wooden portion.

shape of the building and a few vents and an air conditioning unit added. On the old layout, the cut through the backdrop was disguised with pipes over the tracks connecting the power plant to the mechanical building (Figure 9 next page).

Background Structures

In many cases, a single kit can be doubled in length to fit up against a backdrop by using both the kit long walls as "front" walls and all or part of the side walls to provide as much depth as desired. The wall up against the backdrop can be plain styrene since it won't be visible.

Example: Schaefer Paper Products Unloading Dock

Walther's George Roberts Printing is a good example of the brick curtain

wall construction common during the middle part of the 20th Century.

This background structure, also from a previous layout, uses parts of the 4-story section of this kit. The building was part of Schaefer Paper Industries on the Bald Eagle Branch layout. The covered loading dock was used to unload rolls of paper for the plant.

Since this structure was designed to go right up against the backdrop, only the part directly above the loading dock was used. The end walls were cut right along the first concrete/brick dividing line, making the ends a single window's width deep.

Two side walls were spliced together to create a covered loading dock long enough for two 40-foot boxcars. Here the splice is covered with a large pipe running all the way up to the top of

the roof. The top of the joint was filled and sanded, which is a much easier job than sanding the entire joint (Figure 10).

Example: Red Wing Milling

Walthers' Red Wing Milling represents an all-concrete structure used for a number of different industries. This background structure is from a layout built by Bernie Kempinski. It "unfolds" the structure by reducing the depth of the kit side walls and by using the back wall to extend the structure. Here, the second wall is shortened by one story to make a more interesting structure (Figure 11).

Summary

Commercial N Scale models of industrial structures from Atlas, Design Preservation Models, Faller, Kato, Pikestuff, Vollmer, Walthers, and others can be modified by combining several kits to create prototype-sized industrial structures.

A few tricks involving splicing and combining kit parts and adding industrial details makes it easy to create large, unique structures that will need to be served by the railroad on a regular basis. ✓

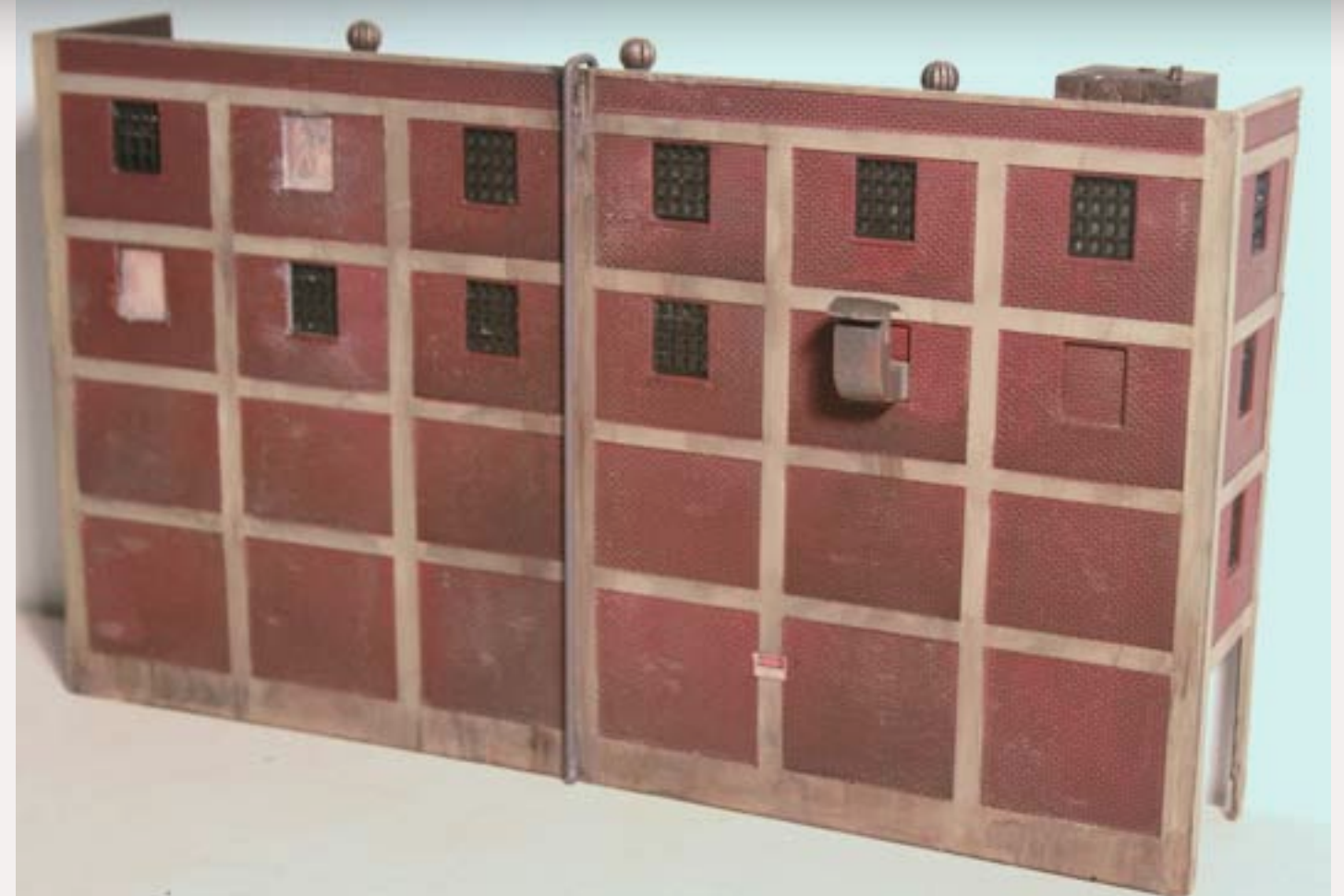


FIGURE 10: Background loading dock. The wall splice is covered with a pipe made out of brass wire and painted industrial grey.



FIGURE 9: Mechanical Building. The left ductwork is missing to show how easy it is to use pipes and ducts cover a gap. The ducts will be replaced when the structure is reinstalled.



FIGURE 11: Walthers' Red Wing Milling "unfolded" to create a background structure.

REVERSE RUNNING: The graying of the hobby has always been normal

Stepping outside the box with a contrary view



Reader Feedback
(click here)



— by *Joe Fugate*

I regularly see postings on forums expressing concern over the “graying of model railroading”.

“The hobby is dying,” they declare. Where are all the young guys?

In MRH’s own reader survey, we received about 2300 responses to our age question. The average (mean) age of our readers is 51.9 years. It’s clear from the survey that the vast majority of our readers are aged 40-70.

Many also observe that typical attendees to meets and conventions are middle-aged to retired – mostly guys with gray hair.

On the surface, all this might lead you to surmise the hobby is graying and has one foot in the grave.

Actually, once you understand how the hobby of model railroading works, you realize this apparent hobby demographic is normal and healthy – and has always been how our hobby works. Here’s why.

I’ve spoken with some hobby insiders who clued me into this demographic and to me it makes perfect sense once I understood it.

The typical model railroader is male and they discover the hobby somewhere between ages 8-12. During the teen years passion for the hobby may be strong, but these young modelers typically don’t have the resources to be much of an economic force in the hobby.

Likewise, the youth in the hobby can’t afford to travel long distances to meets or conventions. So they’re largely an invisible population except at local meets when sympathetic parents provide transportation (not often).

Once these hobbyists approach their 20s and reach the age they can be self-sufficient, they typically discover girls, cars, go into the military, go to college, start working on launching a career, start a family, and so on. During this time, most drop out of the hobby or go dormant.

By the time these drop-out model railroaders approach their 40s or 50s, they often rediscover the hobby. By this time the career is well in hand, the kids are leaving home, and they now have the time and resources to pick up a hobby.

And there’s also more than a few late-comers who re-enter the hobby again as they approach retirement in their 60s.

We find this age skew to the hobby reflected in our reader survey results. Fully 80% of our readers are age 40-69, with another 10% age 30-39, and 7% aged 70 or older. This means some 97% of our readership is age 30 or older, which maps to this known hobby demographic quite well.

If you’re worried that the youngsters under 20 aren’t getting exposed to the hobby, you shouldn’t be.

First, this new generation (known as Generation Y or Millennials) is now larger than the famed Baby Boomers! The largest number of this generation reached the magic 8-12 age at around 2005 – and hey guess what! Reuter’s News Service has been reporting the sales of train sets during the holidays has started rising again every year since 2005.

When I attend train shows open to the general public, I find these shows to be packed with families having little kids clamoring for Brio and Thomas the Tank or staring at the display layouts with wide-eyed wonder.

The movie *Polar Express* did very well at the box office a few years ago. A local excursion railroad here in the Portland, Oregon area runs a “Polar Express” excursion train daily from Thanksgiving to New Years.

The idea is to bring your kids in their PJs. They get served hot chocolate on the train while it runs up to the foot of snowy Mt Hood, and there the kids get to see Santa!

This daily holiday season excursion regularly sells out by Thanksgiving! That’s right, *no seats left*. On a drafty winter excursion train!

So there’s no need to be wringing our hands over the graying of the hobby. It’s normal. Always has been.

As the massive Baby Boomer generation ages, I expect to see the hobby get even more gray in the years ahead. But not to fear!

Many of those kids we see ogling the trains with wide eyed wonder will be back in another 15-30 years, and there’s more of them than the Baby Boomers!

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- In-depth guide to prototypically-correct roof details
- Modeling animation in your scenes
- New one-evening project
- Next installment of the Turntable/Roundhouse Series
- More MRH Questions, Answers and Tips
- Our regular columns

... and lots more!



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