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- Finishing a prototype layout scene
- Quartering steam locomotive drivers
- Precision needle applicator expert tips
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TABLE OF CONTENTS | RUNNING EXTRA

January 2022

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Publisher's Welcome: Make using a razor saw easier

JOE FUGATE



Limited Modeler: Jim Six's new layout project

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Getting Real: Finishing the Jenkins scene

MIKE ROSE



Quartering steam locomotive drivers

MICHAEL ANTEAU



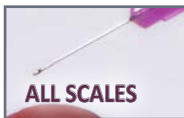
Building Scituate Harbor Marine Supply

MICHAEL TYLICK, MMR



Camas Prairie First Subdivision, part 2

TIMOTHY DUDLEY



Ah-Hah Moment: More precision applicator tips

JOE FUGATE

TABLE OF CONTENTS | MRH

January 2022



Asst. Editor's Musings: New layout opportunities ...

JAMES REGIER



MRH Website this month: Keeping 'em fresh, ...

Compiled by JOE FUGATE



What's Neat: 3D printing from start to finish ...

KEN PATTERSON



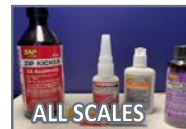
MRH DCC shortcuts card

JOE FUGATE



The perfect storm

RICK BALASSAITIS



Modelers' survey of glues, part 1

JEFF PALMER



Savvy Modeler online: Live coal loading in HO

Compiled by the MRH STAFF



January 2022 news and events

RICHARD BALE and JEFF SHULTZ



SUBSCRIBE

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

PUBLISHER'S WELCOME

introduction



MRH Running Extra | January 2022

JOE FUGATE GIVES EXPERT TIPS ON
USING ZONA RAZOR SAWS ...

I DON'T KNOW ABOUT YOU, but
I've always found using a Zona Razor saw to
be something of a pain.

It's hard to start the cut, and the sawing action always seems
awkward to me. After doing some digging and watching a lot of
videos, I finally discovered the secret to using these razor saws.

One of the first tricks: a razor saw cuts on the *pull stroke* in-
stead of the push stroke like a normal hand saw we're used to.
Realizing that helps me know when to apply the cutting pres-
sure when I'm using the saw. I also discovered a YouTube
video on how to turn the blade around to make it a push cut
saw if the pull stroke cutting really bothers you.

See: youtu.be/PI2pQHEIOcw for more.

Another problem is starting the saw cut. Likewise, I found a
great video on how to more easily start the cut. This starting
trick has really helped – it's called “saw without sawing.” It
works with any sized saw.

You start out with the saw at an angle to the work, but you
slide the teeth over the cut line with the teeth barely touching.
Then as you keep stroking, you very slowly allow the teeth to
begin lightly scoring the work along the cut line.

As the teeth lightly score the cut line, you slowly allow more
weight of the saw to drop down onto the scored line.



PUBLISHER'S WELCOME | 2

Before you know it, the saw is neatly cutting!
Watch a demo: youtu.be/G_NWMT8X56U?t=300

If you don't have an assortment of Zona saws (coarse to fine),
then check out the shopping list link for buying options. ✓

To get a shopping list for this article, visit the MRH website at this link:
mrhmag.com/magazine/running-extra/2022-01/publishers-welcome-shopping

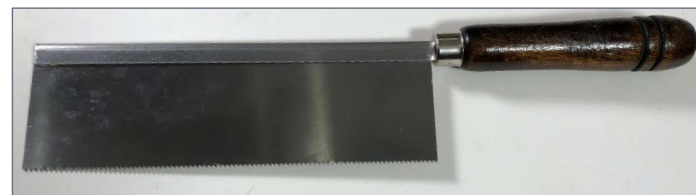
1. The “saw
without sawing”
trick really helps
make starting a
razor saw cut a
lot easier. Works
with any sized
saw. Click the
image to watch
the video demon-
stration.



2. These two
shallow-cut
razor saws have
32 teeth per
inch (top) and
52 teeth per
inch (bottom).
And nice wood
handles, too!



3. This coarse
deep-cut Zona
Razor saw has
just 18 teeth per
inch and a nice
wood handle.



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SUBSCRIBE

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

THE LIMITED MODELER

column

This column refers to the prototype and to HO-scale models.

Model photos by Jim Six, proto photos from Jim Six collection, graphics from Accurail website and edited by Jim Six.



MRH Running Extra | January 2022



JIM SIX DISCUSSES HOW A SMALLER LAYOUT CAN BE A GOOD THING ...

AT THE AGE OF 73, I feel great physically, still have my modeling skills, and still have my love for the hobby. Still, there are other factors competing for my time and attention. I want to spend time with my beautiful wife Joanne. We want to travel, enjoy television series together, and visit family who all live out of state.

My quest for new things I have not done led me to dump diesel-era modeling, in favor of the steam era. As I have been discussing for months, my interests have moved even further back in time to the early 1900s. With the remodeling of our home's lower level complete, I am beginning my next and final train layout.

I had been looking forward to modeling Clyde, Ohio in the early 1900s, though the space I have will not permit that. With considerations for visiting family and property value, I decided



DOING MORE WITH LESS

THE LIMITED MODELER | 2

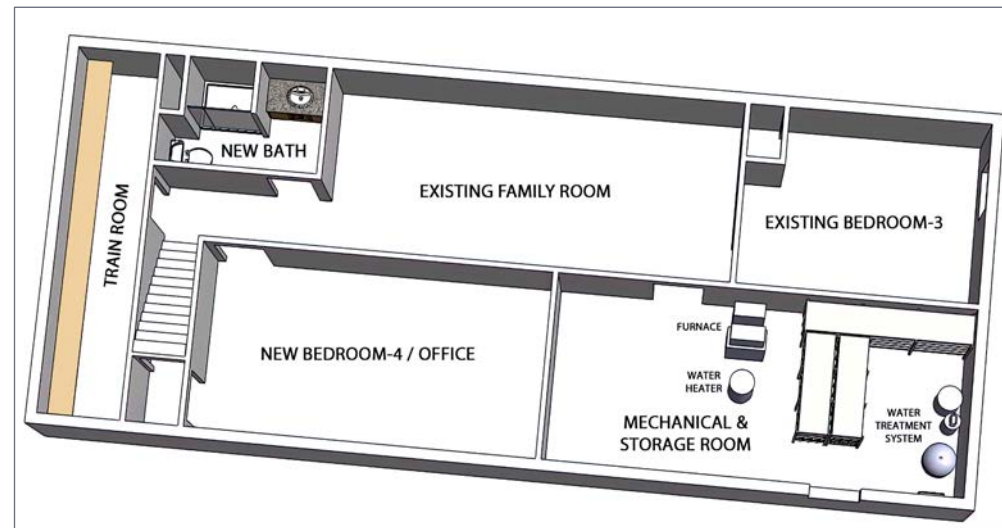
to add a fourth bedroom and a bathroom in the lower level, which left me with a much smaller layout space, 22' long instead of the originally planned 50'.

In deference to the smaller space, I will model Monroeville, Ohio instead. This isn't a bad thing. Monroeville was a close second to Clyde in my layout planning to begin with, and I will have much better chances of building and completing the smaller layout [1].

Also important is that I do not want to leave the albatross of disposing of a large train layout when I pass on to Joanne or the kids. Anyone over age 60 should think about this.

My solution was to make the house as livable and as sellable as possible. I still have a reasonably sized place to maintain and operate my layout with this plan. Without the layout, the room can easily convert to a large closet.

I have only one friend who is interested in "playing trains" living nearby, so I don't need to think about accommodating



1. Remodeling plans prioritized family needs and property value over layout space.



SUBSCRIBE

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

THE LIMITED MODELER | 3

five operators or more, as in the past. With only me and one other operator, the 42"-wide aisle running the length of the layout should provide ample space [2].

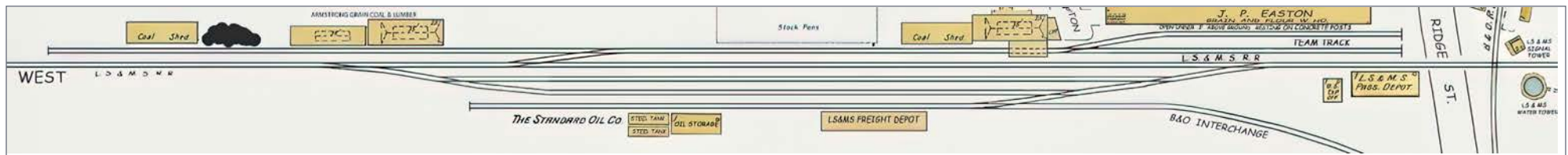
This is a one-town layout set in Monroeville, Ohio between 1900 and 1930. While a small town, there are 14 places in this design to spot cars when switching the LS&MS side of town. The interchange with the B&O is in the lower left-center of this view [3].

I am losing the two staging yards from the earlier 50-foot Clyde layout plan, one at each end of town. There is no way to include them with this 22-foot space.

Without staging yards, I will start my train in town, as though it had just arrived. I'll go about switching industries around town. I will park the train on the passing siding or the main as though it is ready to leave town when done. This will have to do, as I have no other choice!

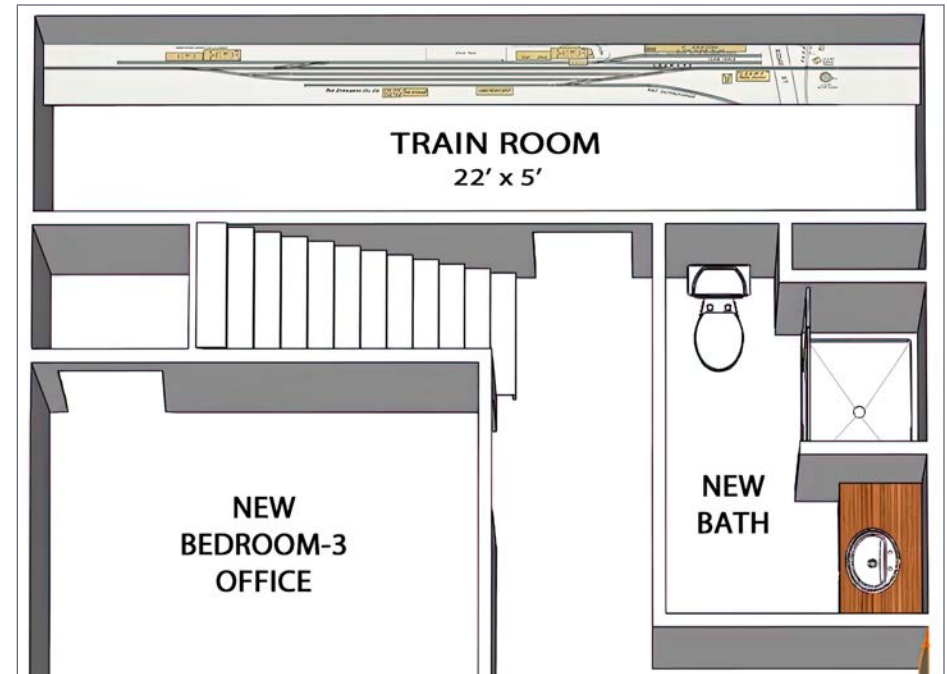
Monroeville also presents an opportunity to build a second Monroeville layout below this first layout. Monroeville had three railroads through town – the LS&MS, the W&LE (east/west), and the B&O (north/south). The lower layout could model the B&O tracks through Monroeville, which had more switching customers than the LS&MS and the W&LE combined.

I plan to complete the LS&MS upper layout before even planning the lower B&O layout. If the ambition, resources, and my health are all good, I will do it. Otherwise, I will still have my LS&MS layout to operate.



THE LIMITED MODELER | 4

The 22-foot LS&MS layout does not seem so limiting. I can alternate operating sessions between the two layouts and interchange freight cars between them, which seems appealing and doable. Even better, I won't need a helix for this double-deck layout.



2. Closer view of where the lower level of the house with the train layout.

3. Track plan for Monroeville along the LS&MS Railroad component of the NYC Lines.



[SUBSCRIBE](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

THE LIMITED MODELER | 5

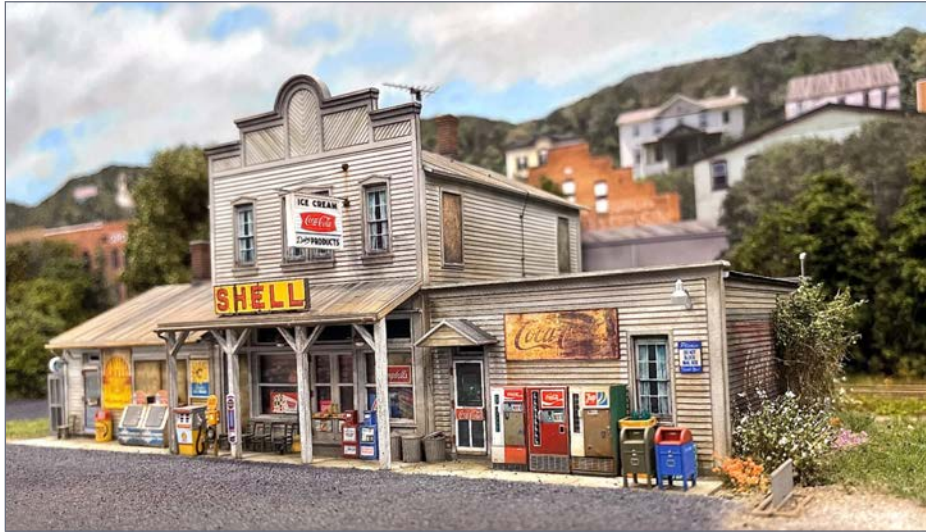
Small, one-town shelf layouts are common. For instance, Tom Johnson had to tear down his layout when he moved from Indiana to Florida a couple of years ago.

Tom recently completed a new layout in a bedroom based on Logansport, IN circa 1980 [4, 5]. This layout is much better than his highly acclaimed previous layout back in Indiana. It may be one of the finest I have ever seen.

Tom Johnson has agreed to build structures for my new layout. There is absolutely no doubt this will enhance the realism and quality of my layout. I am excited to have buildings built by Tom.

I will only need two locomotives to operate the layout – one LS&MS (NYC Lines) and one B&O. The LS&MS loco will switch the town with its local freight. The B&O loco will work interchange with the LS&MS.

I already have the locomotives on hand, though I plan to get one of the new-release Athearn 2-6-0 models (announced June 2021, arriving late-August 2022). The Athearn old-time steam



4. A shell station on Tom Johnson's new shelf layout. The rails are behind the station. *Tom Johnson photo*

THE LIMITED MODELER | 6



5. Overmyer Full-Service Garage on Tom Johnson's layout. Tom's structures bring life to the layout. *Tom Johnson photo*

locomotives are quality models that run and sound great on DCC. A little detail "tweaking" and weathering, and they will be ready for service [6].

A B&O 4-4-0 locomotive from Bachmann will work the interchange. These locomotives were still active in the early 1900s, and it would have been the right size for the task. Bachmann's model runs, sounds, and looks great, especially after weathering [7].

As for LS&MS power, I have a Bachmann 4-6-0 and an Athearn/Roundhouse 2-8-0, both with factory-installed DCC and sound. I will use one or the other when operating to provide a little variety while meeting my operating needs [8, 9, 10]. I may even add one or two more in the future just because I can!

I already have a second Bachmann 4-6-0 that I will detail and paint for the B&O if and when I build the lower level.

These "old-time" locomotives are small, especially when compared to modern diesels and late steam power. This makes them ideal for those with limited space.



SUBSCRIBE

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)



6. New-release Athearn 2-6-0 Mogul.



7. Bachmann 4-4-0 American.



8. Bachmann 4-6-0 Ten-Wheeler.



9. Athearn 2-8-0 Consolidation, enhanced with detail parts from a Bachmann 4-6-0.



10. Rear view of my Athearn 2-8-0.

Some folks love modeling huge articulated steam locomotives and long coal trains with well over 100 cars, and I know some who do. However, I know far more who do not, and who will never have the space. My thoughts and ideas in this column are for those who want a home layout but lack space for large locomotives and trains.

Freight cars from the period before 1930 are also small compared to modern rolling stock, averaging 30-34 feet long. These freight cars take little room on a layout – about half that of most modern freight cars.



THE LIMITED MODELER | 9

With small cars and locomotives, I find I can get satisfying operation in a small space, even a one-town layout. It is like modeling narrow gauge or changing to N scale.

Hours of careful consideration have gone into my change from modeling more modern times to the early 1900s. I am happy with what I am modeling now. I like the locomotives more than any other I have owned. Their small size, their great running characteristics, their sound, and their looks are all appealing.

Locomotives also changed quite a bit between 1900 and 1930. To account for this and add variety to my operations, I may need more locomotives that are a bit more modern than the old-timers shown in photos [7-9].

For operating in the 1920s I have a Bachmann 2-6-0, a Bachmann 2-8-0, and a pair of Trix USRA 2-8-2s. I may convert one of my 2-8-2 models to a B&O locomotive to pair with the Bachmann B&O 4-4-0. With all these locomotives already on hand, I certainly do not need any more [11, 12].

The Bachmann NYC 2-6-0 and 2-8-0 models are nice models that look and sound great, but they are not exact matches for New York Central Lines locomotives. I will have to adjust detail as I did with the Trix Mikado pictured in [13]. As with the Trix Mike, this will be a simple task. The result will be three nice prototype models to operate my Monroeville layout in the 1920s.



11. Bachmann NYC 2-6-0 Mogul ready for weathering.

THE LIMITED MODELER | 10

In closing, I want to point out that good, careful planning is prerequisite for making a layout work for you. I did not do so early-on, and spent a dozen years building a previous layout that turned out to be a failure as a result.

I am at a crossroads where I either leave the hobby or move forward with a simpler vision, albeit different from what I had 15 years ago. I assure you, I will have started the new Monroeville layout by the time you read these words. ☑



12. Bachmann NYC 2-8-0 Consolidation ready for weathering.



13. Trix NYC USRA 2-8-2 with a handful of proto-inspired detail additions.



[SUBSCRIBE](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

GETTING REAL

column



MRH Running Extra | January 2022

All photos by the author unless noted

MIKE ROSE COMPLETES JENKINS, PENNSYLVANIA, THE LAST UNFINISHED SCENE IN HIS ORIGINAL BASEMENT LAYOUT ...

WITH RANSOM DONE AND BOTH MAJOR YARDS PRESENTABLE, I became increasingly dissatisfied with running trains through a large 22' expanse of bare plywood between these two fully scenicked areas. This meant adding scads of trees and two industrial buildings: Intercities Cold Storage and 84 Lumber.

OBSCURING THE D&H DUPONT CONNECTION

I needed to finish the bare Dupont connection with trees and obscure the D&H track heading south to staging. Using four large cases of Super Tree material and working in batches, I could produce at least 250 trees plus shrub material per case. I needed a lot of trees and shrubs for this project.

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GETTING REAL | 2



1. The Dupont interchange starting point. Green foam covered with paint and real dirt is ideal material for planting scads of trees.



2. Nothing makes the layout look "right" like many trees, especially when you're modeling northeast Pennsylvania. You always need more trees than you think, but the results are worth it. I sprayed dark green Rustoleum Camo spray paint on the wall behind the D&H track to test the effectiveness of the foreground trees for screening the rear track.



SUBSCRIBE

[INDEX](#)

[TABLE OF CONTENTS](#)

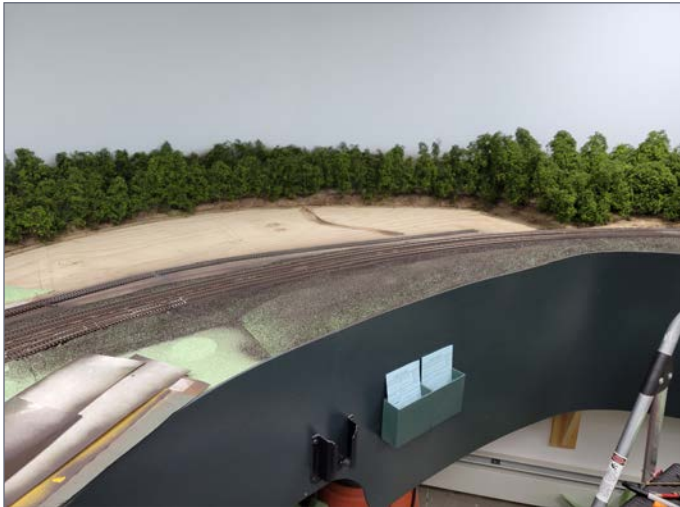
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[INDEX](#)

[TABLE OF CONTENTS](#)



3. I had room for some thin trees behind the D&H track in the curved corner behind the future Intercities Cold Storage building. I built a rough cardboard mockup of the structure along the Conrail tracks in the foreground.



foam work in the foreground. The area between the trees and the Conrail tracks will be Intercities Cold Storage.

4. If you look closely, you can see hints of the D&H track with its different ballast color, but the spray-painted wall and the thin line of trees take it out of the scene. More foliage and contours will come on the

INTERCITIES COLD STORAGE



5. I used Monster Modelworks (Larkspur) concrete block material to fabricate the cold storage building. The material cuts easily for openings, and comes in large sheets, which allowed me to build the long side walls with only one joint. I constructed the large building on my table saw extension table using the same technique as with the Ransom Potlatch Pulp facility (*MRH RE* June 2021).

5. I used Monster Modelworks (Larkspur) concrete block material to fabricate the cold storage building. The material cuts



distinguish the two. Gloss black paint and fine ballast represent a tar-and-gravel roof.

6. The building, greatly compressed from the prototype, houses two separate businesses, with Intercities Cold Storage on the left and James Brown Foods on the right. I applied prototypical colors of craft paint to



GETTING REAL | 5



7. I tried the building in place on the layout. James Brown Foods features an added truck dock. The rising Lehigh Line double-track main makes the siding look lower. I used Pikestuff doors for the loading docks, and a downspout to conceal the seam

between the two sheets on the long wall.



8. I added an office extension to the opposite end of the building. The greenery brings life to the scene, which still needs paving and ground cover.

GETTING REAL | 6



9. I traced the building outline onto the plywood, then tacked 3/32" wood strip in place with Cypox to form the borders and screed guides for paving.



10. I do all my paving with DAP Lightweight Spackle. I thoroughly mix-in powdered paint pigments so that the color is consistent. Application and finish are easy

with a wet putty knife. I use a broader taping knife for larger areas like this. Any spots can easily be filled on the second coat, and they look like paving repairs.

After a day of drying, I gently scribe an edge between the paving and the forms with a utility knife, then remove the wood strips with a sharp chisel. The access road to the plant disappears behind trees, my usual technique.



SUBSCRIBE

[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)



11. With the paving in place and no visible plywood, the scene is starting to come to life. Note the hint of the D&H track to the right-rear.



12. With additional vegetation, the scene takes on a “lived in” look. Per prototype practice, the all-door boxcar is spotted on a team unloading area of the same track that serves nearby Eagen Lumber. This track has three consignees frequently requiring the local to spot cars in tricky ways.

84 LUMBER

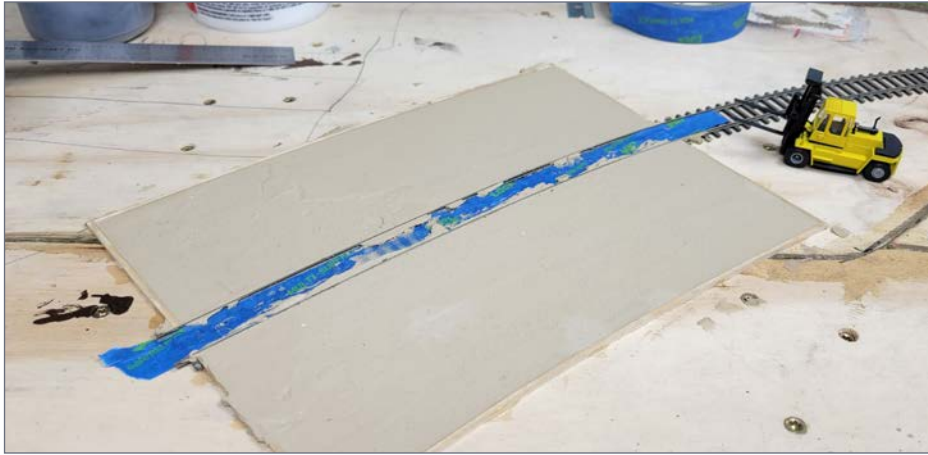
Creating the Intercities Cold Storage scene left a glaring piece of bare plywood to the left that I needed to address right away, and 84 Lumber fit the bill. With a week before a long-planned vacation, and I wanted to see how much I could get done. I had three productive days of work before a major “Nor’easter” caused a two-day power outage that effectively took care of the rest of the week.

When I got back from vacation, there were three days of mid-sixties outside temperatures predicted, ideal tree-painting weather. Since I needed a lot more trees, I buckled down to make another 250+ of them, then circled the wagons to finish the remaining work on the layout. I love everything I do on the layout and never want to make it anything like work, but sometimes you need to drive a project through to completion, clean up, and get back to running trains.

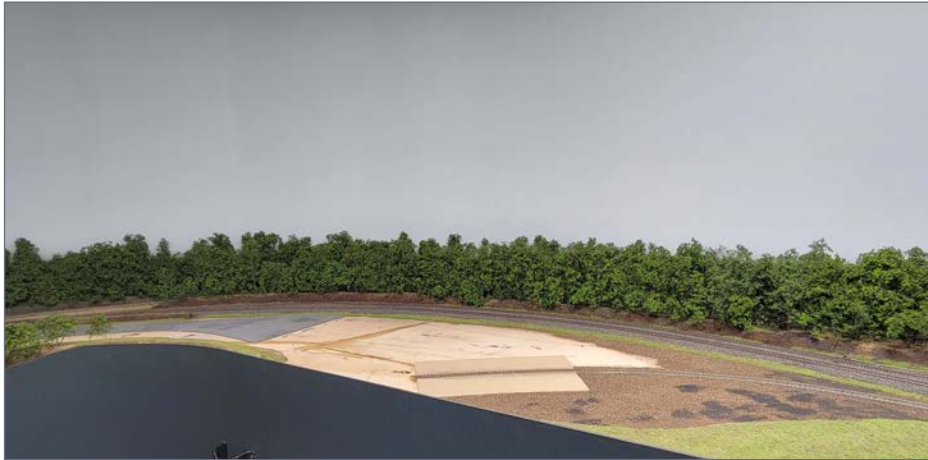


13. 84 Lumber has a siding with concrete pads on either side of the track for centerbeam and flatcar unloading with forklifts. I curved the pad slightly to conform to the curvature of the track in the area. I defined the edges with 3/32 strip wood and used blue painters tape to protect the area between the rails, since it was not paved on the prototype.





14. I used the same lightweight spackle mixed with Bragdon weathering powders to create a weathered concrete mix and applied it with a wide putty knife. Just like road paving.



15. The starting point where I left off before vacation. The pavement that serves as site entrance and parking lot is at left, again with the access road disappearing behind trees. The siding is in place, and I'd stopped adding dirt, since much of the area was going to be packed gravel. The trees hiding the D&H are in place behind the Lehigh Line mains.



16. I saw an 84 Lumber while getting gas on vacation, so I took a few quick shots to get the feel of the place, including colors and logos. Later internet searches revealed that no two of these look the same! But they all bear a family resemblance that I wanted to capture.



17. I used Pikestuff panels to fabricate the main building. I made sure to identify where I wanted window and door openings before assembly so that I could cut them out flat.





18. The pale blue of the Pikestuff walls was not right for the building, but I had craft paint on hand that was the perfect color. I tested some right on the printed-out picture, and it matches so well that it's tough to find. The paint

on the structure is wet in the photo so it looks thick, but it dried flat and fine.



19. While the building paint dried between coats, I worked on the ground cover along the access road and parking lot. I used a custom grout mixture my buddy Mike Confalone prepared years ago for the lots at Tunkannock. He made such a large bin of it that I thought I'd never run out, but it's getting low! I spread the grout here with a brush and packed it down with a seam roller.



20. With the grout in place, I used a wet sponge to remove most of it from the paved areas. rinsing often.



21. To bond the grout, I misted and soaked it with a 50/50 mix of isopropyl and water. This creates a well-bonded packed gravel lot or road, and any bare areas are easy to touch up the same way.





22. With the grout down and drying, I positioned the building and cut out some of the parking lot to accommodate the concrete apron under the porch in front of the building. I was happy with the overall proportions and location of the main building, but realized I couldn't do much more with ground cover until I'd created the open-air storage shed and concrete pad.

23. I needed a roof system for the storage shed, but I did not want the tedious task of building my own trusses. I remembered I had some leftovers from the Walthers



Cornerstone Planing Mill and Shed kit I had used to kitbash Walusing Planing. I removed the stock trusses' posts, then the center sections, and glued the two halves to a Plastruct H column. This was fast and easy.

24. I used my Micro-Mark table saw to narrow the kit's roof sections to match the shortened trusses, then glued each truss assembly first to one roof panel, then the other.



25. The completed storage shed prior to painting. I sprayed the roof with my favorite Rustoleum roof-accessory matching paint – yes, it's a thing! I then masked off the roof and the "concrete" pad and sprayed the entire underside a flat gray. Next, I masked the poles and sprayed the concrete color before unmasking everything. I painted the end poles red with yellow bases like you see on the front porch of the main building.



26. Testing building locations prior to applying the grout for the lots.



27. The packed gravel lot has now been applied. It's still wet in this picture, but no more exposed plywood!



28. 84 Lumber has logos you can download from their website, and I used them to create the building and pole signs.



29. The 84 Lumber scene. For me, that tall 84 sign, common in my modeling area, is the finishing touch. Now we need LOTS of stacks of lumber and other building materials.



30. Here's a cab view from the local, with Intercities behind us.





31. A panorama of the entire scene. On model railroads, we must deal with so much compression. Until this point, these two consignees just felt too close together, but the only alternative was to eliminate one of them. Adding vegetation between them and in front of Intercities (right) totally changed the impression.

You can run your train to one and ignore the other while switching. Since they're on opposite sides of the tracks and the sidings run in different directions, the crew would typically not do 84 Lumber until the return trip to Crestwood as a trailing point maneuver. I'm happy with how this is all going to work. It's been such a refreshing exercise to finally have Jenkins Getting Real. ☑



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word-of-mouth to grow
... if you don't share
us, we don't grow**



Quartering steam locomotive drivers



MRH Running Extra | January | 2022

**MICHAEL ANTEAU WALKS US
THROUGH QUARTERING A
BACHMANN CONSOLIDATION ...**

**I ACQUIRED A USED BACHMANN SPECTRUM 2-8-0
CONSOLIDATION** at a train show recently. I had wanted one for a long time because they were widely used on my prototype railroad. I also think they're the perfect size for a medium layout.

By all accounts, this was supposed to be an excellent model, and it is. It's hefty, pulls a lot of cars, and looks great.

Unfortunately, when I installed a sound decoder and put the locomotive through its paces, it made a pulsing, clanking

QUARTERING STEAM LOCO DRIVERS | 2

sound with each revolution of the drivers. The sound was more pronounced on curves. Have a listen: youtu.be/Dz2LmeNIPMs.

I checked the side rods, wheels, and axles for anything binding or bent, but it all looked in order. The next most likely issue was that the drivers were out-of-quarter. A quick check on the Internet found that others had had this same problem with Bachmann 2-8-0s.

Steam locomotive drivers are quartered by orienting the crank pins for the drivers on one side of the locomotive 90 degrees from the other. This prevents the rods from being in the same position, or 180 degrees apart, which could prevent the steam pistons from moving the wheels, and lock up the locomotive. On North American locomotives, the engineer side is normally rotated 90 degrees ahead of the fireman side.

To check my theory, I took photos of the locomotive drivers. I then imported them into CADDRail and drew some lines to check the alignment of the counterweights on the drivers [1, 2].

If properly quartered, the lines should all be parallel. I knew this wasn't a precise test, but it convinced me that the driver wheels were not in alignment and probably also out of quarter.

Fixing this problem required new tools and skills. I had never quartered drivers before, but I wanted my locomotive to run well. I also worried the problem would become worse and possibly damage other parts of the locomotive, or even cause a bind that might fry the decoder.

Quartering wheels requires a couple of special tools which are available from Northwest Short Line: "The Puller" and "The Quarterer" [3, 4]. NWSL also sells a tool to press the wheels back onto the axles, though a standard drill press also does the job. I used my Dremel Workstation for the task.

I was anxious about disassembling the drive train of my locomotive, but I took my time and followed the instructions



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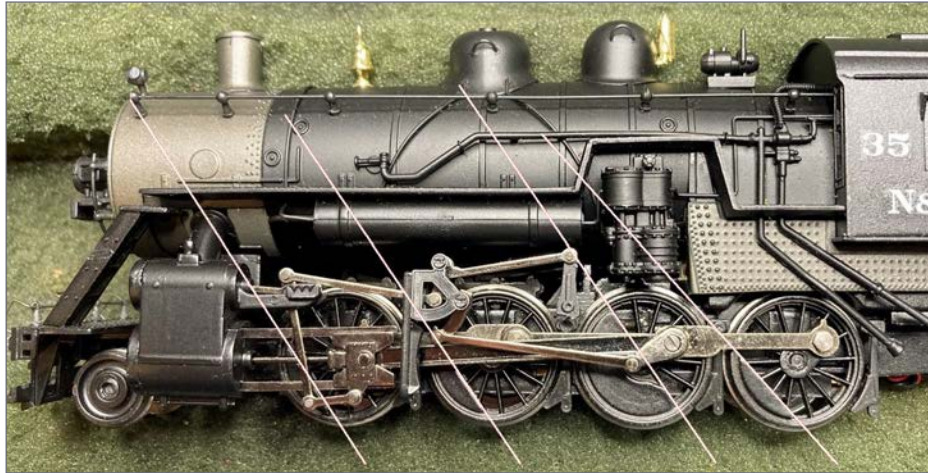
[INDEX](#)

[TABLE OF CONTENTS](#)

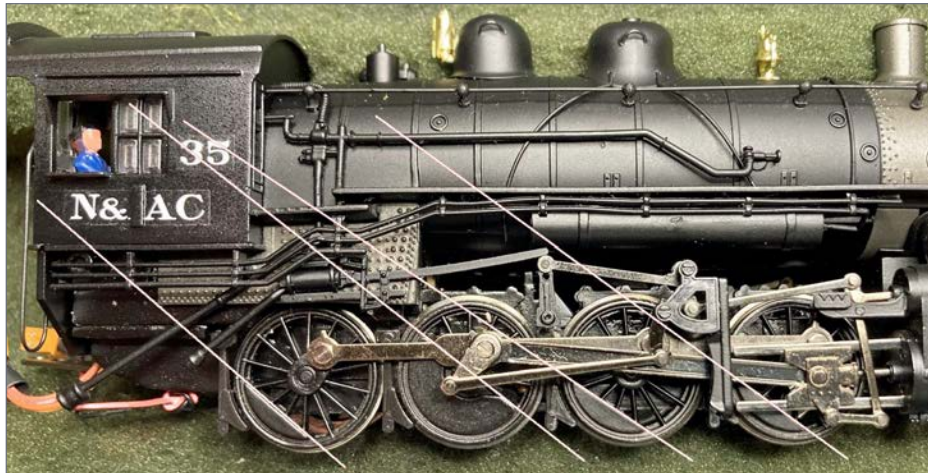
[MRHMAG.COM](https://mrhmag.com)

[INDEX](#)

[TABLE OF CONTENTS](#)



1. Fireman's side before quartering. The lines should be parallel if the locomotive is properly quartered.



2. Engineer's side before quartering.



3. The Puller (NWSL #45-4) helps remove wheels from axles.

that came with the tools, and everything went fine. Here is my process, and some things I learned along the way.

DISASSEMBLING THE LOCOMOTIVE

I placed the locomotive in a foam cradle and removed the two screws holding the bottom plate to expose the drivers. The bottom plate has the driver pickup wipers, a wiring plug, and brake detail. I removed this carefully to avoid breaking the small parts [5].

I then removed the second plate that covers the axles. I set these parts aside so they wouldn't be damaged or lost [6].



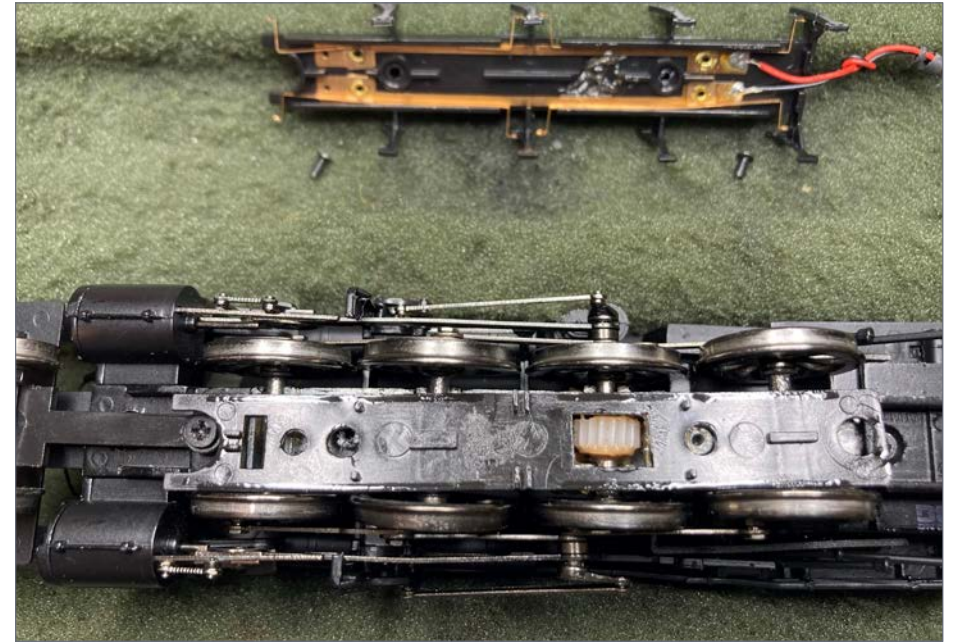


4. The Quarterer (NWSL #44-4) helps bring wheels into proper alignment.

REMOVING A DRIVER SET

I began by removing the side rods from the rear set of drivers. These are held on by hex-head screws. I did not have the right hex driver on hand, but I managed with needle nose pliers and a Gripster tool from MicroMark. If I were to do this frequently, I'd invest in a proper hex driver.

Using the pliers, I carefully loosened each hex screw [7]. Then I used the Gripster to grasp the screw and unscrew it from the wheel [8]. I applied a piece of tape to the fireman's side wheel before removing it to keep track of how the wheelset should be re-installed [9].



5. Bottom plate removed.



6. Axle cover plate removed.

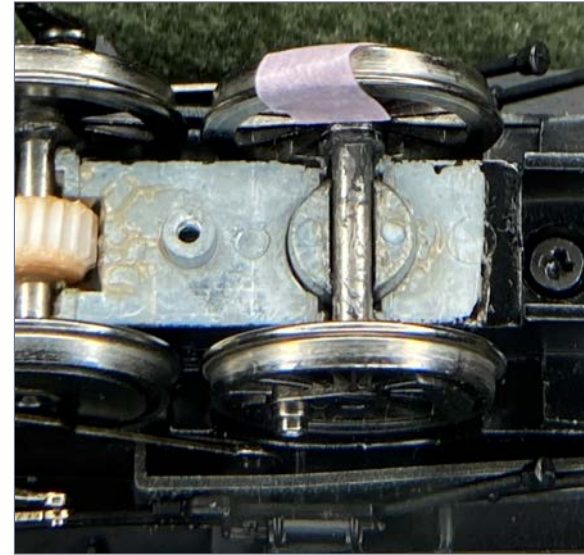




7. I loosened the hex nut with needle nose pliers.



8. I used the Gripster to finish removing the hex screws from the wheels.



9. Noting the orientation of your wheels will save headaches later. Here, I used tape.

CHECKING DRIVER QUARTERING

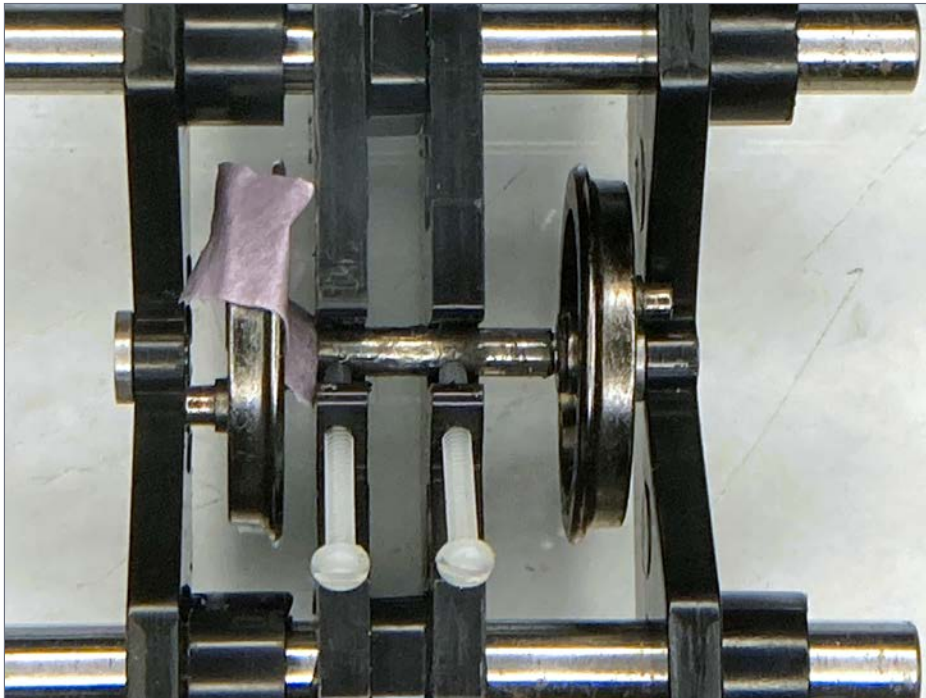
To check the quartering of the driver, I set the driver in The Quarterer. I turned it so the crank pin of the engineer side wheel was resting against the tool. You always want to begin quartering with the same side wheel – I chose the Engineer's side – for proper quartering [10].

NWSL provides long crank pin screws to screw into the side rod attachment points to make quartering easier. These did not fit the Bachmann drivers, but the crankpins were long enough to work for the Quarterer.

With the engineer wheel in position, I tightened the two nylon screws to hold the axle firmly in place, then slid the opposite side of The Quarterer closed to check the setting. If the wheel is properly quartered, the two hubs will be 90 degrees apart, with the pins resting on The Quarterer on either side of the axle. In my case, I couldn't close the tool because the angle was more than 90 degrees [11].



10. The engineer's side driver attachment point is in place in The Quarterer.



11. I couldn't close The Quarter's sides because the angle was obtuse.

REMOVING A WHEEL

NWSL recommends always removing the same side wheel when quartering. In the case of the Bachmann 2-8-0, both wheels have insulating bushings in the hub, and the axle is pressed into those. I decided to always remove the fireman wheel.



J.Regier

HELPFUL HINTS

Marking the wheels on one side of the locomotive and removing the wheels only from one side is a very important habit to nurture. For one, it gives you a consistent starting point for quartering, which helps you avoid confusion. For another, it helps you avoid frustrating shorts in those locomotives using axle bushings to pick up track power from one side of the locomotive.

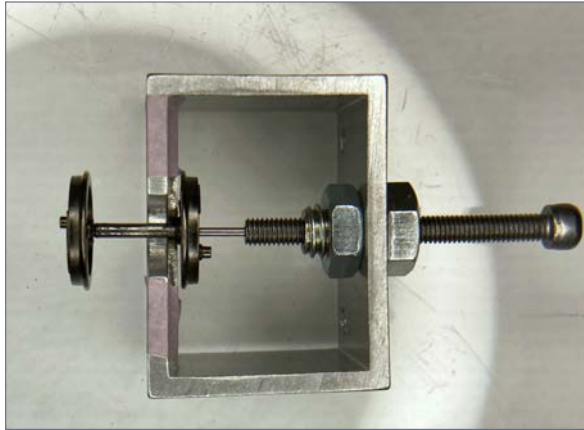
To remove the wheel, I placed the wheelset in The Puller, centered it with the press pin over the axle, and set the included V-Shaped blank in place between a wheel and the bottom of the puller for support. I taped the V-Blank in position for the other wheelsets.

The Puller comes with two different sized press pins, and I chose the smaller one to avoid the wheel's bushing. I gently tightened the pin screw to push the axle out of the wheel. The Puller comes with a hex wrench for greater torque, but I found simple finger pressure was enough [12].

QUARTERING AND PRESSING A WHEEL

With the fireman side wheel removed, I placed the wheelset back in The Quarterer with engineer's side wheel in place as





12. Removing the wheelset in The Puller.



13. Using my Dremel Workstation to press the quartered wheel back onto the axle.

before and secured it with the nylon screws. I needed to press the fireman's side wheel back onto the axle properly quartered.

This required smooth pressure perpendicular to the axle to avoid later wheel wobble when running, and my Dremel Workstation fit the task. I mounted a cutting wheel mandrel in the Dremel for a wide, flat surface for applying pressure to the wheel. I elevated the Quarterer on two machinist's squares so the bottom pressure would be on the axle, not the Quarterer's side pins [13].

I placed the fireman's side wheel loosely on the axle, slid The Quarterer bearing plate down onto the wheel, and turned the wheel until the crank pin was in quarter. Then I used the Dremel Workstation to gently press the wheel back onto the axle. Finally, I checked the wheel for proper gauge using an NMRA Mark IV Standards Gauge [14].

With the wheel properly quartered and gauged, I reinstalled it in the locomotive, using the Gripster to start each screw and then tightening them with the needle nose pliers.

RINSE AND REPEAT: CHALLENGES

I chose to remove only one set of drivers at a time to avoid confusion on the reassembly.



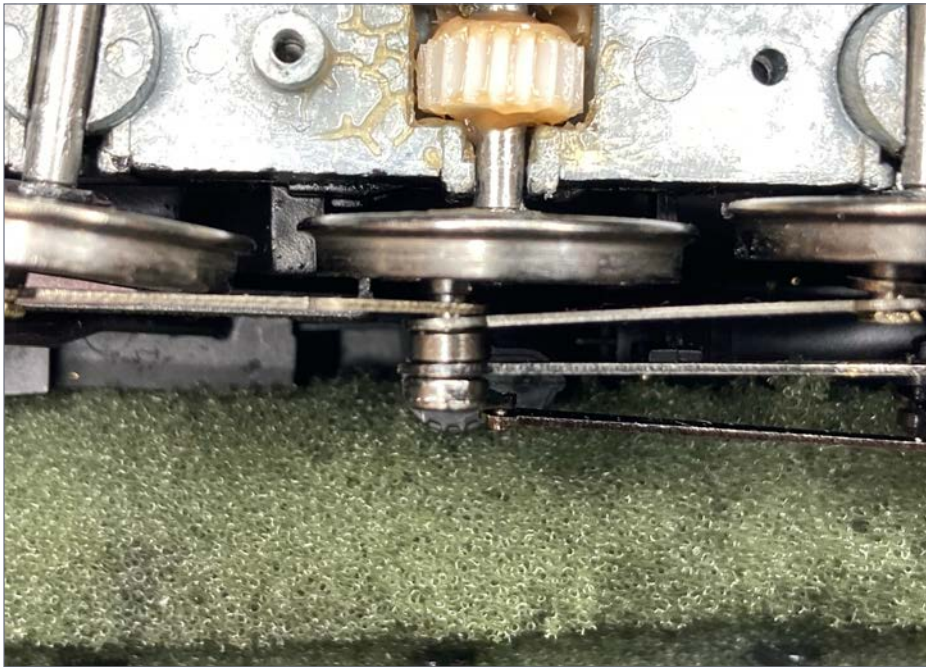
14. The wheel is properly quartered and gauged.



I also took a LOT of pictures as I went along. These pictures saved me a couple of times when I forgot the order things went back together or how drive cranks should be oriented.

On the Bachmann 2-8-0, the first and second driver sets were easy to remove and quarter. The third one was more challenging, as it had the motor drive gear, and it connected to all four side rods. I took a photo of this assembly before removing it so I could reinstall everything correctly later [15].

I had to spread The Quarterer tool a bit to accommodate the gear on this wheelset, as outlined in the NWSL instructions for the tool. Later, when I reinstalled the drivers, I used a toothpick to help place the spacer on the crank pin between the front and rear drive rods [16].



15. Photos helped me reassemble everything in proper order, especially the complicated third driver set.



16. Using a toothpick aided proper reassembly.

I noticed that the wheels would no longer turn together after I quartered the first two driver sets. This worried me at first but realized this was because the remaining wheelsets were still out of quarter and were now out of alignment with the quartered wheelsets. The problem corrected itself when I had the remaining wheelsets quartered and reinstalled.

FINISHING AND TESTING

When I had all the drivers properly quartered, I reinstalled the bottom plate and wheel pickup assembly with the two screws, connected the tender, and took it for a test run. My 2-8-0 ran smooth as silk, with no jerking or clunking. Check it out here: youtu.be/zGLi1-sfRe0.

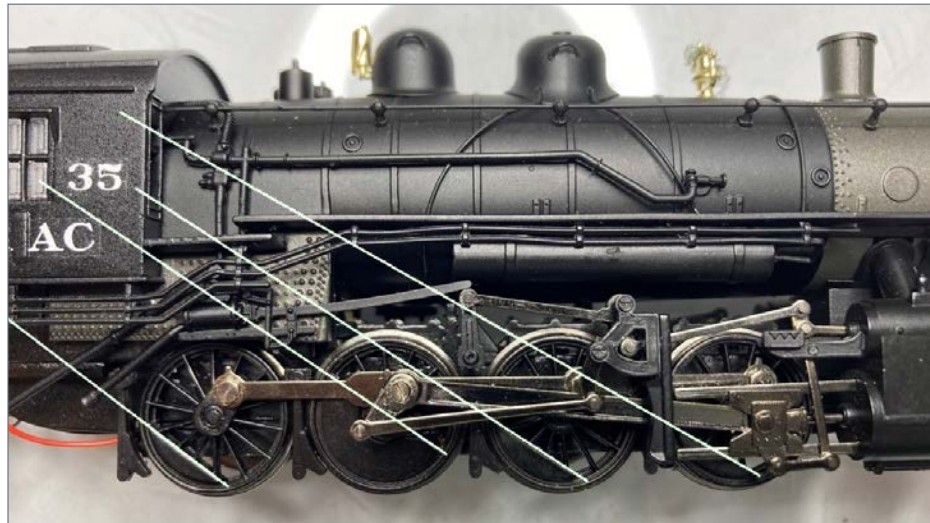
The proof was in the running, but I wanted to do my photo test again. The results showed that my quartering job wasn't



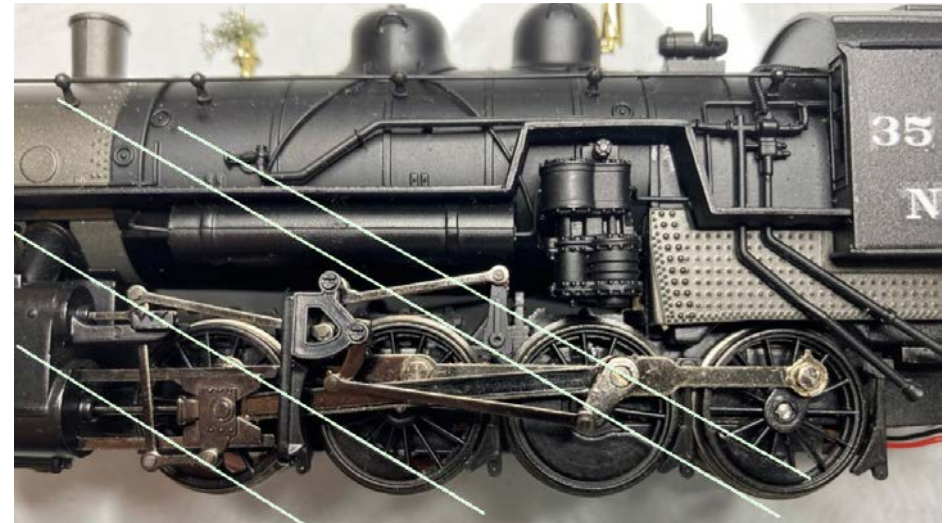
perfect, but it was much better than before, well within the model's operational tolerances [17, 18]. I'm very satisfied with my first attempt at quartering locomotive drivers. Bring on a Big Boy!

TOOLS

- NWSL Puller - #45-4
- NWSL Quarterer - #44-4
- Dremel Workstation (as a press)
- NMRA Mark IV Standards Gauge
- Needle Nose pliers
- Gripster Holding Tool from MicroMark
- Modeling screwdrivers/nut drivers
- Locomotive Cradle ☑



17. The line test reveals nearly parallel lines on the engineer's side, a sign of good quartering.



18. Fireman's side quartering test.

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MICHAEL ANTEAU



Michael comes from a railroading family. His grandfather was an engineer for the C&O, and his father was an engineer for CSX.

Michael was first bitten by the model railroad bug watching his dad's Lionel trains, and he built his first 4x8 layout at the age of ten. Michael is now working on his "dream" layout, a prototype-freelanced coal hauling railroad set in transition-era West Virginia.

Michael lives in Northwest Ohio and works in Information Technology. He is married and has two grown children. When he is not working on the Nicholas & Ashley Creek RY, Michael enjoys playing piano, biking, hiking, and traveling. ■



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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

Scituate Harbor Marine Supply



MICHAEL TYLICK, MMR SCRATCHBUILDS A
SEASIDE INDUSTRY WITH REGIONAL CHARACTER ...

1. This last building standing as the historic Sylvester Lumber Supply complex was razed and replaced with a modern structure. Mr. Sylvester said back when his father owned the store, trains used to drop off cargo in the back.



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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)



SCITUATE HARBOR MARINE SUPPLY ON MY ON3 MARSHFIELD AND OLD

Colony Railroad was built in the late nineteenth century as the Ocean Spray Barn to house cranberries and other agricultural products. As cranberry farms consolidated farther south in Plymouth County after World War I, the barn fell into disuse.

Commercial fishing and recreational boating survived and flourished. Scituate Harbor Lumber and Marine Supply purchased the structure just after World War I to expand its business. Its waterfront location was ideal for serving the numerous small craft that called the harbor home. The business thrived in the years before the Depression so an additional warehouse wing and boat dock were hastily constructed. The M&OC still delivers an occasional carload of lumber or chandlery goods.

I wanted to base my Scituate Harbor Marine Supply on the former Sylvester Lumber Company of Hanover, MA [1]. Then I discovered the unusual Loring cranberry barn on a hike through Kingston, MA [2]. I managed to combine elements of each in my model, compressed into the final open space on my layout.

Since this would be the last major project for the M&OC, I decided it would be fun to build from wood and paper. Let's get started.

SITE PREPARATION

To begin, I had to prepare a space for the structure on my layout. Scituate Harbor Marine Supply would be built into a

hillside at water level on my layout. The track and hardshell were already in place, so this required some careful leveling for the foundation.

I had a boat building business from a previous diorama that I wanted to be part of the scene. I decided the foundation of the business should be at water level, which I carefully made sure matched the water level for the rest of the layout. This provided a guide for modifying the contours of my existing layout [3].



2. I found the Loring Cranberry barn in Kingston, MA on a field trip exploring the original Old Colony Railroad Greenbush Line right-of-way.

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3. The harbor level will be even with the foundation of the boat building. The Harbor Marine Supply will be built into the side of the hill at right and will obscure the end of the track (top), giving the illusion that it continues.



4. A hardshell patch mated the old and the new, and formed a seal for the resin water of the harbor. Because the building would obscure the hillside, I didn't bother blending the new slope into the existing hillside.



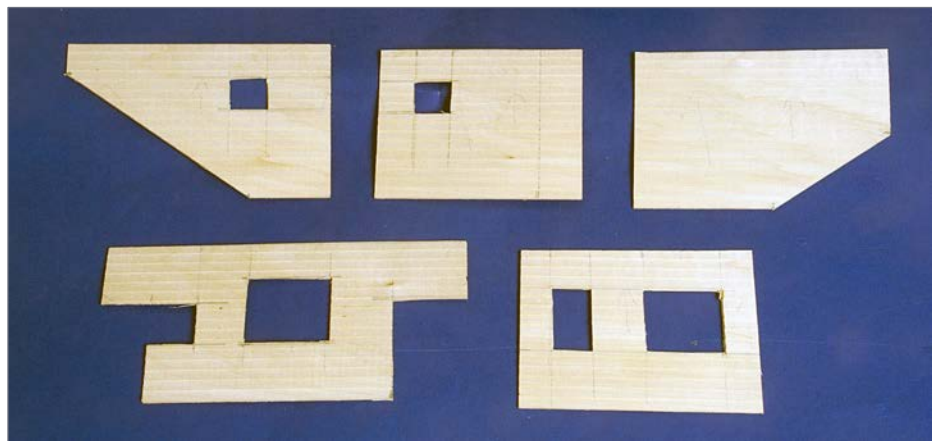
5. I built a foundation wall for the structure into the harbor. I glued waterline rock castings in place, supporting them with styrofoam peanuts as the glue dried. Later I backfilled the area behind the rocks with a mixture of sawdust, white glue, and water. This mixture hardens to a particle-board-like surface when dry but can easily be softened with water for reworking.



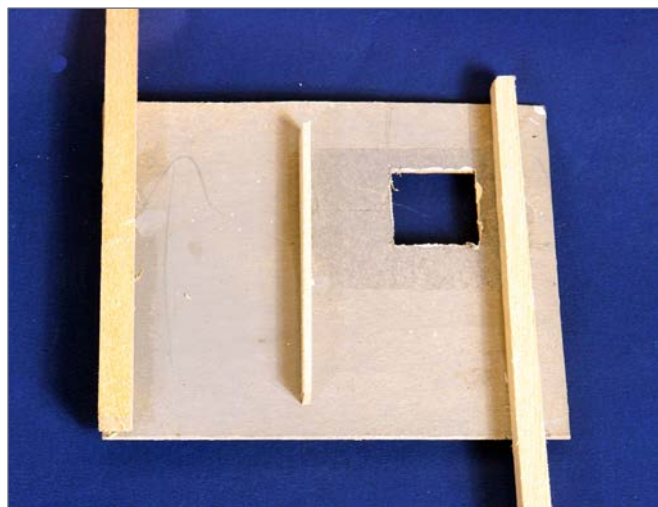
6. The completed foundation and earthwork is finished with a first coat of casting resin water. I will size the structure to fit this foundation.



THE FIRST FLOOR



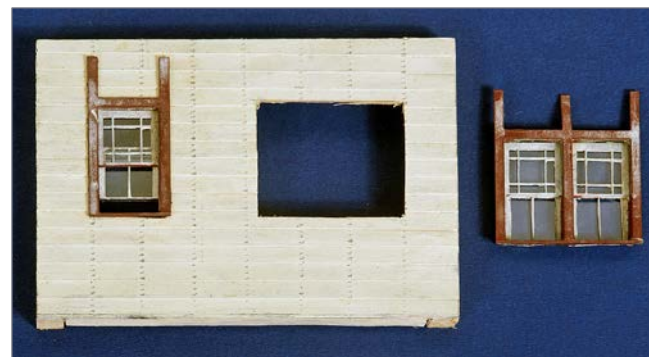
7. I cut the wall sections from sheets of Northeastern clapboard siding. Wood gives a better textural look than styrene to close-up models. I reinforced the back of the cuts with masking tape and used a sharp blade to avoid splitting the wood while cutting.



8. I applied braces made from scrap pine lumber to the insides of my walls to help prevent warping.

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9. I needed custom windows, so I designed my own using Corel Draw and sent them to a custom laser cutter. This method was much quicker

than scratchbuilding, and produced precise results. The cost of having them cut was lower than you might think. While it takes practice and patience, learning to use Corel Draw was well worth the effort.



10. The completed first floor of the barn. I designed the doors and had them laser-cut. Brown and black watercolor washes color the nail holes, finish off the wood, and blend the white weathering on the window and door frames.



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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

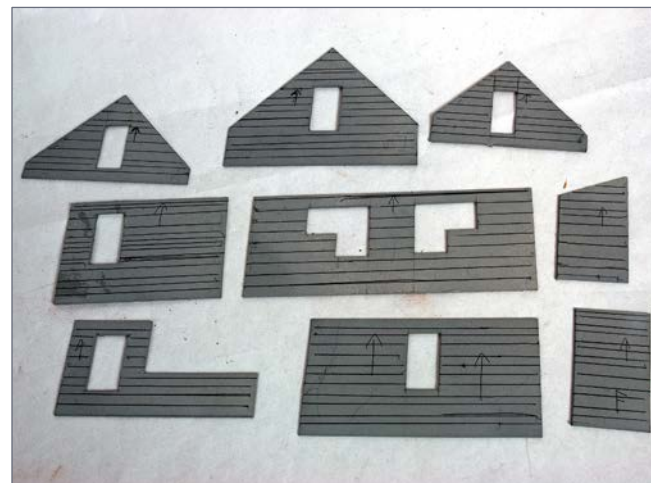


11. I colored wood and card scraps and placed them behind windows to represent interior detail. The side wall is beveled to fit the terrain. The interior braces provided good glue points for the assembly.

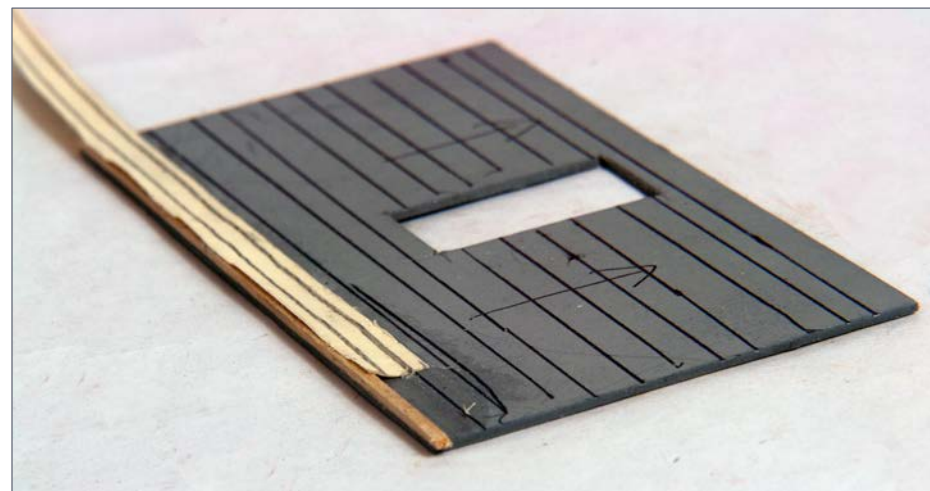


12. I added rear walls to show off interior detail in the lit structure and to keep light from leaking out from behind.

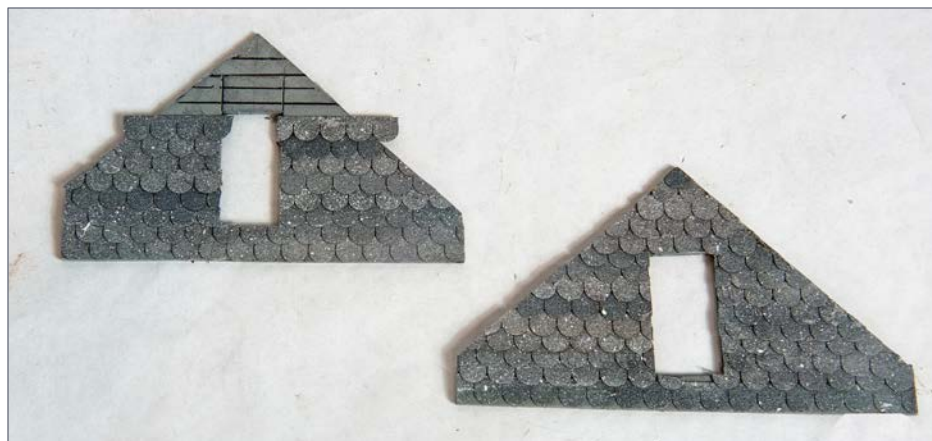
THE SECOND FLOOR



13. I cut the second-floor walls from cardstock, primed them, and drew shingle strip guidelines. I also put orientation notes on the wall pieces to help avoid confusion when all the parts are sitting on the workbench.



14. The bottoms of the second-floor walls flair out, probably for shedding water. I replicated this by curling a strip of oak tag (file folder) and gluing it over a stripwood support.



15. I sprayed scalloped-edge shingle strips from GC Laser with gray primer and discolored them with splatter sprays of white, oxide, and black paint. I cut oversize strips randomly from the sheet to create an uneven appearance. I glued them to the building and trimmed the excess when dry.



angle from outside the structure.

16. Rather than use three-dimensional figures for interior detail I copied and printed figures from the Walthers catalog. They look just fine, especially since they're viewed from only one

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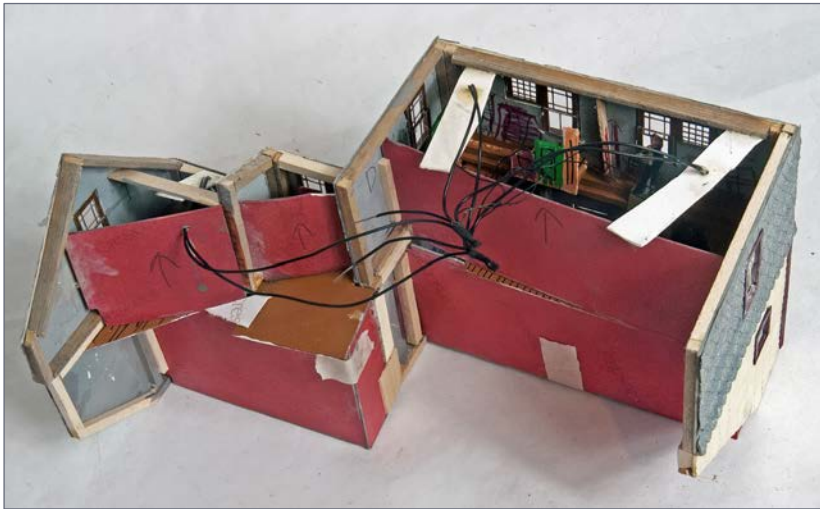
17. The second floor has no corner posts, so I had to cut and trim the shingles as well as possible to meet in the corners. The flared bottom looks good. I made the second-floor windows in the same way as the first.



18. A rear view of the two floors assembled. The reinforcements along the bottom edges of the second-floor walls matched with those along the top edges of the first for a good gluing surface.



19. The second floor of the annex is rather complicated. Not very elegant but good enough.



20. I use grain-of-wheat (GOW) bulbs for lighting the building, and it takes a number to do it properly. GOW lamps usually operate on 12-15 volts, but operating them between 6-9 volts DC provides a realistic glow while greatly increasing lamp life. LEDs offer a newer approach, and I will probably use them on future layouts.



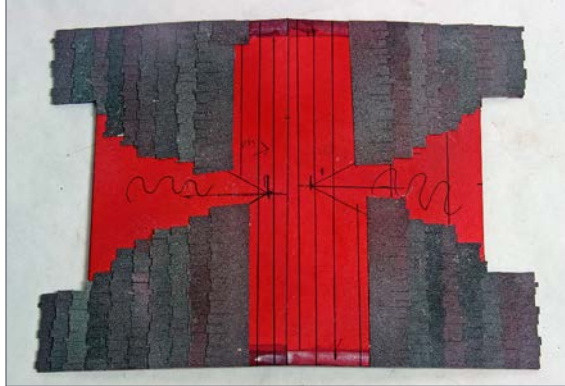
21. Adding wood trim not only improves the detail, it also helps prevent light leaks along the building's joints. It's always easier to cut it oversize and then trim it in place.



22. The peaks are completed and in place. I created the wood pattern on the front peak on Corel Draw and had it laser-cut.



ADDING THE ROOF



23. I used GC Laser shingles for the roof, applying them in the same random manner as those on the wall. I primed the cardstock sub-roof and walls in bright red enamel – they won't be seen and I had the red paint on hand. I drew lines to keep the shingle

courses straight and to avoid shingling areas that would be covered with dormers.



24. The front of the annex roof has a shed dormer. I made the entire roof as one piece and bent the shed dormer portion to match the roof line. The shingles extend under the dormer portion slightly to meet the walls.



25. With shingling complete, I braced the back side of the roof and brought it to the correct pitch with cardstock gussets, careful to watch the clearances. The building does not have back walls to accommodate the track and the hillside, but it would not look right without a full roof.

These pieces allow the roof to support itself.



26. I added rafter ends once the roof was in place. I cut them oversize, glued in place, and trimmed. I drew rafter spacing lines on blue tape to transfer them to the model without

damage. I made copper flashing from paper to help seal the gaps and provide detail.



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[INDEX](#)

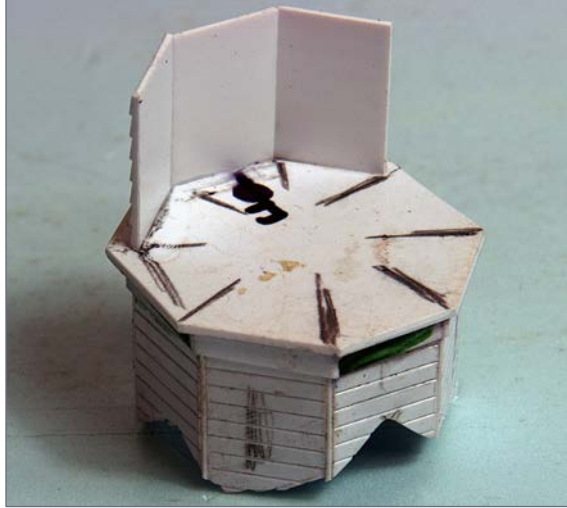
[TABLE OF CONTENTS](#)

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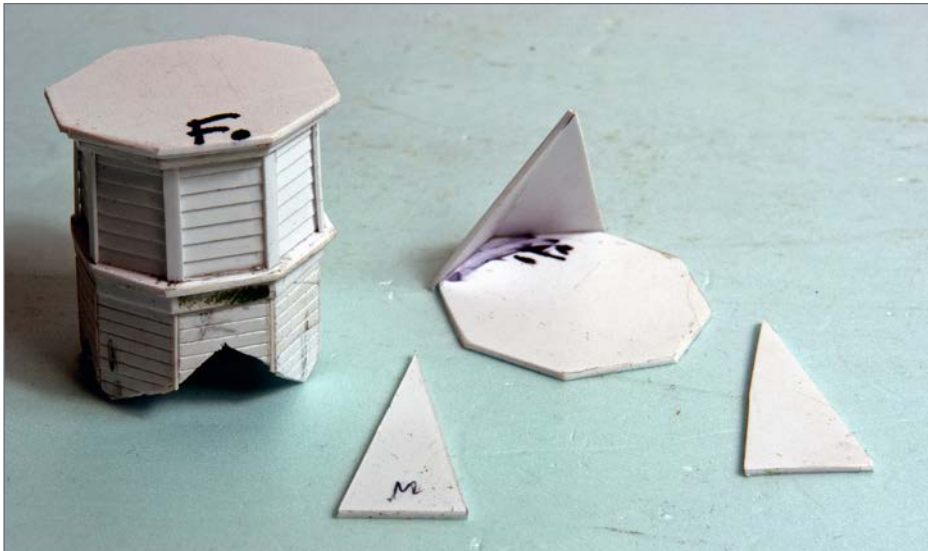
[INDEX](#)

[TABLE OF CONTENTS](#)

THE CUPOLA



27. I built the octagonal cupola from styrene, since it was easier to work with than wood and paper. A computer-drawn template made it easier to cut the shape. I cut the bottom to fit the peak of the barn roof.



28. Adding trim really brought the base together. I began constructing the cupola's octagonal roof with triangles cut to match a master.



29. To create flaring for the bottom of the octagonal roof, I added styrene guides using trial-and-error fitting. I backfilled the flair guides with a fillet I made from Bondo glazing and spot putty.



30. The prototype cupola roof was shingled, but that seemed like too much, especially with the large shingle strips I was using. I decided on an oxidized copper-clad roof instead. To top the cupola, I added a couple of glass beads and a simple cross, since I couldn't find a scale weather vane.



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[INDEX](#)

[TABLE OF CONTENTS](#)

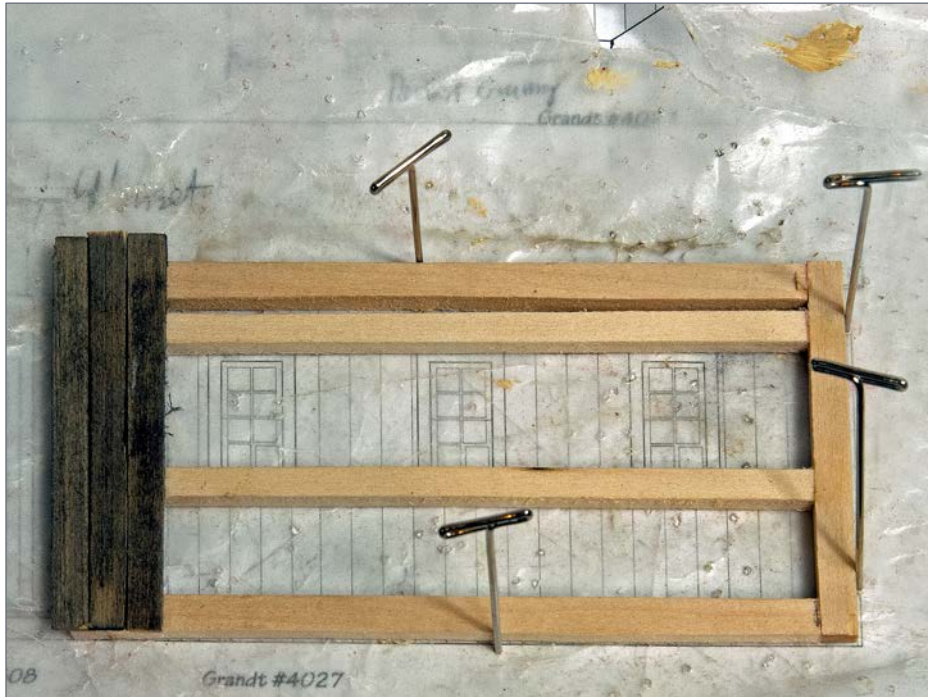
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[INDEX](#)

[TABLE OF CONTENTS](#)

THE ANNEX SHED

Since the Sylvester Lumber Company inspired my model – at least until I found the Loring barn – I had to include at least part of its fascinating hodge-podge of annex sheds. Some day I hope to build a more complete version of them, though most likely in a smaller scale. There was so much hand work in the main building that it seemed wrong to just use scribed siding for the shed. Pre-stained board-by-board construction looks so much better. Since this was the last real model for the completion of my layout, I wanted to make the project last as long as possible. (I have since begun plans for an eight foot extension.)



31. I built the skeleton from heavy bracing lumber glued together over wax paper covering an elevation of the shed. There is really no need for vertical support around the windows. I cut the boards oversize and trimmed them once in place.



32. I used prefab Grandt Line windows from my parts box. It was gratifying to actually use some of the junk I've kept for years in the hope it would someday be useful.



33. Since I wanted to light the annex, I light-proofed the walls with a liner of black paper.



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[INDEX](#)

[TABLE OF CONTENTS](#)

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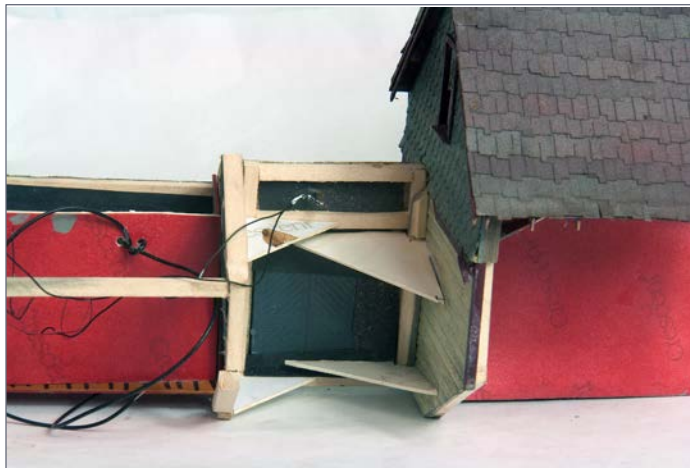
[INDEX](#)

[TABLE OF CONTENTS](#)



34. I built the side wall in the same manner as the front, and glued them together. I had to place the final vertical board on the side wall over the bracing after fitting them together. I made the side with tapered walls to rest on the

foundation and fit the terrain behind the building.



35. I used bracing strips and gusset plates to hold the open back of the model together. As in the main building, I built a false wall with two-dimensional interior details to hide the

open back side and prevent light leaks. I attached the shed to the main building with large gussets, leaving the roof for last, since it's an easier fit with the walls in place.



36. I made standing-seam roofing for the shed with construction paper I painted with a mix of dark gray and silver and discolored with spray paint. Borrowing a technique from Bar Mills, I glued the strips vertically with a small overlap and embossed the seam with my fingernail when the glue was set but not completely dry. My fingernail's hard, thin rounded edge works well

and allows a better feel for the work than any tool I have tried.

FINISHING TOUCHES



37. I built the front loading dock over a paper template. Aligning the vertical posts by eye proved nearly impossible, so I added horizontal rails and a supporting diagonal next. I made a smaller dock for the add-on shed.





38. I glued the dock in place, added signage, exterior lighting, a chimney from Grandt Line, and other detail. This building is ready to place on its foundation.



39. The structure in place on the layout. From earlier photos, the back of the building didn't look like much, but the hillside and its foliage cover a multitude of sins.

MIKE TYLICK MMR



Michael has been fooling with electric trains for as long as he can remember. Never one to commit to a single large project, he has instead built a number of smaller layouts of various types and in various scales over the years. He is a “skipped generation” in a railroad family. Mike’s grandfather was a carpenter for the Jersey Central, his father a marine engineer for the Erie,

his son an Associate Vice President with BNSF. Michael is a retired inner-city art teacher. He has been a long time contributor to many publications including *Model Railroader*, *Railroad Model Craftsman*, the *National Model Railroad Association Bulletin*, and most recently *Model Railroad Hobbyist*. He also has delivered numerous clinics and presentations on various railroad and historical subjects on all levels in different parts of the country.

Railroad interests are leaning toward prototype rail and architectural photography, and Mike is becoming keenly aware of what can be observed outside the basement. Much of his hobby time is now spent employed as a custom builder specializing in railroad structures and rolling stock, and has worked with several businesses who build custom model railroads. He formed RailDesign Services, focusing on the design and visual aspects of model railroading.

Michael now lives in eastern Massachusetts and is working on an On30 layout loosely based on the New Haven Railroad’s Old Colony Lines. He is honored to be named NMRA Master Model Railroader #523. ■



Camas Prairie First Subdivision

Part 2



CAMAS PRAIRIE FIRST SUBDIVISION | 2

1. I added a blue-colored steel edge to the Highway 11 Bridge based on views of the prototype on Google Earth. I painted the river bottom edge a light green to represent plant overgrowth and the river flat black.



2. I used several applications of Mod Podge Gloss Medium to create the water effect.

MRH Running Extra | January 2022

TIMOTHY DUDLEY SHOWS US
GREER TO KAMIAH, IDAHO ...



I HAVE CONTINUED WORK ON MY CAMAS PRAIRIE FIRST SUBDIVISION TOMA shelf layout. In my previous installment in November, I discussed modeling the countryside outside of Greer, Idaho. This month, I'll focus on the second and final module in the layout, which features a grain elevator complex and the Highway 11 bridge over the Clearwater River.



3. I followed Ken Patterson's technique of using plywood finished with stain to add a finished edge to my modules and make them look like furniture. The highway bridge and Hwy 11 area are taking shape, with some cleanup left. I need to blend the rock better.



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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)



4. I kitbashed my miniature rendition of the grain industry at Greer, ID based on Google Earth aerial shots. I used Walther's Rural Elevator kit, Rix 44-ft Grain bins, and some old Pike Stuff parts for the project.

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5. I added details and overhangs to the elevator tower and began the weathering process, complete with grain spray.





6. I wrapped ABS pipe with a photocopy of metal seams to represent a grain silo at the rear of the grain elevator complex. I didn't find the photocopies satisfactory as they were too distorted, so I proceeded with the technique in [7].



7. Hand-drawn metal seams on the silos looked much better than the photocopies.





8. I finally added my homemade grade crossing decks, which were simply spray-painted scrap styrene with details drawn in with a Sharpie marker.



9. The mill structure is almost complete, needing just a little more piping and other details for completion.

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10. The module and grain elevator complex are nearly complete.



11. I needed a switch lead to serve the grain elevator. I made a swing section out of foam and Lauan plywood for this and scenicked it to blend in. I fastened it to the modules using a small brass tube and a pine tree, drawing from a Charlie Comstock video for the idea. I mounted the extension on old kitchen cabinet hinges so I could swing the extension out of my office walkway.





12. One final aerial shot of the Greer, Idaho layout design element. I selectively compressed Google Earth images of the area for my modeling.



13. I completed the piping on the grain industry and added coarse static grass and weeds. A little more weathering for the grain storage bins and the mill roof will complete the scene.



14. In Part 3 of my Camas Prairie First Subdivision I'm modeling the Kooskia Bridge over the Clearwater River. Here is a taste of it with the bridge about 50% complete. ☑

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(Just in case your spam filters eat our email response ...)



TIMOTHY DUDLEY



When Timothy was a little boy, his dad hid an AHM train set so Timothy wouldn't find it until Christmas morning. That set started his love affair with the hobby.

He and his brother built a 4x4-foot oval layout on a piece of plywood that barely fit under their bunk beds. Since then Timothy has built a dozen or so layouts in N and HO scales.

Timothy served in the US Navy from 1984-1990 and is now a licensed Assemblies of God pastor (www.newlife-cc.com), co-pastoring a church with his wife Cindy in Hurricane, Utah. He also enjoys playing bass on the worship team, train watching, and writing. ■



THE AH-HAH MOMENT

column



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JOE FUGATE GIVES MORE EXPERT TIPS ON
PRECISION DROPPER BOTTLE APPLICATORS ...

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I KEEP DISCOVERING MORE GREAT TRICKS WITH THESE PRECISION NEEDLE APPLICATORS [1].

Let's go over some expert usage tips with these applicators. Then I'll also cover where you can get caps for those needles to keep the solvents from evaporating.

First, here's an expert trick you can use to better control the flow of solvent out of these bottles.

Of course, the thicker the viscosity of the solvent, the larger needle you need to use. For very thin substances like styrene glue, I prefer the very tiny 30-gauge needle.

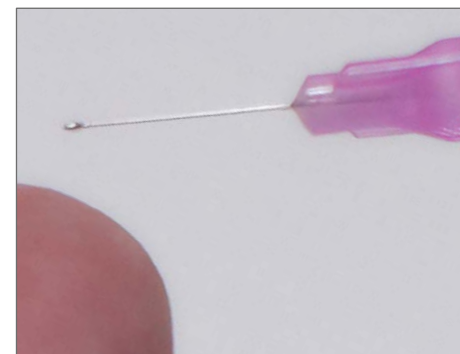
To better control the flow out the needle [2], put just a bit of solvent in the bottom of the bottle, don't fill it. Then learn to keep the bottle near level rather than tipping it up high [3]. Let capillary action work to draw out the fluid. *Ah-hah!*

I don't want the solvents I put in these bottles to evaporate, so I've found some blunt needles caps on Amazon [4]. See the shopping list for online buying links.



1. I love these precision needle applicators. This time, I give some cool expert tips on using them, along with where to find caps for those needles.

THE AH-HAH MOMENT | 2



2. If you fill the bottle too much and tip it up, gravity and pressure from the solvent in the bottle makes it come out very fast.

3. If you fill the bottle with just a bit of solvent and hold the bottle more level, you get much greater control over the solvent flow.



4. I found these rubber blunt needle tips on Amazon. The red tips fit needle gauge 14-16, and the black ones fit needle gauge 18 and smaller.

I really love these precision applicators. My latest discovery is using one of these applicators to apply CA accelerator. Those accelerator sprayers are ridiculous. I want precision application of accelerator, not drenching half my model with it! ☑

To get a shopping list for this article, visit the MRH website at this link: mrhmag.com/magazine/running-extra/2022-01/ah-hah-moment#shopping



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[INDEX](#)

[TABLE OF CONTENTS](#)

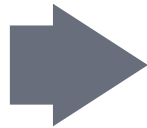
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[INDEX](#)

[TABLE OF CONTENTS](#)

Bonus section!

Here are all the pages from
the January issue of
*Model Railroad
Hobbyist* magazine
as well!



ALSO:

- Looking into resin 3D printing
- Live coal loading example
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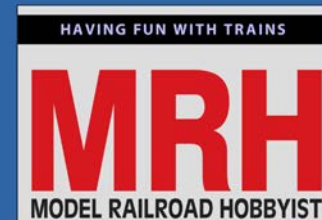
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[INDEX](#)

[TABLE OF CONTENTS](#)

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[INDEX](#)

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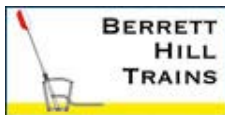
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ASST. EDITOR'S MUSINGS



Model Railroad Hobbyist | January 2022

JAMES REGIER THINKS ABOUT NEW LAYOUT OPPORTUNITIES ...



IT'S A NEW YEAR, filled with new opportunities. Seems like a cliché, I know, but my wife Allison and I have been in the process of remodeling our home to nearly double its size, so there is a different ring to it this year, at least for us.

The demands of remodeling have occupied much of my time and attention these past few months, but I have also been thinking about the possibilities for a new, reasonably sized layout when the job is finished in April. (Knock on wood.)

The prospect of having a sizable layout of my own is somewhat new to me. Until now, I have been working with a very modest 4'x4' test loop that began life under our Christmas tree in 2013.

We had decided to upgrade my Dad's layout to DCC, and I was tasked with installing decoders in our locomotives. I needed to set up my own layout to test the installs, and the Christmas tree loop, outfitted with an NCE ProCab (overkill?) fit the bill.

The layout is not much to look at: a loop of Atlas snap track on four interlocking 2x2 squares of subfloor membrane panel, frequently piled high with project boxes and a hodgepodge of buildings. You can run a train of maybe 16 cars if you don't mind the locomotive chasing its own caboose [1].


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[INDEX](#)
[TABLE OF CONTENTS](#)
MRHMAG.COM
[INDEX](#)
[TABLE OF CONTENTS](#)

ASSISTANT EDITOR'S MUSINGS | 2

Still, it has entertained our two girls and helped foster an interest in the hobby. If nothing else, they can take the throttle, blow the whistle, and have fun watching the train respond to their commands.

Of course, the layout's primary purpose was testing sound and light upgrades on locomotives, and this loop served that purpose well. I could handily put projects on track and tweak them. Add an Accutrack speedometer, and I had a great station for speed matching.

Much of my model railroading these past several years has been focused on experimentation. Whether it's been with LED lighting, speakers and baffles, Arduino projects, or 3D modeling, it has been all about tinkering and experimentation. Most of this has been on locomotives and individual models, rather than on layout construction [2].

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ASSISTANT EDITOR'S MUSINGS | 3

It wasn't that I didn't want anything bigger. It just didn't make sense to think about expanding into a bigger, more-permanent layout before now. When we knew we were expecting our second daughter, we had decided that we either needed to expand our two-bedroom home or find something different.

Besides, if I wanted to run longer trains and do prototypical operations, several people around town hosted regular operating sessions. Ken Kroschwitz even built his layout at K-10's Model Trains in Maryville, IL specifically for the public to operate, and he invited people to bring their own equipment. Of course, this also eventually brought me to Ken Patterson's basement.

The pandemic changed this operating work-around. Most people have been much less eager to host for the most part, given the risks.



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[INDEX](#)

[TABLE OF CONTENTS](#)

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[INDEX](#)

[TABLE OF CONTENTS](#)

ASSISTANT EDITOR'S MUSINGS | 4

It also made our house feel much smaller. With everyone working and schooling from home, things were stretched to the limit. There was no room to spare for anything in the house, let alone any sort of layout expansion.

And that's what finally made us pull the trigger. When the dust clears from the remodel and a lot of stuff gets redistributed



bicentennial scheme and upgraded with sound. The layout's characteristic pile of projects and odds and ends is in the center.



1. My test loop layout. The Gretna, Manitoba Pool elevator (featured in "What's Neat," September 2019 *MRH*) is on the right. Hutchinson station is at bottom, with a fully lit interior and detailed to match the prototype. The blurred test object is a Kato GP35 that I painted in Santa Fe

2. The latest project I tested on my loop was a 3D-printed model of ATSF 1460, the one and only SWBLW locomotive, or "Beep." I built the shell to fit a Bowser VO-1000 chassis.



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ASSISTANT EDITOR'S MUSINGS | 5

from the basement, I will have the unfinished half of our basement to work with, and decisions to make [3].

I need to think about site preparation. Sufficient outlets to support the layout and its accessories are a must, and there are none on that half of the basement. I'll have to put some in, which will mean framing along the concrete walls.

Lighting in our basement in general is poor, and on the unfinished side it's especially bad. I'll have to address that, too. Poor lighting can complicate an operating session, particularly if it strains the eyes to read cars in operating sessions, and I want to build a layout for operations.

For me, the biggest challenge will be channeling my diverse interests into a layout that tells a coherent story.

There can be no question that my layout will focus on the Santa Fe Railway. I've collected Santa Fe locomotives and rolling stock most of my life, though have never settled on a specific era. I have diesels running the gambit from the



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ASSISTANT EDITOR'S MUSINGS | 6

early Cat Whisker scheme all the way to Super Fleet War-bonnets, even some steam.

My major focus will be circa 1991, which will allow for blue and yellow warbonnet, Kodachrome, and Super Fleet to coexist. Cabooses were not completely phased-out yet. This will give it elements of most of what I remember growing up.

I will continue to run the Super Chief and El Capitan as if the private passenger business continued to thrive. Since I have the locomotives and rolling stock to do it, I can also shift eras if I desire to run operating sessions in an earlier era.

The layout will be centered on a prairie theme, with plenty of wide-open spaces. The principal businesses on the layout will be agricultural, mostly wheat and grain, with the accompanying businesses that made those small towns work.

The major focus of the layout will be centered in Kansas, probably the old main between Newton and Hutchinson. I would spend hours watching locals switch out elevators and flour mills. I don't think my layout would be complete without these elements.



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[TABLE OF CONTENTS](#)

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[INDEX](#)

[TABLE OF CONTENTS](#)



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[INDEX](#)

[TABLE OF CONTENTS](#)

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[INDEX](#)

[TABLE OF CONTENTS](#)

Of course, it gets more complicated, because I also have many fond memories of summer vacations spent visiting my grandfather and family in southern Manitoba, Canada [4]. I loved the architecture of those wooden grain elevators that lined the tracks of just about any town.

I have especially fond memories of time spent running errands and hauling grain to Gretna, Manitoba. I have built a model of the Manitoba Pool elevator and have models of the smaller Henry Ritz elevator complex in my mind's eye. I must find a way to make this town fit into a Kansas setting.

The one thing I do know in all of this is that my layout will be modular; built one eight-foot segment at a time. This should allow me to have the best of both worlds, while permitting me to swap entire scenes out.

It's a New Year, and a new house, with new opportunities. Even to the point of being overwhelming. I am looking forward to the challenge of getting started. ☑

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James



4. A 1980s view of Gretna, Manitoba, facing north along the CP tracks and 7th Street. The Pool elevator complex is to the left. An old implement dealership and lumber yard is to the north. Across the tracks are the two Henry Ritz elevators. The whole scene would fit on an 8' module.

S.J McKee Archives, Brandon University, Manitoba Historical Society photo

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[INDEX](#)

[TABLE OF CONTENTS](#)

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Compiled by **JOE FUGATE**



Keeping 'em fresh

MRH forum member **JRP** (John Parrish) started a thread recently showing some very nice reefer modeling.

John shot this on a southern California reefer icing dock diorama he built and photographed outdoors. John has been modeling for over 60 years and he said he especially likes how photographing models outdoors really makes them pop!



[View the full thread on the MRH website](#)

► **MRH'S MONTHLY GREAT MODELER POSTS**

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[INDEX](#)

[TABLE OF CONTENTS](#)

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[INDEX](#)

[TABLE OF CONTENTS](#)



1. New MRH forum member **micktropolis** asked about Athearn Blue Box shell compatibility with an Athearn RTR chassis.

Athearn Blue Box and RTR shell compatibility

New MRH forum member **micktropolis** (Michael S.) recently asked if it would be possible to fit an HO Athearn blue box SW1500 shell onto an Athearn SW1500 RTR chassis?

MRH forum member **kevinn** (Kevin N.) answered that he's actually done just that, and showed several photos of the old shell on the new chassis [1] and discussed what he had to do to get it to fit:

"Mick it can be done. Here are some pictures of it. The chassis is a ready to roll that I filled in the holes on so the body mounts to the frame and holds the coupler box to it. I used JB weld (a two-part epoxy) and once it set up, I drilled and taped it for a 2-56 screw. There is a tab on the back of the blue box shell that you remove, and the shell will slip right on."

Nice! With over 30,000 registered forum members, you often can find someone on the MRH forum who has some experience with what you're trying to do.

[View the full thread on the MRH website](#)



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[INDEX](#)

[TABLE OF CONTENTS](#)

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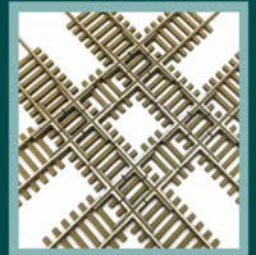
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2. MRH forum member **Daboosailing** asked how much he needed to break up his DCC layout into blocks with things like the PSX quad here.

DCC track – blocks or no blocks?

MRH forum member **Daboosailing** (Mark D.) recently asked how much he needed to break up his layout into blocks or power districts.

The conversation wandered around with differing terminology as to what a block or a power district is.

Others recommended various circuit breaker boards from different manufacturers. Joe Fugate posted this:

*“A **power district** is a section of track with its own booster.*

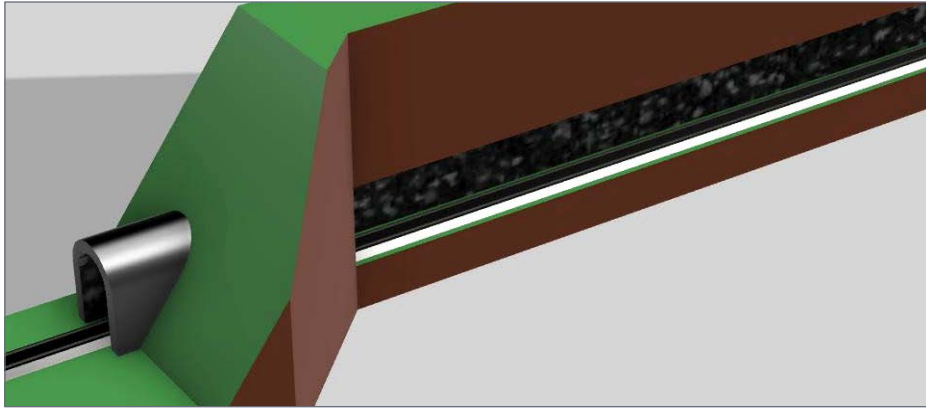
*A **block** is a section of track within a power district with its own circuit breaker. It's powered from the same booster as other blocks within that power district.”*

Joe went on to describe when to use which one.

[View the full thread on the MRH website](#)

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3. New *MRH* forum member **voluse** asked about how to model the inside of a tunnel. Several answers got posted, but this one by fourm member VSOTTO (Verald S.) is most clever.

Modeling the inside of a tunnel

New *MRH* forum member **voluse** (Verl L.) recently asked fascia-how to model the inside of a tunnel. One answer gives the way to model a long tunnel so it's exposed along the fascia [3].

Other forum members chimed in with many helpful posts. This one from VSOTTO was quite clever:

"Presumably the track inside the tunnel would be very close to the fascia edge. If I were building this project, I would build the tunnel portal at the wide/normal width of the benchwork and then transition to a narrow shelf portion showing the interior of the tunnel. I got inspired, and drew a mock up of how I envision it. I would also cover the interior tunnel portion with a removable piece of plexi-glass (which isn't shown) to prevent derailed trains from falling to the floor."

Read the entire thread to see all the great ideas posted.

This is an important conversation to read through because unless done properly, you can end up with the reversing section fighting with the circuit breakers.

Monthly What's on your workbench thread

Every so often, the monthly workbench thread has some especially nice modeling. Check out the January thread ...

[View the full post on the MRH website](#)

4. *MRH* Getting Real columnist **Marty McGuirk** posted a photo of this inspiring structure model he's building for his Central Vermont layout: the South River Model Works *Streeters Store*. Marty did a nice job on [this craftsman kit from South River](#). Click or tap on the photo to get a much larger image of this nice model.



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5. *MRH* forum member **rjthomas909** (Robert J. Thomas) has been upgrading some Accurail cars using pointers from Eric Hansmann, *MRH* Contributing Editor. View the post on the fourm to get all the details on these nice looking cars!

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KEN PATTERSON COVERS 3D PRINTING FROM START TO FINISH, AND THE JACKSONVILLE TERMINAL RAILROAD MUSEUM CLUB LAYOUT ...

THIS MONTH JOHN FOWLER OF ZYX CREATIVE DEMONSTRATES THE PROCESS of printing, cleaning, and curing 3D-printed resin models from start to finish. After



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[INDEX](#)

[TABLE OF CONTENTS](#)

that, Denny Jelsma of Jelsma Graphics leads a tour of the Jacksonville Terminal Railroad Museum Club layout.

3D-printed models from start to finish



1. Ken shows off the Anycubic Photon Mono X resin 3D printer and the Anycubic Wash & Cure station owned by James Regier. They are being kept in Ken's basement while James' house is being remodeled.

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EXTRA



2. John Fowler of ZYX Creative will demonstrate how he 3D-prints several tunnel portals for a customer. This one has been painted and weathered.



3. Before beginning to work with the resin, John puts on the proper personal protective equipment, which includes gloves and a respirator. The resin fumes can be irritating to the skin, as well as smelling unpleasant. He also wears a lab coat to keep the resin off his clothing.



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[INDEX](#)

[TABLE OF CONTENTS](#)

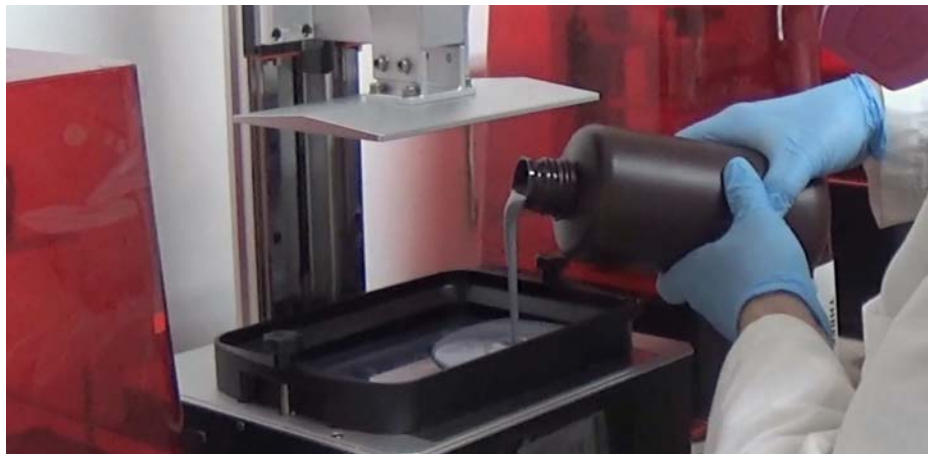
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[INDEX](#)

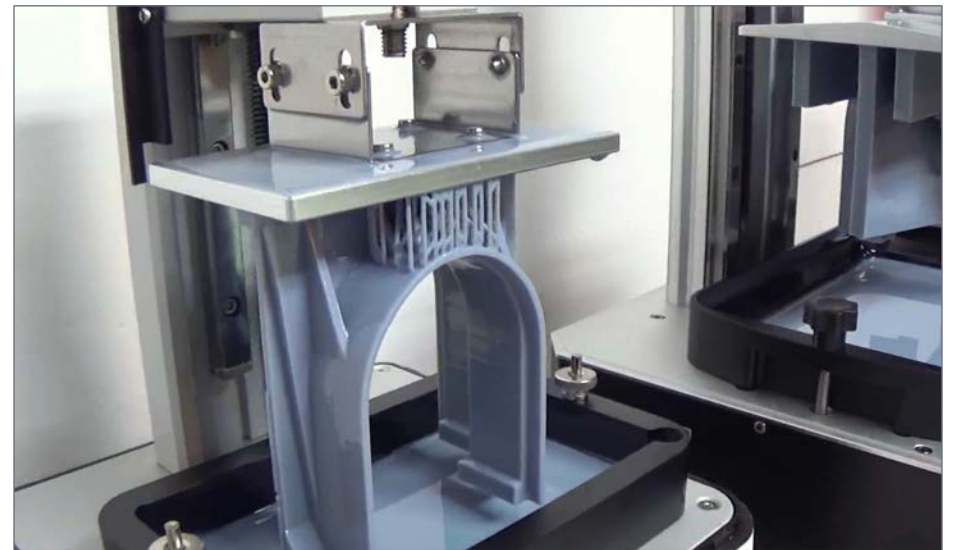
[TABLE OF CONTENTS](#)



4. John demonstrates how to clean and prepare the resin tank from the 3D printer prior to beginning printing.



5. After shaking the resin in the bottle to ensure it is completely mixed, John pours it into the tank. Bubbles formed by shaking will rise to the surface by leaving the resin to sit for about 15-30 minutes. The bubbles can be soaked up with a towel or moved to the edge with a scraper.

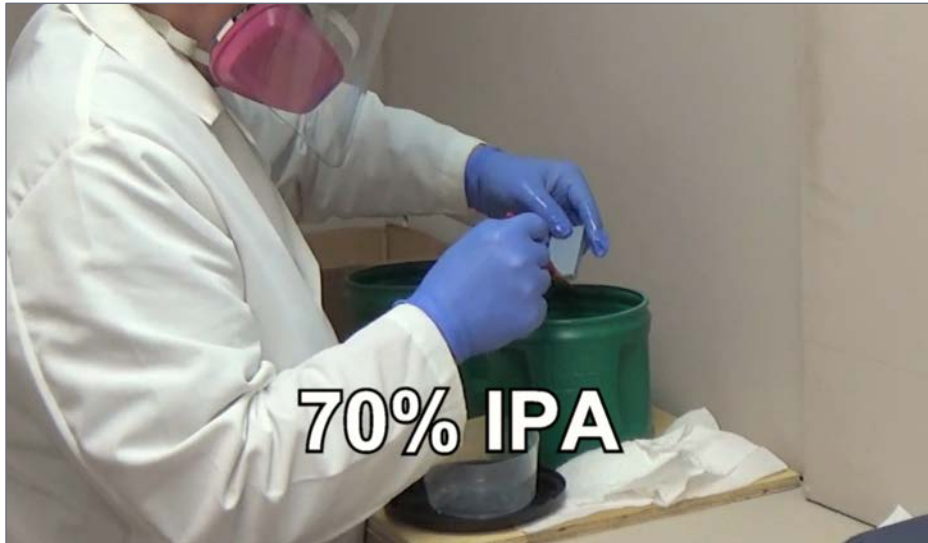


6. Multiple resin 3D-printed tunnel portals hang off the build plate after printing. Some of the prints took 9 hours to complete.



7. A putty knife with a sharpened edge is used to remove the prints from the build plate. The knife is kept as flat as possible to slide under the print.





8. Once de-plated, the parts are cleaned with isopropyl alcohol (IPA). John starts with 90% IPA, and then rinses the part with 70% IPA. He uses used airtight coffee containers to both store the IPA and bathe the parts. He then allows the parts to dry for up to 24 hours on paper towels.



9. John places the parts in sunlight to cure. There are also UV light stations that can be used in locations without good access to sunlight.



10. The models are then washed in laundry detergent and water, rinsed with clean water, and left to dry.

The Jacksonville Terminal Railroad Museum Club layout



11. Denny Jelsma takes us on a tour of the Jacksonville Terminal Railroad Museum Club layout. The layout, located in Jacksonville, FL, is in a 25' x 35' building.



12. The layout is triple-decked in places. With two helixes, the mainline track uses code 100 rail, with code 83 for some sidings and code 70 for some of the yards.



13. The layout models a 50-mile radius around Jacksonville, from Jessup, GA to St. Augustine in the south and Baldwin in the west. This is Jacksonville Station, built in 1918. The layout can model eras from 1939 to 1974.



14. This is the Trout River Bridge, located on the Seaboard Air Line mainline in North Jacksonville. Club member Bill Hardy scratchbuilt the bridge.



15. The West Jacksonville shop and yard features an operating transfer table.



16. The bridge over the St. Mary's River depicts the point where the line crosses the state line between Florida and Georgia.



17. Ferandina Beach is on a Seaboard Air Line RR branch. A mill town, the Seaboard brought in pulpwood for the paper mill.



18. This roundhouse and engine service area is located west of the Jacksonville Terminal Station. The roundhouse was scratchbuilt from photographs and blueprints by club member Jack Wagner.

For the full video showing the techniques that John Fowler uses in 3D printing, and Denny Jelsma's full tour of the Jacksonville Terminal Railroad Museum Club layout, click on the video link at the beginning of this article.

in the **JANUARY 2021 MRH RUNNING EXTRA!**

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[INDEX](#)

[TABLE OF CONTENTS](#)

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[INDEX](#)

[TABLE OF CONTENTS](#)



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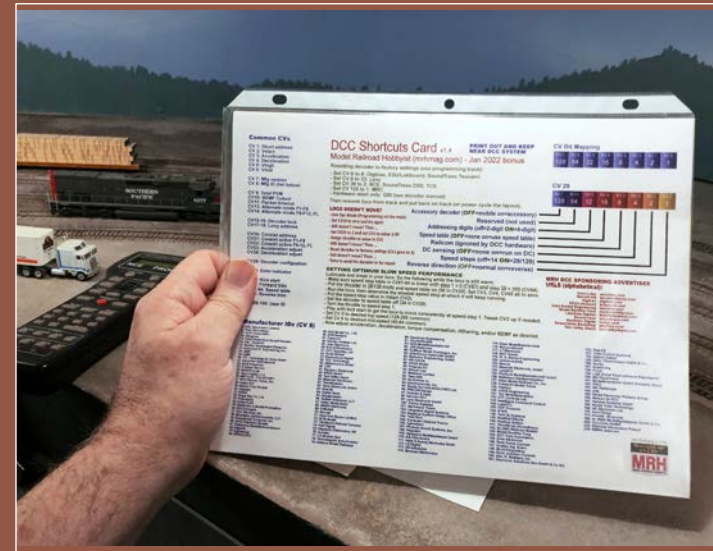


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[INDEX](#)

[TABLE OF CONTENTS](#)

MRH DCC shortcuts card



Electrical
Impulses

Model Railroad Hobbyist | January 2022

1. Print out and laminate the DCC Shortcuts card (or put it in a page protector as I have done here), then keep it near your DCC system so it's readily available whenever you need it.



JOE FUGATE EXPLAINS MRH's REGISTERED READER BONUS DOWNLOAD: THE DCC SHORTCUTS CARD ...

EVER SINCE THE EARLY DAYS OF MRH, we've made various bonus downloads available to registered readers. Basically, you register with us (it's free) and you automatically get notified when a new issue comes out, plus a number of other benefits:

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[INDEX](#)

[TABLE OF CONTENTS](#)

MRH DCC SHORTCUTS CARD | 2

- Enhanced access to the *MRH* discussion forum [forum.mrhmag.com]
- Get weekly emails with tips, tricks, and new hobby product notices
- **HOT!** Get free the 40-page *MRH* Acrylic Painting Guide PDF (Paperback \$17 on MRH store)
- Free bonus downloads every month
- Unlimited access to all back issues
- 10% off coupon code every month for *MRH* Store / TrainMasters TV
- Occasional promo emails for cool model railroading products / sales

One of those bonus downloads we keep updating and re-releasing is our DCC Shortcuts card. As of this issue, January 2022, we're releasing the latest version of this card, v1.4, as a bonus extra.

Published as a PDF, the idea is you print this card out, laminate it, and keep the card handy near your DCC system. We have found the DCC shortcuts on this card to be a lifesaver when working with DCC on the layout. Let's go over what's on this shortcuts card.

WHAT'S ON THE DCC SHORTCUTS CARD

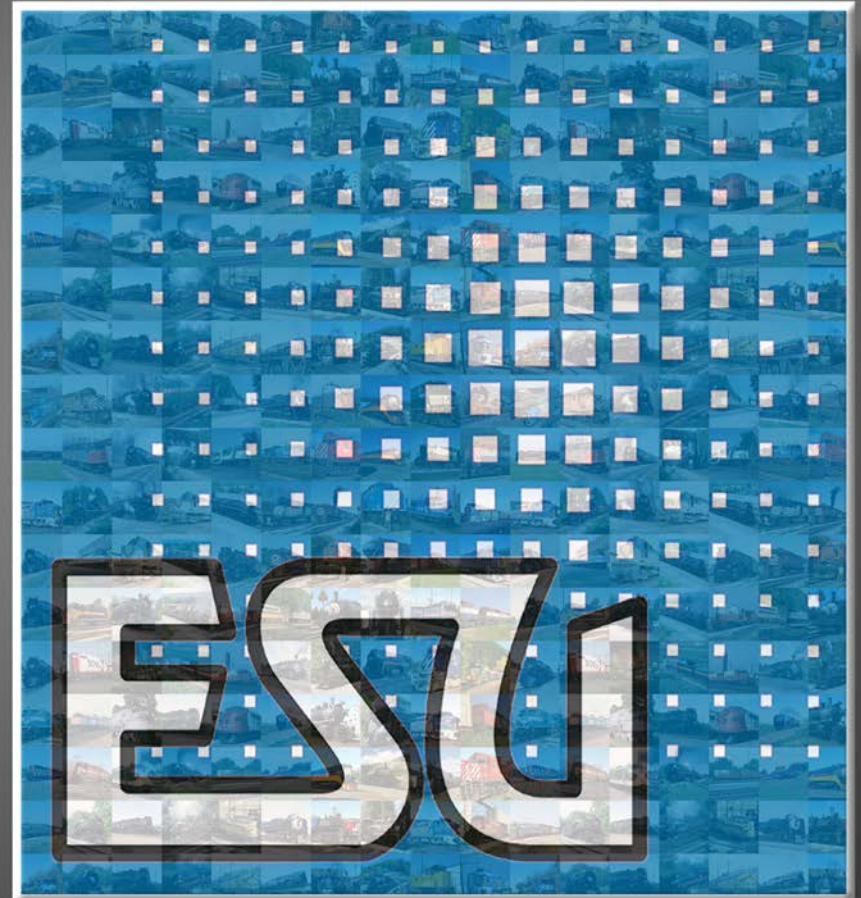
Working our way around the DCC shortcuts card, the major areas include:

1. Most common CVs: This area lists the 57 common configuration variables (CVs) most decoders share. If you're wanting to tweak one of these common CV settings on-the-fly with OPS MODE programming (programming on the main), then remembering exactly which CV has *reverse trim* for example (CV95) can be quite handy.

We're assuming you've already digested the documentation that came with your decoder so you don't need an explanation of

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DCC Shortcuts Card v1.4 PRINT OUT AND KEEP NEAR DCC SYSTEM
Model Railroad Hobbyist (mrhmag.com) - Jan 2022 bonus

Common CVs

CV 1: Short address
CV 2: Vstart
CV 3: Acceleration
CV 4: Deceleration
CV 5: Whistle
CV 6: Vmid

CV 7: Mfg version
CV 8: Mfg ID (list below)

CV 9: Total CVs
CV10: CV11
CV12: CV13
CV14: CV15
CV16: CV17
CV18: CV19
CV20: CV21
CV22: CV23
CV24: CV25
CV26: CV27
CV28: CV29
CV30: CV31
CV32: CV33
CV34: CV35
CV36: CV37
CV38: CV39
CV40: CV41
CV42: CV43
CV44: CV45
CV46: CV47
CV48: CV49
CV50: CV51
CV52: CV53
CV54: CV55
CV56: CV57
CV58: CV59
CV60: CV61
CV62: CV63
CV64: CV65
CV66: CV67
CV68: CV69
CV70: CV71
CV72: CV73
CV74: CV75
CV76: CV77
CV78: CV79
CV80: CV81
CV82: CV83
CV84: CV85
CV86: CV87
CV88: CV89
CV90: CV91
CV92: CV93
CV94: CV95
CV96: CV97
CV98: CV99
CV100: CV101
CV102: CV103
CV104: CV105
CV106: CV107
CV108: CV109
CV110: CV111
CV112: CV113
CV114: CV115
CV116: CV117
CV118: CV119
CV120: CV121
CV122: CV123
CV124: CV125
CV126: CV127
CV128: CV129
CV130: CV131
CV132: CV133
CV134: CV135
CV136: CV137
CV138: CV139
CV140: CV141
CV142: CV143
CV144: CV145
CV146: CV147
CV148: CV149
CV150: CV151
CV152: CV153
CV154: CV155
CV156: CV157
CV158: CV159
CV160: CV161
CV162: CV163
CV164: CV165
CV166: CV167
CV168: CV169
CV170: CV171
CV172: CV173
CV174: CV175
CV176: CV177
CV178: CV179
CV180: CV181
CV182: CV183
CV184: CV185
CV186: CV187
CV188: CV189
CV190: CV191
CV192: CV193
CV194: CV195
CV196: CV197
CV198: CV199
CV200: CV201
CV202: CV203
CV204: CV205
CV206: CV207
CV208: CV209
CV210: CV211
CV212: CV213
CV214: CV215
CV216: CV217
CV218: CV219
CV220: CV221
CV222: CV223
CV224: CV225
CV226: CV227
CV228: CV229
CV230: CV231
CV232: CV233
CV234: CV235
CV236: CV237
CV238: CV239
CV240: CV241
CV242: CV243
CV244: CV245
CV246: CV247
CV248: CV249
CV250: CV251
CV252: CV253
CV254: CV255
CV256: CV257
CV258: CV259
CV260: CV261
CV262: CV263
CV264: CV265
CV266: CV267
CV268: CV269
CV270: CV271
CV272: CV273
CV274: CV275
CV276: CV277
CV278: CV279
CV280: CV281
CV282: CV283
CV284: CV285
CV286: CV287
CV288: CV289
CV290: CV291
CV292: CV293
CV294: CV295
CV296: CV297
CV298: CV299
CV300: CV301
CV302: CV303
CV304: CV305
CV306: CV307
CV308: CV309
CV310: CV311
CV312: CV313
CV314: CV315
CV316: CV317
CV318: CV319
CV320: CV321
CV322: CV323
CV324: CV325
CV326: CV327
CV328: CV329
CV330: CV331
CV332: CV333
CV334: CV335
CV336: CV337
CV338: CV339
CV340: CV341
CV342: CV343
CV344: CV345
CV346: CV347
CV348: CV349
CV350: CV351
CV352: CV353
CV354: CV355
CV356: CV357
CV358: CV359
CV360: CV361
CV362: CV363
CV364: CV365
CV366: CV367
CV368: CV369
CV370: CV371
CV372: CV373
CV374: CV375
CV376: CV377
CV378: CV379
CV380: CV381
CV382: CV383
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CV388: CV389
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CV412: CV413
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CV416: CV417
CV418: CV419
CV420: CV421
CV422: CV423
CV424: CV425
CV426: CV427
CV428: CV429
CV430: CV431
CV432: CV433
CV434: CV435
CV436: CV437
CV438: CV439
CV440: CV441
CV442: CV443
CV444: CV445
CV446: CV447
CV448: CV449
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CV452: CV453
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CV456: CV457
CV458: CV459
CV460: CV461
CV462: CV463
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CV468: CV469
CV470: CV471
CV472: CV473
CV474: CV475
CV476: CV477
CV478: CV479
CV480: CV481
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CV484: CV485
CV486: CV487
CV488: CV489
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CV492: CV493
CV494: CV495
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CV508: CV509
CV510: CV511
CV512: CV513
CV514: CV515
CV516: CV517
CV518: CV519
CV520: CV521
CV522: CV523
CV524: CV525
CV526: CV527
CV528: CV529
CV530: CV531
CV532: CV533
CV534: CV535
CV536: CV537
CV538: CV539
CV540: CV541
CV542: CV543
CV544: CV545
CV546: CV547
CV548: CV549
CV550: CV551
CV552: CV553
CV554: CV555
CV556: CV557
CV558: CV559
CV560: CV561
CV562: CV563
CV564: CV565
CV566: CV567
CV568: CV569
CV570: CV571
CV572: CV573
CV574: CV575
CV576: CV577
CV578: CV579
CV580: CV581
CV582: CV583
CV584: CV585
CV586: CV587
CV588: CV589
CV590: CV591
CV592: CV593
CV594: CV595
CV596: CV597
CV598: CV599
CV600: CV601
CV602: CV603
CV604: CV605
CV606: CV607
CV608: CV609
CV610: CV611
CV612: CV613
CV614: CV615
CV616: CV617
CV618: CV619
CV620: CV621
CV622: CV623
CV624: CV625
CV626: CV627
CV628: CV629
CV630: CV631
CV632: CV633
CV634: CV635
CV636: CV637
CV638: CV639
CV640: CV641
CV642: CV643
CV644: CV645
CV646: CV647
CV648: CV649
CV650: CV651
CV652: CV653
CV654: CV655
CV656: CV657
CV658: CV659
CV660: CV661
CV662: CV663
CV664: CV665
CV666: CV667
CV668: CV669
CV670: CV671
CV672: CV673
CV674: CV675
CV676: CV677
CV678: CV679
CV680: CV681
CV682: CV683
CV684: CV685
CV686: CV687
CV688: CV689
CV690: CV691
CV692: CV693
CV694: CV695
CV696: CV697
CV698: CV699
CV700: CV701
CV702: CV703
CV704: CV705
CV706: CV707
CV708: CV709
CV710: CV711
CV712: CV713
CV714: CV715
CV716: CV717
CV718: CV719
CV720: CV721
CV722: CV723
CV724: CV725
CV726: CV727
CV728: CV729
CV730: CV731
CV732: CV733
CV734: CV735
CV736: CV737
CV738: CV739
CV740: CV741
CV742: CV743
CV744: CV745
CV746: CV747
CV748: CV749
CV750: CV751
CV752: CV753
CV754: CV755
CV756: CV757
CV758: CV759
CV760: CV761
CV762: CV763
CV764: CV765
CV766: CV767
CV768: CV769
CV770: CV771
CV772: CV773
CV774: CV775
CV776: CV777
CV778: CV779
CV780: CV781
CV782: CV783
CV784: CV785
CV786: CV787
CV788: CV789
CV790: CV791
CV792: CV793
CV794: CV795
CV796: CV797
CV798: CV799
CV800: CV801
CV802: CV803
CV804: CV805
CV806: CV807
CV808: CV809
CV810: CV811
CV812: CV813
CV814: CV815
CV816: CV817
CV818: CV819
CV820: CV821
CV822: CV823
CV824: CV825
CV826: CV827
CV828: CV829
CV830: CV831
CV832: CV833
CV834: CV835
CV836: CV837
CV838: CV839
CV840: CV841
CV842: CV843
CV844: CV845
CV846: CV847
CV848: CV849
CV850: CV851
CV852: CV853
CV854: CV855
CV856: CV857
CV858: CV859
CV860: CV861
CV862: CV863
CV864: CV865
CV866: CV867
CV868: CV869
CV870: CV871
CV872: CV873
CV874: CV875
CV876: CV877
CV878: CV879
CV880: CV881
CV882: CV883
CV884: CV885
CV886: CV887
CV888: CV889
CV890: CV891
CV892: CV893
CV894: CV895
CV896: CV897
CV898: CV899
CV900: CV901
CV902: CV903
CV904: CV905
CV906: CV907
CV908: CV909
CV910: CV911
CV912: CV913
CV914: CV915
CV916: CV917
CV918: CV919
CV920: CV921
CV922: CV923
CV924: CV925
CV926: CV927
CV928: CV929
CV930: CV931
CV932: CV933
CV934: CV935
CV936: CV937
CV938: CV939
CV940: CV941
CV942: CV943
CV944: CV945
CV946: CV947
CV948: CV949
CV950: CV951
CV952: CV953
CV954: CV955
CV956: CV957
CV958: CV959
CV960: CV961
CV962: CV963
CV964: CV965
CV966: CV967
CV968: CV969
CV970: CV971
CV972: CV973
CV974: CV975
CV976: CV977
CV978: CV979
CV980: CV981
CV982: CV983
CV984: CV985
CV986: CV987
CV988: CV989
CV990: CV991
CV992: CV993
CV994: CV995
CV996: CV997
CV998: CV999
CV1000: CV1001
CV1002: CV1003
CV1004: CV1005
CV1006: CV1007
CV1008: CV1009
CV1010: CV1011
CV1012: CV1013
CV1014: CV1015
CV1016: CV1017
CV1018: CV1019
CV1020: CV1021
CV1022: CV1023
CV1024: CV1025
CV1026: CV1027
CV1028: CV1029
CV1030: CV1031
CV1032: CV1033
CV1034: CV1035
CV1036: CV1037
CV1038: CV1039
CV1040: CV1041
CV1042: CV1043
CV1044: CV1045
CV1046: CV1047
CV1048: CV1049
CV1050: CV1051
CV1052: CV1053
CV1054: CV1055
CV1056: CV1057
CV1058: CV1059
CV1060: CV1061
CV1062: CV1063
CV1064: CV1065
CV1066: CV1067
CV1068: CV1069
CV1070: CV1071
CV1072: CV1073
CV1074: CV1075
CV1076: CV1077
CV1078: CV1079
CV1080: CV1081
CV1082: CV1083
CV1084: CV1085
CV1086: CV1087
CV1088: CV1089
CV1090: CV1091
CV1092: CV1093
CV1094: CV1095
CV1096: CV1097
CV1098: CV1099
CV1100: CV1101
CV1102: CV1103
CV1104: CV1105
CV1106: CV1107
CV1108: CV1109
CV1110: CV1111
CV1112: CV1113
CV1114: CV1115
CV1116: CV1117
CV1118: CV1119
CV1120: CV1121
CV1122: CV1123
CV1124: CV1125
CV1126: CV1127
CV1128: CV1129
CV1130: CV1131
CV1132: CV1133
CV1134: CV1135
CV1136: CV1137
CV1138: CV1139
CV1140: CV1141
CV1142: CV1143
CV1144: CV1145
CV1146: CV1147
CV1148: CV1149
CV1150: CV1151
CV1152: CV1153
CV1154: CV1155
CV1156: CV1157
CV1158: CV1159
CV1160: CV1161
CV1162: CV1163
CV1164: CV1165
CV1166: CV1167
CV1168: CV1169
CV1170: CV1171
CV1172: CV1173
CV1174: CV1175
CV1176: CV1177
CV1178: CV1179
CV1180: CV1181
CV1182: CV1183
CV1184: CV1185
CV1186: CV1187
CV1188: CV1189
CV1190: CV1191
CV1192: CV1193
CV1194: CV1195
CV1196: CV1197
CV1198: CV1199
CV1200: CV1201
CV1202: CV1203
CV1204: CV1205
CV1206: CV1207
CV1208: CV1209
CV1210: CV1211
CV1212: CV1213
CV1214: CV1215
CV1216: CV1217
CV1218: CV1219
CV1220: CV1221
CV1222: CV1223
CV1224: CV1225
CV1226: CV1227
CV1228: CV1229
CV1230: CV1231
CV1232: CV1233
CV1234: CV1235
CV1236: CV1237
CV1238: CV1239
CV1240: CV1241
CV1242: CV1243
CV1244: CV1245
CV1246: CV1247
CV1248: CV1249
CV1250: CV1251
CV1252: CV1253
CV1254: CV1255
CV1256: CV1257
CV1258: CV1259
CV1260: CV1261
CV1262: CV1263
CV1264: CV1265
CV1266: CV1267
CV1268: CV1269
CV1270: CV1271
CV1272: CV1273
CV1274: CV1275
CV1276: CV1277
CV1278: CV1279
CV1280: CV1281
CV1282: CV1283
CV1284: CV1285
CV1286: CV1287
CV1288: CV1289
CV1290: CV1291
CV1292: CV1293
CV1294: CV1295
CV1296: CV1297
CV1298: CV1299
CV1300: CV1301
CV1302: CV1303
CV1304: CV1305
CV1306: CV1307
CV1308: CV1309
CV1310: CV1311
CV1312: CV1313
CV1314: CV1315
CV1316: CV1317
CV1318: CV1319
CV1320: CV1321
CV1322: CV1323
CV1324: CV1325
CV1326: CV1327
CV1328: CV1329
CV1330: CV1331
CV1332: CV1333
CV1334: CV1335
CV1336: CV1337
CV1338: CV1339
CV1340: CV1341
CV1342: CV1343
CV1344: CV1345
CV1346: CV1347
CV1348: CV1349
CV1350: CV1351
CV1352: CV1353
CV1354: CV1355
CV1356: CV1357
CV1358: CV1359
CV1360: CV1361
CV1362: CV1363
CV1364: CV1365
CV1366: CV1367
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CV1420: CV1421
CV1422: CV1423
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CV1436: CV1437
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CV1606: CV1607
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ically until you either regain control of the loco or determine it's time to send the decoder in for repair. I discuss this section more in example 1 below.

4. CV29 option mapping: The single most critical CV to getting a decoder perform like you want is CV29. This CV uses eight different single bit on-off settings to establish much of the base behavior of your locomotive, so being reminded of what each bit position controls can be helpful. In addition, this section uses bold green lettering to indicate what the recommended setting is for each option, on or off.

One of the most useful settings at bit position 1 controls whether or not the loco moves forward or reverse by default. If you accidentally get the motor out leads reversed on the decoder, this setting lets you flip the direction with a quick CV tweak. That beats having to take the engine apart and unsoldering the motor leads to flip them!

I discuss this section more in example 3 below.

5. How to get optimum low speed performance: If you have wondered if there's a best practice for getting optimum low speed performance from your loco, here it is. Follow these steps and you'll get the best your loco is capable of doing as to starting speed. I discuss this section more in the example 2 below.

6. Complete list of CV8 manufacturer IDs: If you're wanting to know which manufacturer made your decoder, you can query the value of CV 8 and then look up the value on this list without needing to remove the shell! This list is current as of January 2022.

7. CV bit mapping: If you're wanting to explore some binary bit fiddling of CV values, this area gives you the bit position values. We're assuming you understand how to do some binary math, or you want to learn how. Tools like JMRI DecoderPro (free) lets you avoid all that, but if you're interested in exploring some binary bit fiddling math, see example 3 below.

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DCC CARD USAGE EXAMPLE 1: LOCO DOESN'T MOVE

Item area 3 has the recommended process if the loco does not move. We're assuming you know what the locomotive's decoder address is set to, which typically is the number on the loco cab. We're also assuming you know how to use your DCC system to program individual loco CVs [3].



3. When the DCC shortcuts card recommends setting decoder CV values directly, we're talking about using the CV programming on the main feature of your DCC system. Here I'm using my NCE Procab hammerhead to program loco 8277 on the main. My next step will be to press the 2 button for programming CVs.

Let's walk through the steps.

1. Use Ops Mode (Programming on the main): To start the debugging process, set the locomotive on the main layout (not on the programming track), and work through the rest of the steps using programming on the main. When you're programming a loco on the main and you have communication with the decoder, it should make a slight jitter when you try setting a CV value [4].

If the loco doesn't make this slight jitter when you program one of its CVs on the main, your problem could be just dirty wheels and/or track, so double check that other locos run fine on this section of track and ensure that the loco wheels are not filthy.

2. Set CV19 to zero and try again: Using your DCC system's ability to program a specific CV, select the locomotive cab number and set CV 19 to a value of zero (which removes it from a consist). If you're communicating with the loco, remember it



4. When programming a loco on the main, most decoders acknowledge receiving a value by jumping the loco ahead slightly. If you don't see this "jitter" when programming on the main (POM), the loco may have dirty wheels, be sitting on dirty track, or both. Try sliding the loco back and forth and then sending the POM command again to see if the loco now responds with this characteristic jitter.

should make a slight jitter once you set CV19. Assuming the loco indicated it received the CV19 value reset, now try to throttle up the loco.

3. Still doesn't move? Then ... do step 4.

4. Set CV29 to 2 and set CV1 to value 1-99: Using your DCC system's ability to program a specific CV, select the loco cab number, then set CV29 to 2 (two digit addressing) and set CV1 (the loco's two digit address) to a number from 1-99. Let's say we set CV 1 to 10.

5. Assign throttle to value in CV1: Since we set CV1 (two digit address) to 10 in step 4 above and assuming the loco jittered to acknowledge the CV value reset, select loco number 10 on your DCC system throttle, and throttle up.

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6. Still doesn't move? Then ... do step 7.

7. Reset decoder to factory settings (CV1 goes to 3): At this point, if the decoder isn't responding and you have good conductivity (indicated by the loco jittering slightly to acknowledge a CV setting), then the decoder settings are likely scrambled.

Do a factory reset as shown in the shortcut card area 2. This will reset CV1 to a loco address of 3. Dial up loco 3 and throttle up.

8. Still doesn't move with address 3? Then ... do step 9.

9. Time to send the decoder in for repair: At this point, if you've established the loco doesn't have dirty wheels inhibiting conductivity (the loco has been jittering to acknowledge the CV

value setting) and this section of track runs fine with other locos, then the decoder is probably in need of repair.

DCC CARD USAGE EXAMPLE 2: GETTING OPTIMUM SLOW SPEED PERFORMANCE

Item area 5 has our recommended process of getting an optimum low speed out of your DCC decoder and loco. Let's walk through the steps.

As the card says, you need to lubricate and break in your loco first. Then do the following while the loco is still warm (run the loco at least 5 minutes continuously to warm it up):

1. Make sure speed step table in CV67-94 is linear with step 1 = 0 (CV67) and step 28 = 255 (CV94). Most decoders come with this as the default speed table, so you can usually just proceed directly to step 2.

2. Put the decoder in 28/128 mode and speed table on (50 in CV29). Set CV3, CV4, CV65 all to zero. It's very important to start this process with CV3, CV4, and CV65 all set to zero. This allows you to see immediately what the loco is doing at each speed step. Optionally, set CV29 to 34 (turn off the speed table) and jump directly to step 4.

3. Run the loco, then determine the slowest speed step at which it will keep running. Once you see what speed step the loco starts running at, you need to look at the value of that speed step. Speed step 1 is CV67, step 2 is CV68, step 3 is CV69, step 4 is CV70, and so on all the way up to step 28 as CV94. If the loco starts running at step 4, then look up the value that's in CV70 and use it in step 4.

Optionally, you can skip this step and just jump to step 4 and put values directly into CV2 starting with 1 and increasing the value by 1 until the loco just barely keeps running.

4. Put the speed step value in Vstart (CV2). Use your DCC system to put the speed step value you read from 3 into CV2.

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Optionally, if you've skipped step 3, you can keep adding 1 to the value that's in CV2 until the value in CV2 makes the loco barely keep running without stalling.

5. Set the decoder to speed table off (34 in CV29). If you used the speed table process in step 3, now set the speed table off by putting 34 in CV29. If you have already set CV29 to 34 (skipping the speed table step 3), then just move on to step 6.

6. Turn the throttle to speed step 1. The loco should just barely start moving and keep running at this point, but it may be a bit jerky.

7. Play with kick start to get the loco to move consistently at speed step 1. Tweak CV2 up if needed. Use kick start (CV65) to give the loco a jolt when it starts. Start with 1 and work up one at a time until the loco starts smoothly. You may need to adjust CV2 up or down a bit as well.

8. Set CV 5 to desired top speed (128-255 common). Now that you know what the value needed to be in CV2 to get the loco to start moving, use CV5 to set the top speed. If you're serious about not having your locos run unrealistically fast, you may want to set the value down around 128 instead of the max of 255. In some cases, such as with switching locos, you may even want a max value lower than 128.

9. Set CV 6 to desired mid-speed (40-64 common). CV6 sets the mid-point value for your loco's speed curve. Most often, we find a linear curve is best ... in other words, subtract CV2 from CV5 and then divide by 2. If you want the loco to throttle up more slowly, you can drop this value down a bit from halfway between CV2 and CV5. Or if you want the loco to throttle up more quickly, you can raise the value above halfway.

10. Now adjust acceleration, deceleration, torque compensation, dithering, and/or BEMF as desired. Now that you've got your loco speed curve established, you can play with acceleration, deceleration, and other motor performance characteristics your decoder may have.

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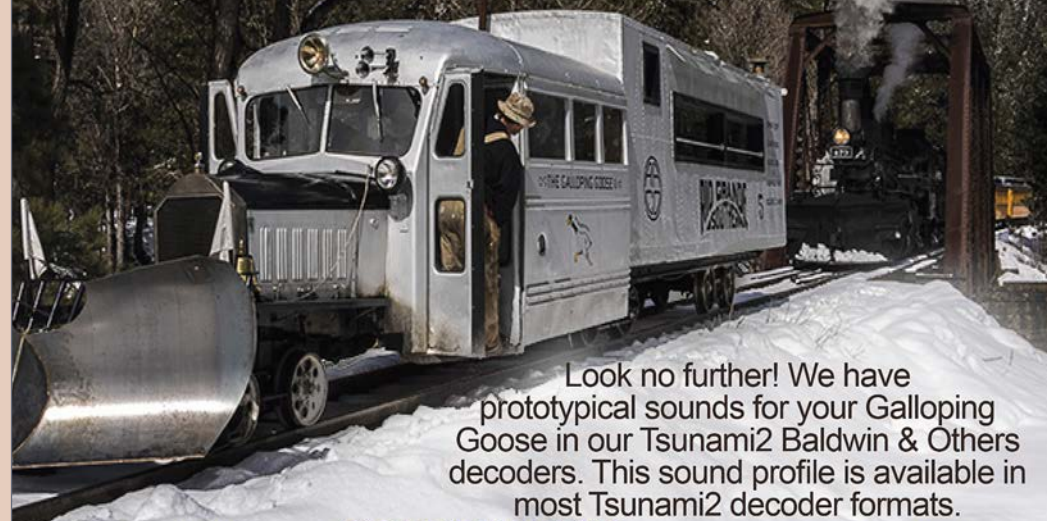


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Establishing the base performance without all these settings first helps gets you best set for tweaking and smoothing out your loco's performance from there.

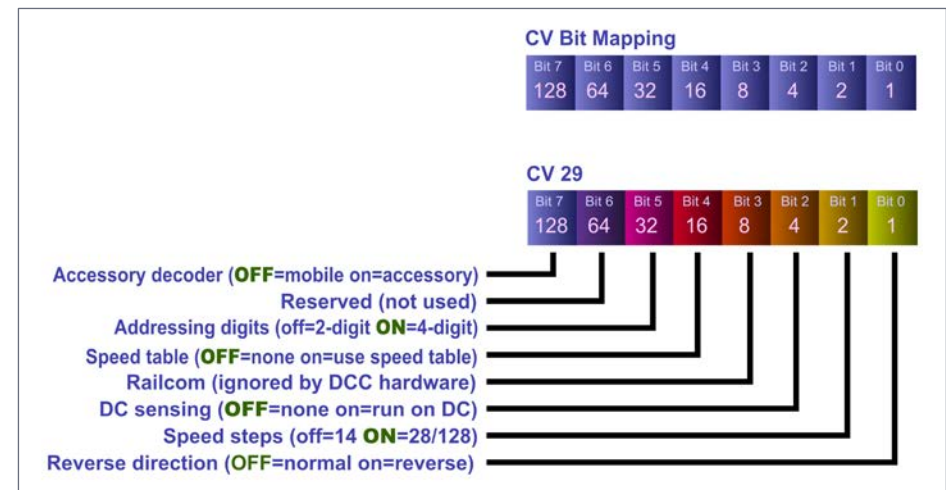
DCC CARD USAGE EXAMPLE 3: CV BIT MAPPING EXAMPLE

If you're into doing some binary bit-mapping math to set bit-mapped CV values, then area 7 of the shortcuts card can be helpful. As an example of how bit-mapped on-off CV settings work, let's take the most commonly used bit-mapped decoder CV, CV29 as an example[5].

Binary computers work by using simple on and off values in various bit positions to control the behavior. In binary, we use zero to represent an off value and one to represent an on value.

Then the bit position gives us the decimal value we need if that bit is on (a value of 1). Let's look at CV29 to see how this works.

If I want DC sensing to be on in CV29, we can see from [5] this is



5. CV bit mapping as shown here on the shortcuts card lets you compute the specific decimal value to put into a CV. See the text for details.

bit position 2 and it has a value of 4. If we want that setting to be on (run on DC) then we set CV29 to 4. If we want that setting to be off, then we set CV29 to zero.

Where it gets more involved is when we want several bits to be on or off. Let's say we want DC sensing on and 4-digit addressing. We already know DC sensing on is a value of 4, and we can see from [5] that 4-digit addressing is bit 5 with a value of 32.

To turn both of these on, we add the two numbers together, so $4+32 = 36$. To turn both DC sensing and 4-digit addressing on, we put a value of 36 in CV29.

So let's work through all the settings possible in CV29, now that we understand the principle.

Let's say we're going with the bold green default settings in CV29:

- Accessory decoder OFF (bit 7=0)
- Reserved / not used (bit 6=0)
- Addressing digits 4-digit ON (bit 5=32)
- Speed table OFF (bit 4=0)
- Railcom ignored (bit 3=0)
- DC sensing off (bit 2=0)
- Speed steps 28/128 ON (bit 1=2)
- Reverse direction OFF (bit 0=0)

Adding up all the values, we see we need to put 34 into CV29 to get these settings.

Now let's assume we wired up the motor leads incorrectly, getting the gray lead where the orange lead should be and vice versa. The loco runs backwards when our DCC throttle says forward.

All we need to do is flip bit location zero in CV29 to on, which is a value of 1. A one in bit zero is worth 1, so we compute $34+1$ and put 35 in CV29 to reverse the loco.

Let's instead say CV29 is 34 as we've said, but we now want to use a speed table. The speed table setting is bit 4, which has a value of 16 when it's on. That means to flip bit 4 to on, we need to add 16 to 34, giving us a value of 50. Putting 50 into CV 29 gives us:

- Addressing digits 4-digit ON (32)
- Speed table ON (16)
- Speed steps 28/128 (2)

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Hopefully, that gives you some idea of how to use areas 4 and 7 on this shortcuts card. For more on how to do binary bit level math, see this tutorial video:

Binary

- Decimal: 0 1 2 3 4 5 6 7 8 9
 - Ten digits to represent a quantitative value
- Binary: 0 1
 - Two digits to represent a quantitative value

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SUMMARY

Once you understand the basics of programming your DCC decoders, this shortcuts card comes in really handy. But this card is not a replacement for doing your homework on how to program DCC decoders.

So do your homework first, then print out this shortcuts card and keep it near your DCC system to streamline your DCC loco setup and troubleshooting process. ✓

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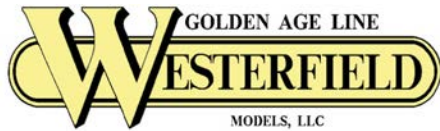
[INDEX](#)

[TABLE OF CONTENTS](#)

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THE PERFECT STORM

“Storm chasers, not model railroaders, go looking for the perfect storm. If you’re looking for favorable winds and calm seas, you may not want to read further. Otherwise, grab hold of a lifeline, put on a life vest, and take this journey to see why a perfectly good 95-percent-complete model railroad got torn apart and rebuilt.”

RICK BALASSAITIS DISMANTLES AND
REBUILDS HIS LAYOUT ...



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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)



WHILE NOT A FULLY RATIONAL DECISION, a perfect storm of events led me to reconstruct 70-percent of my 95-percent-complete N scale Pennsylvania-Reading Seashore Lines layout. (My layout was featured in the Nov-Dec 2016 and Jan-Feb 2017 issues of *N Scale Magazine*.)

MONTH 1: OPERATORS TAKE THE SUMMER OFF

My seasonal work for a tax preparation company severely restricts my playtime from mid-November to mid-April each year. Three to four of the remaining six months include the summer, which makes it extremely difficult to field a full operating crew during great outdoor weather.



1. BEFORE: I wanted to eliminate the duckunder between Woodbury (center) and Westville (right) and lower a portion of the layout.

With no crew and increasingly shaky hands limiting my kit building, my idle mind found ways to get into trouble. My layout's flaws really began to bug me.

The Millville/Deepwater/Salem end of the layout desperately needed more staging [4], and I had no way to squeeze it into the existing layout. My current three staging tracks did not have the capacity to run a 1950 full day's PRSL freight train schedule:

- The Philadelphia Transfer
- The Camden Local
- Six "turns"

Plus with additional staging, the tank, sand, and coal drags could now be 25+ cars long. Longer trains look so nice in N!

My Camden Pavonia Yard [3, 4] served both ends of the layout. The amount of work in this only-on-layout-yard made it a huge bottleneck. No wonder nobody wanted to work the job!

Moving the Camden terminating trains to staging would free up the yard and allow balancing the traffic between Red Oak Tower and Brown Tower.



2. The aftermath.



3. Camden Pavonia Yard remained untouched during the project. With a capacity of more than 125 cars, it made for safe rolling stock storage during “the storm.”

At my age, I also no longer wanted to deal with a duckunder. And finally, I wanted to lower a portion of the layout so I could watch trains while working at my computer desk.

As if that wasn't enough, my layout's nearly completed state was leading to some major boredom.

After contemplating all these things, a significant portion of my layout went from intact [1] to torn apart [2]. Left unsupervised, I disconnected several sections, but left the Camden/Philly/Manayunk end untouched.

I devised several changes which might or might not work out:

- I would rearrange the Westville and Woodbury sections to be placed back to back and lowered.
- I began planning staging for both ends along the wall previously occupied by the town of Westville.

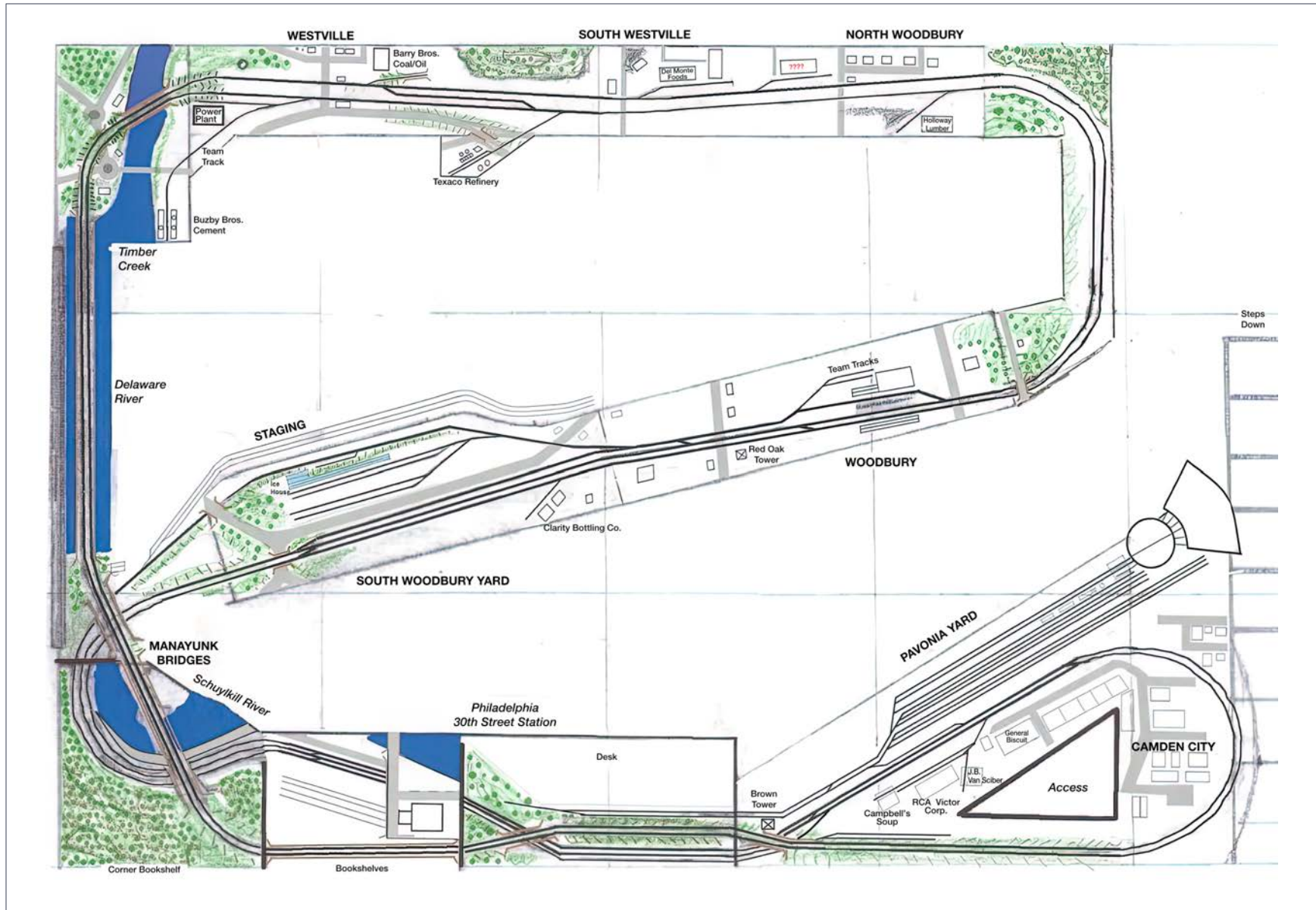
These changes came with complications. I realized I couldn't proceed until I had three people to help me move the surviving portions of Woodbury and Westville into position. I needed to switch the two sections around and push them together in the middle of the room [5].

I also realized I would have to reduce the 19" minimum radius to 15" in several places.

Other problems began to show up:

- The entrance end would have restricted aisle widths.
- Westville would now fall under unprototypical control of Brown Tower in Camden instead of Red Oak Tower in Woodbury.
- Westville and Woodbury would each lose 18" of prototypically straight track.
- I would be introducing the scenic challenges of a 270-degree and a 360-degree turnback – more on that later.





4. A track plan of my layout as it stood before the storm, 95 percent complete and perfectly adequate. Still, it had flaws I could not easily overcome in this arrangement.

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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)

A lot of work lay ahead, as well as a lot of costs for lumber, roadbed, track, and turnouts.

Unlike my usual approach, I set off on this revision without a detailed scaled plan. I figured if it didn't work, I would just scrap everything and start a new simplified layout. After all these years of maintaining 66 turnouts, a 4'x8' layout began to sound appealing! (See *N Scale Magazine*, Sept/Oct 2012.)

So the first significant lesson learned from all this was "Never leave Rick alone with his idle, dangerous and wandering mind."

📅 MONTH 2: ROLLING STOCK STORAGE

I moved all the rolling stock to the undisturbed Camden Pavonia Yard. Fortunately, it held over 125 cars, more than sufficient to clear the rest of the layout.



5. Switching the sections for Westville and Woodbury was the first step. Instead of a duckunder, I needed to figure out a turnback solution to connect the two.



6. I connected Westville to the Philly-Manyunk section of the layout.



7. This end turnback presented a scenery challenge.

MONTH 3: THE NEW ARRANGEMENT TAKES SHAPE

I started the rebuild by connecting the Westville leg to the undisturbed Philly-Manayunk section in the built-in desk unit [6].

At this point I realized I needed another sheet of plywood, eight 2x3s, four 1x3s, and another 10 turnouts. *Whose dumb idea was this anyway?*

With help finally available, we moved Westville to the middle/left room position and relocated Woodbury to the middle/right room position [5].

To connect Westville and Woodbury, I built a 270-degree turnback [7], and a 360-degree turnback to gain altitude to connect Woodbury to Camden for continuous running options.



8. With the framing of my nine-track staging module, the concept was taking shape.

With these changes, I had to reorient and re-lay more than six feet of Woodbury's triple track main line.

We also lowered this new middle-of-the-room peninsula by shortening 18 legs.

Finally, I started the nine tracks of staging occupying the newly-vacated far wall [8]. Aisle space turned out to be adequate, even more than I had expected and the yard tracks now each held 30+ freight cars.

I wound up with nine tracks of long (30+ cars) staging. That would take the burden off the Camden Pavonia Yard crew, since all the turnarounds (except locals) would shift to the five-track south end staging yard (Millville/Deepwater/Salem).

The on-line Camden yard would now be relieved of all the branch line "turns" by the 5 double-ended tracks on the left side of the staging ("South Staging Yard"). Camden would still deal with the Philly transfers and the Millville, Deepwater, and Camden locals. I would also be able to add the prototypical Salem local with strings of reefers operating from Camden to the rich farming lands around Salem and back.

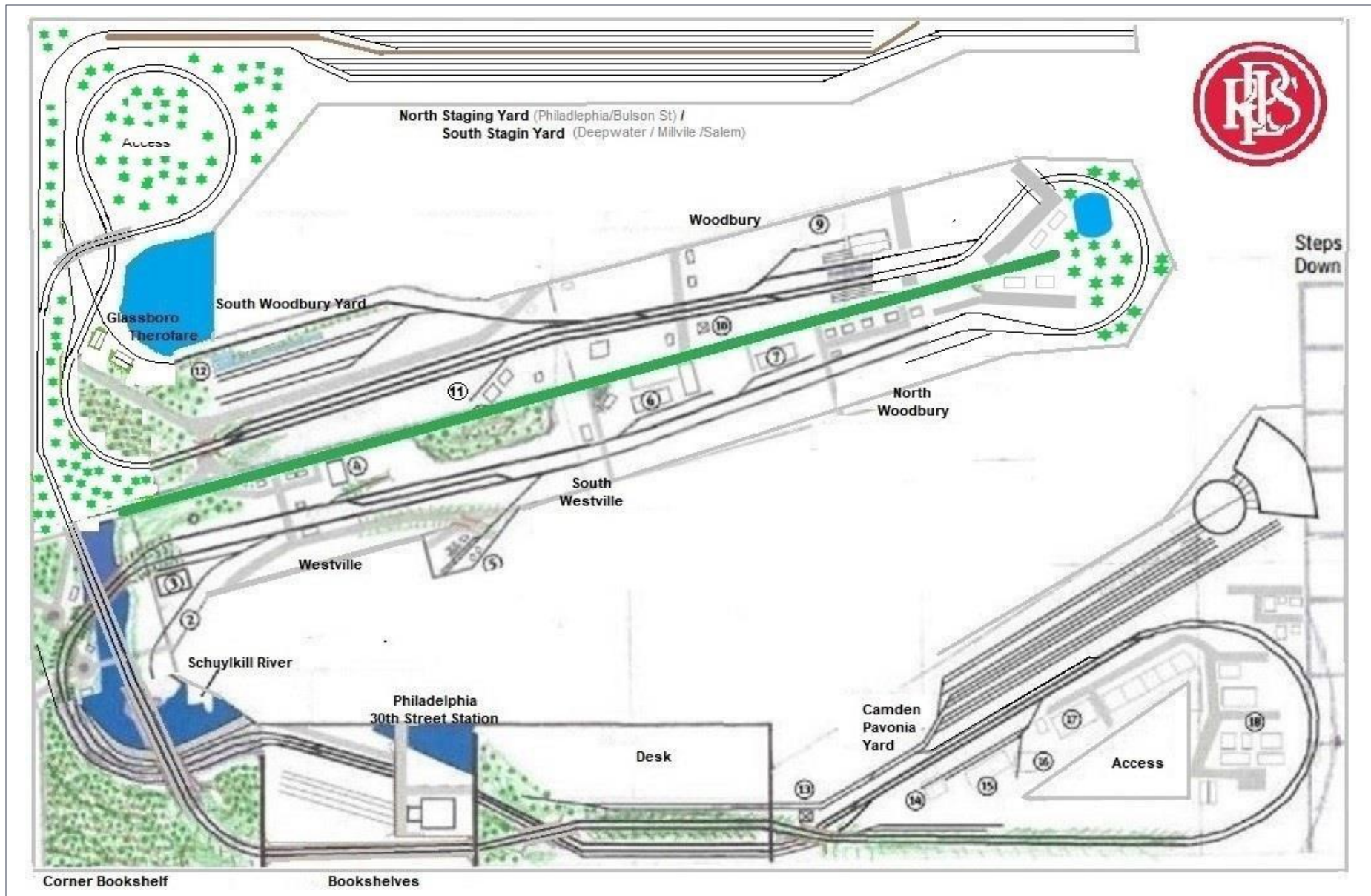
However, things started to add up, both in work and cost. I was significantly short of Midwest roadbed, Atlas flex-track, and Peco electrofrog turnouts. The new staging would require 13 additional turnouts.

MONTH 4: A YARD OUT OF TIME

I thought I was clever when I acquired two boxes of old AMI roadbed to start the staging yards. That stuff was great!

You could slap it down on plywood and it would stay in place without nails. Then I could slap the track down and it also would stay in place and hold alignment without nails. Grass and other scenery material also would stay in place like magic.

I had used AMI roadbed on the double-ended yard [10] on my old layout (see *N Scale Magazine* Nov/Dec 2011). The remnants



9. My new layout track plan.





10. The double-ended yard on my former layout. I reused this yard as the Camden Pavonia yard on the current layout.

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of that yard (now single-ended) live on as the Camden Pavonia yard on my current PRSL layout [3].

Unfortunately, AMI has been out of business for 15-20 years, and the surviving product in my stash had dried out. It was still sticky enough on both sides that I didn't have to use glue for the cinders and ground cover, but not sticky enough to stay in place or hold the track in alignment. I had to go back to cork.

I completed the four-track north end staging yard with a capacity of 114 forty-foot cars [11]. Next, I had to begin the south end, with five staging yard tracks. The capacity on the south end would be less since that yard needed to be double-ended to allow for run-around out-and-back train movements [13].



11. The four tracks of north end staging sit closest to the wall, with five track south end staging in the foreground.



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[INDEX](#)

[TABLE OF CONTENTS](#)

[MRHMAG.COM](#)

[INDEX](#)

[TABLE OF CONTENTS](#)



12. The original design for staging that had to be abandoned. Compare to [13].

MONTH 5: MY TWISTED STAGING JOURNEY

I find that as I have aged, I am getting better at increasing my *stupidity coefficient* in layout design! I originally laid out the north and south staging yards side-by-side [12, 13].

It dawned on me that the existing north staging yard would enter the on-line Camden Pavonia yard from the wrong end and at the wrong height. That meant I had to raise the north yard's four tracks two inches to lead to the Camden yard from the other, higher line end [13].

The changes reduced the capacity of the north yard to 102 forty-foot cars, and the south yard to 122 cars. A lot of tuning remained to get these tracks to run anything close to flawlessly. This did, however, match up with what I was reading about the yard conditions during the Penn Central fiasco!

My layout had a lot of turnouts, most of which are around 40 years old, and I still needed to finish two complex track areas to once again resume operations. This is another case of "If I knew what I was getting into, I may never have started this project."

The north yard holds the Deepwater electric plant coal drag, the Penns Grove Tank Sweeper, the Philadelphia mixed-freight yard transfer, and the Millville Sand Hog with its 14-17 empty gondolas and covered hoppers.

The five-track south staging holds a loaded Sand Hog, an empty coal drag, and a Salem local. Per the prototype, I run these all as "turns" from Camden via south staging (three separate branches: Deepwater/Millville/Salem). They do runarounds at the end of their run and return to the Camden yard or north staging. This leaves two of the five south staging tracks always empty for engine runarounds [14].

The on-line Camden's Pavonia Yard is still responsible for receiving the Philly transfer and assembling the Millville, Deepwater, and Camden locals. The transfer will return to the north yard staging with empties and loads designated for Philadelphia and the frontier beyond.



13. The staging yards in their new alignments.



14. North (upper) and south (lower) staging yards stand ready for operations.

MONTH 7: FRIENDS AND PROGRESS

I took month six off for the holidays.

Early in the new year on month seven, a couple of my operations group friends stopped by to help with the rebuild.

Gene, who is known as the “reach police” on one of the forums, always counsels layout builders to minimize the layout width. Gene says you need to easily reach trains derailed in inaccessible places. As a result of Gene’s advice, I made sure I built an access hatch [15] in the loop area *especially for him!*

Later my friend Bob came by to tune up some of the complicated trackwork [16] before it got partially buried by another layer of track.

Meanwhile I added some shelves with LED strip lighting underneath [17] to make it easier to ID cars in the staging yards. The shelf itself contains my collection of Lionel TT gauge (1:120) trains.



15. My friend Gene double-checks the modified layout configuration for easy access.



16. My friend Bob tunes the complex track in [17] to make sure it performs well before we partially cover it with another layer of layout.



17. I added a shelf over staging to mount strip LEDs to make it easier to read car numbers here during op sessions.



18. This complex system of tracks leads to the north and south staging yards.



19. The Glassboro loop connects the two levels of track. My friend Gene made sure there was an access hatch in the middle of the loop.



20. Two-track bridge over the revised Brooklawn area.

📅 MONTH 8 - 10: A SLOW CRAWL

Month 8 started tax season for me and the beginning of a slow progress crawl on the layout.

I still had to build a loop to gain height to reconnect the lower level to the higher level if we wanted to have a continuous-running option. This meant I had to add new section that became known as the Glassboro loop. It partially covered the complex trackwork we had added to access the staging yards [18, 19].

I still needed a two-track bridge for the revised Brooklawn section of the layout [20]. Condensed space led me to omit one of the prototypical twin circles in the Brooklawn area. Since it was close to eye level, I could camouflage its absence with a Merit gas company sign showing above the raised track in the area.





21. Scenic divider added through Woodbury.

I added used a scenic profile board with Woodland Scenics extra coarse turf glued on as a scenic divider to separate Westville and Woodbury, which were at different elevations [21].

Come month 10, the pandemic lockdown started, leading to the shortest tax season ever for me!

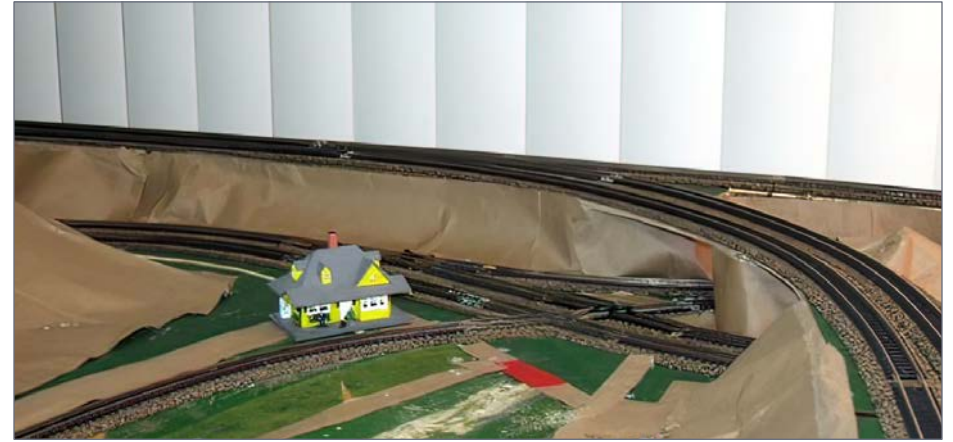
📅 MONTH 11: SOARING POSSIBILITIES

Being home and adjusting to the new normal gave me more time again for the layout.

Two layout building steps give me the most feeling of artistic “soaring possibilities” are:

1. Laying track on wooden benchwork
2. Mocking-up scenery on cardboard webbing

Mock ups let me envision the beautiful possibilities laying just down the road and around the construction bend. Final scenery, though satisfying, never quite measures up to the unlimited possibilities that dance in my head in these early steps.



22. Mocking-up the scenery near Glassboro.



23. Scenery mockup near Brooklawn.

Anyway, after coming down from my Pepsi high, I hot-glued down cardboard webbing, covered the areas with shopping bags, and formed the basic scenic contours in the Glassboro and Brooklawn areas [22, 23].



24. Added rock face to the vertical wall to give the staging yards a feeling of being semi-scenic.



25. I relocated the Buzby Bros. Cement spur and extended the PRSL power plant spur. Meanwhile, I began re-adding streets using Patch-n-Paint.



26. I modified the alignment for the North Woodbury - Holloway Lumber spur.

📅 MONTH 12: READY TO RUN? DREAM ON ...

All the track was now in place, and you might think I would be able to run again, but somewhere along the line I screwed up the DC electrical. I even managed to blow a power pack discovering this. Two steps forward and three steps backward.

After fighting with the electrical for more than eight weeks, I finally got engines around the entire layout! As basically a lone-wolf during construction, it was brutal diving below and then back above the layout to test continuity.

Meanwhile, I did a bit more scenery work [24, 25] and realigned the Holloway Lumber spur [26] due to the added 270 degree peninsula "turnback" trackage.

EUREKA!

After repositioning the order of the modules, I had to switch the common side on two of the four "legs" to mate the two operational (and electrical) towers and get them to "play nice." Just so you know, I'm running a DC layout in N scale with common-rail wiring.

All the trackwork was now done, but multiple locations needed significant trackwork tuning. And the summer heat in the layout loft space has not done me any favors!

I returned the buildings to the layout and began scenery repair. I also installed some acrylic shields to cover some details that were now exposed to elbow damage, and to keep derailed equipment from rolling down the Glassboro hillside to the floor.

 MONTH 13: PROGRESS, OUR MOST IMPORTANT PRODUCT

Wow, long road!

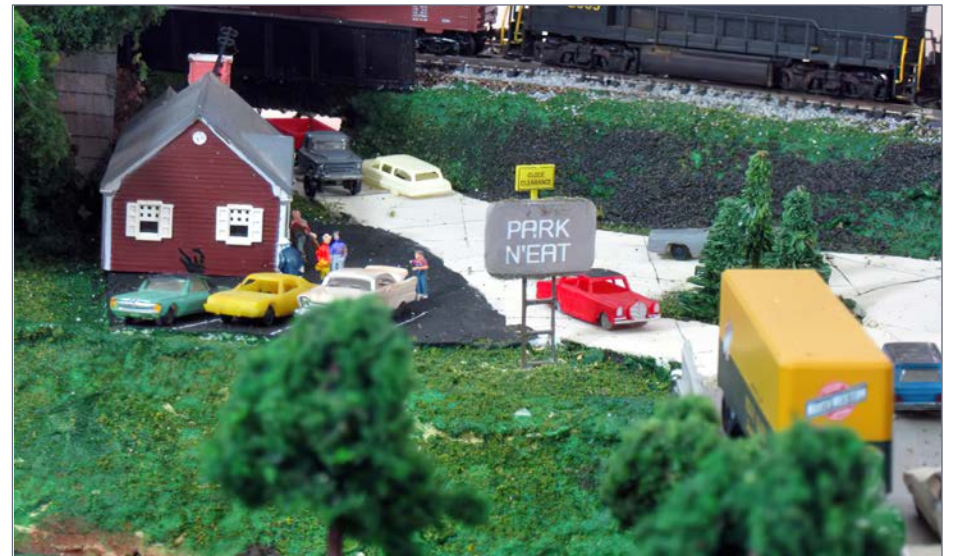
One year since I "foolishly" decided to improve operations! At least there I could now light at the end of the tunnel, and I was looking forward to resuming operations. Ten-car trains were running relatively reliably, and I was working my way up to the long coal drags.

I gave the Brooklawn/Timber Creek area its second pass scenery. I still needed to put in the power house and Buzby Bros. parking areas. The creek needed refinishing, the work along the banks needed improvement, and then I could return the people.

Westville was back to normal along with part of North Woodbury. South Woodbury was in good shape, but Woodbury proper needed a lot of work, and I still needed to start the peninsula end.



27. Timber Creek trestle redone.



28. The Park N' Eat (Murphy House) greasy spoon. Looks like a rare crowd tonight.



29. The Glassboro/Thorofare Junction now had parking and trees.



30. Looks like the Del Monte parking lot has a farmer's market going.



31. Buzby Bros. cement company in Westville. I still need to rebuild the damaged towers.



32. Mocking-up scenery for the turnback loop between Westville and Woodbury.





33. Laurel St. between Cooper St. and Hunter Ave. in Woodbury followed the prototype arrangement. Here the scenery is basically completed. It still needs lights, people, weathering, and detailing.



34. Washington Ave. in North Woodbury got extended, although it now curves in the opposite direction of the prototype.

MONTH 14: END OF THE WORLD?

Now 14 months after I began my 70-percent rebuild, I finally took the time to attack the peninsula turnback problem. I modified half of the peninsula end to try and replicate the Broad Street Lake section in North Woodbury [32].

I have rarely enjoyed such a string of modeling ambition and I rode the wave as long as possible. As I concluded the scenery wave, it's time to prepare for an operating session.

Sixteen months after I started, I was finally ready to run trains again.

You'll have to wait to next month to see how the initial operating session went. In the meantime, let me summarize the process.

CONCLUSIONS

When you get bored, should you tear apart a perfectly good model railroad?

That is a question only *you* can answer. Considering several other questions might help you find an answer:

- What will it cost? Lumber is expensive, as are track and turnouts.
- Do you have the time and help you need? Few modelers can do all things well alone, especially if they require moving something big.
- Have issues that demand fixing? Duckunders, staging, etc.
- What new issues might your changes create? Sharper curves, scenic challenges, etc.

If you decide to proceed, take the time to make a plan. Make sure the track meets where it is supposed to.

“The perfect storm I created with my old layout washed away the potential of what my layout could be. It’s clear skies overhead with the rebuilt layout.”

Would I do it again? If you had asked that question half the time I was under construction, the answer would probably have been no. If you were to ask me that question today, I would say yes, and I would encourage you to go for it.

I can now run trains twice as long as before, I have no duckunders, and I have enough staging to run a complete 1950s PRSL freight schedule without having to fake anything. Camden Pavonia yard operators will no longer need to be carried out of the train room exhausted on a stretcher.

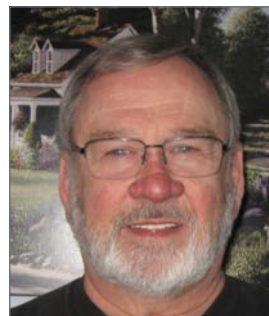
The perfect storm I created with my old layout washed away the potential of what my layout could be. It’s clear skies overhead with the rebuilt layout. ☑

Postscript: Right on Track Models has just made a kit for the Woodbury Station [35] which will be a fitting crown for my upgraded layout.



35. The Woodbury Station. Right on Track Models has just made a kit, which will be a fitting crown for the layout.

RICK BALASSAITIS



Rick grew up in Westville and Woodbury Heights, always within a block of the PRSL. Although he preferred coal mountain railroading, he knew eventually he would model his hometown railroad with its ugly “black” Baldwins. Woodbury is the junction for 3 southern NJ branchlines to Millville (manufacturing), Salem (farm), and Deepwater (chemical/petroleum).

Right on Track Models created a kit of the Woodbury station. Most of the industries serviced in Westville and Woodbury have fairly accurate stock buildings, and the Walther’s Union station is a stand-in for the Philadelphia 30th street station.

Rick has a stable of Atlas Baldwin VO-1000s which handle the yard switching, but no one makes the Baldwin AS16 Road switchers in N scale. Fortunately the PRSL’s parent companies sent all their old steam and diesel engines to live out their last days on PRSL tracks, so most of their smaller engines are legitimate to run.

The freight cars are steam diesel era with a mix of 30% PRR, 15% Reading and 5% of the adjoining railroads (CNJ, B&O, LV, Erie, NYC, C&O, N&W), 15% Misc and 5% PFE just because he likes them better than Pennsy’s FGE.

Rick has been married almost 50 years, and God has blessed him with 4 children, 13 grandchildren, and 1 great grandchild. ■





HO MODELERS: RESTRICTED ACCESS!



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Modeler's survey of glues Part 1



1. Various types of "white glues."

Model Railroad Hobbyist | January 2022



**JEFF PALMER LOOKS AT GLUES
WITH A MODEL RAILROADER'S EYE ...**

FOR MOST MODELERS, "glue" is a general term describing the substance used to connect two parts. What glue to use and when to use it is a reoccurring theme. I'd like to talk about some of the glues commonly used in model and scenery construction.

You might think this is a "no-brainer" topic, but I can't tell how frequently it elicits the same controversy as religion and politics. I don't understand why some have such an emotional attachment to the subject, but here's what I know.

WHITE GLUE

The most popular glue used in modeling is "white glue" also known as "PVA" – Poly-Vinyl Acetate. Elmer's Glue All, Pacer's Formula 560, or Aleene's Tacky Glue are examples of PVA glues.

We've used this type of glue since elementary school and today, we use it for everything: scenery, model structure construction, and basic woodworking like benchwork.

A variation of PVA type glues are the yellow wood glues like Titebond, Gorilla Wood Glue, and Elmer's Wood Glue. All these glues are water-based.

The differences between the glues are a matter of personal choice and preference, for example:

A) PVA - Formula 560 is thicker than Elmer's Glue-All, but more expensive than Aleene's Tacky Glue. These all dry clear. Glued parts can be separated with a chisel and great care.

B) Yellow glues, wood glues, dry yellow. This glue is more brittle than its PVA counterpart, but bonds more securely to wood. If you try to separate two parts, you risk ruining one or both parts. Choose wisely. I use each of these glues differently.

Taking this a step further, I like to use Aleene's Tacky Glue for kitbashing. Aleene's was developed for scrapbooking. It does not dry hard, and it cleans up easily. It's great for gluing details to structures or adding them to a scene.

For construction, Aleene's works as well as any other "white" glues, with the advantage is that it is thicker and tackier, so it doesn't run. With a little time and care, you can disassemble Aleene's bonds with little damage. I've done this many times.

"Canopy Glue" (Formula 560) is a thick "white" glue developed for airplane modelers to glue canopies to the fuselage without showing glue marks or crazing the clear plastic. Canopy glue makes an excellent clear-drying construction glue.

"SUPERGLUE" FOR CARDSTOCK - J. FUGATE



White glues, or PVA as our friends across the pond call it, has been the go-to cardstock glue for decades.

Once I discovered *Roket Card Glue* by Deluxe Materials, that has changed. Roket Card Glue is now my go-to glue for cardstock.

Roket Card Glue is the closest thing I've found to a "superglue" for cardstock. It grabs quickly, enabling me to keep moving on my cardstock model construction much faster than white glue. Roket Card Glue also glues cardstock to other materials such as plastic, wood, leather, and even metal.

One of my favorite construction techniques is to build a structure core of foam core and laminate styrene onto it with Roket Card Glue.

I also am a fan of photo laminate structure techniques popularized by Lance Mindheim – but instead of the *3M Super 77* that Lance recommends, I prefer Roket Card Glue.

I've found when I use a styrene structure core, Roket Card Glue is more forgiving than 3M Super 77. With the 3M adhesive you get one try and hope you don't mess up. Roket Card Glue grabs quickly, but it also allows me a second or two to get the alignment right before it grabs completely.

Full disclosure: Deluxe Materials is an MRH advertiser – we even did a promo video for Roket Card Glue here:

youtu.be/BbqulVafnBg

However, if I take my MRH hat off and just put on my model railroading hat, the Deluxe Materials' products in these side notes have become my go-to modeling products for the specific uses I give. Roket Card Glue has made cardstock modeling fun again. ■

MODELER'S SURVEY OF GLUES | 4

Around the turn of the twentieth century, cheap window glass tended to be wavy and more translucent than transparent.

Canopy glue simulates early windows well, by not allowing the viewer to make out interior details – or lack thereof.



2. Thicker PVA or “white glues.”



3. Scenery glue alternatives to “white glue.”

MODELER'S SURVEY OF GLUES | 5

Yellow glues have additives that give it its color and help it soak into wood pores better for a stronger bond. Yellow glue dries hard and tends to be more brittle than white glue. You can only disassemble yellow joints with difficulty and often with damage to one or both components.

A major use of “white” glue in model railroading is scenery. Most of the time, scenic glue is a 50/50 water/glue mixture, useful for laying down dirt, ground cover (not including static grass), and ballast.

I pre-spray the area I’m going to work with 90% isopropanol alcohol to break surface tension so the water-based glue can soak in easier. Some use soap, though I find soap can cause foaming issues.

Noch, Scenic Master, Hornby, and other vendors offer tubs of much thicker PVAs. I find that most use them for specialty work, although that would make for another article [2].

Glue sticks used to be PVAs but are now acrylic polymers – Polyvinylpyrrolidone or PVP. Though PVPs tend to be fast and clean, they are also weak adhesives. They do not stick as well as PVA.

Glue sticks are probably my least frequently used glue. They can be useful for gluing paper roofing material to wood or cardboard sub-roofs, or for gluing signage to wood or chipboard structures [3].

Final note: Elmer’s School Glue is NOT a PVA. It’s made from corn starch and a couple of non-toxic chemicals. I have not had good success with this glue, but I have heard of others having success using it on scenery.

If you are curious about what’s in your glue, Google the glue name followed by SDS or MSDS. This will bring up the “Safety Data Sheet” (SDS) or the “Materials Safety Data Sheet” (MSDS) which will identify the major chemicals used in the formulation of the glue [4].



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MSDS for Elmer's Wood Glue - Carpenter's Wood Glue, Modified Polyvinyl Acetate

CONSUMER PRODUCTS DIV DIVISION OF BORDEN -- ELMERS CARPENTERS WOOD GLUE - MODIFIED POLYVINYL ACETATE EMULSION
MATERIAL SAFETY DATA SHEET
FSC: 8040
NIN: 00F001621
Manufacturer's CAGE: 98475
Part No. Indicator: A
Part Number/Trade Name: ELMERS CARPENTERS WOOD GLUE

General Information

Item Name: MODIFIED POLYVINYL ACETATE EMULSION
Company's Name: CONSUMER PRODUCTS DIVISION, DIVISION OF BORDEN INC
Company's Emerg Ph #: (614) 457-5200
Record No. For Safety Entry: 001
Tot Safety Entries This Sds#: 001
Date MSDS Prepared: 01JAN87
Safety Data Review Date: 10JUL86
MSDS Serial Number: BBJPD

Ingredients/Identity Information

Proprietary: YES
Ingredient: PROPRIETARY
Ingredient Sequence Number: 01

Physical/Chemical Characteristics

Appearance And Odor: LIGHT YELLOW COLOR, MILD ACETIC ODOR.
Boiling Point: 212F
Specific Gravity: 1.1
Solubility In Water: INFINITELY
Percent Volatiles By Volume: 33.5

E375_C ELMER'S GLUE-ALL

Material Safety Data Sheet

F

1. Chemical Product and Company Identification

DESCRIPTION: ELMER'S GLUE-ALL

PRODUCT TYPE: PVAC BASED ADHESIVE

APPLICATION: FOR PRODUCT CODES SEE SECTION 16

Manufacturer/Supplier Information

4. Safety sheet for Elmer's Wood Glue.



5. Super glues and super glue accelerators.

CA (SUPER GLUE)

Another very popular type of glue is the Cyanoacrylate glue, CA, or "super glue." This glue bonds to everything: metal, wood, plastic, of glass.

CA is ideal for attaching metal or plastic detail parts to wood, plastic, or metal structures. The advantage of super glue is that it will bond dissimilar materials to each other. It will also glue you to anything, so be careful.

Acetone (nail polish remover), or Dimethylformamide (bsi Un-Cure) serve as the basis for a variety of super glue de-bonders if you should glue something wrong. Any of the de-bonders will work, but they contain toxic chemicals. If you are de-bonding yourself from something, be sure to wash the treated area with soap and water afterwards.

CA is a mixed bag for me. On the one hand, its versatility in gluing anything to anything else is often a life-saver. Especially when you're working with metal on metal.

On the other hand, CA tends to be a little messy because of its



viscosity. It runs, dries quickly and can be difficult to contain on the model. Using CA requires forethought. I'll use CA anywhere I can cover it with paint.

Stains and CA do not work well together. The lower the viscosity, the thinner the glue, the greater the problem with wood. CA absorbs into the wood, altering the stain.

Glue with a lower viscosity can spread to a larger area or flow downhill more easily. This quality can be useful for gluing along an inside seam of two parts. I tend to use a thick gel CA as it's easier to control and generally has a longer working time [6].

CA dries brittle, but the joints are often very difficult to disassemble. It can be done, but it's more like cutting it apart than disassembly.

I also use CA gels to fill flaws, especially when working with plastic. In a recent project, I needed to fill a 1/16" gap between the tender and the engine frame on both sides of a Climax locomotive. I used some CA gel and sanded it to shape.

This is where I learned that CA can be brittle. I used an aggressive sanding stick (a fingernail emery board) and had to



6. Various viscosities of CA from Zap and Bob Smith Industries.

FLEXIBLE CA/SUPERGLUE - J. FUGATE



Jeff Palmer is correct when he says that "CA dries brittle." That brittle, inflexible nature of the bond tends to be one of superglue's greatest shortcomings. In fact, one of the most famous ways to "re-kit" a resin car assembled with CA is to put it into the freezer, since the superglue bonds will not flex as the resin shrinks due to the cold.

Enter *flexible rubberized* superglue!

That's right, *rubberized* superglue. In fact, I've come to like the flexible variety of superglue so much that I've abandoned regular superglue for the most part and keep just the flexible variety on hand instead.

I've found several sources for flexible superglue. First, modelers familiar with Bob Smith's superglues will find they sell a thin (turquoise label) and thick (pink label) version of their well-known hobbyist superglues. This is great glue, but it's not cheap, generally going for \$6-\$8 a bottle.

In recent years, the major superglue manufacturers have picked up on how great flexible superglue is, generally as a thicker gel. I like to keep the Bob Smith thin flexible superglue with the turquoise label on hand because it's more like the thin superglue I'm used to using. And for the thicker superglue, the major brands generally cost less.



You can find Loctite Super Glue Ultra Gel and Gorilla Super Glue Gel at most any Home Depot, Lowes, or Walmart. These mass market flexible thick superglues generally sell for \$4-\$6 a bottle.

See the shopping list link at the end of this article for where to order these glues. ■

go to a milder 200-grit sanding stick. The more aggressive \emery board was chipping the CA, forcing me to fill the fill, so to speak.

There are also "Accelerators" to speed CA's dry time.

Sprinkling baking soda on the glue or spraying it with a 1:50 mix of baking soda and distilled water – 1/2 tsp of baking soda in 1/4-cup of distilled water – also works. Be sure to use distilled water because tap water may contain minerals and impurities that cause discoloration or otherwise interfere with the reaction.

PLASTIC

Plastic glues are primarily designed to work with styrene or ABS plastics, not nylon or Delrin. They can either be cements or welders. Whereas cements act as a bonding agent to adhere two parts together, welders soften the parts' surfaces and fuse them together.

Cements and solvents can work well with styrene or ABS plastics, though they are not effective with nylon or Delrin.



7. Plastic cements.

MEK SUBSTITUTE? – J. FUGATE



I bought a quart of Methyl Ethyl Ketone (MEK) at the hardware store a couple decades ago and used it as an inexpensive styrene glue. But MEK is nasty stuff and due to restrictions it's become harder to find. In recent years I've looked for an alternative. If you find MEK Substitute, you will discover the main ingredient is Ethyl Acetate.

While you can buy pure Ethyl Acetate (EA) in quarts for about \$30, Klean Strip/Jasco MEK Substitute is 100% EA and it sells for just \$16 a quart, or \$25 per gallon – see the shopping list at the end of this article for details.

EA works slightly slower than MEK on styrene, but you can store it and apply it just like MEK. I'm fully satisfied with it and will never go back to MEK.

I put EA in a plastic dropper bottle for general use as a less toxic replacement for lacquer thinner as well. For instance, when cleaning paint off the tops of my scratchbuilt turnout rails, I use my EA dropper bottle and a few Q-tips. Takes the dried paint right off, slick as can be!

I like to put EA in a plastic dropper bottle with a #30 needle tip for use as a styrene glue. Makes applying solvent to the styrene go quickly. The trick is to put a small amount of EA in the bottle and hold the bottle nearly flat to get better flow control. Tipping the bottle straight up dramatically increases the flow, making the glue go everywhere.

MEK SUBSTITUTE? *CONTINUED ...*

Do note, however, that EA if left exposed to the air for a while turns to acetic acid. If you use EA on your railheads, clean the railheads with mineral spirits to remove the EA when you're done. We don't want anything acid on our track!

EA is far less toxic than ME by quite a bit, but in concentrated form, it's not harmless. It has a strong fruity odor and if you drink it, it will make you tipsy like ethyl alcohol (e.g., vodka). Like ethyl alcohol (ethanol), it will burn your eyes and mucus membranes if you get it there by accident. And like ethanol, it's not good for your organs, particularly your liver if you drink it. And as with ethanol, EA can be quite flammable in concentrated form.

Your body makes EA in small quantities as a by-product of metabolism. Plus, they put small amounts of EA in wine or foods to give it a fruity taste. But concentrated EA needs to be treated with respect, as with all concentrated chemicals. ■



8. Tube cement for plastics (not recommended except as filler – use liquid cements for normal styrene gluing).

Plastic welders frequently use MEK (Methyl Ethyl Ketone), Methylene Chloride, Acetone, or Toluene-based solvents, any of which gives off toxic vapors. Be sure to work in a properly ventilated area when using plastic welders.

For plastic cements and welds, the lower the viscosity, the more difficult to control. Low-viscosity glues are best for joints where you can apply glue from the backside, with gravity to help it flow along the seam. It is important not to allow the glue to run down the face of the model.

I tend to use a tube with higher viscosity glue to make it easier to control. Testors makes a special "Clear Plastic" glue specifically for clear plastic parts that won't craze (frost) clear plastic, though I prefer canopy glue.

I've been using MEK for years. I buy a quart of MEK for about the same price as a couple of tubes of hobby plastic glue [8].

I'm constantly looking for the "perfect" glue. To understand the composition of the glue you are using, read the label or go online and find the Tech and MSDS Sheets.

Many of the tube cements use bonding agents too numerous to list here, but check out your favorite glue. I've been a Testors user for years, and I tend to use what is familiar to me.

One of the common problems when using plastic glues is the accidental fingerprint. If you run into this problem, use a 2000-grit sanding sheet. Work the area gently to avoid removing detail.

One last note on plastic glue. Have you ever needed a thick bead of glue to fill a depression, or create a weld bead on a model? I keep an old Testors glue bottle with about an 1/8" of glue in it, and I cut up old sprue pieces and add to the bottle. Just a few pieces at a time – you don't want to overwhelm the liquid.

I check the bottle from time to time to make sure the plastic is dissolving. I keep doing this until I have a thick, liquid plastic "goo" (technical term). I use this plastic to fill depressions or

TENAX7R - J. FUGATE



I sought out and used Tenax7R in the past because it has these useful attributes:

- Glues styrene, ABS, and acrylic plastics
- Bonds quickly, in circa 10 seconds
- Nonflammable
- Evaporates extremely fast

On that last bullet point, I always found once I broke the seal on the Tenax7R bottle, it would evaporate in a couple weeks even with the cap on. Very annoying, because getting only one use out of an entire bottle makes it very pricey glue. Still, it was the only glue I could find at the time that would glue all these various plastics together.

The original Tenax7R is no longer manufactured because of concerns over the main ingredient, Dichloromethane (methylene chloride). Not to be deterred, a company called JM Hobby Supply developed an almost identical formula: *Styrene Tack-It II*, a direct replacement for Tenax7R. Check the shopping list link at the end of this article for a web link.



But Tenax7R and its replacement Styrene Tack-It II are not friendly glues, so do use it with caution: see the warnings below for its main ingredient, Dichloromethane.

Dichloromethane (methylene chloride)

Dichloromethane (DCM) has high volatility, making it an acute inhalation hazard. It can also be absorbed through the skin. DCM is metabolized by the body to carbon monoxide, potentially leading to carbon monoxide poisoning. Prolonged skin contact can result in DCM dissolving some of the fatty tissues in the skin, causing skin irritation or worse, chemical burns.

In people with pre-existing heart problems, exposure to DCM can cause abnormal heart rhythms and/or heart attacks, sometimes without any other symptoms of overexposure.

Regulation: In many countries, products containing DCM must carry labels warning of its significant health risks.

In the European Union, the European Parliament voted in 2009 to ban the use of DCM in paint-strippers for consumers and many professionals.

On March 15, 2019, the U.S. Environmental Protection Agency (EPA) issued a final rule to prohibit the manufacture (including importing and exporting), processing, and distribution of methylene chloride in all paint removers for consumer use.

A safer alternative to Tenax7R



As mentioned, I liked Tenax7R because it bonded a wide variety of plastics. I have since moved to using *Deluxe Materials Plastic Magic 10s* as my Tenax7R replacement glue. It has very similar attributes, with the added benefit of harmless fumes:

- Glues styrene, ABS, and acrylic plastics
- Bonds fairly quickly, usually 10-15 seconds
- Nonflammable
- Odorless, non-sniffable
- Evaporation from the bottle almost non-existent (hooray)

You can find Deluxe Materials Plastic Magic 10s from hobby shops online, or you can get a bottle from Liquid RC here for ~\$11 with shipping, see the shopping list link at the end of this article for details.

Deluxe Materials has gone the extra mile with their engineering on this product. It comes in a squat square bottle that's virtually impossible to tip over. And they include an extra long brush in the package so you can get every last drop out of the corners of the bottle. I am delighted it's the exact opposite of Tenax7R. Plastic Magic 10s has a very low volatility, which means it doesn't evaporate quickly like Tenax7R did.

Although Plastic Magic 10s claims to bond in as little as 10 seconds, I find depending on the plastics I'm using, it can take a bit longer to form a good bond. Even though it is slower than Tenax7R was, due to the other advantages, I'm fine with the slightly slower bonding speed.

In fact, I have read online where some folks disliked Tenax7R because they found it was too fast. See this MRH Forum post for more:

forum.mrhmag.com/post/tenax7r-alternative-12217721?highlight=ethyl+acetate&pid=1331377311

Full disclosure: Deluxe Materials is an MRH advertiser. However, if I take my MRH hat off and just put on my model railroading hat, the Deluxe Materials' products in these side notes have become my go-to modeling products for the uses I discuss. That's certainly true of Plastic Magic 10s – it's a great replacement for Tenax7R, with none of the nasty side effects. ■

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create weld lines on models. DO NOT use it to bond two parts together, as the glue has been weakened by dissolving of the sprue plastic.

I'm looking to replace this process with the new UV Plastic glue. It looks promising.

EPOXY

Epoxy is a universal bonding agent that you can use on almost everything. If you're dealing with nylon or Delrin, epoxy is the glue of choice. Make sure you do a little research, as not all epoxies are created equal.

Despite the packaging, epoxies do not dry clear but with an off-clear to amber tint. It also frequently traps air bubbles during the mixing process. For general modeling, epoxy tends to be too thick and takes too long to cure.

To resolve the thickness issue, I use an eye dropper or pipette to add MEK to the epoxy mixture one drop at a time until it reaches the desired viscosity. Thinning the epoxy will allow it to flow into hard-to-reach crevasses. Adding MEK to the epoxy also increases its cure time, so you are going to wait longer.

I use epoxy to fill gaps and depressions, or I build up joints such as corners that need extra strength. Epoxy is awkward and difficult to use in small quantities, but its value in adding strength is immeasurable. I use epoxy to add structural strength to a model.

I recently used CA to attach brass domes to a plastic boiler, but I sometimes knock them off while working with the model. To solve this, I reattach the domes with CA.

Then I mix up some epoxy thinned with MEK, and fill the domes so the epoxy flows into the top of the boiler, making a very strong bond.



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[INDEX](#)

[TABLE OF CONTENTS](#)

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[INDEX](#)

[TABLE OF CONTENTS](#)



9. Examples of two-part epoxy glue.

JEFF PALMER



Jeff spent 50 years developing software, and 25 years as a college professor. During that time, he was a modeler. He loves to build structures, bridges, scenery, and locos, and his interest is in logging and mining (narrow gauge). He enjoys the ruggedness of logging and mining railroads, and the scenery and landscape. Model railroading allows him to expand his skill set, work with his hands, and share with his friends, the things he has learned.

About two years ago, he completed his MMR (Master Model Railroader) certificate from the NMRA. During that journey, he had the privilege of meeting many modelers he looked up to. He hopes to be a part of that group someday. ■

SUMMARY

Here is a chart [10] to summarize this month's article. In part 2, I will finish the glue discussion. ☑

To get a shopping list for this article, visit the *MRH* website at this link: mrhmag.com/magazine/2022-01/glues-1-shopping



Type	Finish Color	Brittle	Material	Thinner/Cleanup	Use	Notes
PVA	Clear	No	Wood, Paper, Plaster	Water	General Construction, Scenery, Static Grass	Bonding Agent
PVA-Thin	Clear	No	Wood, Paper, Plaster	Water	General Construction, Ballasting	Bonding Agent
PVA- Thick	Clear	No	Wood, Paper, Plaster	Water	General Construction, Scenery, Static Grass	Bonding Agent
PVA- Wood	Yellow	Yes	Wood	Water	General Construction	Bonding Agent
PVP –Stick Hairspray	Clear	No	Wood, Plastic, Paper, Metal	Water	General Construction	Bonding Agent, Light Material
CA	Clear	Yes – Wood No - Plastic	Wood, Plastic, Paper, Metal	Acetone, <u>Dimethylformamide</u>	General Construction	Quick setup time, bonds anything together
CA-Thick	Clear	Yes – Wood No - Plastic	Wood, Plastic, Paper, Metal	Acetone, <u>Dimethylformamide</u>	General Construction, Filler	Quick setup time, bonds anything together, Filler
Plastic – Solvent Thin	Clear	No	Plastic	N/A	General Construction	Melts Plastic, Quick setup time
Plastic – Solvent Thick	Clear	No	Plastic	N/A	General Construction	Melts Plastic, Quick setup time
Plastic – Bond Thin	Clear	No	Plastic	N/A	General Construction	Bonding Agent, Quick setup time
Plastic – Bond Thick	Clear	No	Plastic	N/A	General Construction	Bonding Agent, Quick setup time
Epoxy	Not Clear	Yes	Wood, Plastic, Paper, Metal	MEK – slows setup time	General Construction, Filler	Bonding Agent, bonds anything together, Adds strength

10. Table of glues in this article.

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Operating Coal Loader - LIVE Coal Loads in HO

YouTube modeler **NSmodeler24** (Josh Clark) demos his live coal loading operation. Josh explains how he managed to get live coal loading to work reliably in HO. His operators' must love actually getting to load the coal trains!

Give this fascinating video a watch, it shows what's possible in HO scale with some clever modern technology. ☑

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[INDEX](#)

[TABLE OF CONTENTS](#)

JANUARY NEWS

column



Model Railroad Hobbyist | January 2022

RICHARD BALE AND JEFF SHULTZ
REPORT THE LATEST HOBBY
INDUSTRY NEWS ...

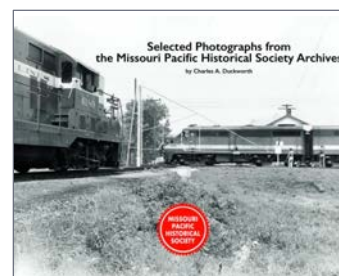


NEW PRODUCTS FOR ALL SCALES



Atlas has announced plans to produce a special 4th of July boxcar in N, HO and O scales. The unique artwork

celebrates America's Independence Day.
Info: Contact a dealer.



The Missouri Pacific Historical Society has released a new book titled *Selected Photographs from the Missouri Pacific Historical Society Archives*. Edited by Charles A. Duckworth, this new 160 page publication contains over 170 images with most in large format on the 8.5 x 11" page. The photos are selected from the more than 5,000 negatives and slides taken by the late Joe Collias.

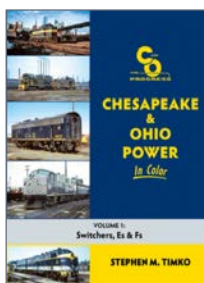
Info: www.mopac.org/store

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[INDEX](#)

[TABLE OF CONTENTS](#)

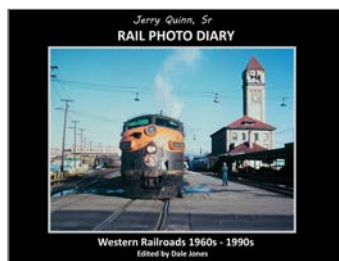


Morning Sun Books has released Volume 1 of *Guilford Rail System In Color*. This new book offers striking photography of the entire Guilford Rail System from its western end in New York State to lines in eastern New

England. Author Jeremy F. Plant covers the entire Guilford story from its formation in the early 1980s via the merger of the Delaware & Hudson, Boston & Maine, and Maine Central lines; to its renaming as Pan Am in 2006.

An April release date has been set for *Chesapeake & Ohio Power In Color*. Authored by Stephen M. Timko, this first volume features a range of motive power from the single GE 44-tonner through the Alco and EMD/GMD switchers, as well as the fleet of narrow-gauge Atlas and GE dock pushers. Photos of passenger and freight power include EMD E7s and E8a, F7As, F7bs, and FP7s.

Info: www.morningsunbooks.com

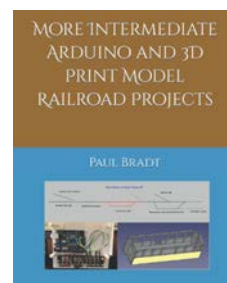


Railroads of Montana has released *Jerry Quinn, Sr Rail Photo Diary - Western Railroads 1960s thru 1990s*. Edited by Dale Jones, the 92-page, 11 x 8.5" landscape book contains over 175 photos of railroad operations in Spokane's Inland Empire and around

the US from the 1960s to the 1990s.

Info: railroads-of-montana.com/Quinn%20Rail%20Diary.htm

Paul Bradt has released a new soft cover book titled *More Intermediate Arduino and 3D Print Model Railroad Projects*. The



153-page book offers project ideas using the Arduino micro controller, the Raspberry Pi single board computer, and several 3D print projects. Projects include arc welding emulators, fast clocks, automatic block signal systems, reverse loop control, Java interface applications and others. A range of 3D print projects are included. A printed edition and a

Kindle version are available.

Info: www.amazon.com

HO SCALE PRODUCT NEWS



New HO scale kits coming from **Accurail** include this triple-bay Center Flow covered hopper based on a prototype ACF built

in 1970. The ex-Rock Island car is patched with Milwaukee Road reporting marks. The kits will be available singly and in a 3-pack with different road numbers.



This Canadian National twin-bay open hopper will also be available in a 3-pack in March. The HO kit represents a prototype delivered to CN in Febru-

ary 1947. All Accurail HO scale car kits come with Accumate couplers and appropriate trucks with Delrin wheelsets.

Info: www.accurail.com





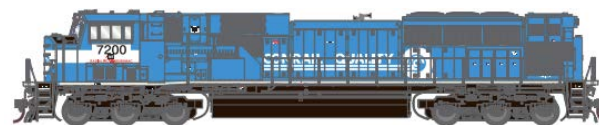
R. Bale

EMD SD80MAC

The SD80MAC is a 5,000hp C-C locomotive EMD built for Conrail in 1995-96. The 80-foot prototype used EMD's 20-cylinder 710G3B prime mover, a huge diesel engine with an oil capacity of 510 gallons and a water cooling capacity of 342 gallons. A key spotting feature of the SD80MAC is the wide radiator housing similar to GE locomotives. Additional details include rear number boards, the placement of the front number boards above the cab windows, and recessed red marker lights in the nose.



Athearn has released its production schedule for February 2023. At the top of the long list are four versions of an EMD SD80MAC diesel locomotive. Two road numbers will be available for Conrail in the as-delivered paint scheme. CR details include operating red marker lights, a small EMD front pilot/plow, a Leslie 3-chime horn and pilot-mounted ditch lights.



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At the top of the long list are four versions of an EMD SD80MAC diesel locomotive. Two road numbers will be available for Conrail in the as-delivered paint scheme. CR details include operating red marker lights, a small EMD front pilot/plow, a Leslie 3-chime horn and pilot-mounted ditch lights.

Former Conrail SD80MAC units patched for NS will

be available from Athearn in four road numbers. The selection of horns and selective use of anti-glare nose-paint reflect CR practice.



Athearn has included a what-if CNW paint scheme in this release.

Justification for the fantasy model is based on an order for 15 SD80MACs that CNW was forced to cancel pending its merger with Union Pacific.



Athearn is preparing tooling for a Genesis 2.0 version of an EMD's SD90MAC-H.

In 1996, EMD built the SD90MAC-H using a slightly modified SD80MAC car body to house the newly developed twin-turbo, 4-cycle 256H prime mover. The safety cabs are the same but engine cooling requirements for the 256H resulted in a sloped hood above the prime mover. Prior to this project a true HO scale model of a SD90MAC-H has only been available in brass.



which was a repaint of EMD's demo.

In addition to EMD demonstrator No. 8204, decorating schemes on Athearn's new SD90MAC-H will include Union Pacific No. 8503,

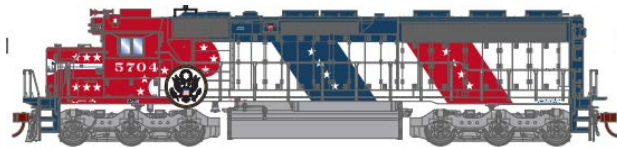




R. Bale

EMD SD45-2 LOCOMOTIVE

The SD45-2 is a 6-axle, 3,600 hp diesel electric road switcher built by EMD. It is powered by EMD's 20-cylinder 645E3 prime mover. The SD45-2 was an improved version of EMD's SD45; the primary visual difference being the lack of flared radiators on the SD45-2. Although problems with EMD's big 20-cylinder engine had been mostly overcome, interest in the big diesel guzzling engine had begun to fade by the time the SD45-2 was introduced in 1972.



Athearn is planning a February 2023 release date for a new run of SD45-2 diesels.

The HO scale Genesis 2.0 model is based on a Dash-2 version of EMD's 20-cylinder 3600 hp locomotive that was 3 feet longer than the original SD45 and rode on high-adhesion trucks.

The Santa Fe re-painted five SD45-2s in celebration of the nation's 200th birthday. Athearn will offer an HO version of Santa Fe's colorful Bicentennial paint scheme. BNSF is currently restoring SD45-2 No. 5704, including a Bicentennial paint scheme. Upon completion No. 5704 will be donated to the Southern California Railway Museum in Perris, CA.



Additional Santa Fe SD45-2s will be available from Athearn in blue and yellow pinstripe.

Road specific details include an early style anticlimber, snow plow pilot, air conditioner, and a beacon light that is functional on DCC models.



Helm Atlantic Leasing acquired two SD45-2s from CSX in the 1990s. Athearn's HO scale Primed for Grime edition features ditch lights, a snow plow pilot, a 3-chime horn, and heavily faded CSX paint.



Norfolk Southern models will be available in Erie Lackawanna

Heritage paint, and in a black and white horsehead scheme. NS features include ditch lights, sun shades, an air conditioning unit, Sinclair antennas, and a Leslie RS3L horn mounted on the long hood.



Completing Athearn's release of SD45-2s is a Seaboard Coast Line locomotive originally owned by the Atlantic Coast Line. Unique features include an



oscillating headlight (functional on DCC equipped models), a firecracker radio antenna, and a nose-mounted headlight.

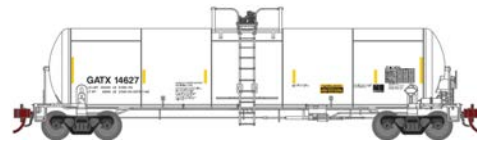
Features included on all Athearn Genesis 2.0 models, including the SD80MAC, SD90MAC-H and SD45-2 mentioned in this report, will include etched see-through walkway steps, coupler cut levers, rubber MU and trainline hoses, cab interior, windshield wipers, lift rings, wire grab irons, and fuel tanks detailed with fuel fillers, fuel gauges, and breather pipes. The LED lighting systems include illuminated number boards and ground lights. The models will be available for DC operations

with a DCC-ready 21-pin NEM Quick Plug connector. DCC sound models will have dual sugar cube speakers.



New HO scale freight car models coming from Athearn in early 2023 include a GATC 20,000

gallon acid service tank car. The Genesis series model will have etched metal walkways, separate wire grabs and handrails, coupler lift bars, rubber trainline and brake hoses, full underframe detail including air brake reservoir, control valve, and brake cylinder with plumbing and brake rod details; and double-shelf knuckle couplers. The cars will have roller-bearing trucks with machined metal wheelsets and rotating bearing caps.



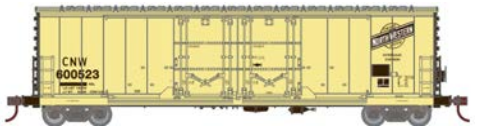
Road names will include UCLX-Occidental Chemicals Corporation, and four different versions of GATX cars.



A 54' FMC 4700 cu. ft. triple-bay covered hopper is also due from Athearn early next year. Road

names will be FMC, Arthur Farmers Elevator, Procor, Val-U-Hi, and a Chicago & North Western/Klemme car in a Primed for Grime scheme.

The Ready-to-Roll model will have see-through etched-metal end platforms. The type of outlet gates will be road specific. Roller-bearing trucks rated at 100-tons will have 36" machined wheelsets.



Additional Ready-to-Roll models scheduled for release in February 2023 include a 50' Evans boxcar with double plug doors.



Road names will be Chicago & North Western, Hartford & Slocomb, Jeld-Wen, Tropicana, and Louisville, New Albany & Corydon.



Athearn has included 3-packs of 20' stackable containers in its February 2023 schedule. Decorating schemes in this release will be Container King, Hyundai, Evergreen, CGM, and MACS.



New **Roundhouse** brand HO scale models coming early next year include a 50' gondola with a removable cover.



Three numbers each will be available for CB&Q-Burlington, Nickel Plate Road, Soo Line, Rock Island, and Southern Railway.

Info: www.athearntrains.com



Broadway Limited has released to dealers an HO scale model of a Union Pacific 4-6-6-4 Challenger steam locomotive. The BLI

model represents the class CSA-2 series of Challengers as they appeared after 1947. The locomotive superstructure and tender body are brass mounted on diecast metal chassis.

BLI has created three variations of the CSA-2 Challenger: 1) With the front engine as-delivered, 2) with the front engine rebuilt and, 3) with the front engine cast with integral cylinders. Each version is available both fully decorated and painted but unlettered.



The models feature Paragon4 sound and control system with Rolling Thunder sound, dual mode DC and DCC operation, and a capacitor pack for consistent

electrical pick-up. The capacitor pack is automatically disabled on program track for full compatibility with JMRI Decoder Pro.

Info: www.broadway-limited.com



ExactRail has released another production run of its popular Southern Pacific wood chip gondola. The superbly detailed Platinum series HO scale model represents a composite

prototype with wood sides and a steel frame as built by Gunderson in 1965. Features include narrow-style draft gear box, Kadee No. 58 metal couplers, and ASF 100-ton Ride Control trucks with machined metal wheelsets.



The ready-to-run model is available decorated for Southern Pacific in an as-delivered 1965 scheme, SP in post-1975 paint, the same with a Pooh moniker, and SP

stenciled with *Return to Georgia RR*. Completing this release is a Georgia Pacific car in a powder blue paint scheme. An undecorated kit is also available.



The 4427 cu. ft. covered hopper produced by Pullman Standard in the 1960s was one of the principal cars that replaced

boxcars in grain service. ExactRail has completed another release of its highly-rated HO scale version of the classic 4427 car.



Notable items on the Platinum series model include a photo-etched stainless steel roofwalk and brake platform, wire coupler cut levers, Kadee No. 58

metal couplers, and 100-ton ASF Ride Control trucks with machined metal wheelsets.



Six road numbers are available for models decorated for Santa Fe (in 1965 as-delivered paint), Kansas City Southern (as-delivered in 1964), and TLDX-

Peavey Co. (as-delivered in 1964).



A Milwaukee Road car shipped and repainted in 1981 is available in one road number. Three road numbers each are available for EUGX

Far-Mar-Co (1975 repaint), and a TLDX C-G-F Grain and TLDX-West Central, both in 1964 as-delivered paint.

Info: www.exactrail.com



Kadee's latest freight car release is a 40' Western Pacific PS-1 boxcar. The HO scale ready-to-run model accurately replicates a prototype built in 1951 with 6' Youngstown

sliding doors. The model is decorated in WP's standard boxcar red with black ends and roof. Features include scale-size grab

irons, ladders, and stirrup steps; see-through brake step and running boards, and an accurately detailed brake wheel with proper curved contour. The model comes with Kadee metal couplers and self-centering Bettendorf-type trucks with metal wheels.

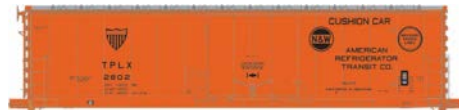
Info: www.kadee.com



Moloco is selling 33" nickel plated wheelsets with 0.088" semi-scale treads. The wheelsets are available blackened or pre-painted with a clean tread as shown.



boxcars with offset plug doors.



Moloco is accepting reservations through January 26, for a new production run of General American RBL

Delivery of the Plate C cars is expected sometime during the second quarter of 2022.



Road names will be CGW (with DF loaders, stenciled return to Libby and Gerber), Conrail, Erie Lackawanna (three EL

Cushioned Cars with variations on return to instructions), N&W/American Refrigerator Transit Co., TPLX/American Refrigerator Transit Co., Rock Island, and The Rock.



An undecorated kit is also available for pre-order.

Info: www.molocotrains.com



Rapido Trains is working on a second release of its M420W diesel locomotive. The HO Scale model is based on a series of 12-

cylinder 2000 hp units built by the Montreal Locomotive Works beginning in 1973.



Rapido is adding some new details to M420W locomotives in this second

release. The CN 3500s feature a rebuilt long hood with knuckle-buster door latches, paper air filters, retention tank ditch lights and a correctly located horn.



Additional features on all versions of the model, which was 3D scanned from an

actual M420, include Rapido's straight metal side handrails with plastic stanchions, a detailed cab interior with optional open front door, full underframe detail including traction motor cables, a rerailer, and numerous separately applied parts. The M420 lighting system includes operating headlights, rear lights, tri-color classification lights, and an illuminated cab control stand.



BC Rail models will have the correct fuel tank size and location, rebuilt

steps, and four rock lights in the nose and pilot. The Providence & Worcester locomotives will have AAR-trucks and correct P&W headlights.



Road names for the Canadian National version of Rapido's M420W include CN

(North America scheme), CN (stripes) class MR-20b and MR-20c, *Minnesota Commercial Railway, and Oil Creek & Titusville Railroad.



BC Rail versions of the MLW M420W will be available decorated for *British Columbia (Two-Tone Stripe), *BCR (Lightning Stripe), *BC Rail (red/white/blue), *BC Rail (B-unit red/white/blue, hockey stick scheme), and *Delaware-Lackawanna.



MLW M420R versions are planned for *Providence & Worcester in both the as-delivered scheme and in the 1990s repaint.

**Note that all road names marked with an asterisk are conditional releases that will only be produced if minimum pre-order requirements are met.*



R. Bale

CPR HUDSON

Designed by Chief of Motive Power & Rolling Stock Henry Blane Bowen, Canadian Pacific's H1a and H1b class 4-6-4 Hudson locos were state-of-the-art steam power when delivered in 1929. A total of twenty locos were delivered in two batches of ten each. The first batch, numbers 2800-2809, were classified H1a. The second ten, numbers 2810-2819, were delivered in 1930 and were classified H1b. These locomotives were used on mainline passenger trains across the Canadian Pacific's system. Elegant in comparison with some American locomotives, the H1s were so successful that CP followed their design as the basis for its Royal Hudsons built some seven years later. All versions survived intact until the end of steam, with the first retirements not coming until 1957.



Rapido has announced plans to produce an HO scale model of the highly-regarded Canadian Pacific H1a/b class 4-6-4 Hudson steam locomotive. Rapido will offer the H1a/b Hudson detailed for several

different eras which will allow hobbyists to model the steamer at any point throughout the locomotive's life, including the preserved No. 2816.



Features on Rapido's Standard Hudson will include accurate

and complete piping, underbody and tender details, correct coal tenders for regular service units, correct oil tender for the post-restoration version of No. 2816, both early and later style of walkways, and smoke lifters on appropriately numbered models.

The lighting system (DCC controlled) will include headlight, classification lights, interior cab light, back up lights, and a flickering fire box. The locomotive requires a minimum track radius of 22 inches. Both DC/DCC/Sound and DC non-sound models will be available.



Variations in decorating schemes include as-delivered

with early walkway, with Spans the World slogan, and with CPR Beaver shield. Each of these paint schemes will be available with or without smoke lifters. No. 2816 excursion version will have ditch lights and an oil tender. The delivery schedule and deadline for ordering are TBA.



Rapido is in the final stages of preparing a new EMD GP38 diesel locomotive. Features on the all-new HO scale model will include straight metal side handrails with plastic stanchions, full underframe detail

including traction motor cables, air filters and separately-applied parts; road-specific battery box doors, detailed cab interior, correct fuel tank sizes per road number, and multiple styles of stepwells.



The lighting package will include operating headlights, rear lights, tri-color classification lights, and cab lights. Ditch lights and beacons will be available where appropriate to the prototype practice.



Paint schemes on Rapido's initial release will be Santa Fe (Yellow Warbonnet, with correct switcher-style steps, with and without classification lights), Baltimore & Ohio,

CSX (Grey; grey and blue scheme; and grey, blue and black scheme), Southern (high nose), Norfolk Southern (high nose, ditch lights), Penn Central, Conrail, Burlington Northern (Cascade Green), and BNSF.



Rapido's GP38 will be available for DC/DCC operation with an ESU LokSound decoder, and for analog DC operation with a 21-pin connector for installation of an aftermarket decoder. Order

deadline and delivery schedule are TBA.

Info: www.rapidotrains.com



Scale Trains has released another production run of its GATC 4180 cu. ft. Airslide covered hopper. The HO scale ready-to-run model replicates a

popular Airslide prototype built over a five year period beginning in 1969. All production units had gravity outlet gates. Models decorated for Brach's Candy and for Staley will have Apex steel walkways. American Maize cars will have a combination of Apex and Morton walkways.



Scale Trains' Rivet Counter model will be available with road specific details for seven paint schemes. Champion Spark

Plug car No. 47776 replicates a prototype built in 1977 with a Morton walkway. The four other Champion cars in this release represent prototypes built with Apex steel walkways in 1969.



GACX blue car No. 47754 has conspicuity strips and a Morton walkway. Other blue cars have Apex walkways. All of ScaleTrains.com's Airslide cars

decorated for Church & Dwight will have Morton walkways.



Features on all versions of the Rivet Counter model include ten round roof

hatches, metal grab irons and coupler cut levers, trainline hoses, underbody brake details including formed wire plumbing and brake rods, diecast metal Type E knuckle couplers, and Barber S-2 100-ton trucks with raised foundry data, 36" machined metal wheels, rotting bearing caps, and truck-mounted brake beams.



Scale Trains is booking reservations for a new production run of Conrail class G52X Bethgon coal gondolas.



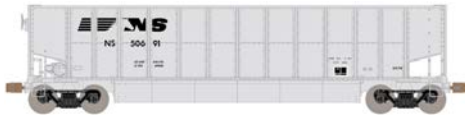
Conrail paint schemes for this release include grey and oxide red. Two different removable coal loads will be

available. The HO scale fully-detailed Rivet Counter model will be available in 24 new road numbers.



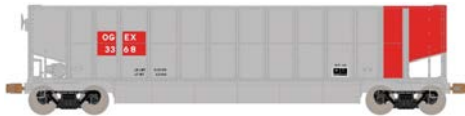
Scale Trains plans to release a second run of Operator series Bethgon coal gondolas in early summer. The deadline

for preordering is January 31, 2022.



To help keep costs down, Scale Trains Operator series have simplified printing and fewer factory-applied parts

than the pricier Rivet Counter models. For hobbyists wanting to add details at a future date, a super detail kit is available as a separate purchase.



Road names for the HO scale series model will be BNSF (Wedge scheme), Conrail, CSX (Black with yellow lettering),

Norfolk Southern (Horsehead scheme), AEPX-Kansas City Power & Light, and OGEX-Oklahoma Gas & Electric.

Info: www.scalettrains.com

Due to delays in the arrival of sourced parts, **Smoky Mountain Model Works** is able to extend the ordering cut-off date for a 12-post PS 5277 cu. ft. boxcar to January 31, 2022. As



Southern. These cars have never been available in HO scale.



announced in MRH last August, the specialized project involves a prototypically accurate HO scale model of an exterior post boxcar Pullman-Standard built in the early 1970s exclusively for Southern Railway and Norfolk

The kit will consist of a one-piece urethane body with a separate urethane underframe. Detail parts will include a 3D SLA printed brake system, separate door castings, Accurail truck frames, Kadee 33"

wheelsets, Kadee No. 158 Whisker couplers, and Mask Island decals. A mini-CD with detailed instructions and photos comes with the kit.

Info: smokymountainmodelworks.com



Sylvan Scale Models is booking reservations for a re-run of an HO scale kit for a CP Rail 52' 8" NSC 5300 cu. ft. boxcar with double plug doors. The model is based on a series of prototypes built in 1974 with many of the cars

remaining in service until 2012. Trucks and couplers are not included. Delivery is expected early this year, however, production of this kit is contingent on receiving sufficient reservations to justify the re-release.

Info: mesagkits@gmail.com



Walthers is working toward a June 2022 release date for a new production run of HO scale Mainline series EMD F7 A and B unit diesel

locomotives. The Mainline models have the same drive system as Walther's top of the line Proto models.



Road names in this release include Amtrak, Santa Fe, and Baltimore & Ohio.



Additional road names are Chicago & North Western, Denver & Rio Grande Western, Northern Pacific, Penn Central and Soo Line. Each road name will be available for basic DC operation and with ESU sound and DCC.



Walthers has scheduled a February release date for a new group of eight 85' Budd passenger cars.



The HO scale models will have tinted window glazing, 36" machined metal wheelsets, and Proto MAX metal couplers. Drill starter points for grab irons are molded into the car body making it easier for hobbyists wanting to add details to the cars. Exterior detail kits and LED interior lighting kits are available as a separate purchase.

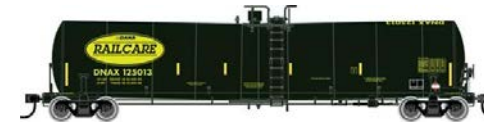


Car types available in this release include an

RPO, baggage/lounge, small window coach, large window coach, dome coach, diner, 10-6 sleeper, and observation car.



Road names will be Amtrak Phase 1, Denver & Rio Grande Western, Great Northern, and Northern Pacific. Each body type will also be available painted silver without lettering.



Walthers is quoting an August release date for a group of Trinity 25,000 gallon tank cars. The HO

scale model is based on a prototype introduced by Trinity in the mid-2000s.



Decorating schemes scheduled for this release include ADMX-Archer-Daniels-Midland, DPRX-PBF

Holding Co., CHSX-Cenix Harvest States Co-Operative, DNAX-Dana Transportation, NATX-North American Tank Car Line, PRTX-Interstate Asphalt, GATX-GATX Corporation, and TILX-Trinity Industries Leasing.



Notable details include a protective top filling housing for the hatch, and a pressure relief valve. The underbody

has wire safety rails, a skid protected bottom outlet valve, steam inlet and outlet, and full brake equipment including cylinder, rods, and train line. Additional features include Proto MAX metal knuckle couplers and 100-ton trucks with 36" machined metal wheelsets.

Info: www.walthers.com



N SCALE PRODUCT NEWS



R. Bale

SANTA FE NO. 1 AND 1A

In the mid-1930s, the Santa Fe Railway initiated a project to upgrade The Chief, its premier heavyweight train that operated daily between Chicago and Los Angeles. Early decisions included the use of modern lightweight stainless steel cars that would be pulled by a diesel powered locomotive. An order for a twin-unit diesel went to EMC, which at that time was primarily a design and concept company rather than an actual builder of locomotives. Under a contract from EMC, the St. Louis Car Company built the two units, equipping each of them with 900 hp 12-cylinder Winton 20-A diesel engines. Traction motors and electrical controls came from General Electric. The two units were delivered with shrouding around their trucks, which was soon removed because the bearings on the trucks tended to run hot. Inaugurated on May 12, 1936, Santa Fe's new Super Chief was successfully handled from Chicago to Los Angeles by the revolutionary diesel locomotives No. 1 and 1A.

N SCALE PRODUCT NEWS



ATSF N Scale Models has a 3D body shell and other components needed to

create the Santa Fe's first diesel electric locomotive. The prototype was developed by EMC to pull the Santa Fe's extra-fare Super Chief. Two locomotives, numbered 1 and 1A, were completed in 1935.



The body shell is designed to be adapted to an extensively modified Atlas or Kato chassis.

Info: www.atsfnscalemodels.com



InterMountain Railway Company has released Fox Valley N scale bi-level auto racks and trailer

combinations in 16 road names.



Bi-level auto racks mounted on TTGX flatcars are available for Southern Railway,

Western Pacific, Kansas City Southern, Conrail, BNSF (small logo), CSX, Transportación Ferroviaria Mexicana, and two Union Pacific versions.



Bi-level auto racks mounted on home flatcars will be available for Grand Trunk Western,

Providence & Worcester, Ferromex, BNSF, Canadian National, and CP Rail.



All versions of the N scale model feature etched-metal see-thru anti-vandal side panels, Micro-Trains trucks and couplers, and InterMountain 33" metal wheelsets.

Info: www.intermountain-railway.com



Jacksonville Terminal Company (JTC) has released several new N scale containers. Fifty-three foot high cube 8-55-8 and 6-42-6 corrugated containers are

available for CP Rail, EMP, EMP ex HUB patch, EMP ex Pacer, Amazon, PacerStacktrain, and FEC.



Twenty foot containers are available for MSC, ONE, Hapag-Lloyd, CMA CGM, and Maersk.



A new sign side 20' corrugated computer is part of the Visionary Series, decorated for Jewels Reptile Foods, featuring a gecko graphic. JTC is inviting customers to submit

photos of their pets for future Visionary Series containers.
Info: jtcmodeltrains.com



New releases from **Micro-Trains** include this Chicago & North Western 10-1-2 Pullman sleeper.



This new N scale 50' Tidewater Southern boxcar represents a prototype built in 1955 by Pullman-Standard.



Micro-Trains N scale version of this AT&SF tank car is based on a car built in the 1950s that was retired from revenue

service in the 1980s. After shopping the tanker, Santa Fe assigned it to water service in Barstow, CA.



This 40' Jade Green NYC boxcar is based on a 1945 prototype that was later shopped to cut down its ladders and remove the running board.



Concluding our report on new Micro-Trains releases is this pre-weathered 50' C&O 2970 cu. ft. Airslide hopper that has been patched for CSXT.

Info: Contact a dealer.



R. Bale

L&N PAN AMERICAN

The Pan American was a name passenger train operated by the Louisville & Nashville Railroad between Cincinnati and New Orleans. The Pan American operated continuously from 1921 to 1971 and served as the L&N's flagship train until the introduction of the Humming Bird in 1946. The Pan American name honored the substantial traffic the L&N carried to and from the seaports of the Gulf of Mexico. The Pan American proved popular with the traveling public, and in 1925 it was re-equipped as an all-Pullman consist with no coaches. The economic pressures of the Great Depression forced the Pan American to start carrying coaches again in 1933. Although never fully streamlined, the Pan American began receiving some lightweight streamlined equipment in 1949. Amtrak did not retain service over the L&N route, and the Pan American ended on April 30, 1971.



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[INDEX](#)

[TABLE OF CONTENTS](#)

MRHMAG.COM

[INDEX](#)

[TABLE OF CONTENTS](#)



New N scale passenger equipment under development by **Rail Smith** includes two lightweight, ten roomette/six-bedroom sleepers decorated in blue and gold for the Louisville & Nashville Railway. The cars, *Barren River* and *Kentucky River*, were assigned to the Pan American, L&N's flagship train. Reservations are being booked now with a release date scheduled for the second quarter of 2022. Info: www.lowellsmith.net



Scale Trains is booking orders now for a Gunderson 5188 cu. ft. covered hopper scheduled for release in July 2022. The N scale

Rivet Counter model will be available in four different road number specific body styles, two different hatch types, and three different outlet gate options,



Road names will include Union Pacific, CMO/GATX, NOKL, and SOXX patch on an ex-BNSF car.



In addition to the black and red Belle scheme shown here, Kansas City Southern cars will be available in gray, and in gray with a red logo.



Five BNSF paint schemes will be available including a BNSF Railway standard paint job and a BNSF car showing horizontal ribs.

BNSF Railway heritage schemes will be available for Santa Fe, Great Northern, and Fort Worth & Denver.

Info: www.scalettrains.com



Spring Creek Model Trains is selling a Rock Island bi-level auto rack. The N scale car is a Fox Valley model produced exclusively for

Spring Creek. Six road numbers are available. The model features etched-metal see-thru anti-vandal side panels, Micro-Trains trucks and couplers, and InterMountain 33" metal wheelsets.

Info: www.springcreekmodeltrains.com



R. Bale

FORD C-SERIES TRUCK

The Ford C-series is a range of cab-over-engine (COE) trucks built by Ford Motor Company between 1957 and 1990. Produced for 33 years nearly unchanged as both a straight/rigid truck and a tractor, the C-series was the longest-produced commercial truck in North America at the time of its withdrawal in 1990. The C-series was also used as a basis for fire apparatus vehicles.

NEW STRUCTURES & SCENIC SUPPLIES



Future vehicles coming from **Athearn** includes a group of 1:87th scale Ford C-series tractors with a matching 28' trailer.



Decorating schemes include Roadway, Roadway Express, PIE, Hostess Cake, ANR Freight System, and United Parcel Service. An all-white



REGISTER
(free)

[INDEX](#)

[TABLE OF CONTENTS](#)

MRHMAG.COM

[INDEX](#)

[TABLE OF CONTENTS](#)

Owner Operator set will also be offered. Availability is planned for February 2023.



Additional 1:87th scale vehicles due from Athearn early next year include a generic four-door sedan from the 1950s. The models will

have a fully modeled interior with a separately applied steering wheel, clear windows and rubber tires. In addition to a yellow Downtown Taxi, the sedan will be available decorated for City Cab in blue and yellow, and in a black & white police scheme.



Models will also be available in plain red, pink, and yellow. A police beacon or roof top taxi sign will be applied on appropriate models.

Info: www.athearn.com



Custom Model Railroads has released an N scale City Station kit. The Beaux-arts style structure features art glass and a wrought iron canopy. The large urban railroad station can be used as stand-alone structure or in conjunction with

the City Station Concourse which is available as a separate kit.



The principal components of the kits are laser-cut acrylic parts and engraved stonework. The HO scale versions announced early last year continue to be available.

Info: custommodelrailroads.com



Frenchman River Model Works has introduced a group of 1:48 scale kits that make up the Aultman Miller Machine Shop complex. Designed by Thomas Yorke, the various components can be purchased as a group or individually. The central structure is a

corrugated metal building that can serve as a machine shop, repair shop or any small industrial enterprise.



Additional components include a large round fuel tank, an elevated square water tank, a vertical boiler, two coal barrels, a detailed roof vent, and a pair of

1930s-50s era gas pumps with individual hoses and decals.



The items are composed of unpainted cast resin.

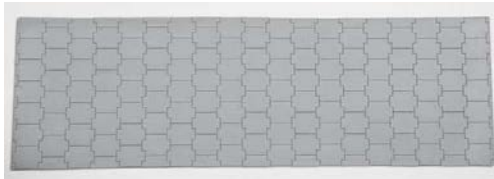
Info: frenchmanriver.com



Chooch Division of Walthers has released several new HO scale scenic items molded in flexible vinyl. They include a selection of small,

medium, and large stone wall arches, abutments, and stone trim. The material can be cut, trimmed, and bent to fit irregular surfaces. It accepts water-based acrylic paint.

NEW DECALS, SIGNS AND FINISHING PRODUCTS | 30



Additional items scheduled for release next month include walls in a cruciform concrete pattern.



Loads for open freight cars are scheduled for release in April. Medium and large loads will be available for stone rip rap, industrial

junk, scrap metal, and distressed concrete.

Info: www.walthers.com

NEW DECALS, SIGNS AND FINISHING PRODUCTS



Mask Island has released a new HO scale decal set for decorating a Pullman-Standard PS-1 boxcar for the American Armed Forces. The decal set includes material for decorating a car for the US Army, Air Force, Navy, and Marines.

Info: www.maskislanddecals.com



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[INDEX](#)

[TABLE OF CONTENTS](#)

MRHMAG.COM

[INDEX](#)

[TABLE OF CONTENTS](#)

! BRIEFLY NOTED AT PRESS TIME ...

Bowser has Alco RS-3 Phase 3 diesels for Pennsylvania and Western Maryland. Both DC and DCC versions of the HO scale locomotive are available ...

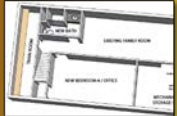
Micro-Trains has released to dealers an N scale 83' Tuscan red Pennsylvania heavyweight business car that has been upgraded with mechanical air conditioning ...

Walthers expects to have a Mainline series 57' mechanical reefer with a 9' Youngstown plug door ready for shipment next month. Single and five-unit sets of Thrall 40' well-cars are due in March to be followed in August by an EMD SW7 switch engine in seven popular road names ... ■



in the **JANUARY 2021 MRH RUNNING EXTRA!**

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SELECTED EVENTS



Model Railroad Hobbyist | January 2022

JANUARY

Due to COVID-19 restrictions, please check with any organization hosting an in-person event for the latest status of the event.

Ongoing from 2021

ONLINE, Zoom, dates vary, see website. Operation Special Interest Group Meetups – limited attendance available.

Info: www.opsig.org/Virtual

Archive: www.opsig.org/Virtual/Past

ONLINE, Zoom & YouTube, Wednesday & Saturday. “New Tracks” Meetup, hosted by Jim Kellow, MMR.

Info: newtracksmodeling.com

ONLINE, Facebook & YouTube, dates vary, see Facebook page. “NMRax” organized by Gordy Robinson, Martyn Jenkins, Gert Muller, Jordan Kramer.

Info: www.facebook.com/groups/nmragroup

ONLINE, YouTube, every other Saturday. 4th Division, Pacific Northwest Region, NMRA hosts online layout tours and clinics.

Archive: www.youtube.com/c/4DPNRMovies

ONLINE, Zoom, Second Tuesdays, 8pm EST. “Off the Beaten Track” featuring Narrow Gauge layouts, clinics and manufacturers.

Info: groups.io/g/NGG



REGISTER
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[INDEX](#)

[TABLE OF CONTENTS](#)

MRHMAG.COM

[INDEX](#)

[TABLE OF CONTENTS](#)

AROUND THE USA, IN-PERSON, Various dates.
ScaleTrains.com Road Trip.
Info: www.scaletrains.com/roadtrip

January - February 2022

CALIFORNIA, SANTA CLARA - ONLINE, Zoom/Livestream, February 5-6, 2022, 2022 Bay PCR/SIG Meet. Virtual layout tours with owner interaction Saturday, Live, Zoom, and Livestream Clinics on Sunday. Live location: South Bay Historical Railroad Society/Santa Clara Depot, 1005 Railroad Ave.
Info: www.eventbrite.com/e/sig-meet-virtual-saturday-25-and-in-person-sunday-26-tickets-229930206437

FLORIDA, PALMETTO, February 19-20, 2022, 43rd Annual RealRail Model Train Show, hosted by RealRail: The Railroad Education and Learning Center of Florida. Bradenton Area Convention Center, 1 Hazen Blvd.
Info: realrail.org/upcoming-events/rail-pass

MASSACHUSETTS, WEST SPRINGFIELD, January 29-30, 2022. Railroad Hobby Show sponsored by the Amherst Railway Society. Eastern States Exposition Fairgrounds, 1305 Memorial Avenue.
Info: www.railroadhobbyshow.com

MISSOURI, ST. CHARLES, January 29-30, 2022. Great Train Show. Saint Charles Convention Center.
Info: www.trainshow.com

OHIO, COLUMBUS, January 15-16, 2022. Great Train Show. Ohio Expo Center.
Info: www.trainshow.com

TEXAS, PASADENA (HOUSTON AREA), February 12, 2022, The Greater Houston Train Show, presented by the San Jacinto Model Railroad Club. Pasadena Convention Center, 7902 Fairmount Parkway.
Info: sanjacmodeltrains.org

TEXAS, PLANO (DALLAS AREA), January 15-16, 2022. Dallas Area Train Show, sponsored by the North Texas Council of Railroad Clubs. Plano Centre, 2000 East Spring Creek Parkway.
Info: www.dfwtrainshows.com

VIRGINIA, RICHMOND, January 22-23, 2022. Greenberg's Great Train & Toy Show. Richmond Raceway Complex.
Info: www.trainshow.com

VIRGINIA, VIRGINIA BEACH, January 15-16, 2022. Greenberg's Great Train & Toy Show. Virginia Beach Convention Center.
Info: www.trainshow.com

WASHINGTON, PUYALLUP, January 22-23, 2022. Great Train Show. Washington State Fairgrounds, 110 9th Ave SW.
Info: www.trainshow.com

WISCONSIN, MADISON, February 19-20, 2022. Mad City Model Railroad Show and Sale. Exhibition Hall, Alliant Energy Center, 1919 Alliant Energy Center Way.
Info: www.nmra-scwd.org

Future 2022-2023 by location

NEW ZEALAND, CHRISTCHURCH, April 15-18, 2022. Back on Track National Model Railway Convention 2022. St. Andrews College, 347 Papanui Rd.
Info: www.modelrailcon.nz

NEW ZEALAND, DUNEDIN, 7-8 May 2022, Dunedin Model Train Show. Taieri Bowling Club, 12 Wickliffe Street, Mosgiel.
Info: dunedinmodeltrainshow@gmail.com

CALIFORNIA, ROHNERT PARK, April 21-24, 2022. Return to the Redwoods, Pacific Coast Region NMRA Convention. Doubletree by Hilton Hotel Sonoma Wine Country, One Doubletree Drive.
Info: www.pcrnmra.org/conv2022

CALIFORNIA, SANTA CLARA, May 26-28, 2022, O scale - S scale - Narrow Gauge West. Hyatt Regency Hotel, 5101 Great America Parkway.
Info: www.oscalewest.com

SELECTED EVENTS | 35

COLORADO, DENVER, April 2-3, 2022, Rocky Mountain Train Show – Spring 2022. National Western Complex, 4655 Humboldt St.

Info: rockymountaintrainshow.com

COLORADO, LAKEWOOD, June 2-5, (Proposed) Sn3 Symposium. Sheraton Denver West, 360 Union Boulevard.

Info: groups.io/g/NNG/topic/87954737#1335

GEORGIA, CARTERSVILLE, March 12-13, 2022. Piedmont Division 2022 Model Train Show. Clarence Brown Conference Center, 5450 GA Hwy 20.

Info: www.themodeltrainshow.com

GEORGIA, SAVANNAH, March 25-26, 2022. Savannah Prototype Modeler's Meet. Southside Assembly of God, 401 Tibet Ave.

Info: www.savannahrpm.com

ILLINOIS, URBANA, March 26-27, 2022, Lincoln Square Train Show, sponsored by the Illinois Terminal Division, NMRA. Lincoln Square Village, 100 W High St.

Info: itd.illinoisterminaldivision.org/show/show.htm

INDIANA, INDIANAPOLIS, May 18-23, 2022. Indy Junction 2022, the Midwest, Mid-Central, and North Central Regions NMRA Convention. Indianapolis Marriott East, 7202 East 21st Street.

Info: www.indyjunction2022.org

MASSACHUSETTS, ORLEANS, December 18th, 2021, Nauset Model Railroad Club Open House. Rear of Hiltop Plaza, 180 Route 6A.

Info: www.nausetmodelrrclub.com

MISSOURI, St. LOUIS, August 7-14, 2022, NMRA National Convention and National Train Show. St. Louis Marriott Grand Hotel, 800 Washington Avenue.

Info: gateway2022.org

OKLAHOMA, TULSA, March 18-20, 2022, Layout, Design, Operation Weekend (LDOP), sponsored by the Indian Nations Division of the NMRA. Akdar Shrine Center, 2808 S Sheridan Road.

Info: www.tulsanmra.org

SELECTED EVENTS | 36

OREGON, CORVALLIS, March 19-20, 2022. Winterail 2022, Railroad photography exposition and collectables sale. Corvallis High School, 1400 NW Buchanan Avenue.

Info: www.winterail.com

OREGON, ELSIE, April 2, 2022. 2022 Pacific Model Loggers' Congress. Camp 18 Restaurant & Museum, 42362 Highway 26.

Info: pacificmodelloggerscongress.org

OREGON, EUGENE, May 10-14, 2022. PNR 2022 Regional Convention, Valley River Inn.

Info: pnr.nmra.org/1div/Eugene2020/home.htm

OREGON, PORTLAND, March 12, 2022, Willamette Model Railroad Club 2022 Model Railroad Swap Meet. Kliever Armory, 10000 NE 33rd Dr.

Info: wmrrc.com

PENNSYLVANIA, HARRISBURG, June 10-11, 2022, 2022 Harrisburg Narrow O Summer Meet. New Hope Church, 584 Colonial Club Drive.

Info: www.facebook.com/modelingevents

PENNSYLVANIA, MALVERN, March 24-27, 2022, Valley Forge Railroad Prototype Modelers 2022. Desmond Malvern Conference Center.

Info: www.rpmvalleyforge.com

TENNESSEE, NASHVILLE, June 15-19, 2022 28th Annual National N Scale Convention, Sheraton Music City, 777 McGavock Pike.

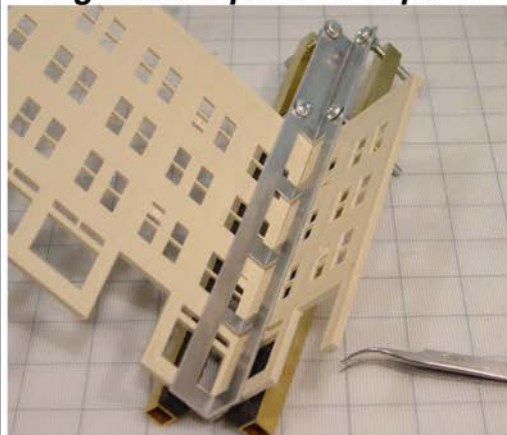
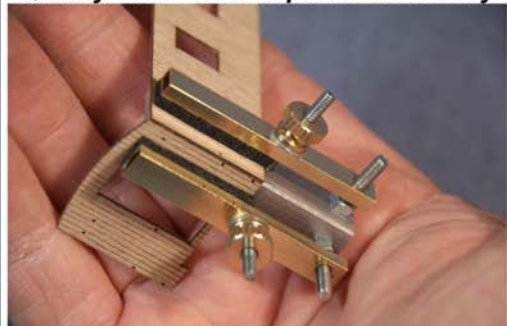
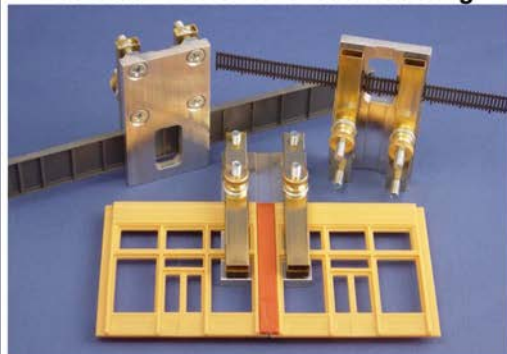
Info: www.nationalscaleconvention.com

TEXAS, GRAPEVINE (Dallas Area), Summer 2023, NMRA National Convention, Gaylord Texan Resort & Convention Center, 1501 Gaylord Trail.

Info: www.2023texasexpress.com

WASHINGTON, SPOKANE, March 6, 2022, Model Train Show, presented by The River City Modelers Train Club. Spokane County Fair & Expo Center, Buildings A, B, & C, Gate G-404 North Havana.

Info: www.rivercitymodelers.org/rcm-train-show-info.html

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WASHINGTON, TACOMA,
September 1-4, 2022. 42nd
National Narrow-Gauge
Convention, Hotel Murano,
1320 Broadway.

Info: www.seattlenngc.com

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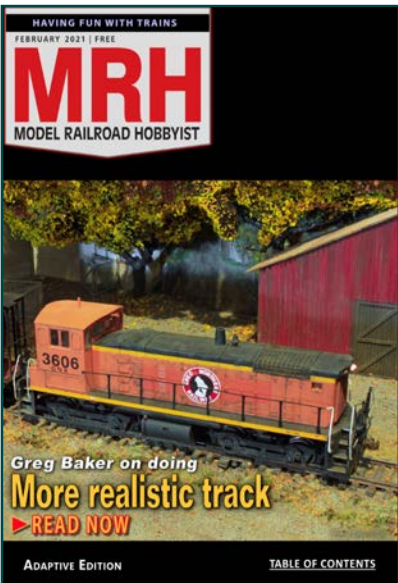
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