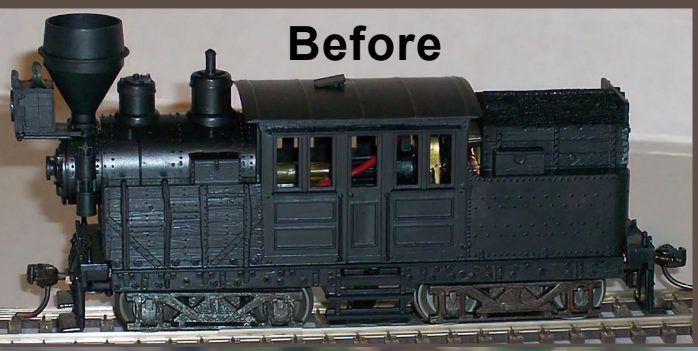
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Apprentice with savvy modelers

Jeff Palmer does a



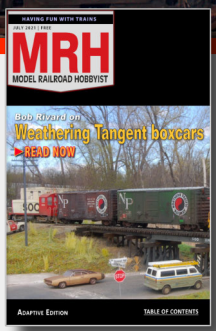
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(4-part series)

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- A look at Pennsylvania 2-10-2s
- Redoing a layout scenic eyesore
- Track plan with *moving* trains
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RUNNING EXTRA

Publisher's Welcome: Diesel locomotive tuning trick
JOE FUGATE



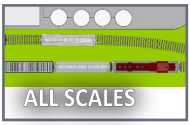
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Getting Real: From eyesore to scenic masterpiece
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JEFF PALMER



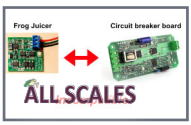
A track plan with moving trains
FERNANDO BELLINI



The secret to a more satisfying layout
JOE FUGATE



Pin wash weathering
ERIC HANSMANN



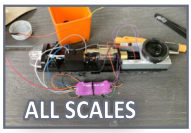
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PUBLISHER'S WELCOME



introduction

JOE FUGATE SHOWS A DIESEL LOCOMOTIVE MECHANISM TUNING TRICK ...

RATE THIS ARTICLE

IF YOUR DIESEL LOCOMOTIVE BUCKS OR LURCHES WHEN GOING DOWNHILL, then your loco has a worm gear with too much back-and-forth slop [1]. To fix the problem, we need to add thrust washers to eliminate the slop. Here's how.

With the loco shell off, pop the gear tower clip off with a small screwdriver [2]. Remove the clip slowly with gentle pressure – and be ready to catch the clip if it tries to go flying across the room!

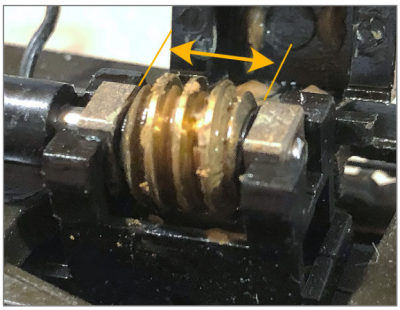
Test the worm gear back-and-forth play by pressing on the shaft. Most likely you will see excess play. Time to add a thrust washer.

I remove the worm gear and take off the end block [3]. There may already be a thrust washer on the worm, but we need to add more.

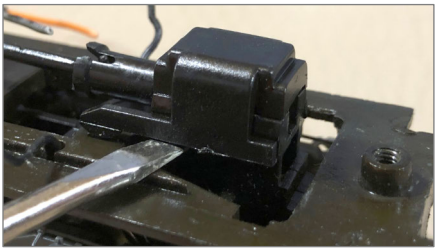
I like Kadee truck washers, the red and gray fiber ones [4]. Because they come in 0.010″ and 0.015″ thicknesses, we can get just the thickness we need.

After applying the washer, add the end block back on and reseat the worm gear. Check that most of the slop has been removed and that the worm still turns freely. We don't want things so tight the worm will struggle to turn freely. That's it!

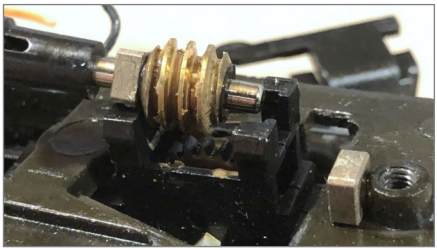
There's also tiny metal washers [6], but finding thin small ones can be tough.



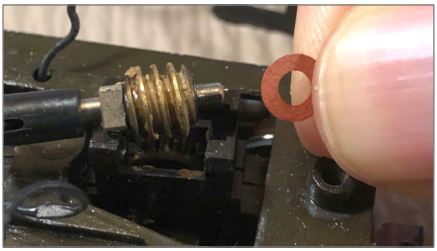
1. If the worm in your loco has extra back and forth slop, your loco will buck going downhill.



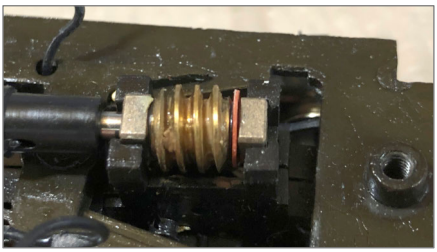
2. Pop the gear tower clip off using a small screwdriver.



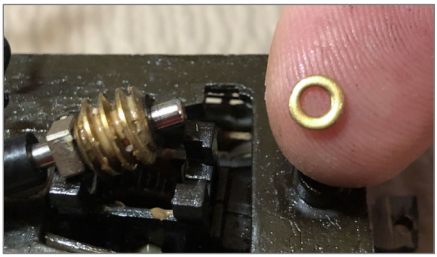
3. Remove the worm gear and take off the end block.



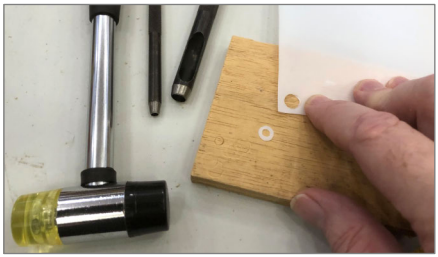
4. Apply a thin washer to the end of the worm shaft (Kadee washer here).



5. Add the end block back on and reseat the worm. Check worm now.



6. Tiny metal washers also work, but they're often too thick. In that case, I just use Kadee fiber washers.



7. You can also make your own thrush washers using Teflon PTFE sheet and some round punches.

You can also make thrust washers out of Teflon PTFE sheet and some round punches [7]. PTFE sheet comes in many thicknesses.

Check out the shopping links to get your desired thrust washers! ☑

To get a shopping list for this article, visit the *MRH* website at this link: mrhmag.com/magazine/running-extra/2021-07/publishers-welcome#shopping

THE LIMITED MODELER

column



Images are from the author's collection, except as noted.

Jim Six tells us about Pennsylvania N-class 2-10-2s ...

VIEW READER COMMENTS



1. PRR 7128, a class N1s, rests at Logansport, Indiana circa 1941. It is in the as-built configuration, with the centered headlight and bell top-center of the smokebox front and a large air tank atop the pilot. *Barriger collection*

DOING MORE WITH LESS

THE ATCHISON, Topeka, and Santa Fe found the tractive effort of 2-10-0 decapods made them powerful pushers on Raton Pass, but with no turnaround facilities at the summit, crews had to back the decapods down the pass for their next assignment. This presented some serious tracking problems on the line's sharp curves. Without the guidance of the front wheels, the 10 drivers would derail at any speed beyond a crawl.

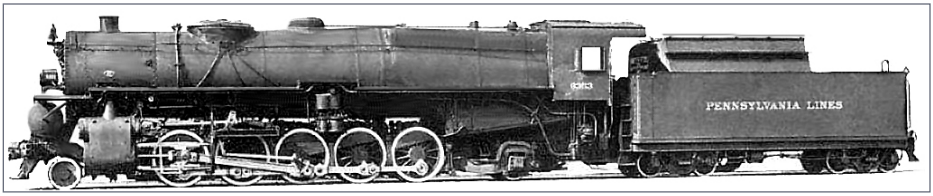
In 1903, the Santa Fe requested that Baldwin Locomotive Works fit the next two decapods on order with a trailing truck to help guide the drivers through the curves in reverse. The 2-10-2 Santa Fe type was born.

Not only did the design allow the locomotives to travel more safely in reverse, but the trailing truck allowed a larger firebox, which made for a more powerful locomotive. Even though the locomotives were relatively slow – they operated at about 35 mph – the design was so successful that American railroads ordered about 2,200 of the Santa Fe types by the time the last 2-10-2 was produced in1930.

When the Pennsylvania was looking for power to move heavy coal and ore drags on its Lines West (as the railroad designated its lines west of Pittsburgh) between Lake Erie port facilities to heavy industry in the lower great lakes region, the 2-10-2 proved a good fit. The Pennsylvania ordered 60 Santa Fe types for their N1s class, with 35 units from Alco and 25 from Baldwin. By the time the locomotives were delivered, from 1918 to 1919, the Pennsy was under USRA control.

Pennsylvania Railroad steam locomotives had a distinctive set of features, with their Belpaire fireboxes, unique front end treatment, and typically small cabs. While no one of these features was exclusive to the Pennsylvania, the combination PRR used set their locomotives apart.

The N1s's were big locomotives, with boilers and Belpaire fireboxes larger than any non-experimental PRR power at the



2. PRR 8363 is an as-built class N1s locomotive, with headlight centered on the smokebox front and bell on the upper face of the smokebox. This was the typical configuration for locomotives of the Lines West at the time it was built in 1918. The generator was atop the firebox. There was also no wind deflector atop the back of the cab roof. Compare with photo [3].



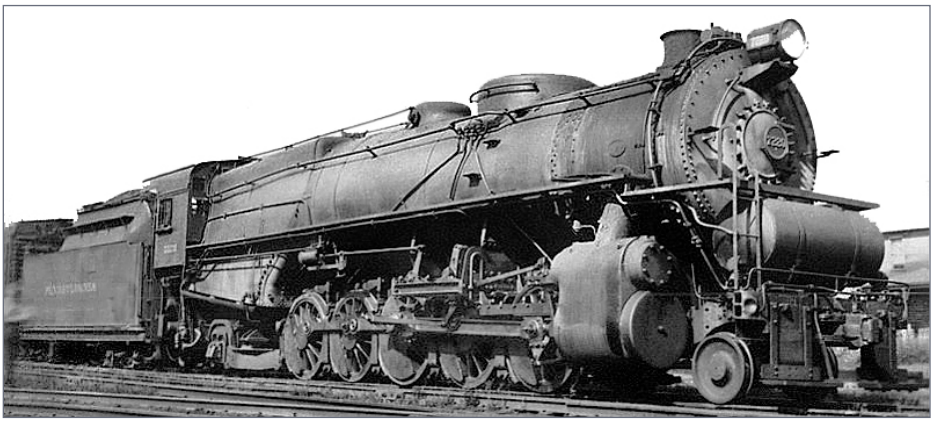
3. PRR N1s 7345 is a Pennsy designed 2-10-2 locomotive that was designed for hauling coal and iron ore drag freights from the Lake Erie ports to heavy industry throughout the Ohio and Pennsylvania area. It was all Pennsy, including the ugly little cab and “Crawford Hood” tender.



4. The engineer’s side is clean and with a minimum of plumbing hung on the locomotive. While the “Crawford” hood tenders were not exclusive to Lines West (of Pittsburgh), it was most common on Lines West. Note the lack of a doghouse on the tender.



5. PRR N1s no. 7246 rests at Youngstown, Ohio sometime during the 1920s or 1930s. Note the class lights on the smokebox. The locomotive likely hauled coal north to Ashtabula Harbor and iron ore south to the steel mills at Youngstown.



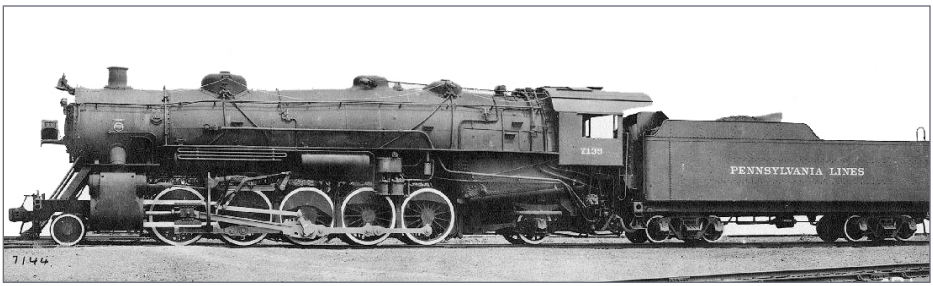
6. PRR 7229 is an N1s 2-10-2. The large air tank on the pilot is a spotting feature of these locomotives. The Crawford hood tender is a Lines West feature. These locomotives were designed by the PRR folks in Ft. Wayne, Indiana. *Ray Breyer collection*

time. In order to negotiate the line's 23-degree curves, the railroad fitted the first and fifth driving axles with lateral motion devices, and used blind drivers on the center axle.

The Pennsylvania may well have built more N1s locomotives but for the coming of World War I and federalization under the United States Railroad Administration (USRA). When the USRA took control of the railroads across America, it halted the production of the N1s and standardized production with USRA-designed 2-10-2s, assigning 130 of the type to the Pennsylvania.

The USRA 2-10-2 locomotives arrived in 1919, and Pennsy classified them as N2s. They were standard USRA design, looking much like a longer version of the USRA 2-8-2.

It is interesting that the Pennsylvania ordered so many 2-10-2 locomotives – 190 in all – at a time when the slow drag freight was losing out to fast freight service on most American railroads. However, the Pennsy was heavily invested in coal and ore drag freights, and the 2-10-2 was ideal for such 35 mph trains. These trains operated between Lake Erie and the Mahoning Valley (Youngstown) and the Monongahela Valley (Pittsburgh).



7. This December 1918 builder's photo shows PRR 7139, one of 130 2-10-2 locomotives the USRA assigned to the Pennsylvania Railroad. Pennsy designated them as the N2s class. Their USRA design looked out of place on the Pennsy. *Ray Breyer collection*

The Pennsylvania Railroad was used to designing locomotives according to its own specs, and was not pleased with the standardized designs the USRA assigned it. The railroad could not easily pass its 130 USRA 2-10-2s to other railroads at a time when railroads were hungry for faster power, and they were too big of an investment to scrap. The Pennsy's engineering department set about determining how to rebuild the N2s class locomotives to bring them closer to Pennsy specs as soon as the USRA relinquished control in 1920.

In 1923, the railroad initiated a five-year program to rebuild all 130 N2s locomotives into what became the N2sa class. Changes included a Belpaire firebox, PRR-standard smokebox front, raised front headlight, and relocated the bell from the smokebox to the top of the boiler. Changes to the tender included adding a brakemen's "doghouse" behind the coal bunker and moving the reverse headlight to the top of the tender.

From its 10-coupled drivers to its large boiler, the N2sa was a brute. It lacked the huge tenders that many newer Pennsy locomotives had, although the railroad retrofitted at least one – the 7962 – with a "long haul" tender during or shortly after WWII.

Referring to photos [3, 4, 6, 8-13] notice that the name PENNSYLVANIA on the tender sides is compressed with the



8. PRR 8229 N2s appears as built in this photo. Compare it to photos of the USRA Mikados featured in the March "Limited Modeler" article, and you will see a definite family look. Simple, functional, clean lines, and the standard USRA tender define this locomotive. *Ray Breyer collection*

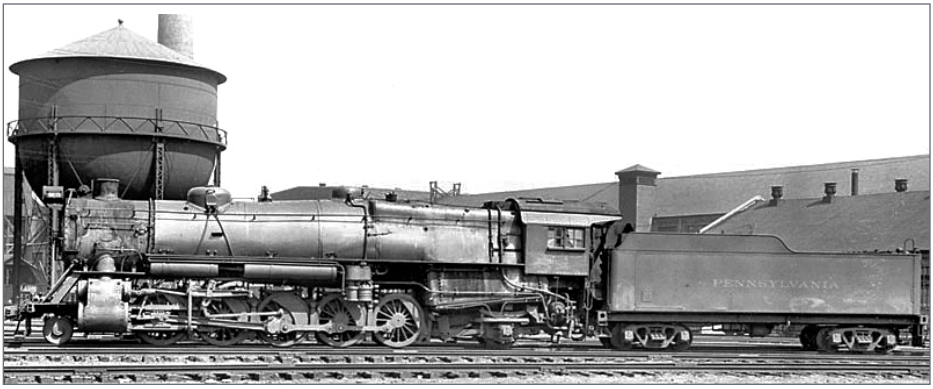
letters close together, which was standard script before 1946. Photos [14, 15, 17, 18] show the railroad name with wider-spaced lettering, which came to replace the narrower script after 1946.

The PRR retired all locomotives of the N1s class by 1950. The railroad began retiring the locomotives of the N2sa class in 1947, with the final locomotive retired in 1953. While the N2sa was not really a Pennsylvania-designed locomotive, it proved to be good for its purpose and earned the railroad's respect.

In addition to their prowess in hauling coal and ore drags from Lake Erie, the PRR N2s and N2sa class proved useful on the relatively light rails of the former Grand Rapids & Indiana.



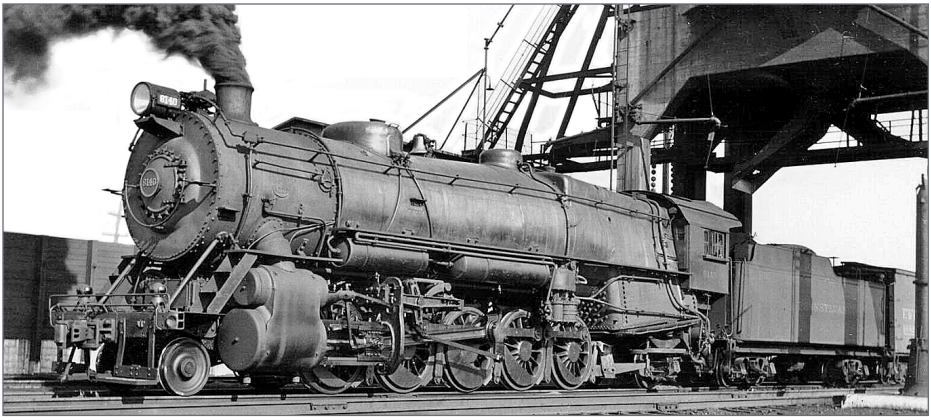
9. PRR 8162 class N2sa was at South Bend, Indiana in 1935. Note the Belpaire firebox and standard PRR smokebox front with raised headlight. The USRA tender is small compared to the locomotive and is still in its original form. There is no doghouse on the tender deck, and the rear headlight has not been moved to the top of the tender deck yet. Despite the USRA cab, this locomotive looks like many other Pennsy locomotives. *Ray Breyer collection*



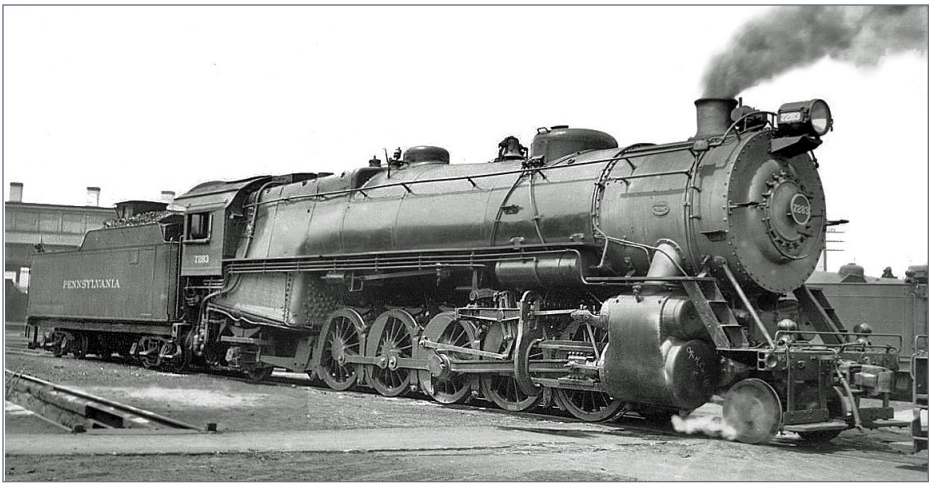
10. A fireman's-side profile of an N2sa basking in the sunlight. It is long, uncluttered with plumbing, and nicely proportioned. It's truly a classic. The narrow spacing of the Pennsylvania road name in this photo likely indicates that it was from 1946 or earlier.



11. This is the engineer's side of PRR 7962. There is a doghouse on the tender in this view, so the photo must have been taken at a later date than 1935, as in photo [3]. Pennsy N2sa locomotives had clean lines, without plumbing all over the place. *Ray Breyer collection*



12. An early photo of PRR 8140. It still lacks a doghouse atop the tender, and is relatively clean as it backs under the coaling tower for a fresh load of coal. Except for its USRA cab, the locomotive looks like most any class or Pennsy steam locomotive. *Ray Breyer collection*



13. PRR N2sa 7283 at Urbana, Ohio in 1942. The tender sports a doghouse but has no coal bunker extension, and the lettering on the side is of the condensed script applied until 1946.
Ray Breyer collection



14. Pennsy 7962 sports a Pennsy “long haul” tender in place of its USRA tender in this 1946 photo from Chicago in 1946. This was not common of the N2sa locomotives. *Ray Breyer collection*



15. PRR 7036 at Delray, Michigan in 1948, is typical of the post-WWII N2sa class of locomotives. The original USRA tender has coal bunker extensions, as was typical for N2sa locos. The broader script in the tender indicates that it must have been re-lettered sometime after 1946. *Ray Breyer collection*



16. This photo shows an unusually configured N2sa locomotive leading a long southbound freight near Vicksburg, Michigan in 1948. The locomotive features a keystone shield centered on the smokebox front, and a cowcatcher type pilot, both more commonly associated with passenger locomotives. *Ray Breyer collection*



17. This rare color photo shows PRR N2sa 8015 at about 1950, near the end of its service life. This N2sa is looking tired, dirty, and rusty, but ready to work with a full load of coal in the tender.



18. This color image shows an N2sa locomotive in a double-header sometime after WWII. *Ray Breyer collection*

Not only did the 10-coupled drivers make for excellent tractive effort, but they also provided good weight distribution that enabled the Santa Fe types to negotiate the light rails of the GR&I.

MODELING THE PENNSYLVANIA N1S, N2S, AND N2SA LOCOMOTIVES

A variety of brass manufacturers have produced models of the N1s, and several importers have made them available in the



19. This Samhongsa (GEM) model is a good representation of the N1s prototype, even if it could use more detail. This particular model recently sold for the bargain price of $175. Professional DCC and sound installation would add nearly $400 to the cost of the model. With a professional paint job costing at least $250, the bargain price of $175 jumps to $825 for a finished model. *brasstrains.com photo*



20. Here is another brass Pennsy N1s from Challenger Imports. It is nicely painted and recently sold for $1050, and it does not have DCC or sound! The wide lettering on the tender dates the locomotive 1946 or later. *brasstrains.com photo*

United States [19, 20]. The catch is that brass is expensive, no matter how you go about it. Still, it's the only option available for the N1s so far.

A while ago, Walthers produced the USRA 2-10-2 as part of its Proto2K Heritage Collection, including a model painted for the Pennsylvania [21]. The model is an accurately detailed and



21. This is the Walthers Proto 2000 USRA 2-10-2. It was offered painted for the Pennsylvania with the narrow lettering on the tender which makes it accurate for an as-delivered prototype. While out of production, you can find this model for sale online. It is a very good model that runs well, is faithful to its prototype, and is well-detailed. *Walthers photo*

well-running, and is the most affordable option. It provides good representation of a N2s locomotive as delivered in 1918, though the Pennsylvania rebuilt all 130 of their N2s's into N2sa's between 1923 and 1928.

If your era is post-1928, you will want to run the N2sa, since the Pennsylvania's program had upgraded all 130 USRA locomotives by then. Unfortunately, these are only available in brass so far [22]. The other option is to kitbash the Walthers Proto 2-10-2 into one.

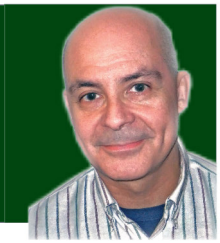
I am seriously considering this option for mine to make it into a N2s or an N2sa. My friend Chris Thompson of South Bend converted it to DCC with Tsunami sound, and I will have to complete the detail changes, painting, and weathering. I will feature this locomotive in a future "Limited Modeler." ☑



22. This is an Alco Models import. It recently sold for $325. If you are willing to spend about $300 for DCC and sound installation and can paint your own model, this is a reasonable way to have a PRR N2sa HO-scale model. *Brass Trains.com photo*

RATE THIS ARTICLE

GETTING REAL



column

All photos by the author unless noted

Mike Rose begins a journey to convert a section of his layout from eyesore to scenic masterpiece ...

VIEW READER COMMENTS



Part 1: Main building and site preparation

The area of my layout where I wanted to model the long scene at Ransom had been an eyesore for years. Just like the prototype, the scene on my layout would stretch from the completed area at Tunkhannock Creek all the way to Pittston Yard.

In part, I had not finished this portion of the layout because I moved it several times. I completely removed the area to make way for construction below. Later on I moved it 18″ to the south to create more distance between Ransom and Tunkhannock.

Other elements of this area made for a challenging modeling environment. Two large electrical panels and lots of low-voltage communication infrastructure overlooked this portion of the layout. I needed to conceal all of it if I wanted to have any decent scene at all.

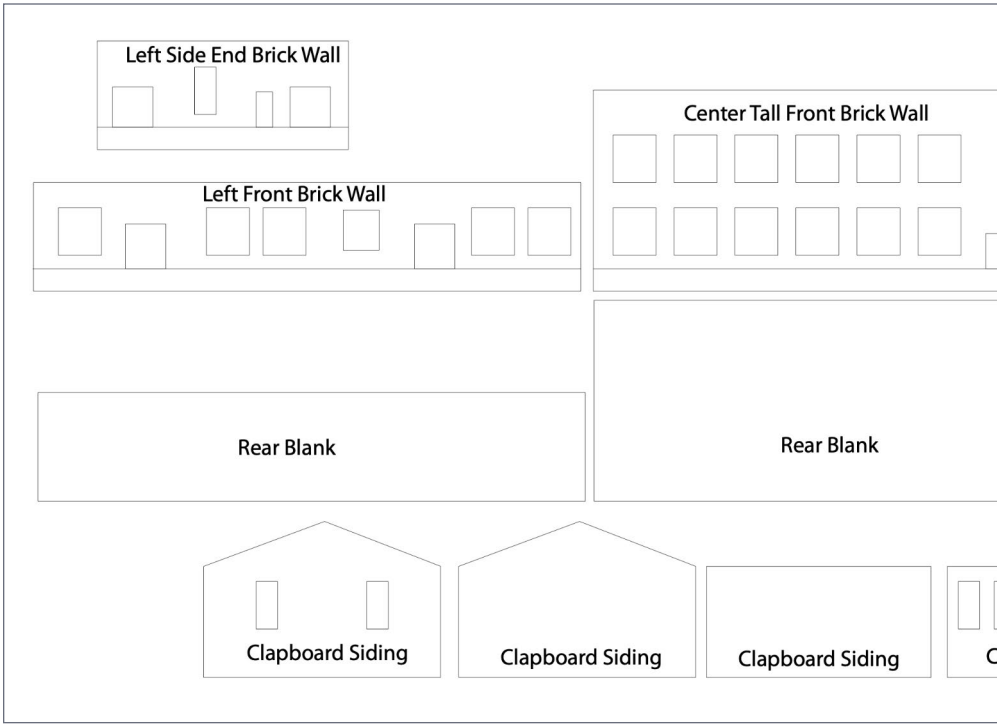
Deciding how to model the Potlatch Paper Mill, a rambling multi-level brick building in my 1984 modeling area, represented perhaps the greatest challenge of all. The building had many dozens of windows, all of which required precise alignment to look right. The thought of cutting all those windows into plastic brick sheets by hand was enough to keep the project firmly on the back burner.

As the layout progressed and settled down, the new addition to my house (covered in earlier columns) led to a great deal of new layout and scenery construction. Soon, this derelict area was between finished scenes and demanded attention. My hand was forced.

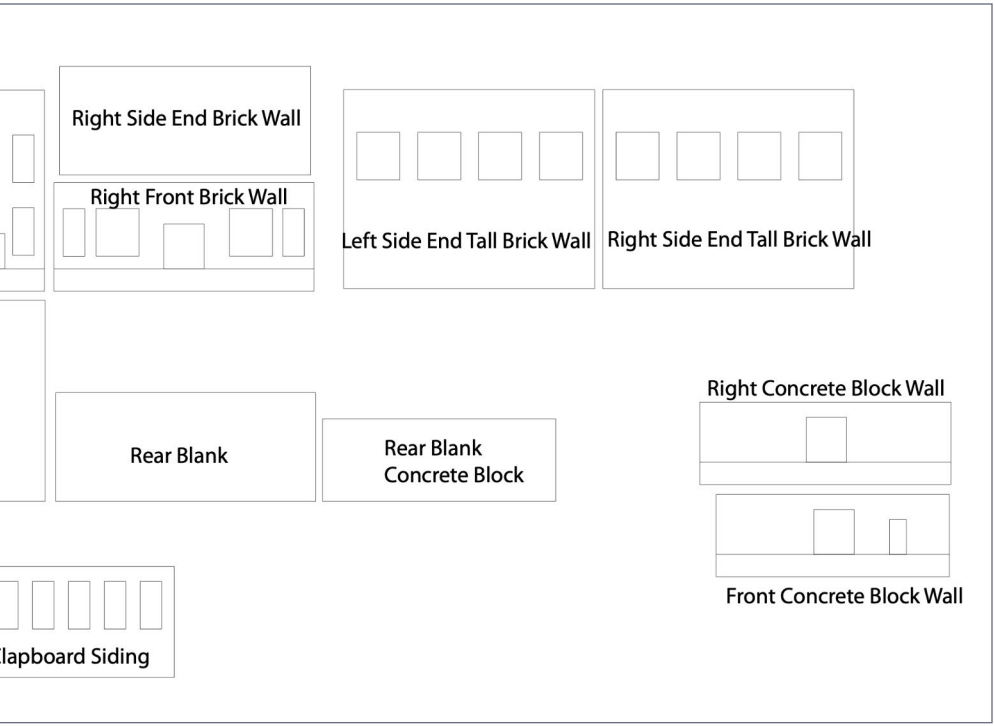
I initially worked with Scott Mason to determine dimensions of the mill from photos in various Mike Bednar Books. I then worked extensively with Jimmy Simmons, erstwhile podcast co-host and owner of Monster Modelworks, to refine my dimensions in preparation for laser cutting [1].

Jimmy has a proprietary laser-cutting method that produces amazing-looking bricks and concrete block material, among other things. Having him accurately cut all the openings is why I now have a structure instead of a wasteland!

GETTING REAL | 3



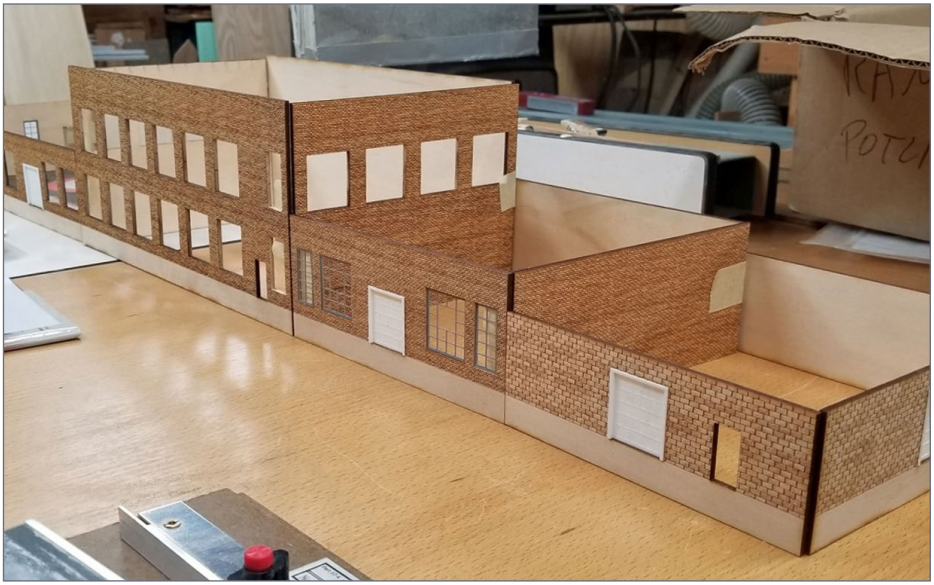




1. (Above) Jimmy Simmons provided this proof of the building plans for my review.

2. (Left) I began by familiarizing myself with the “kit” pieces. I test-fitted the various windows and doors in the laser cut openings. I used Tichy metal industrial windows for all full-size windows, and kitbashed them into narrower versions for the smaller windows. I used Pikestuff personnel and freight doors.

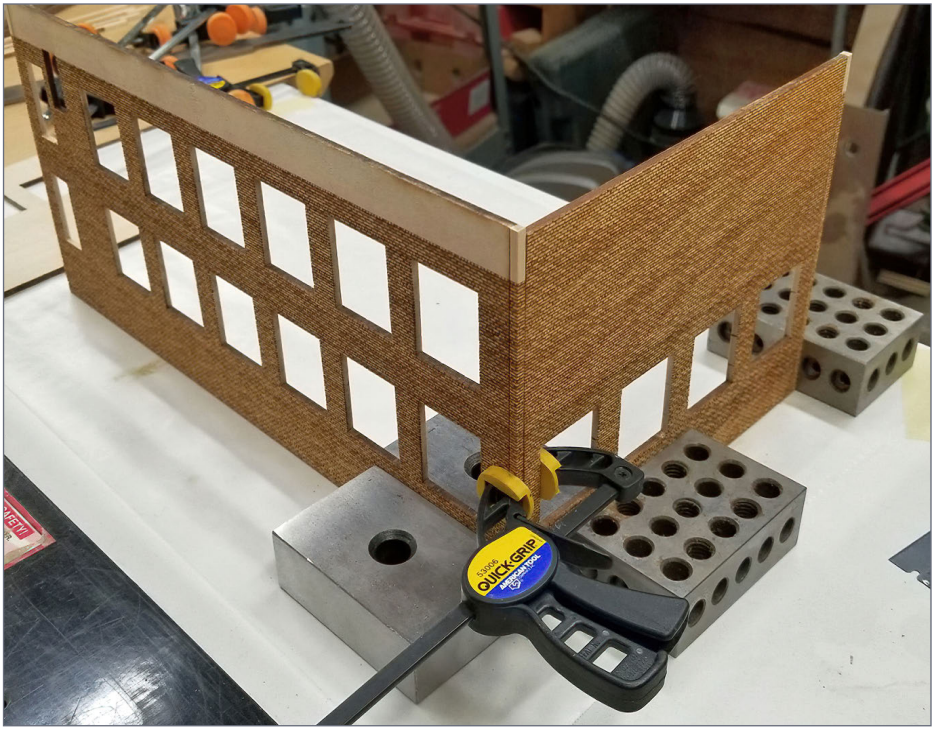
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3. I mocked-up the building to make sure I had all the sub-assemblies correct, using my table saw as a building surface. I used masking tape to hold the pieces together.

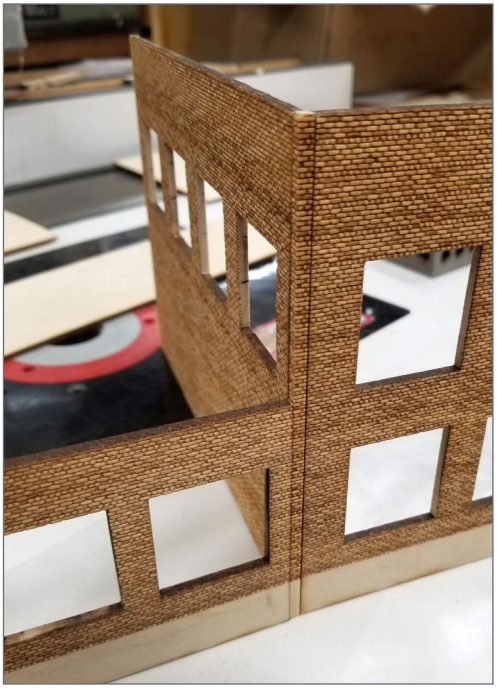
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4. One of the challenges of using etched plywood for “brick” structures is that the edges of the plywood don’t lend themselves to brick texture. Monster structures solve this with unique corner blocks with two outer edges of brick texture for the corners. I sanded the corner pieces with a Northwest Short Line True Sander and glued the sides to them with canopy glue, holding everything square and in place with 1-2-3 blocks and clamps until the glue set.

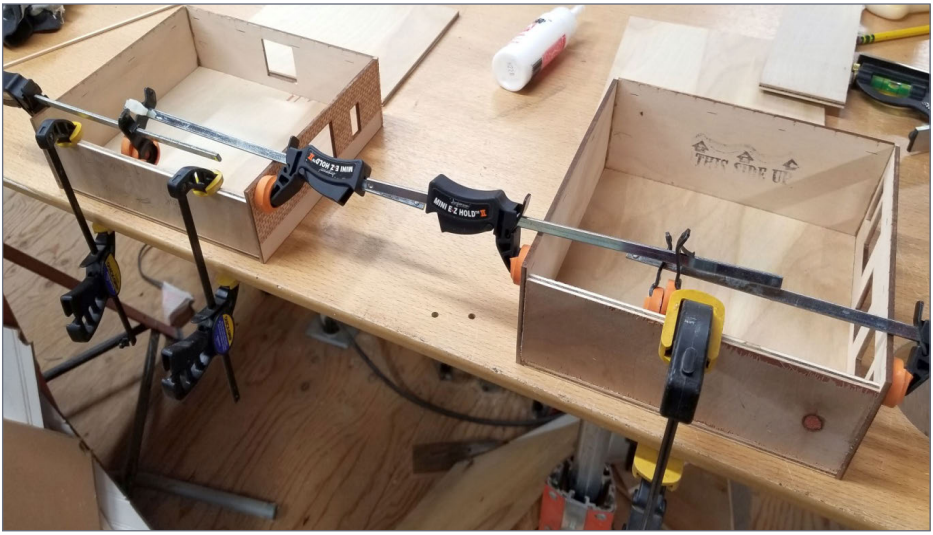
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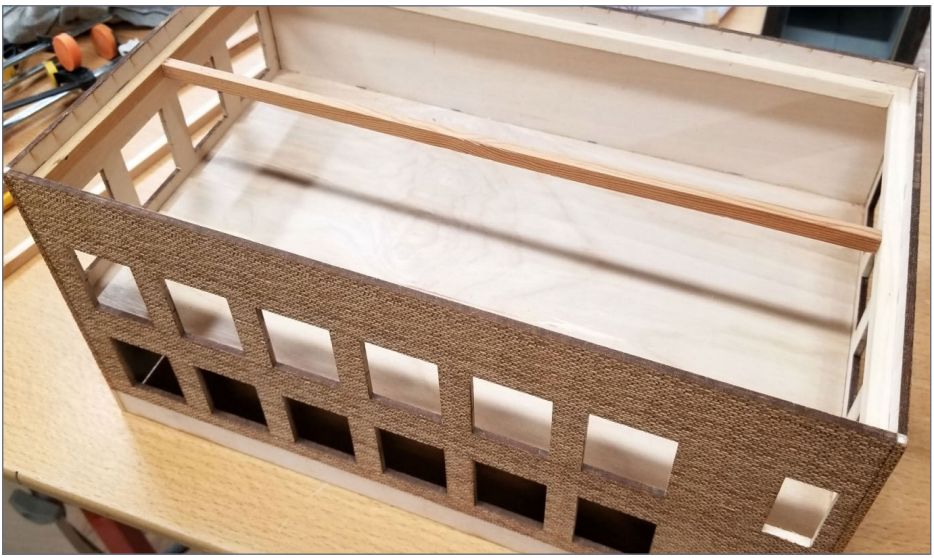
5. (Left) A closeup of the glued corner assembly. The seams at the corners disappeared with the application of paint and mortar.

6. (Below) Since the building is right up against the backdrop, the back of the building is a plain sheet of basswood. The rest of the kit is made from the same material, though with laser-etched bricks and other detail. The kit's dimensions were just right and the building went together beautifully.





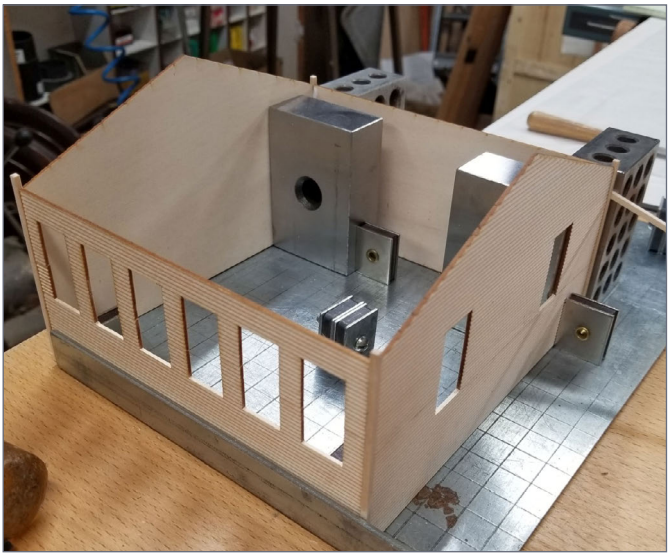
7. Other building sub-assemblies under construction. No matter what anyone says, you can't have too many clamps!



8. I cut quarter-inch strips from some vertical-grain fir for roof supports. I also cut some quarter-inch birch plywood for the floors and roofs.



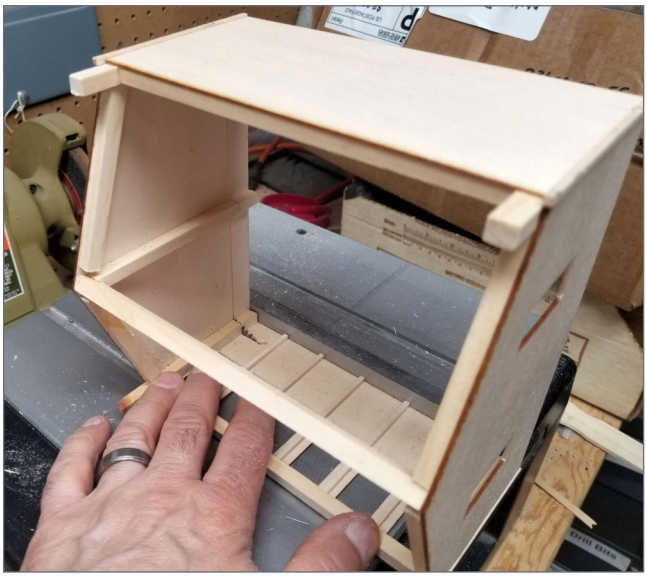
9. The main building is shaping up nicely, and is extremely sturdy with the plywood roof and floors in place, along with the bracing.



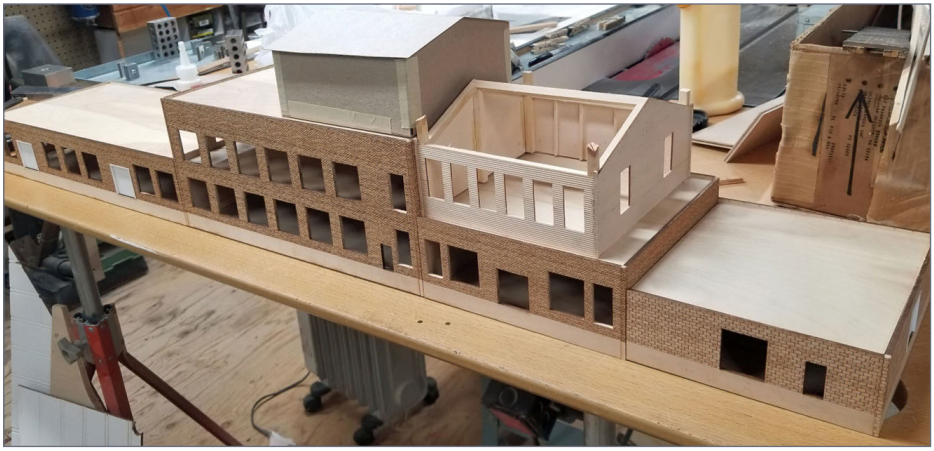
10. I had Jimmy cut the sides and openings of the clapboard structure that sits upon the lower brick building. This was much quicker than scratchbuilding this portion.



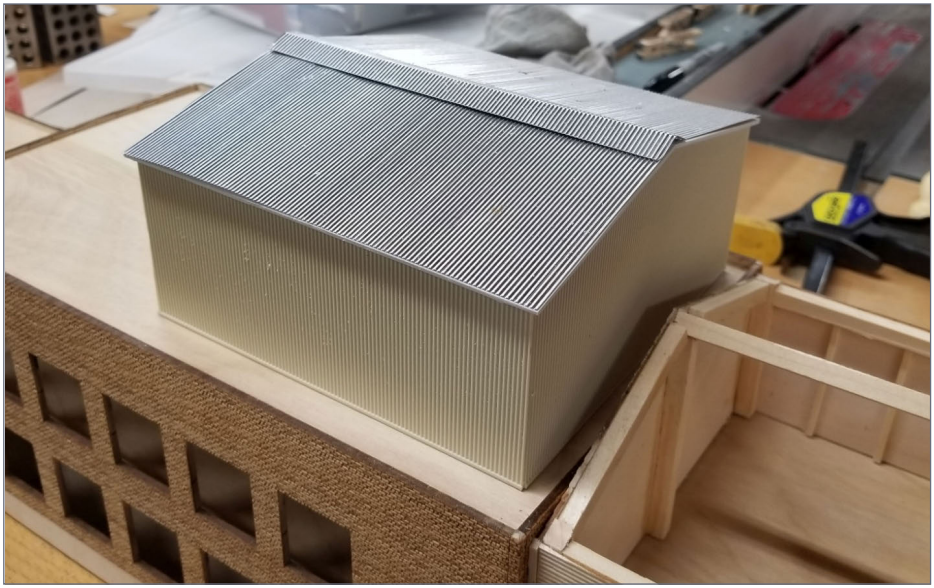
11. Most of the building is complete here. I used the cardstock building as a mockup to determine the proportions for a corrugated metal structure I needed to kitbash from styrene parts. I decided that the clapboard structure at the top right was just too tall.



12. To shorten the clapboard structure, I set the fence of my Micro-Mark table saw to the width I wanted to remove and ran the completed building through the saw for all four sides. This was a quick, easy, and accurate way to shorten the building height.



13. The shortened clapboard structure fits the rest of the building much better.



14. I kitbashed the sides of the corrugated metal building from various parts of Walthers industrial buildings, and constructed the roof from some metal siding I had in the scrap box.



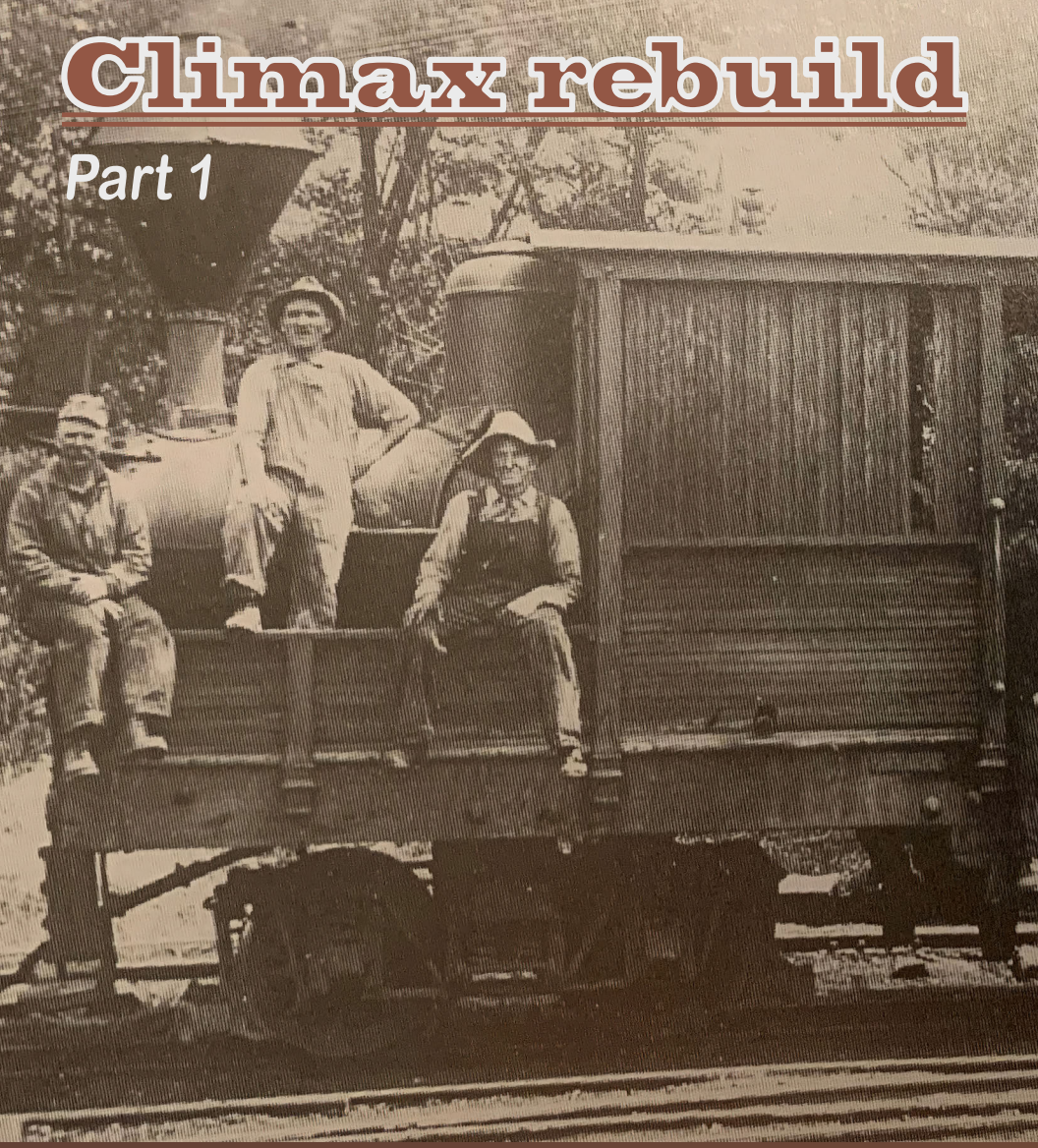
15. I put the structure on the layout for the first time. The surrounding layout desperately needed attention, as did the walls. Note the bare plywood and many cables at extreme right.

When I put the structure on the layout for the first time, it contrasted starkly with the unfinished layout around it and the wall behind it. I would have to cover the bare plywood, communications cables, and two utility boxes before this scene would look good. Next time, I'll discuss building the backdrop and other layout site preparation. ☑

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Climax rebuild

Part 1



JEFF PALMER CREATES A SHOWPIECE FROM AN OLD ROUNDHOUSE KIT...



MRH Running Extra | June/July 2021

VIEW READER COMMENTS

I MODEL IN HO SCALE, with particular interest in logging and mining. I love the geared steam locomotives that typically serve such railroads, and I have assembled a decent collection of Shays, Heislers, and Climaxes. These locomotives were small and short range, but their geared drive systems packed a tremendous punch in tractive effort [2].

Early Class A Climaxes bore little resemblance to conventional locomotives. They looked more like someone stuck a boiler on one end of a flat car, a water tank and bunker on the other end, put a shed of a cab in the middle, and geared one of the trucks. If Rube Goldberg had designed a locomotive, it would probably have been a something similar to the Class A Climax [3].

When I came across an old Roundhouse kit for a Class A Climax at the Houston Train Show a couple of years ago, I had to take



1. This MDC Class A Climax is fresh out of the box. And in need of a lot of work.



2. This Class A Climax is earning its keep for the logging industry. *Thompson, Dunn, and Hauff,* The Climax Locomotive



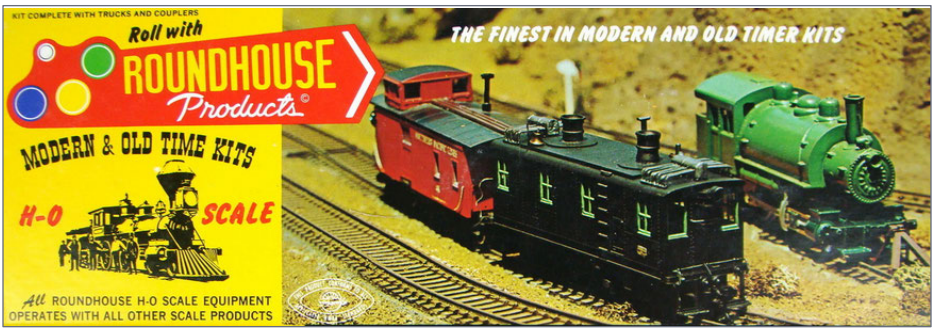
3. Class A Climax locomotives bore almost no resemblance to other types of steam locomotives. One of my main references for the Class A Climax is *The Climax Locomotive* by Dennis Thompson, Richard Dunn, and Steve Hauff. *Thompson, Dunn, and Hauff,* The Climax Locomotive

a look. [4]. When I opened the box to take a look, I was surprised at just how clumsy and unprototypical this locomotive appeared. I almost left the model on the table, but I saw a project opportunity to super-detail the model and bring myself a step closer to achieving my Master Model Railroader certification with the NMRA.

I knew that detailing this locomotive properly would require a total makeover [1]. When Roundhouse designed this Class A Climax kit several decades ago, prototypical standards were nowhere near what we know today. Especially for locomotives, mechanical considerations frequently drove dimensions rather than prototypical accuracy.

The boiler sits too high, as does the tank/tender section. The model features a closed door on the cab, but Class A Climaxes typically didn't have cab doors [5]. Since the shell was configured to accommodate the larger mechanisms of the time, I would have to find something smaller to replace it.

A few modelers have attempted similar projects to mine with the MDC Class A Climax. The first article I found was a 1982 article from Gregory Keutzer, "A Touch of Realism for MDC's Climax," in *Model Railroader.* The other two were blog entries from Dean Kershner, one published on the *MRH* website,

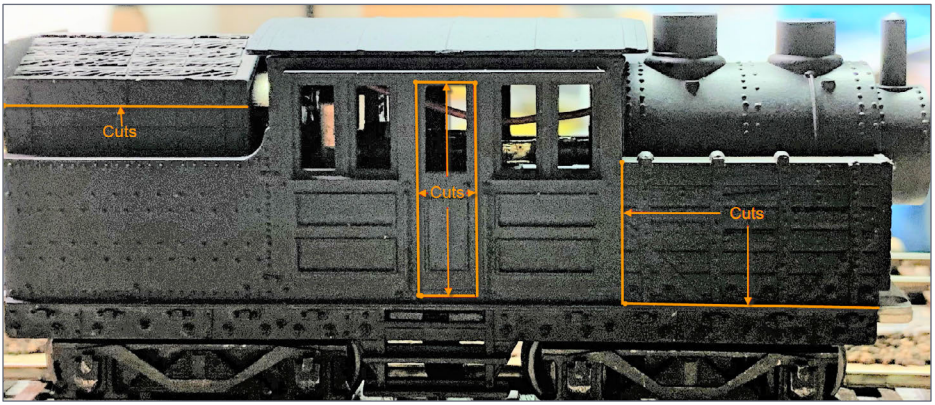


4. An old Roundhouse kit made for an irresistible project opportunity.

"Roundhouse Climax Build" at (model-railroad-hobbyist.com/node/22781), the he posted another on his personal blog at:



5. The sign says "Safety First", but no doors to be found on this Class A Climax posing with its crew. *Thompson, Dunn, and Hauff,* The Climax Locomotive



6. These are the lines I needed to cut on my Climax to make the modifications I wanted. I needed to make precise cuts to remove the cab door, and to cut off the entire boiler section, right down to the locomotive frame. The cuts are the same on either side of the locomotive.

(gearedsteam.blogspot.com/2009/09/mdc-boxcab.html).

Armed with this information, it was time to begin the quest for a better Climax. I planned the cuts needed to lower the boiler, chop down the tender and remove the cab door [6].

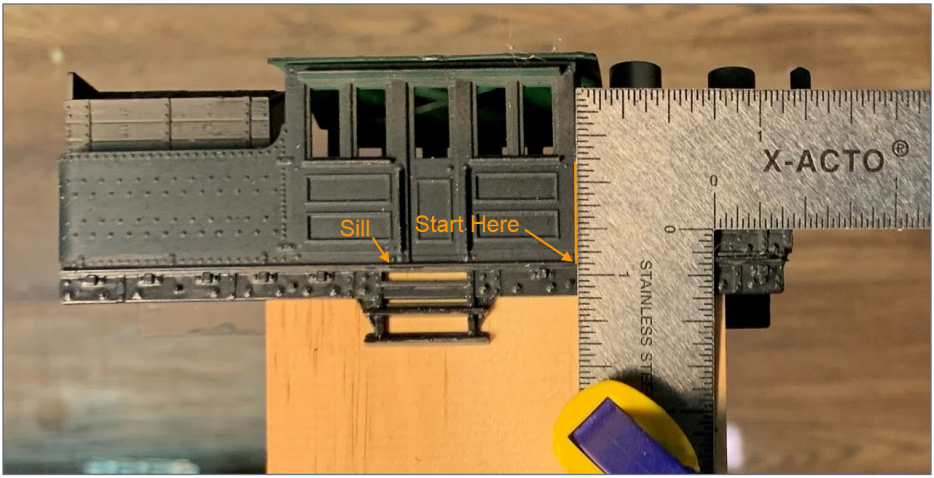
This project was going to require a lot of precise, straight cutting. I didn't want to use a saw or rotary tool for the job because I didn't want to account for the blade width of material each cut would take. I needed to use a knife, but I wanted to avoid the endless scoring that using a knife would entail.

My tool of choice was the Wondercutter S from Micro-Mark (full review in the October 2020 edition of *MRH Running Extra*), which uses ultrasonic technology to cut through plastic in a single pass.

My first cuts were to remove the boiler. I lined up a metal ruler along the top of the frame sill, clamped it in place, and used it as a guide to make my cut, starting at the front edge of the bulkhead and moving forward [7]. I repeated procedure on the



7. I clamped a metal ruler to the shell to guide my cut. The Wondercutter's vibrations caused an unpleasant screech during the cut, but it was over in seconds.



8. Aligning the cut up the front of the cab bulkhead. I clamped the ruler in place, made the cut, and repeated on the other side.

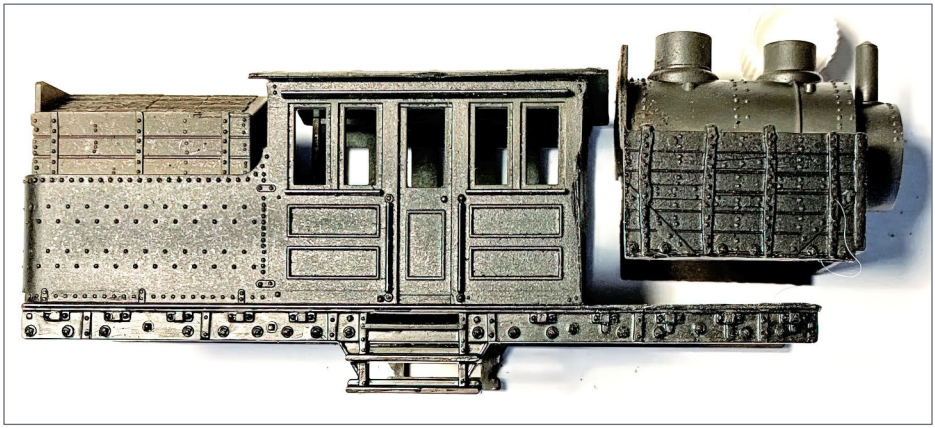
other side of the model and then across the front.

I realigned the ruler to cut upward along the front of the bulkhead, starting at the same point where I began the horizontal cut [8]. I repeated this step on the other side of the boiler to detach the boiler [9].

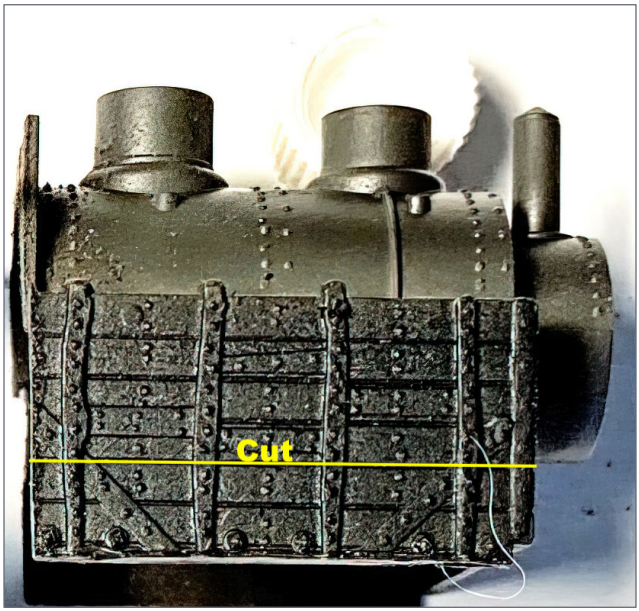
With that, I was ready to lower the boiler. The kit's design makes this a simple matter of counting two wood rails up from the bottom of the boiler, and making a cut all the way around [9]. My metal ruler helped guide and protect my cuts.

I used a sanding stick to clean up and square the cuts when I was finished, and test-fiting the boiler to the frame frequently helped ensure that the fit was square. 1x8 strips of Evergreen #8108 scale lumber made good reinforcement for my joints and aided alignment [11]. I used 1-1/4″ long pieces along the sides of the boiler to reinforce the joint with the frame, and 1/4″ pieces to reinforce the joint between boiler and cab.

I used Tamiya Cement to glue the lowered boiler back onto the frame. After allowing the glue to set for about a day, I thinned the styrene tabs using a sanding stick. My goal was to thin the



9. The result was a clean separation of the cab from the boiler section.



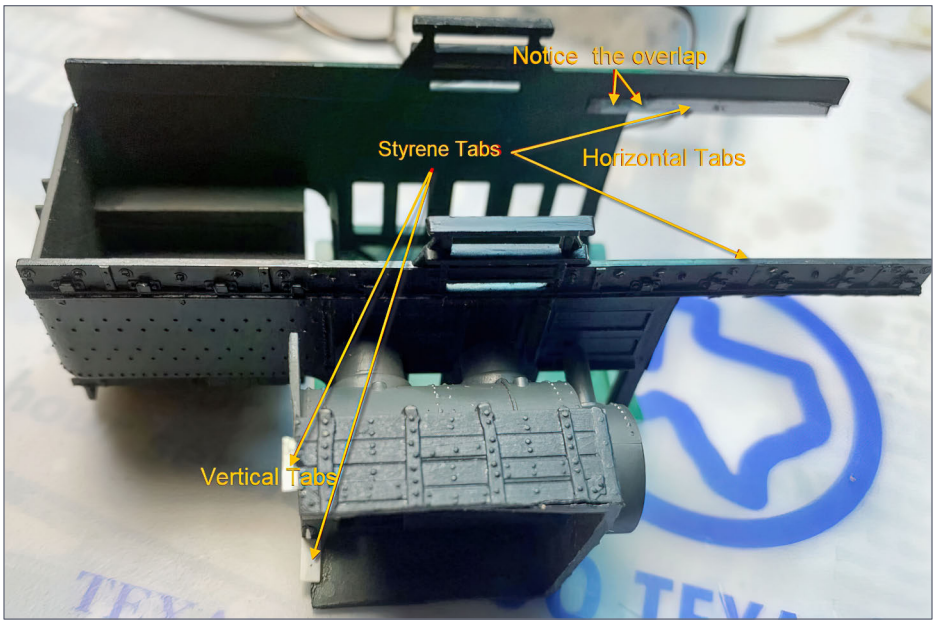
10. The wood rails surrounding the frame made for a nice measure of how much to lower my boiler. Two slats from the bottom would do the trick.

reinforcing styrene as much as possible so that it would not interfere with fitting the locomotive shell to its chassis.

Next up was lowering the wood bunker. I used my Wondercutter to make a cut two wood rails up from the tender deck. This step required extra care, since there was no convenient way to clamp a guide ruler.

This cut removed the top of the wood bunker, leaving a hole of 1-1/16 x 13/16 inches. I glued two 1-1/16″ strips of Evergreen 2x8 styrene to the bottom edge of the bunker to serve as supports for a new bunker floor, which I cut from plain styrene (Evergreen #9020) to fit the opening [12].

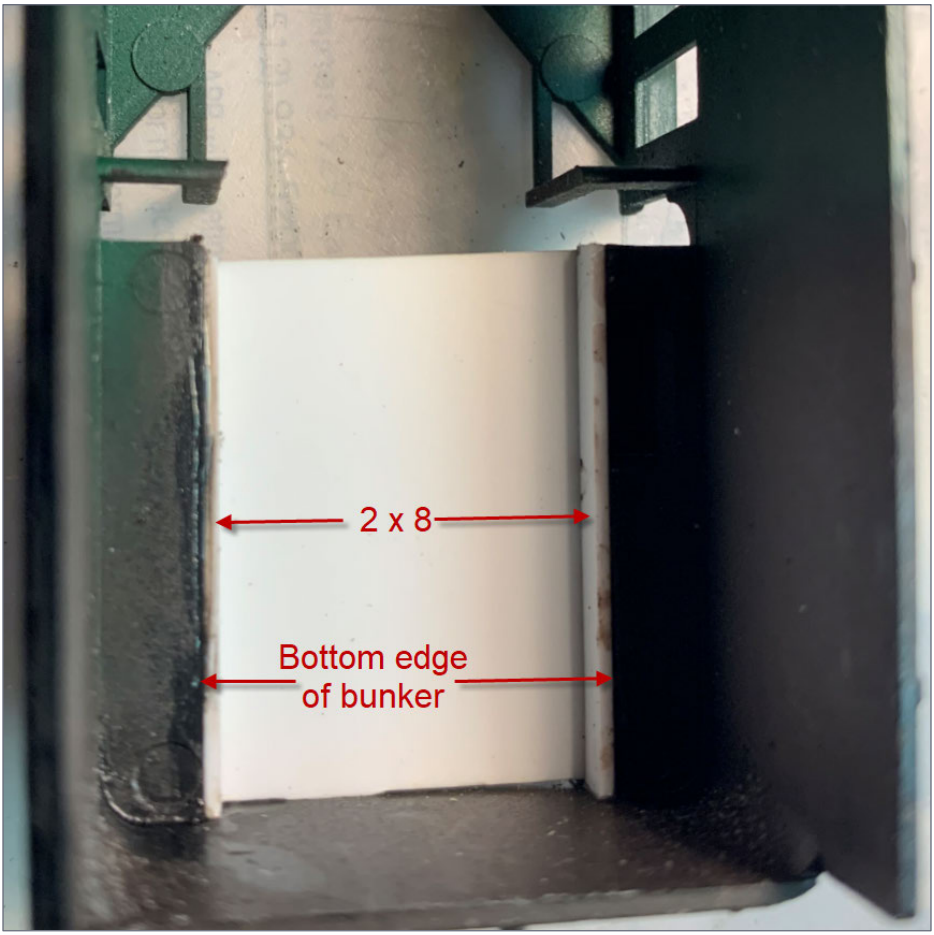
The doors were the last set of cuts. Here, I made use of my X-Acto "L" ruler for guidance, with the side of the L providing the guide and the bottom of the L to prevent me from cutting



11. I glued styrene to the inside of the shell to reinforce the joints between the boiler and the frame.

further than intended. I wanted to cut out the doors, but I did not want to cut into the sill or into the roof line.

Since I lowered the boiler, the cab's front bulkhead no longer reached the roof, so I created a new bulkhead from a 1″x1″ piece of plain styrene [13]. I traced the top, rounded portion of the boiler on the bottom of the styrene, then traced the cab

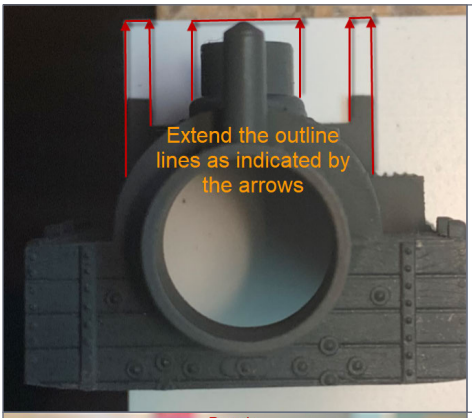


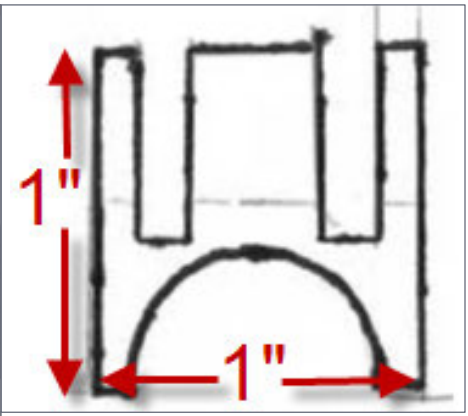
12. This view from underneath the bunker shows the new bunker floor and styrene strip supports.

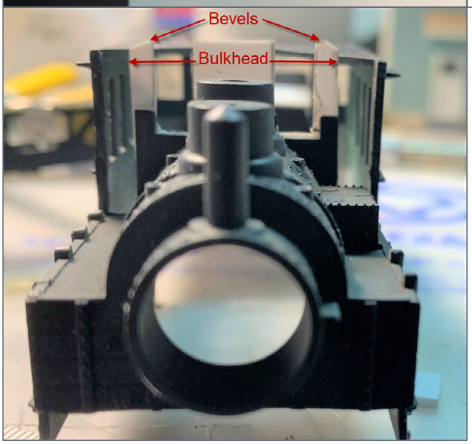
window frames, extending them to the top of the square. Finally, I trimmed the top of the square to match the curvature of the roof.

With all the cutting and gluing, there were some uneven spots and gaps along the joints that needed filling. Putties from Tamiya, Testors, and others are good options, but I like to make my own by dissolving plastic in methyl ethyl ketone (MEK).

To do this, I put eye droppers of MEK in an old glue bottle, paint jar, or other nonreactive container with a good seal. I then add fine plastic shavings from plastic sprues and other







13a, 13b, 13c. Fabricating the new cab bulkhead.

VIEW READER COMMENTS

scrap until the solution reaches the consistency of thick glue. The process takes several days, but the resulting gel is useful for filling gaps, creating weld lines, or adding distortions to plastic.

With the bulk of the body work on the shell complete, I was ready to proceed with mating it to the chassis of a Bachmann 44 ton switcher [14]. Not only does the modern chassis run smoother, it has DCC on board. Stay tuned for Part 2. ☑



14. This Bachmann Spectrum 44 tonner will provide the new chassis for our project.

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... if you don't share us, we don't grow

JEFF PALMER

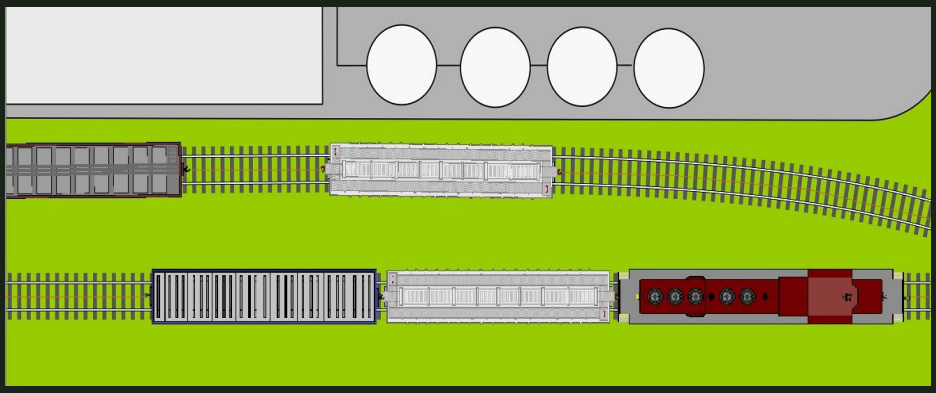


Until Jeff retired, he spent 50 years developing software, and 25 years as a college professor. During that time, as now, he was a modeler. He loves to build structures, bridges, scenery, and locos. More specifically, his interest is in logging and mining, which means that he likes narrow gauge. He enjoys the free form and ruggedness that surrounds logging and mining railroads, the scenery and landscape, and is always on the lookout for new techniques, and tools that improve the hobby. 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 of the modelers he looked up to, like Gil Freitag, Duane Richardson, Chuck Ellis, George Sellios, Marc LaChey, Dave Revelia, Dave Frary, Scott Mason, and others. His goal is to be recognized in this group someday. ■

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A track plan with moving trains



MRH Running Extra | June/July 2021

VIEW READER COMMENTS

FERNANDO BELLINI

DEMONSTRATES THE POWER OF TRAINPLAYER FOR TESTING OPERABILITY OF DIGITAL LAYOUT DESIGNS ...

I've been using AnyRail (www.anyrail.com) as my layout planning tool for many years, and find it to be quite user-friendly. Like other digital layout-planning systems, it allows you to lay track, add buildings, and design landscape. It also shares the common drawback of not having an easy way to test trains on it, or determine how many cars can fit a given industry or spur.

Trainplayer (www.trainplayer.com) is a complete CAD program that offers a solution for this dilemma. You can import various types layout plan files – including AnyRail – and add scale trains to them. The software includes a wide variety of locomotives and rolling stock from which to choose [1].

Not only can you place cars on your layout, you can run them, too. You can switch cars and operate the same way you would in a real layout. Although TrainPlayer only allows you to see the layout from above, this fits my needs well.

I use both programs in my layout design. I draft in AnyRail, test with TrainPlayer, and keep going back and forth between the two until the design works.

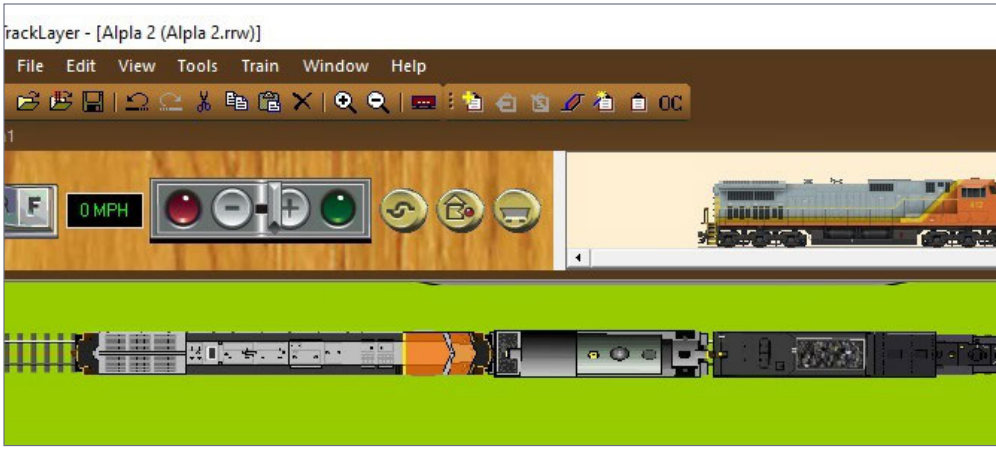
This system has helped me create several successful and functional layouts. I used it to verify the functionality of my entry in the TOMA with a Twist contest model-railroad-hobbyist.com/magazine/mrh2018-09/omc-second-place. I also used it for my two home layouts to date, including the Santa Rita Mini layout, which *MRH* featured in January 2021 model-railroad-hobbyist.com/magazine/mrh2021-01/santa-rita-layout.

Both AnyRail and TrainPlayer have free trial versions that have limited features but are functional. If you use them extensively and can afford it, it's a good idea to buy the license. Not only do you get the full function of the software, but you support the further development of the software.

Some benefits of this approach

AnyRail – and many other layout design programs – can optimize your layout design to fit available space, using real dimensions, while providing an accurate estimate of material costs. The software has a catalog of materials that includes many track manufactures in all scales, with all rail sizes and turnouts for each – even many scale building models. This allows you to design a complete layout using the track and buildings of your choosing, while the software tallies up the cost for what you use.

The addition of TrainPlayer takes digital layout design to the next level. With a wide variety of scale locomotives and rolling



1. The free version includes a variety of locomotives, steam and diesel.

stock, you can determine if the radii of your curves or the turnout numbers will work with the rolling stock you want to run. Not only that, but you can also determine how many cars you would need for operating the layout, and even how long an operating session might take using prototypical speeds.

Designing a layout

When I was designing my TOMA layout, I chose a real place on Google Maps for inspiration. The ALPLA facility in Iowa City, Iowa, provided a nice industry for a module, with a single siding and building shapes that would represent easily in CAD [2].

Using AnyRail, I created an 8x2-foot layout. I selected Atlas code 83 rail and laid several pieces of flex track and a single 18″ left-diverging turnout. I used the CAD function to make shapes representing the structures – significantly compressed to fit the module – and added a few scenery items [3].

Once I had it sufficiently roughed out for a real module concept, I exported it to TrainPlayer to run a few trains and test how it worked. The appearance of my layout in TrainPlayer was almost the same as it appeared on AnyRail, with the main



difference being red and green markings on the turnout to denote position [4]. I created a YouTube video on how to transfer the file to TrainPlayer, available here: www.youtube.com/watch?v=Sh7O8rdkMqo.



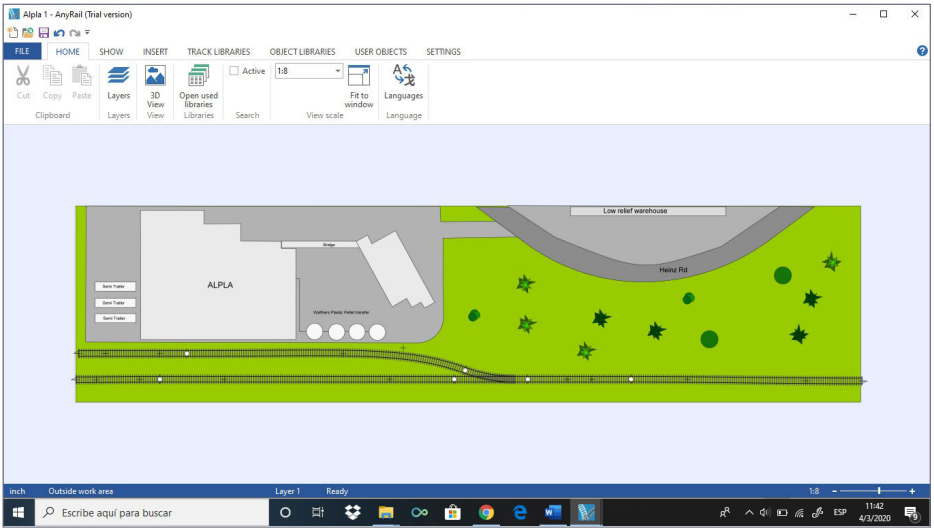
2. I used a portion of the ALPLA facility in Iowa City, Iowa as inspiration for my TOMA layout. Reproducing the basic building shapes is a relatively easy task for any CAD software.

With the file loaded in TrainPlayer, I could add rolling stock. This was as simple as right-clicking the mouse over the center of the track where I wanted to position a piece of rolling stock. This presented me with a menu of locomotives and rolling stock to select for placement [5].

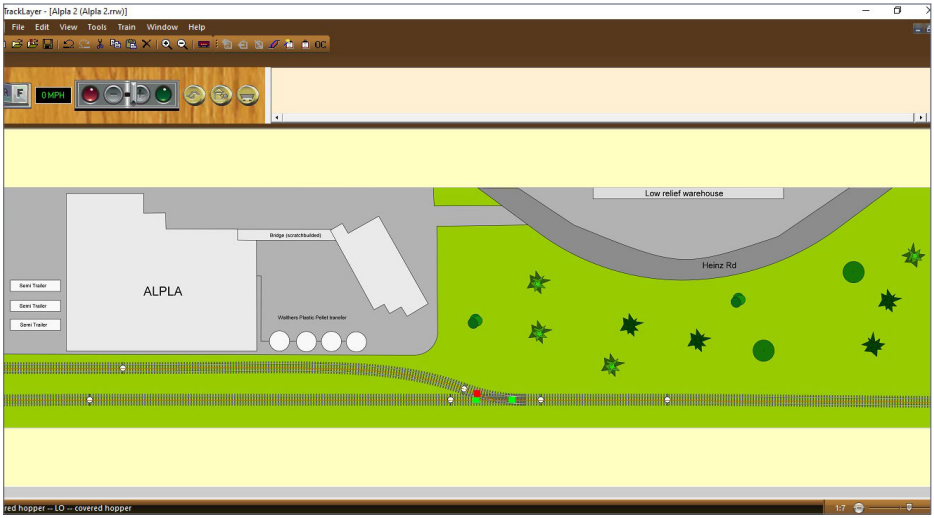
TrainPlayer lets you place locomotives and cars in various locations, and even allows you to generate an ID for each one to make up a switch list. After that, you can operate much as you would a real layout, with turnout and coupler controls. That way, you can test your layout to make sure your sidings have the space they need [6].

Conclusion

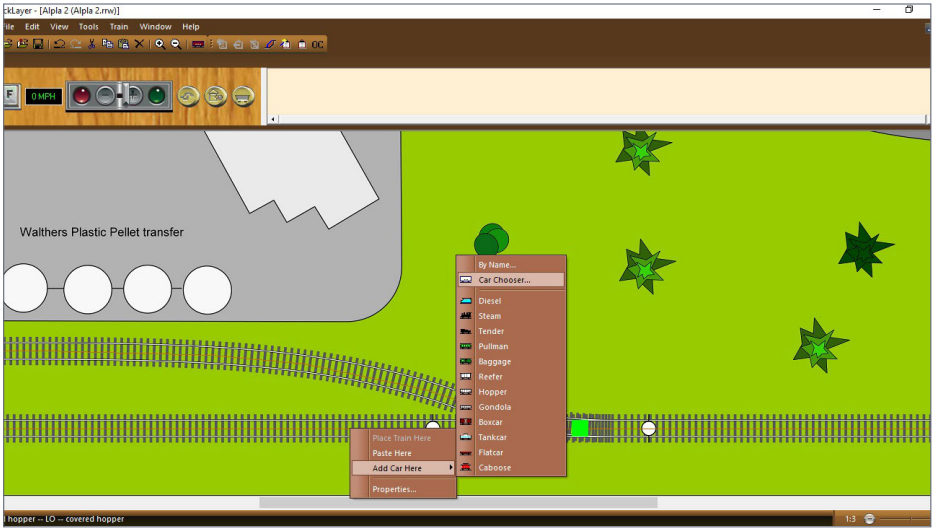
Combining TrainPlayer with your layout design software is a powerful tool that allows you to see how the trains run on the track plan. In my experience, the knowledge I gained from using this approach translated to the benchwork very precisely. It's definitely worth a try. ☑



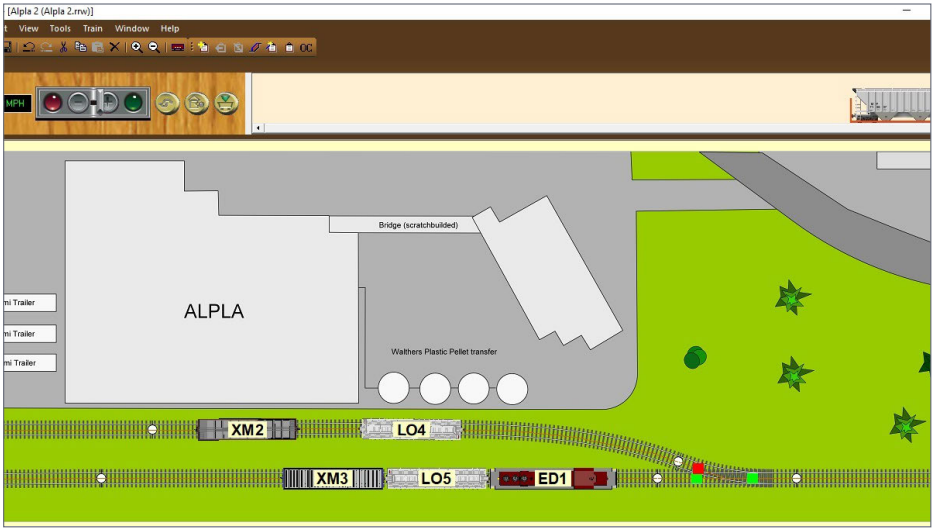
3. I designed the layout using AnyRail.



4. The layout as it loaded in TrainPlayer. Note the red and green position indicator markings on the turnout.



5. Selecting rolling stock is as simple as a right-click where you want to place it.



6. All cars and locomotives are populated with unique identifications for this test session. A video of the session is available on YouTube: www.youtube.com/watch?v=SXnS1sav16s&t=18s.

Please tell your buddies about us!

WE RELY ON WORD-OF-MOUTH TO GROW AND A BIGGER CIRCULATION MEANS WE'RE MORE LIKELY TO STICK AROUND FOR A LONG TIME TO COME!

VIEW READER COMMENTS

Fernando Bellini



Fernando started in the hobby at age four when he received an AC Märklin train set. Later in his childhood he switched to DC with an eclectic mix of European and American trains.

Fernando left the hobby at age 14 but resumed 12 years ago, aiming to play with his kids. Soon he got hooked again and decided to take it seriously, modeling only American trains.

Fernando lives in Buenos Aires, Argentina with his wife, two kids, and Beth, a rescued greyhound. He teaches mathematics and physics, and plays the bass with his country music band, No Bull. ■

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Get a more satisfying layout



MRH Running Extra | June/July 2021

JOE FUGATE DELVES INTO SOME LESS-THAN-OBVIOUS SECRETS TO A BETTER LAYOUT ...

VIEW READER COMMENTS

HAVE YOU EVER THOUGHT ABOUT WHAT MAKES THIS HOBBY SATISFYING to you? And if you knew what it was that made the hobby satisfying, it follows that if you could get more of that thing, the hobby would be even more satisfying.



1. This finished scene on my Siskiyou Line 1 layout looks quite nice, but believe it or not, it's possible to have a very satisfying layout that not yet fully scenicked. I discuss the elements that make for a more satisfying layout in this article. You may find some of them surprising!

You might think I'm just playing word games or trying to be clever, but I'm quite serious.

I would bet more than a few modelers have never put any real thought into this question, they're just going with the flow or listening to what their model railroading buddies are saying they need to do.

So let's dig deeper into this question – some of what we discover may surprise you!

WHAT MAKES MODEL RAILROADING ENGAGING?

One clear reason many of us like model railroading is because the trains don't just sit there, they move. They can do things!

Now that said, I realize there are modelers who get most of their kicks out of building models. In fact, when I first got into the hobby in the late 1960s, I discovered the janitor at my high school was into model railroading.

We had many great discussions about the hobby, but I learned one thing rather quickly – my janitor friend, Tom, had zero interest in running the trains.

So I get that some modelers love the modeling and aren't so much into the railroading part. Tom had no interest in building a layout. If that's you, then this article isn't for you.

You're still a fellow model railroader and we can still share many happy times around the hobby and building great models of trains, just as I did with Tom the janitor. Running the trains just won't be one of those areas of enjoyment we share.

I'm aiming this article squarely at those modelers who *want a layout.* Wanting a layout implies you want a setting for your models where you can *run* them.

So let's look at running trains in more depth and seek to better understand what is it about running those trains that leads to more satisfaction.

WHICH ARE YOU: RAILFAN OR ENGINEER?

When we talk about running trains, the topic of prototype operations often comes up. I find modelers have mixed feelings on the topic of operations, because "prototype operation" has


J.Fugate

LAYOUT DESIGN SPECIAL INTEREST GROUP

Many of the insights in this article, I picked up from the Layout Design Special Interest Group, or LDSIG for short. I've been a member of that group since 1987 and I have to credit *much* of my layout satisfaction to what I have learned from the LDSIG.

I can't recommend this group highly enough. They continue to ask probing questions about layout satisfaction that still surprise me, even to this day. But almost always, after giving these surprising questions some thought, I realize how valuable knowing the answer can be to my enjoyment of the hobby. *Bravo!*

Visit the LDSIG's website here: **ldsig.org**

sometimes been used as a baseball bat against modelers to beat them about the head and shoulders and say that "just running trains" or wanting to build a layout purely to railfan trains is somehow bad.

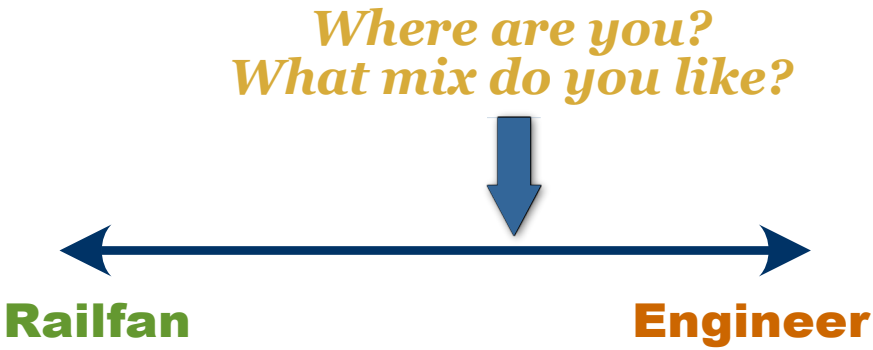
I don't agree with the idea of using prototype operations as a club against those who like to railfan and prefer to run trains on their layout without a lot of structure.

At this stage, I'm not concerned with the question of "prototype ops" and if that's for you or not. Hang on, we will slowly wade into this question later on. But for now, let's discover the basics of what makes running trains more satisfying *for you.*

Several years ago now, the Layout Design Special Interest Group (LDSIG) did a survey of the membership and discussed an intriguing concept of the "Railfan" versus the "Engineer."

Let's define railfan and engineer more precisely.

The railfan likes to just see trains run, and the more trains running, the more fun it is. Having a layout with nice scenery helps



The Railfan - Engineer continuum

2. Do you like to run trains in an unstructured way, just sitting back and watching them traverse the layout? Or do you see yourself actually part of the train crew, getting the train over the road? Most of us are a mixture, falling somewhere in the middle between the two extremes.

a lot, and the railfan loves being able to take in a room-wide scenic vista, with lots of trains in motion.

The engineer, on the other hand, wants to focus on running a single train and to follow its action from point A to point B. The engineer focuses on the engine and the train, but not much more than that.

The engineer prefers a walk around layout where they can stay close to the train and to get a good sense of progress and see that the train does useful work.

Scenery or lack thereof doesn't really matter – it's all about operating a single train realistically and accurately.

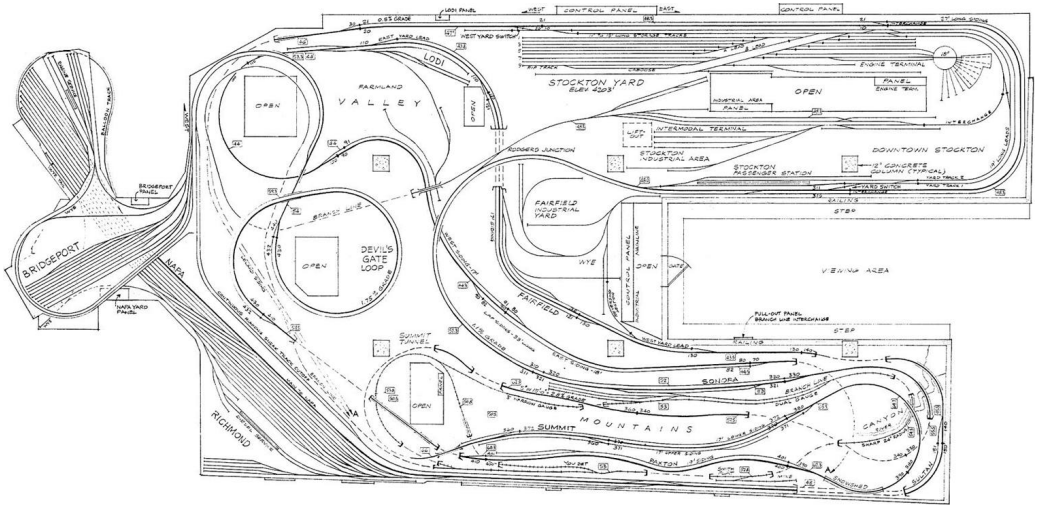
Few of us lean purely to the railfan or the engineer. We tend to be some kind of mix along a continuum [2].

So if you are mostly a railfan at heart, then you won't mind a "spaghetti" track plan [3], and you likely won't be into realistic prototype operations with a dispatcher, correct operating procedures, and so on.

But if you lean more toward the engineer side, then having a linear walk around design will be important to you so you can walk along with your train. Often, learning to operate like the prototype will be a high priority to you.

Both the railfanning and the engineer approach are valid. However, it's important to determine where your leanings in the hobby lie as early as possible, otherwise you could end up designing the *wrong* kind of layout.

This is why I found the LDSIG survey and discussion around this point to be so valuable to me.



3. This "spaghetti" track plan from the 1960s is a railfan's dream and the more trains running on it, the better. But for an engineer, this kind of layout will be frustrating because following your train can be tricky.

I realized from this discussion that my leanings are toward the engineer. I have some railfanning moments, but my real passion is the engineer. This means I should design my layout to facilitate this leaning.

Therefore, my layout is a linear walk around design that lets me follow a train along a route. The train does not pass through a scene more than once, and you can't see the whole layout from anywhere in my layout room.

This sort of track plan, do realize, would be anathema to a dyed-in-the-wool railfan!

In the rest of this article, I'm focusing a lot on how to get a satisfying layout for those who have engineer leanings. My own operation approach does accommodate my railfan moments, but my focus is to satisfy the engineer passion I have.



4. My friend Dale Trongale here illustrates the classic "engineer" orientation to operation. You can see Dale is hyper-focused on the helper loco set, making sure it's pushing the train up the hill properly. In Dale's mind, he's in the cab of the lead helper loco, carefully controlling the throttle to not push too hard or too little.


J.Fugate

RAILFAN OR ENGINEER? NOT SURE?

Some may know right away which way they lean as to their preference when running trains, but what if you're not sure?

The best way to find out is to get some experience running trains on other layouts. For this, a great option is the Operations Special Interest Group (OPSIG).

This group specializes in connecting modelers with local layouts that are open to guest operators. There's no better way to find out your preferred way to run trains than to *run some trains* on other layouts in your general area!

Visit the OPSIG's website here: **opsig.org**

QUALITY OF RUN

I've found quality of run to be key to getting a layout that's fun to operate.

Hobby newcomers tend to think bigger is better, so they focus on *quantity* of run, not *quality* of run. But once you get some experience in the hobby, you begin to realize a small layout with a high quality of run will be far more satisfying than a large layout with a mediocre quality of run.

One very important note: quality of run is mostly visual. If you don't believe that, try running your layout with a blindfold on and just listening to the trains run! Or put another way, how fun is running trains in hidden trackage?

Running trains blindfolded or in hidden trackage may be just a little more fun than it used to be now that we have sound-equipped locos, but you get the idea!

Getting a good quality of run

Let's list the elements you need to consider in order to get a good quality of run.

I list these more or less in order of priority – which means you should spend more effort and resources on the things at the top of the list than on the things at the bottom of the list.

Quality of run (in priority order)

- Trains interesting to run
- Derailments and equipment failures are rare
- Trains run at slow speeds
- Detailed right-of-way
- Locos nicely detailed
- Rolling stock nicely detailed
- Scenery looks good

Let's take each of these one by one and delve into the nity gritty details.



Trains interesting to run: If the trains have a realistic purpose and some character to them, they can enhance the quality of run greatly.

For example, if you run a train called "the Logger'" and it's full of log bunks loaded to the gills with logs going to the lumber mill, you immedi-

ately can identify with the train's purpose. When you can tell the trains purpose just by looking at it, the quality of run goes up dramatically.

Notice *quantity* doesn't do anything here. More generic trains that don't have an interesting and realistic purpose do little to increase the fun of operating the layout.

A few high-quality trains with a well-defined and realistic purpose [5] will be far more fun than any number of generic trains. And as a bonus, a train with a strong *visual* sense of character is even more fun to run.

5. Mike Confalone's *Lumberjack* on his Allagash layout stands as an excellent example of a train with great visual character, providing a highly satisfying quality of run experience. The train has mostly empty bulkhead flats when heading out to be loaded with pulpwood, or when running the other direction, it has flats loaded with pulpwood.





6. Experiencing an operating session on Mike Confalone's Allagash opened my eyes and showed me it's possible to have near zero derailments or equipment failures during a layout operating session. In a 6 hour session, I never saw a single derailment or equipment failure. As a side-note, notice Neil Schofield taking cell phone photos of the intermodal train passing through New Sharon. You can still railfan a serious operating layout as well!

Derailments and equipment failures are rare: This one is obvious, but the larger the layout and the more turnouts it has, the more derailment-prone it will be. Plan to spend a fair amount of time keeping things well-tuned if you want few derailments or equipment mishaps (like poor loco pickup).

On this point, quantity can kill your fun big time. Lots of turnouts and equipment means lots more stuff that needs to be carefully debugged and tuned.

Layout and equipment maintenance work can be just plain tedious grunt level effort that's no fun. The larger the layout, the less likely the needed maintenance will get done.

Unfortunately, larger layouts tend to have *a lot* of deferred maintenance.

Which would you enjoy more – a 4 hour op session on a small layout that had not a single derailment or equipment failure in the entire 4 hours, or a 20-minute run on a large layout that had a derailment or equipment glitch every few minutes?

It's my experience visiting an operating session on Mike Confalone's superb Allagash that really highlighted this point for me. In a six hour operating session, I saw zero derailments or equipment failures on Mike's layout!

Talking with Mike about how he achieved this amazing level of near flawless performance lead to me writing my *Make it run like a Dream* book series. For more see the MRH Store:

store.mrhmag.com/store/p115/ebook/run-like-a-dream.html

Trains run at realistically slow speeds: Do not under-estimate the value of this point and as a bonus, it's practically a freebie. It pays to teach your operators to run at realistically slow speeds – which can be fairly easy to achieve with your equipment these days if you use DCC. Watching two slowly moving model freight trains meet can be sheer delight!

To get slow moving locos that run well means you do need to take the time to tune settings in your decoders.

Getting this sort of performance from a straight DC layout will be tougher because you will need to use high quality power packs, and you will need to spend time tuning your locos mechanically to run as smooth as possible.

With DCC, this sort of smooth low speed performance is easier to achieve and is one example of where DCC layout performance will tend to outshine a straight DC layout.

Also, the greater quantity (larger layout) you have, the more loco decoders you will have to buy and tune.

Which would you find to be more enjoyable? Running on a small layout with two locos that crawl along smooth as silk at slow speeds, or run on a large layout where many of the locos run like jackrabbits?

One final point here: slowing down also makes the layout seem larger. When I see modelers with locos zipping around as they run their trains I have to ask, what's the rush?

If we find running trains to be fun, why not extend the fun to last as long as possible [7]. Running slower is one simple but effective way to make the fun last longer!



7. There's nothing like watching a train snake slowly through a curved scene. This is the Coos Bay Hauler on the Coos Bay branch line of my Siskiyou Line 1 layout. Running trains slowly costs you almost nothing and it ups the enjoyment and realism level quite a bit. Plus running slowly makes the layout seem larger, and on our selectively compressed model layouts, anything that increases the apparent length of run is most welcome!



8. Even if there's no scenery to speak of yet, ballast and weather the track. When running trains, we spend much of the time looking at the track around the train, so realistically finished track helps increase total quality of run.

Detailed right-of-way: Detail and weather the track and things close to the track first before you do the rest of the scenery since that's where you spend most of your time looking when running trains [8]. Bridges and structures close to the track also fit this category.

Of course, the more quantity (the larger your layout), the more right-of-way you will have to detail, so this becomes more work.

On a larger layout, the temptation will be to cut corners in order to get the layout functional. But if you cut too many corners on detailing your right-of-way, just remember, you will compromise your quality of run!

Locos and rolling stock looks real: The things you notice right away, like realistic weathering, count most here. If you



9. This nicely weathered SD40T-2 snoot tunnel motor is a stock Athearn ready-to-run locomotive straight out of the box. Of all the detailing you can do, the biggest bang for the buck will be to weather the equipment. Nice weathering will trick the eye into seeing any loco or car as more detailed. Ralph Renzetti did this weathering for me as a gift to celebrate the 25th anniversary of Siskiyou Line 1.

have to study the equipment to notice the details, it doesn't count much on equipment that's running because you can't see it easily. Try counting louvers on a running loco sometime!

But the more *quantity* (larger layout) you have, the more locos and equipment you will need to put on the layout in order to fill it appropriately. And the more equipment, the greater the commitment needed to weather and detail that equipment.

Which would you rather run trains on – a small layout where everything is realistically weathered (but no added detail), or a larger layout where most equipment is detailed, but it's shiny with little weathering and some of the details (like brake wheels) are still just unpainted black plastic?

Scenery looks good: This one comes last because when running trains realistically, you don't spend much time just looking all around – your attention is focused on the trains.

Many people have reported having a great time operating on layouts with little scenery – and if the layout has the other items in this list already in place, that can be very true – quality of run will still be high, even without the scenery.

There are a lot of not-so-obvious elements to this last point on scenery. For example, a nicely scenicked N scale layout can outshine an HO layout here because it is much easier for scenery to realistically dwarf the trains, which enhances the quality of run.

On the other hand, if you go overboard on trying to get more *quantity of run* (larger layout), you might decide, for instance, you ought to triple deck your Milwaukee Road West layout on which you are modeling the Cascades, helpers under catenary, and all that.

Reasonable deck heights for a triple-decker layout will be something like 30″ - 48″ - 66″, which will give you 18″ between decks – which sounds reasonable.

Now remember decks are not zero thickness, so let's allow 4″ for deck thickness (tough, but doable), which leaves us 14″ between decks.

Keep in mind that with spectacular mountain scenery, you not only need towering canyon walls, you need bridges over deep canyons to give you the dramatic scenery you are after. So scenery needs to both tower *over* the track and drop deep *below* the track.

If you have 14″ to work with and we split the difference, this means you can have canyon walls towering 7″ over the trains, and deep canyons dropping 7″ below the trains. In case you haven't noticed, a 50-foot boxcar in HO is longer than 7 inches!

So by trying to cram a triple-decker into your space, your scenic quality of run is going to *suck* big time. Forget dramatic towering slopes or deep canyons. It just won't be possible on an HO triple-decker to model dramatic scenery. You have sacrificed quality of run on the altar of quantity of run.

CONCLUSION

Because things like good-looking scenery are at the bottom of the quality of run list, that means you can have great fun operating a layout even if it isn't scenicked. The hobby press will seldom admit that, but it's true.



Consider, which of these layouts would you enjoy running trains on more:

LAYOUT A

- Interesting trains
- Few derailments or equipment failures
- Out-of-the-box weathered locos and equipment (no added details)
- Nicely ballasted track
- But no scenery yet

LAYOUT B

- Gorgeous scenery
- Superbly weathered and detailed track
- Super-detailed equipment
- Trains are all generic
- Things misbehave (odd derailments, intermittent pickup at times)

Most experienced modelers won't hesitate: Layout A! However, Layout B will be the one the hobby press covers. Go figure.

Maybe now you have more insight into the newcomer mistake of thinking *quantity of run* is better. You are much better off to build a smaller layout with a great *quality of run*, and you will find you enjoy the hobby far more! ☑

10. Even a layout without much scenery can be a blast to operate if the quality of run is high. This scene from the east end of Roseburg yard on my Siskiyou Line 1 shows the quality of run elements I spoke of in this article. Not much scenery, but all the other quality of run elements have been accounted for.



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Pin wash weathering



MRH Running Extra | June/July 2021

Contributing Editor Eric Hansmann masters a weathering technique ...

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Photos by the author or from his collection

THE PROCESSES FOR WEATHERING FREIGHT CARS HAVE EVOLVED OVER TIME. No longer is a simple wash the only application to achieve a finished model. Chalks were introduced years ago, and we have an assortment of powders available. We have seen people fade paint and replicate paint failure in small, focused areas and across larger areas. Modelers apply several different layers of weathering, similar to how the prototypes accumulated grime, dust, soot, and more.

1. A model, a fine brush, thinned paint, a palette, and a small container of distilled wet water are ready for applying a pin wash.

Weathering can be period specific. I model 1926, when paint formulations were different from 1960s commercial coatings. Many freight car designs in the 1920s used wood and metal components on external surfaces. Paint often weathered at different rates on disparate materials. How do we mimic this look?

These were my thoughts as I finished applying decals on a Westerfield Models HO scale Pennsylvania Railroad X23 class boxcar. I had only a couple of prototype images to inspire the work [2]; black and white, of course.

WOOD SHEATHING

I painted the boxcar with Vallejo Amaranth Red from their Model Color line. This color seems best to approximate the



2. This early 1920s promotional image shows PRR 538283. The car has a 1921 weigh date stencil below the last three car number digits. Notice how the metal elements look different from the wood sheathing. The paint failure on the steel door is especially noticeable.

early PRR freight car color. After letting the model sit a couple of days, I used Prismacolor pencils to convey paint failure on the wood. A combined application of about 30% warm gray and 70% warm gray pencils following the vertical sheathing cut the color intensity [3].

PIN WASH

I felt my usual weathering methods wouldn't capture the prototype's appearance, so I tried something new to me. Several modern railroad modelers and military modelers had been applying a "pin wash" to weather focused areas and specific components on a model.

The pin washing technique uses a fine brush to apply a small amount of very thin color to specific components. It's the opposite of applying a general wash over the entire model with a broad brush.



3. After painting the X23 with Vallejo Amaranth Red, and allowing a few days' cure time, I applied Prismacolor pencils to convey a weathered tone to the sheathing.

I had recently finished most of a bottle of Vallejo Burnt Umber. There's always some pigment remaining in a bottle. I added a



4. I used a size-00 fine brush to apply the pin wash. The wash flows along the details. I placed a couple of drops of paint on the palette and transferred small amounts to the model. An Optivisor is a great aid to clearly see the work.



5. The process is easy, if tedious. Applying the pin wash takes time. I worked on one side and end on one day, leaving the other side and end for the next day.



6. The pin wash process is finely detailed work. I take my time and concentrate on the details.



7. The pin wash highlights the steel trusses and brackets. You need to identify the metal components before starting the work.

long squirt of Vallejo airbrush thinner to the bottle and shook it up. Voilà, a burnt umber wash!

ROOF AND DOOR

The roof and door also represent steel parts on this model. They are larger areas, so I used a wider brush to apply the



8. I used a burnt umber wash for most of the roof, avoiding the running board. Notice how it brings out the roof's cast-on details. The gray splotches here represent paint failure. I used Prismacolor pencils to alter the color of running board segments.



9. The burnt umber washes are complete, and the model is ready for another weathering layer.

wash [8, 9]. I carefully avoided dripping the liquid onto the car sides or ends.

Before I applied the wash, I used a micro brush to add small splotches of light gray paint to various points on the roof to represent paint failure, a common feature of freight car roofs[8]. These splotches need to dry completely before brushing-on the thinned burnt umber. The wash softens the appearance of these paint failure points.

ADDITIONAL WEATHERING

The wood sheathing needed more work, so I applied Pan Pastel neutral gray selectively using micro brushes. I did not want to completely cover the car with the material and avoided the parts I had pin washed [10]. The light application blends in the color pencil strokes, too.

I used Pan Pastels for the final weathering layers, applying raw umber to lower reaches of the model to represent dust and dirt and scrubbing neutral gray extra dark onto the roof surfaces to represent soot [11]. I also applied the gray to the



10. Additional Pan Pastel colors softened and faded the original car color tone.

upper parts of the car ends, and on details near the top of the car sides. Soot was everywhere in the 1920s, as coal was the main heating and energy source in many cities and towns.

I used a Prismacolor 10% cool gray pencil to highlight edges all over the model to bring out details [12]. After sharpening the point, I used the same pencil to scrawl chalk marks that



11. I generously apply neutral gray extra dark to the roof and upper areas of the car to many of my freight car roofs to represent soot, which was omnipresent in the 1920s.



12. A light stroke with a light-color Prismacolor pencil can make details stand out.

VIEW READER COMMENTS

prototype crews applied as notes to classify cars in yards or to spot at industries.

Lastly, I added a route card near the lower left corner and a placard on the door [10]. I created these using Adobe InDesign inspired by details Tony Thompson has shared on his blog. I've printed sets on newsprint and on a buff-color paper to use on models. I apply a small dot of canopy glue with a pin to the model and press the cards onto the glue with tweezers.

I applied similar techniques to a Funaro & Camerlengo, HO scale Pennsy GR class gondola [13]. I scalloped the top edge of the car sides using a wire wheel in a motor tool before assembling the parts, focusing on distressing the wood elements and avoiding the steel side stakes. I also scribed interior boards with a hobby knife and dug through a few areas for worn gaps between boards.

I'm satisfied with the end results on these Pennsy freight cars. I won't be applying a pin wash to all single-sheathed boxcars or composite-side gondolas, but I'll consider the technique on the occasional car for a distinctive appearance. ☑



13. The Pennsylvania Railroad had thousands of composite gondolas on their roster. These cars were used in a variety of services, and the wood sheathing took a beating.

ERIC HANSMANN



Eric has been part of the *MRH* crew since early-2019. He has worked in radio, printing, college recruitment, marketing, and once owned a retail record store.

He started model railroading in the mid-1970s when he built his first HO scale layout, following a John Armstrong design in an Atlas track plan book. Eric was consumed by the narrow gauge bug for several years but settled into HO scale prototype modeling, focusing on the mid-1920s. He built a 10x16 HO scale B&O Wheeling Freight Terminal layout that offered a different and enjoyable pace of operations. Eric is designing and building an HO scale layout inspired by a forgotten B&O branch in Pittsburgh.

Eric and his wife, Dr. Cheryl Torsney, keep busy in metro Nashville with their two dogs, the music scene, cooking, and friends. They often visit their children and grandchildren in far off-states, taking the young ones to enjoy parks and museums. ■

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THE AH-HAH MOMENT

column



MRH Running Extra | June/July 2021

JOE FUGATE SHOWS HOW TO RESOLVE FROG JUICER / CIRCUIT BREAKER WOES ...

RATE THIS ARTICLE

I KNOW OF MORE THAN ONE CLUB THAT INSTALLED FROG JUICERS only to have them get into an endless reset loop with their DCC circuit breaker boards.

In frustration, they removed all the frog juicers and replaced them with contacts operated by the turnout motors. What a pain!

It turns out there's a simple solution to this problem.

The secret is to establish a hierarchy so the juicer trips first, then the circuit breaker trips next, and finally the booster trips last. In other words, you want this sequence: juicer > breaker > booster.

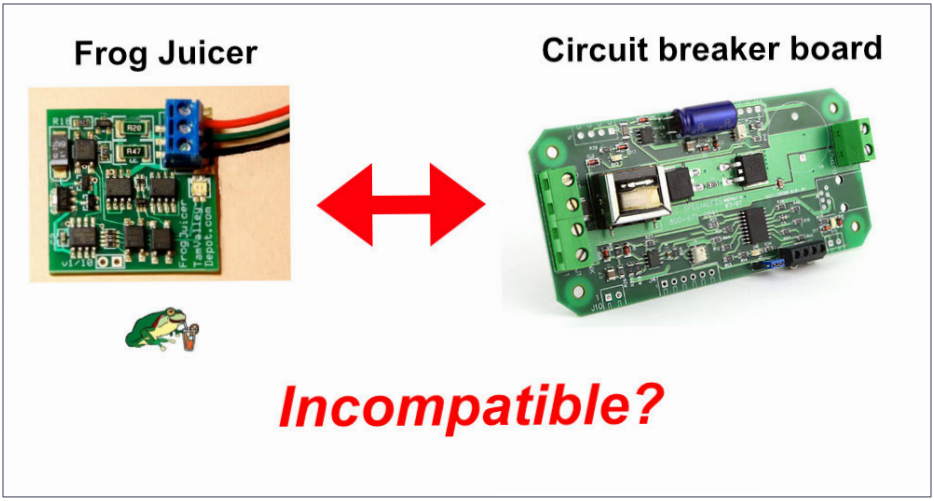
The frog juicers (made by TAM Valley Depot) trip at 2 amps within 10 milliseconds. To solve the problem, set the circuit breakers to trip at something more – I recommend 3 amps and 40 milliseconds.

Most boosters trip at something more like 3+ amps and 100 or more milliseconds, which is why they tend to work great with the circuit breaker boards, no problem.

But the circuit breaker boards, especially the popular PSX board, often have default levels close to that of the frog juicers, putting them in conflict. *Ah-hah!*

As long as you set the circuit breaker boards to trip at more than 2 amps and slower than 10 milliseconds, then the problem will be solved.

The DCC Specialities' PSX circuit breaker board, for instance, has this problem right out of the box unless you set the trip current level and trip



1. As they come set up initially, you can have tripping conflicts with a frog juicer and many circuit breaker boards, especially the popular PSX board from DCC Specialities shown here. Setting the circuit breaker board trip levels to something slower than the juicer solves the problem. See the text for details.

	Trip level settings		Recommended	
Circuit breaker board	Amp range	Speed range	Trip amps	Trip speed
DCC Specialties PSX	1.3A to 10A	~1ms to ~32ms	3.8A	32ms
NCE EB1	2.5A to 8A	16ms to 512ms	3.5A	32ms
CVP Zoneshare	1.5A to 4A	10ms to 40m	3A	40ms
Digitrax PM42	1.5A to 12A	slow-fastest	3A	standard
TAM Valley Dual Frog Juicer*	2A or 4A	always slower*	4A	default

*Setting the Dual Frog Juicer to work as a circuit breaker defaults to slower trip speed

speed to something greater than the frog juicers. The Streamlined Backshop website has all the how-to details and how to check if you have the right board version that allows changing the trip speed: sbs4dcc.com/tutorialstipstricks/psxandfrogjuicersshortcircuitconflict.html

See the table above with several popular circuit breaker boards listed and the recommended trip settings for each board to solve this issue. ☑

Bonus section!

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

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Model Railroad Hobbyist | July 2021 | #137

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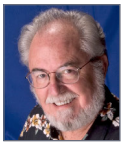
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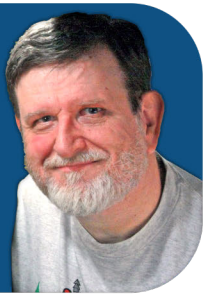
Scene and photography by Ken J Johnson
* Lighting functions are railroad specific
Note: Some lighting features only operate when using an ESU decoder with appropriate programming while operating using DCC

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PUBLISHER'S MUSINGS



Model Railroad Hobbyist | July 2021

JOE FUGATE GIVES HIS THOUGHTS ON THE NMRA SANTA CLARA CONVENTION ...

VIEW READER COMMENTS

WHEN THE NMRA ANNOUNCED THE SANTA CLARA CONVENTION HAD BEEN CANCELLED, I THOUGHT THAT WAS IT FOR 2021. I figured I would have to wait until 2022 to again attend a national convention.

But then I heard the Santa Clara convention committee was going to do a "virtual convention" instead, and charge $49 for it. *What?*

For over a year previously, NMRA-X online events had been coming every few months as a day or two of online clinics you could watch *for free*. Now the Santa Clara guys were going to charge for their clinics – what are they thinking?

Now they're taking a good thing (free online clinics) and ruining it by slapping the "national convention" label on it and *making us pay for it.* Not a good trend (insert frownie face here).

But later, I relented, and at the last minute excitedly paid my $49 to attend the Santa Clara online event. How did I have this change of heart and decide the $49 was a bargain?

Interviewing the Santa Clara convention tech team

My change of heart started when I interviewed the Santa Clara convention tech team. I wanted to hear straight from the horse's mouth why they felt their event merited charging $49 while the

NMRA-X events had been free. What was it about their event that was so different than what had come before?

As I waded into the details with the Santa Clara tech team, it started to dawn on me the unique new kind of online event they were attempting to craft. I had completely under-estimated what was possible online as to a virtual event.

Perhaps the most telling comment in the interview came from tech team lead Phil Edholm. Phil said something early on in the discussion that completely floored me:

"Instead of this being a video you watch for two hours, we asked how can we make this an event you want to attend for 60 hours and stay there?"

One of the things the tech team wisely did was try out their new "virtual event interaction model" with a couple online events

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"Instead of this being a video you watch for a few hours, we asked how can we make this an event you want to attend for 60 hours and stay there?"

months before the 2021 NMRA Santa Clara convention in July. As I began to hear the feedback the tech team received from those early "test bed" events, I began to realize: this most definitely *was not* going to be your father's online convention, as the saying goes!

Crafting a brand-new kind of online hobby event

I found the Santa Clara tech team's attendee feedback from their test bed events to be startling, to say the least. These guys actually had a ground-breaking new kind of hobby event on their hands!

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"One piece of feedback we got from many attendees of the virtual regional convention we held in April is that it was easier to connect with people in the virtual environment than it was at an in-person event. That was a powerful comment."

What? Easier to connect than at an in-person event? They had my attention. Then Phil Edholm threw in the clincher that made me realize I just had to pay my $49 and experience this new-fangled virtual event environment for myself:

"It's also important for us to tell you what we're not giving you with this virtual convention. We're not giving plane tickets. We're not giving you a hotel room. We're not giving you a rental car or taxi fees. You get much of the same interaction opportunities as an in-person event without the heavy cost of an in-person event."

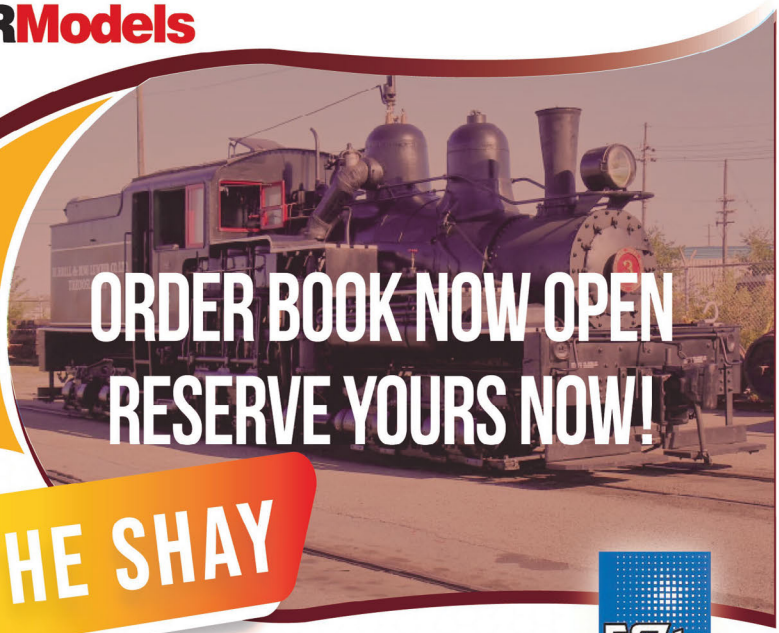
Wow. I realized as the founder of MRH Media, a hobby publisher that has been specializing in new high-tech ways to reach modelers online around the world, I needed to experience this new breed of hobby event for myself and see what I thought.

So I paid my $49 and attended the Santa Clara National NMRA convention from July 6th through the 10th.

Let me tell you, I was blown away. As the event closed, I felt like *I had actually attended a national NMRA convention*. I was able to connect with many modelers from around the

"One piece of feedback we got from many attendees of the virtual regional convention we held in April is that it was easier to connect with people in the virtual environment than it was at an in-person event. That was a powerful comment."

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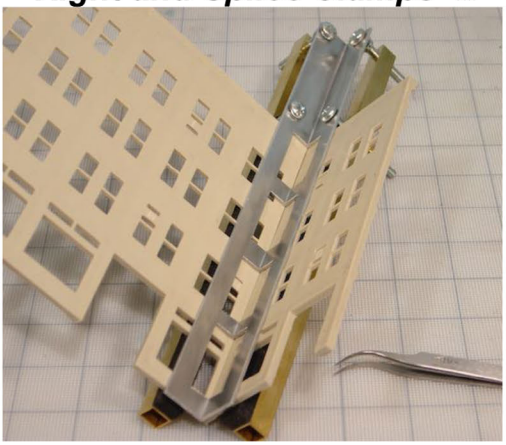
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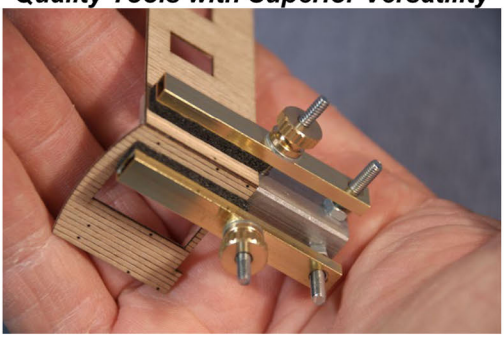
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world in ways that truly did feel easier and in some ways just as satisfying as an in-person event, if not more so.

Let me give you some of the unexpected discoveries I made at this ground-breaking Santa Clara virtual convention.

Many surprises

At an in-person convention, good luck getting any real time to ask questions of the clinician after the clinic.

Typically, they're being run out of the room by the next clinician and it's catch-as-catch-can in the hallway outside the clinic rooms.

This virtual convention turned that all on its head by making what they called "the clinic goes on" Zoom break-out rooms.

Essentially, the clinician hung around in this Zoom break out room for one or two hours being deliberately available for answering questions.

Wow, what a treat! I could finally get answers to my hobby questions that I have

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Pacific Western Rail Systems



1. Here's a video summary of the discussion I had with the Santa Clara virtual convention tech team. If you want to see what changed my mind and made me realize I *had* to pay my $49 and attend this online convention, then watch this 20 minute video.

had for the last several years from these hobby experts. And that's exactly what happened.

I see a number of these clinicians at the in-person conventions every year. I've been wanting a more in-depth conversation about some burning hobby topics they're knowledgeable about, but it's been tough to find the opportunity.

When I do see them, they're either running off to something they need to attend or they're surrounded by a dozen modelers who want ask about something.

It's basically "get in line" and I too have things I need to get to when I happen upon them in the hall somewhere.

I found the after-the-clinic breakout rooms to be simply brilliant. Since I had volunteered to give three clinics myself, I got to





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experience the "clinic goes on" breakout rooms from the viewpoint of a clinician as well.

I learned many surprising things being the "leading attendee" as the clinician in these Zoom breakout rooms.

Several people told me they would never come up to me at an in-person convention and introduce themselves or stand in line to ask me questions.

Yet they felt perfectly comfortable doing just that in the Zoom breakout rooms! They said I felt more approachable online in the Zoom setting. Who would have known?

I told them I was delighted to meet them and to have a conversation about their hot topic. They asked many great questions and we had a good ol' time having the discussion.

I also discovered I could continue to do my MRH work and attend clinics. Besides the obvious at-the-computer work, I also did some MRH modeling project work at my workbench. I just fired up my iPad, brought up the convention clinic, and watched while I worked.

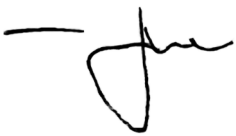
We need more of these virtual events

I came away from the Santa Clara virtual convention feeling like I had attended an NMRA National Convention, and then some.

Of course we still need in-person events as well. I have a hard time imagining how a "virtual train show" could be as satisfying as the opportunity to actually see and handle the new stuff.

I truly do hope this is the first of many such "virtual conventions with all the trimmings" to come. ☑





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Last issue ratings

Top rated articles in the **June 2020 issue** of *MRH* are:

4.9 June 2021 news
4.7 What's Neat: Tour of Ken's home layout
4.7 Building an Arduino speedometer

Issue overall: **4.3**

Top rated articles in the **June 2020 issue** of *Running Extra* ...

The June MRH Running Extra eBook was delayed until July, so it's now the June/July issue ... and of course, we'll have those ratings next month.

Rate the articles! Click the comments button on each article and select the star rating you think it deserves. ■

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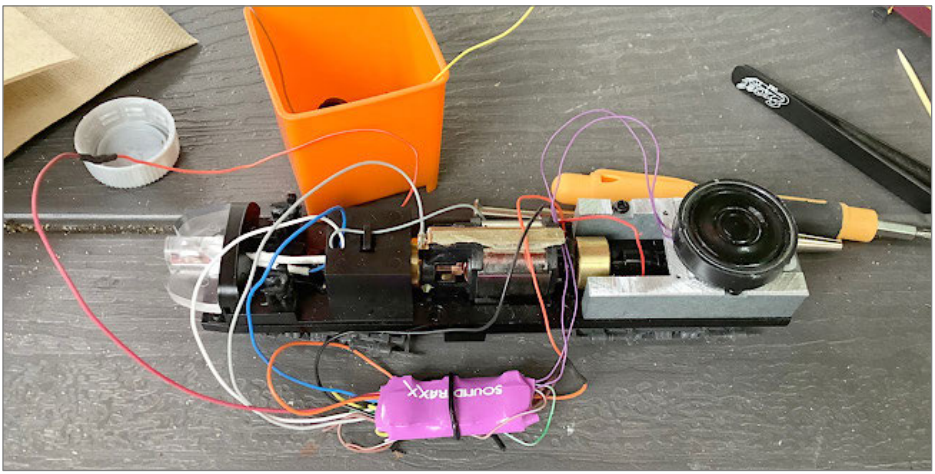
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Best of the MRH WEBSITE THIS MONTH

Model Railroad Hobbyist | July 2021

Compiled by JOE FUGATE



Proto 2000 FA1 / FB1 DCC Install

MRH forum member **MikeHughes** is documenting the process of converting his P2K FA and FB locos to DCC and sound.

"This thread is a bit of a mini-blog as I continue to explore features of DCC decoders with lighting."

VIEW READER COMMENTS

View the full thread on the MRH website

▶ *MRH'S* MONTHLY GREAT MODELER POSTS



1. Marc Simpson asks how to realistically weather wood roof walks on his railcars. This simple question has many surprising answers.

Weathering wood roofwalks

MRH forum member **mesimpson** (Marc Simpson) recently asked a how to realistically weather wood roof walks.

Forum member **narrowgauge** observed:

"I [suspect] the AAR banned paint on roof walks for safety reasons around 1900. Wet painted planks were like walking on grease."

MRH staffer Eric Hansmann replied:

*"I disagree on the AAR banning paint on wood running boards. It's not in the historical record of the AAR, ARA, or the MCB. Running boards **were** painted and many car shops would sprinkle sand on the wet paint so it wasn't slick when dry."*

Follow the fascinating discussion on Marc's *MRH* forum blog.

View the full thread on the MRH website

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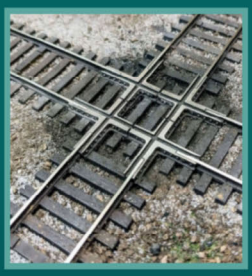
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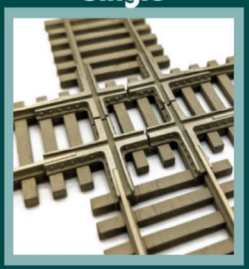
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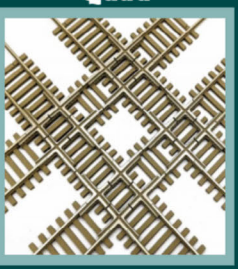
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2. *MRH* forum member **Patrick Hanzlik** asked for shelf layout design help and **Barry Karlberg** posted photos of this shelf layout. Nice!

Designing a shelf layout

Forum member **Patrick Hanzlik** (Patrick_) came on the *MRH* forum and started a thread asking for shelf layout design help. One of the more interesting posts came from **Barry Karlberg** showing several inspiring photos of Nick Palette's shelf layout.

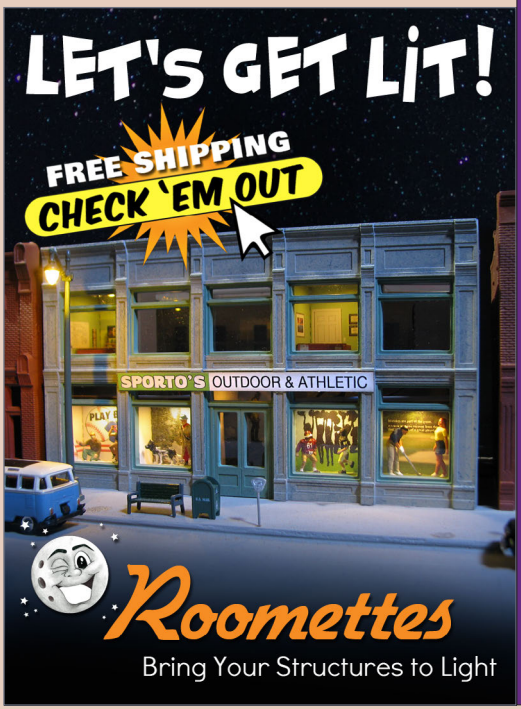
"Patrick it's really pretty simple to design a nice shelf railroad and you will only need a few switches.

In your 80" at least 3' will be consumed by the main track and run around track, leaving you with a space of around 3' to be able to get around 3-4 sixty-foot scale freight cars plus a lead (portable track 3-4' long off one end of your main track) so you can bring in a train from 'off scene' like in a play."

Follow the conversation and Barry and others help Patrick design a fun and satisfying shelf layout!

View the full thread on the *MRH* website

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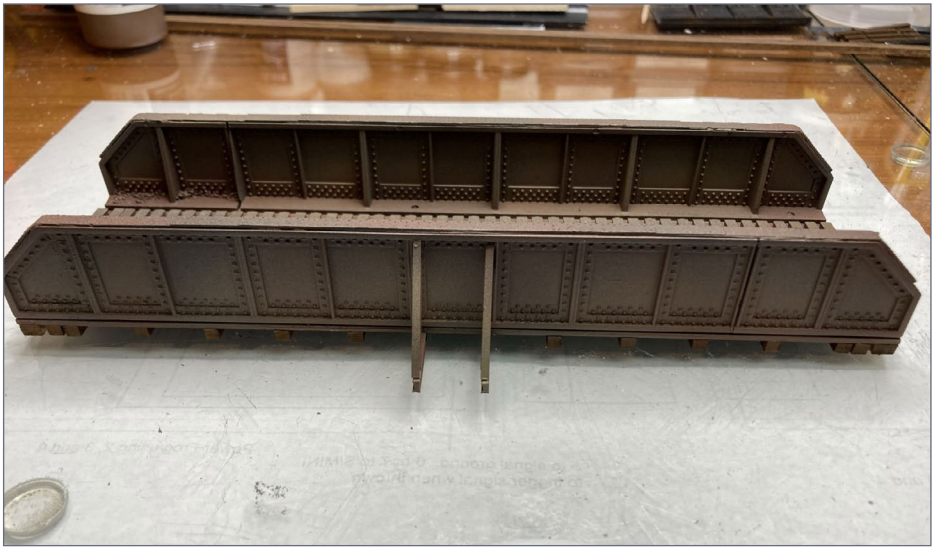
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3. *MRH* forum member **Michael Anteau** (anteaum2666) shows his turntable bridge he's building for his layout turntable project.

Turntable scratch build

MRH forum member **anteaum2666** recently embarked on a turntable scratch building project.

"For about 30 years I've wanted to attempt to build a turntable from scratch. I read an article by Bob Hayden where he built a narrow-gauge turntable for Dave Frary's layout using a 1/4" phono plug as the pivot, and I thought that was a great idea. It's taken me several decades to get to it, but I'm finally giving it a go! "

Michael is documenting this build, step-by-step on the *MRH* forum. Some of the most interesting discussion involves the whole process of using a ¼" phono plug for the turntable's central pivot.

Follow along as the conversation develops using the button below.

View the full blog on the *MRH* website

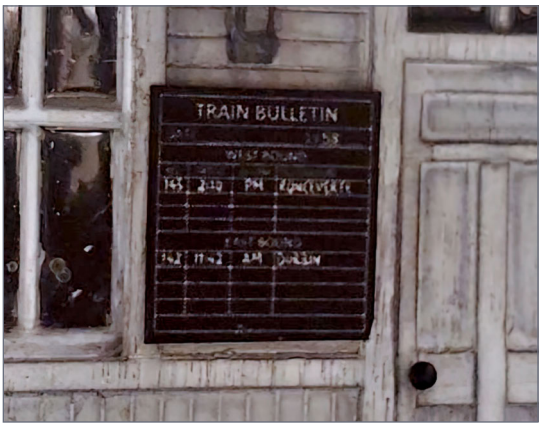
Some great "workbench thread" photos

Besides the weekly photo fun thread, we also have a monthly "workbench" thread that gets some interesting project photos.

View the full post on the *MRH* website



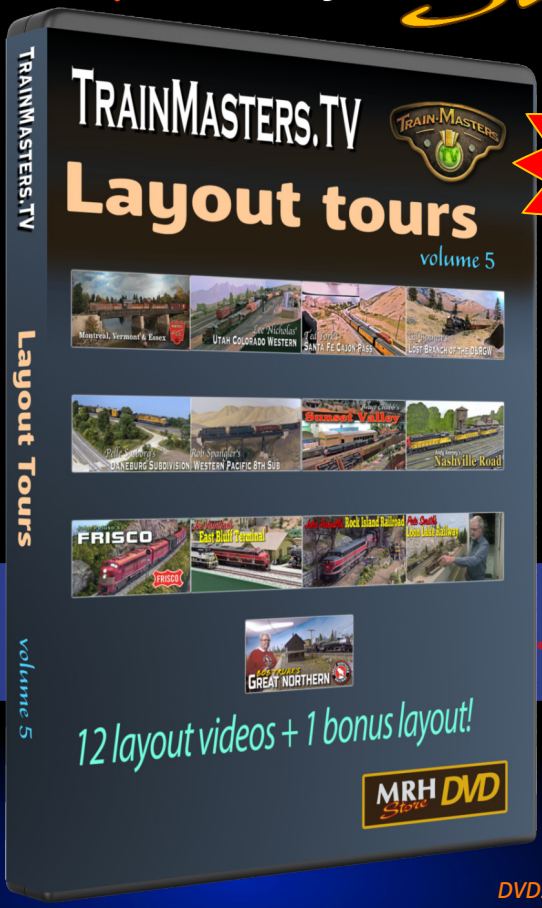
4, 5. *MRH* forum member **Prof_Klyzlr is** building this depot scene and posting photos of it on the July "What's on your workbench" *MRH* thread. On the right, check out that train bulletin board on the station wall!



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WHAT'S NEAT column



Model Railroad Hobbyist | July 2021

KEN PATTERSON'S COLUMN THIS MONTH ...

- N scale project layout – Part 1
- Modeling ideas from above in the Feather River Canyon
- Robert Stears of San Juan Model Company

VIEW READER COMMENTS



click to play video

PHOTOS AND VIDEO OF SUPERB MODELS

This month contains the first installment of Ken's N scale 3-1/2′ x 8′ project layout, showing how he sets up the foam base and trackwork. Modeling from Above takes us to the Feather River Canyon as Dan Scheidell follows a Union Pacific auto rack train along the river and across several bridges. Finally, Ken interviews Robert Stears of San Juan Model Company, which has purchased several model railroad manufacturers that were in danger of disappearing, such as Grandt Line and San Juan Car Company.

The N scale project layout – Part 1



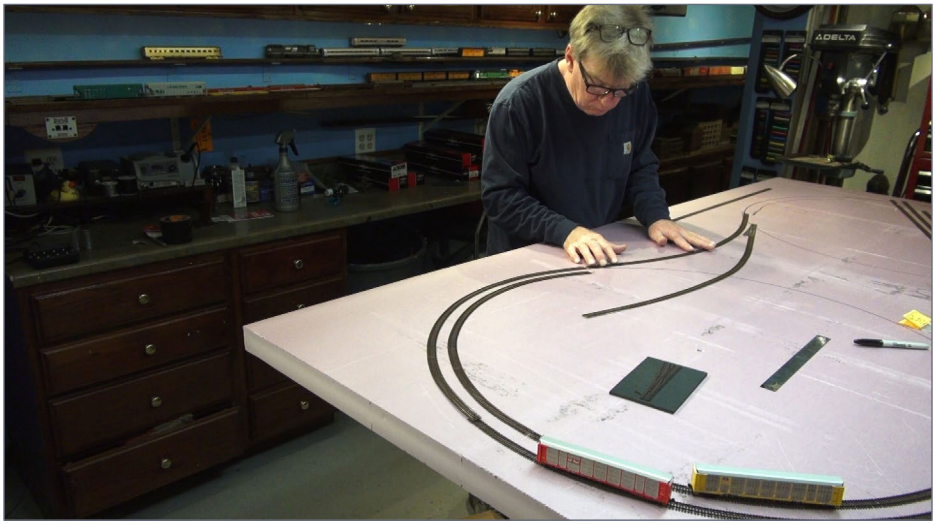
1. Ken determines the location of two 19″-radius curves on the 2″ foam base and joins them with French curves. Two sheets of this foam will form the base structure of the layout.



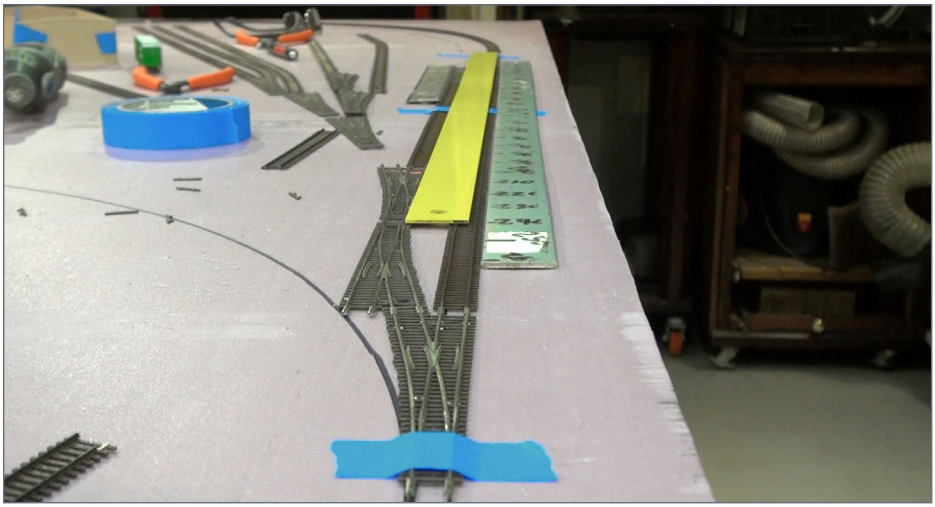
2. Ken adds power jumpers between the rails to the code 55 turnouts that will go on the layout. With a two-track mainline with two crossovers, a five-track switch yard, and a branch line to a grain elevator with a runaround and two industry tracks, there are 13 turnouts planned on the layout.

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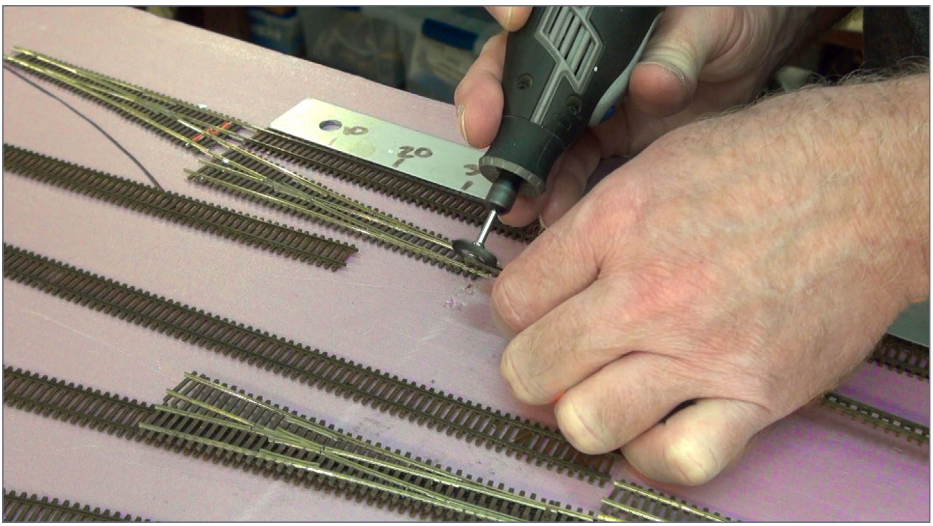
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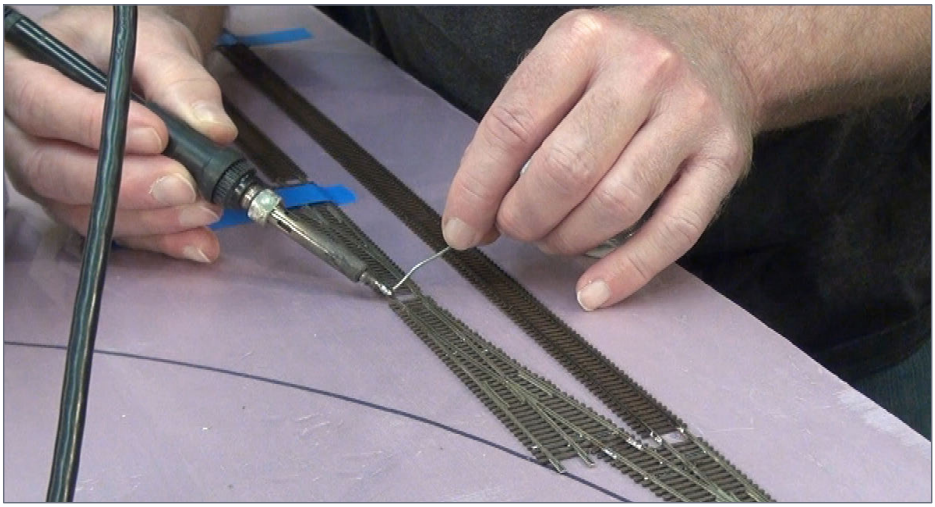
3. One of the things Ken likes about Micro Engineering weathered flex track is that curves hold their shape after being bent.



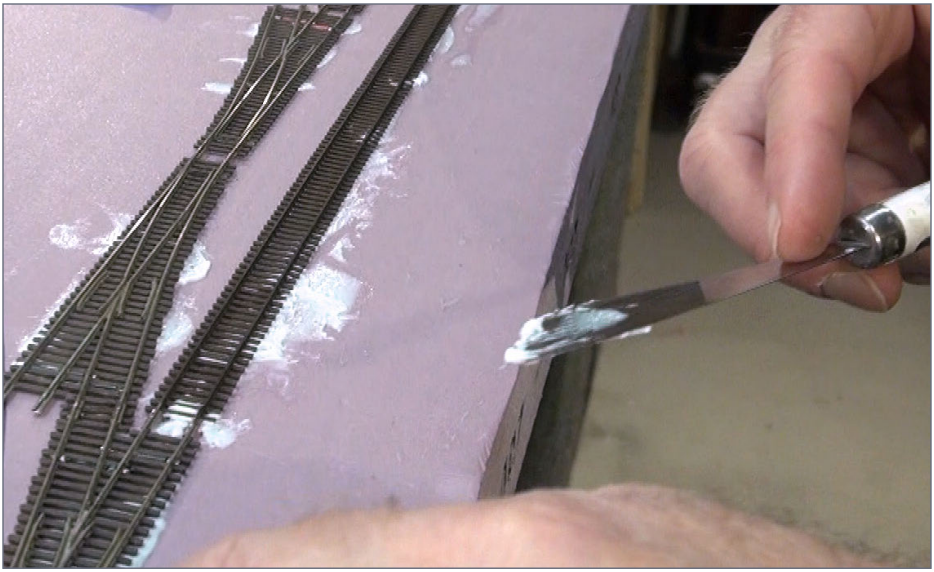
4. To prevent the track from sliding around on the layout as he cut the straight pieces between the crossovers, Ken aligned the track with a straight edge and taped it in place.



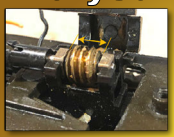
5. Ken prepares the weathered track for soldering by removing the weathering tarnish with a Dremel wire wheel.



6. Ken soldered the track together at the rail joiners to ensure it wouldn't shift. Here he uses 60/40 rosin-core solder and a chisel tip on the soldering iron.

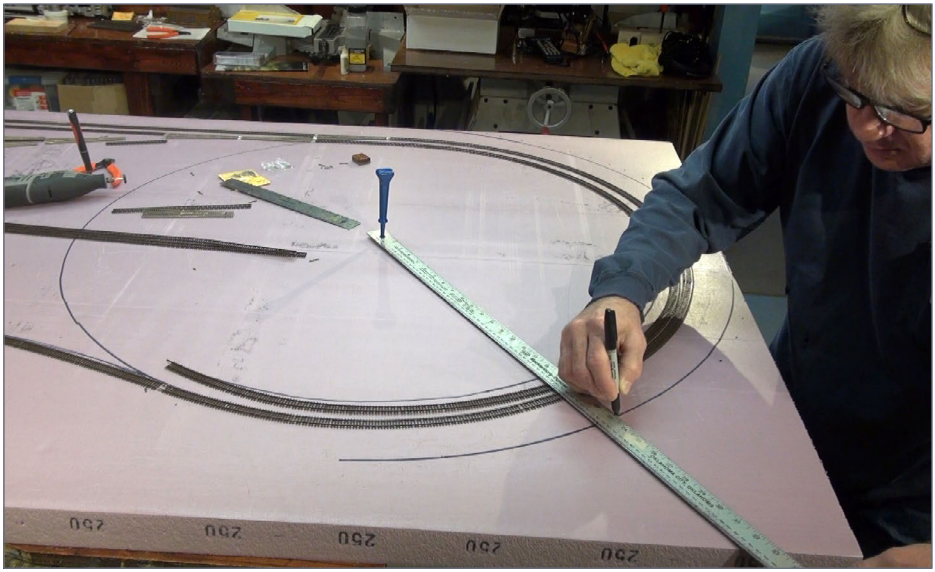


7. After soldering the track together, Ken glued the track to the foam with Dap Kwik Seal Plus adhesive sealant. He uses a painter's knife to spread the adhesive under the track. It dries clear and is paintable, so ballast can be glued to it later.

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8. As Ken established where the mainlines would be, he also drew curves three inches from the outside main to determine the edge of the layout. He is using a three-foot ruler to measure and draw the curve.

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9. Ken cut the foam with a hand saw, following the lines he had drawn. He then squared-up the edge with 80-grit sandpaper glued to a steel block. This provides a square edge for the quarter-inch plywood he will wrap the layout in later.

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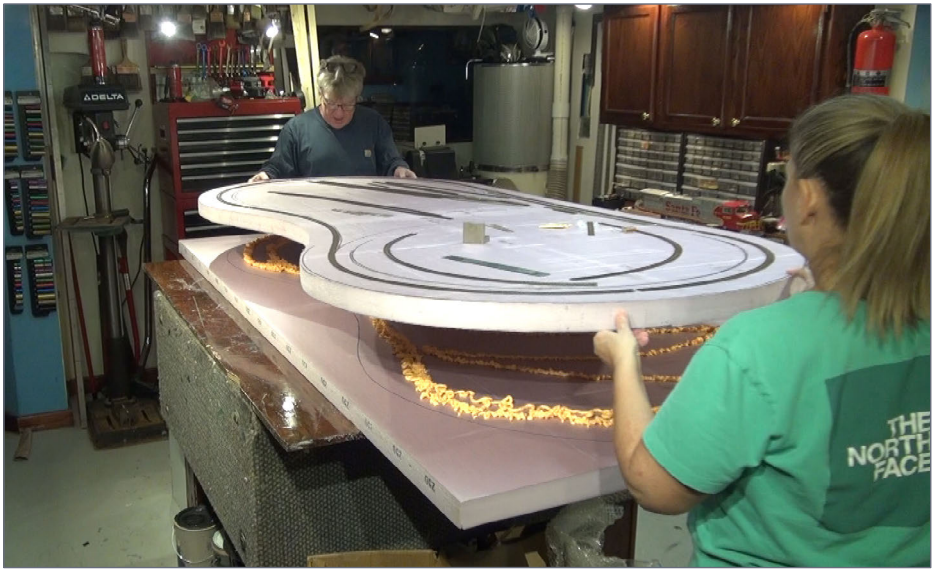
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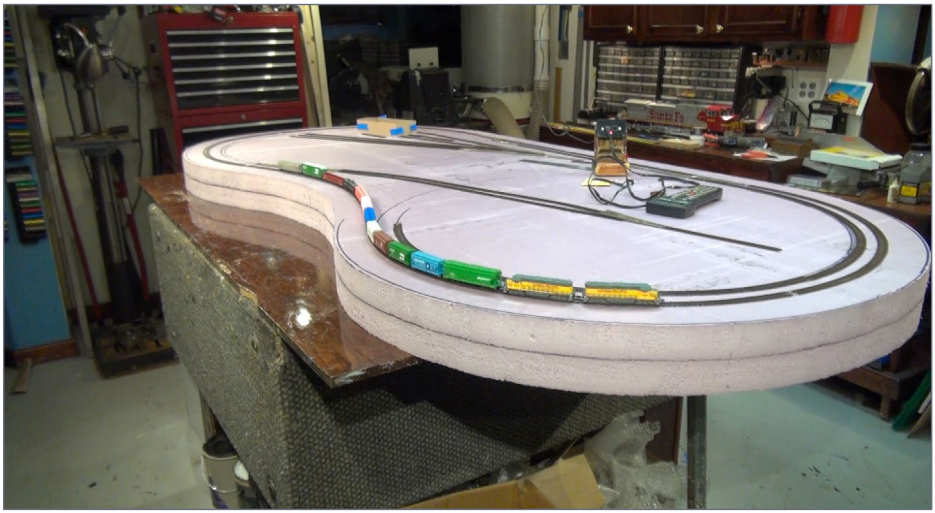
10. Ken glued a second layer of two-inch foam to the bottom of the layout for strength, using Great Stuff Foam Pro to glue the two layers together. Unlike the regular Great Stuff Foam, the Pro version sets up in 30 minutes without much expansion.

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11. Ken then uses a variety of weights to ensure that the Great Stuff Pro will not force the foam layers apart.



12. Having trimmed the bottom piece of foam to match the top piece, Ken also finished the outside mainline, allowing him to run a test train. In future episodes Ken will add power blocks, roads, tree, buildings, and other scenery.

Modeling ideas from above in the Feather River Canyon



13. Dan Scheidell and his drone follow an auto rack train with an engine at both ends along the Feather River, through and under many photogenic bridges for both trains and autos.

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Robert Stears of San Juan Model Company



14. Ken interviews Robert Stears of San Juan Model Company, which has purchased several smaller model railroading manufacturers that were in danger of closing their doors. Included are Grandt Line Products, San Juan Car Company, San Juan Decal Company, and the Leadville Shops. At the Grandt family's request, Grandt Line products are now San Juan Details.

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15. Pre-production On3 wide-frame, tall-dome Conoco tank car. On30 wheelsets are included and the cars will also be available in HOn3.



16. American Limited Models HO scale tank car. On the Santa Fe, the colored stripes indicated what product the tank cars carried. For all the details on Ken's N scale layout build, the fantastic scenery of the Feather River Canyon, and the Robert Stears interview, check out the video linked at the beginning of this article.

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SIGNALS ON THE WYOMING



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EXPLAIN THE INSTALLATION AND FUNCTION OF THE SIGNALING SYSTEM ON THE WYOMING DIVISION LAYOUT...

VIEW READER COMMENTS

LAST MONTH I GAVE AN OVERVIEW OF HOW THE SIGNALS on the Wyoming division function during operations. This month, I'll get into the details of how we designed and built our signal system, and how it works.

When we designed and built the layout, we planned our DCC blocks to minimize the number of boosters we'd need, though

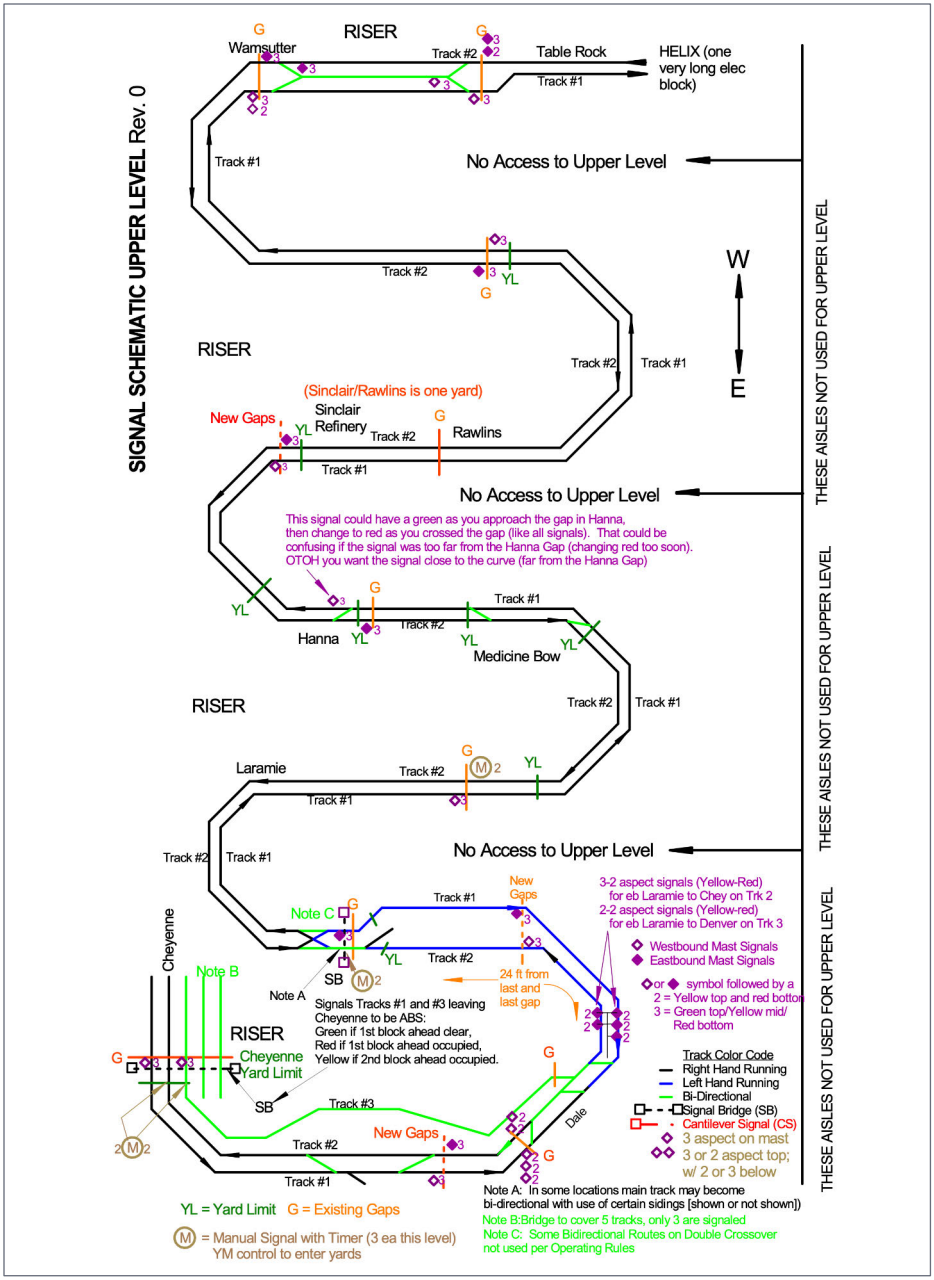
DIVISION: PART 2



not with ABS in mind. When Allen Montgomery and I decided to upgrade with an ABS system, I made two schematic drawings of the layout representing the top and middle levels to help us determine where the ABS boundaries should be.

Although we made use of the original DCC block system as much as possible, we determined there were several places where we needed to make new cuts and modify the breaker system to make it more compatible with ABS [1, 2].

Some of the original power district gaps were within major yards. Since we wanted to use yardmaster (YM) control instead of ABS in the yards, we re-cut the gaps and modified the

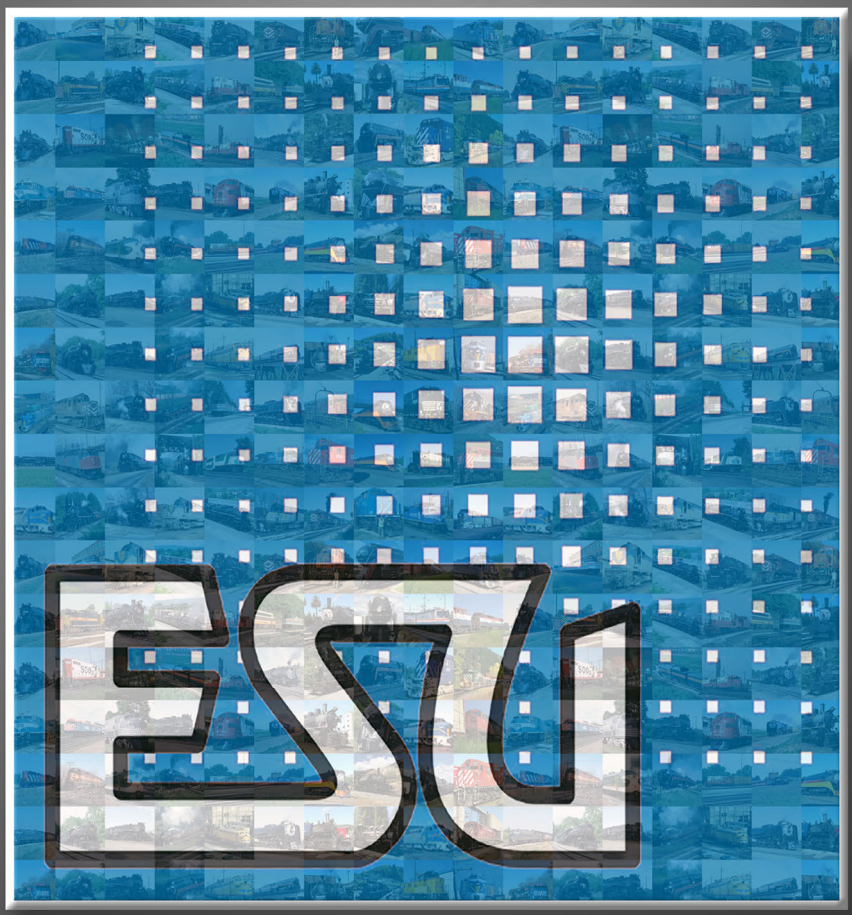


1. Schematic representation of signal blocks on upper level.

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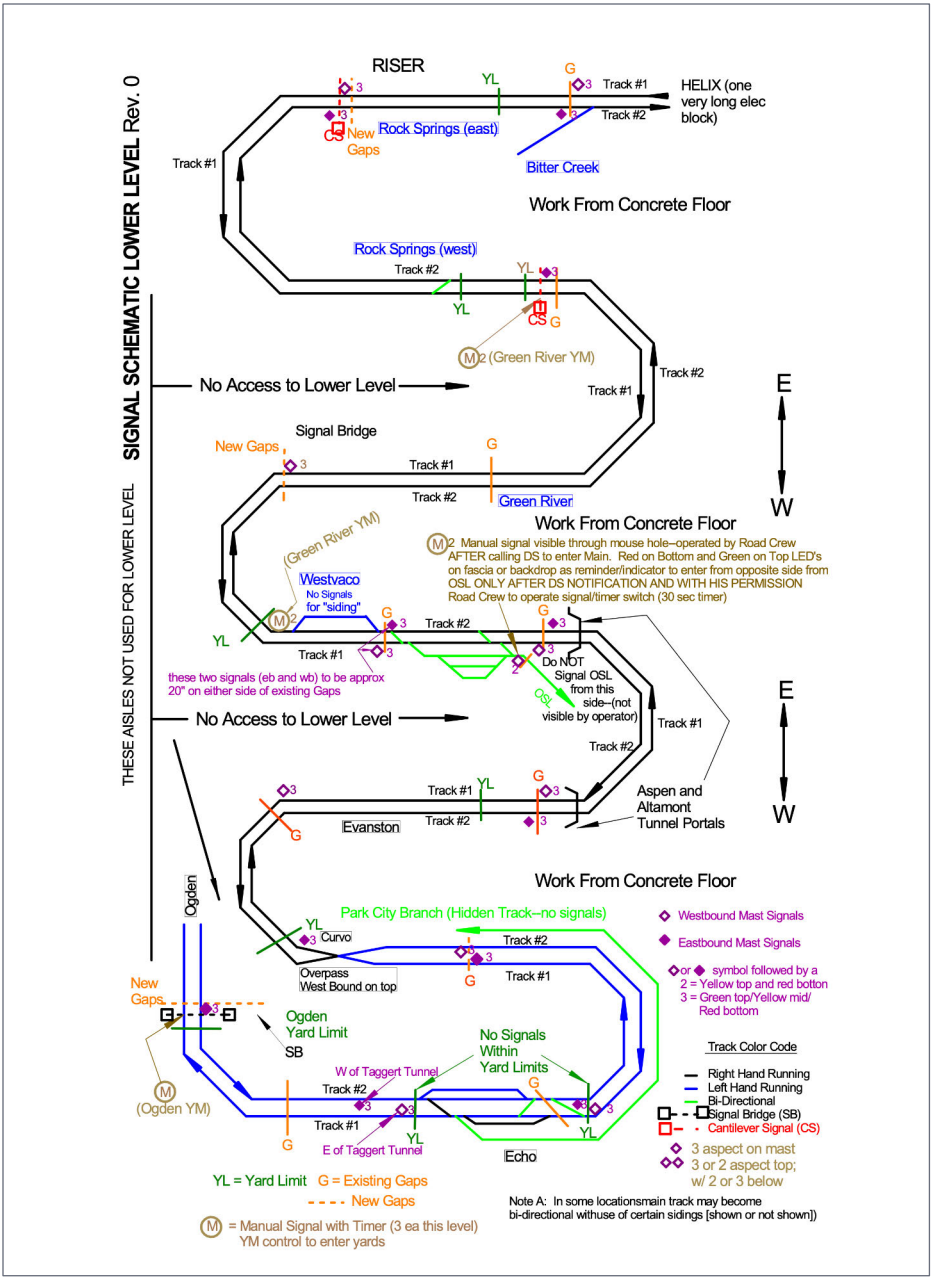
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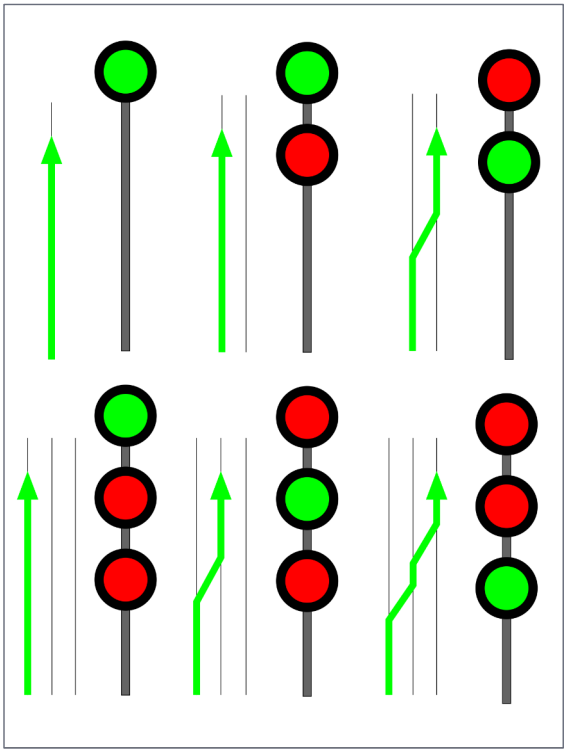


2. Schematic representation of signal blocks on lower level.

district wiring so that the ABS system would end at the yard limits on either end of the yard.

Ideally, signals should be right next to the block gaps, but there were some cases where the existing districts made this impossible if we wanted to maintain visibility for crews. While we could cheat signal placement for some gaps, in others the distance was simply too far, forcing us to cut gaps and modify districts.

With the schematics complete and the gaps finalized, I assessed how many signals I needed of each configuration. In addition to single-headed signals for controlling straightaways and single track, I had to think about how many double-headed or triple-headed signals I would need for diverging routes [3].



3. Some of the standard signal aspects for single- and multiple-headed signal masts. For multiple heads on a single mast, the top head controls the primary route, the second-down signals a diverging route ahead, the third-down signals a second diverging route. *James Regier illustration*

Once I knew how many of each signal kind I needed, I thought about placement. I wanted to have most of the signals on masts near the rail gaps.

In some situations, such as yard entries and exits, cases where I needed to signal more than two tracks at once, or places where I wanted to emphasize an upcoming yard, signal bridges worked better than individual masts.

In 1957, the Union Pacific used a three-light signal with the lights vertically placed with a single snow hood extending over all three lights.

Doing some research, I found that Custom Signal Systems (www.customsignalsystems.com) offered the closest match, with three-LED signals that included the snow hood [4]. Richard Paccuilla of Custom Signal Systems also custom-made



4. We chose a D-type signal with three LEDs and a snow hood.

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signal bridges to the specs of my layout, with track spacing that varied from 2.5″ to 3″ centers [front spread].

ABS SIGNAL SYSTEM LOGIC AND CURRENT DETECTION

We chose current block occupancy detection for the Wyoming Division, since many modelers have found it to be the most reliable and consistently performing option. It requires a completed circuit between the rails.

Locomotives and anything else with a decoder or lighting meets this requirement, but insulated wheelsets on cars do not. For a car to register in the block, you must bridge the isolation point on at least one wheelset.

The most common methods for this modification are applying electrical resistive paint across the isolation point or soldering the terminals of a 1K or greater SMD resistor to connect the insulated wheel with the metal axle.

Some modelers insist that each car on their layout has at least one modified wheelset for block occupancy detection. Because blocks on the Wyoming Division are 1½ to 2½ trains long and no train would ever occupy more than two adjacent blocks at a time, we decided that modifying every car was unnecessary.

Instead, we ensured each caboose had a resistive wheelset, lighting, or a decoder.

We chose Control Point Occupancy Detectors (cpOD) from Model Railroad Control Systems. These units are wired in series with the DCC power supply to one rail. It doesn't matter which rail, but it needs to be consistent throughout the layout, with one cpOD for each block.

The cpOD uses its own 5-12v regulated power supply. When a passing train completes the circuit, the current flowing through a toroid coil produces a voltage that the cpOD uses to

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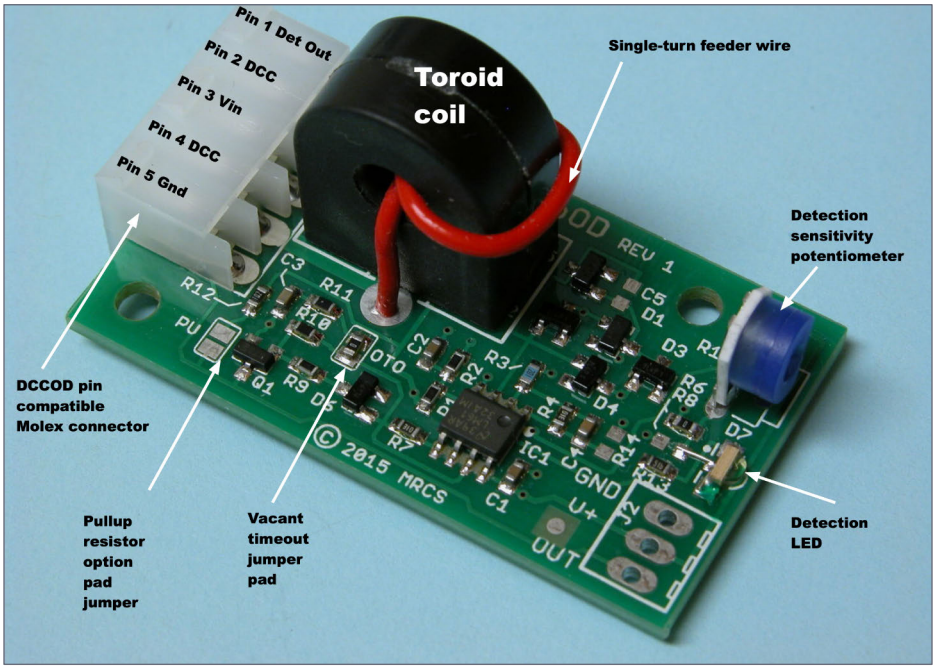
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detect the train's presence. The cpOD's output sends this information to the signal logic system [5].

The Wyoming Division uses Dual ABS Control Boards (DABSC) from RamDen Enterprises for its ABS logic system. RamDen Enterprises owner Dennis Drury formerly maintained signals on the Southern Pacific railroad, and he brought his expertise into designing the DABSC boards as a simple, cost-effective, and prototypical ABS signaling system. This was perfect for our needs.



5. The cpOD board from Model Railroad Control Systems. Note that pins 2 and 4 connect in-line to the DCC power supply of one track and link directly to the single-turn feeder wire, which passes through the toroid coil and induces a voltage in it. If it is convenient to thread the feeder wire itself through the coil, then you can do that instead of splitting it to connect to pins 2 and 4. *Manufacturer photo*

Each DABSC board serves one block, providing separate logic functions for westbound and eastbound travel (as labeled on the board).

The wiring requirements are minimal, including two terminals for the regulated 5V DC power supply, six terminals to light three eastbound and three westbound signal lights, and four terminals for eastbound and westbound home and distant block detection inputs from the cpOD boards.

Best of all, the system requires no centralized control system or the complex wiring that accompanies it [6].

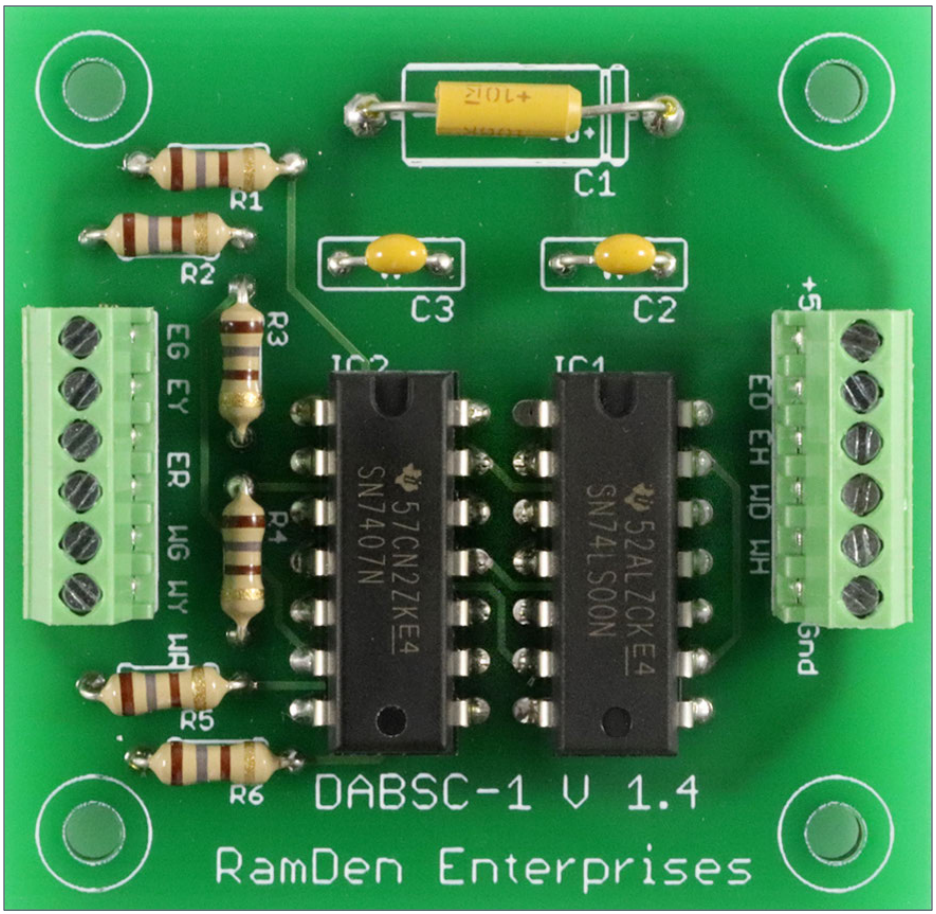
Because the DABSC board's logic function for eastbound is independent from westbound, you can think of the board as having two independently functioning halves.

These halves can control both directions of travel on one block of single, bidirectional track. In the case of the Wyoming Division, which is mostly double track with right-hand running, we can use each DABSC board to control two blocks, one for the westbound and one for the eastbound track [7].

Each cpOD simultaneously sends its occupied signal to the "home" input of the corresponding ½ SBC for its block and to the "distant" input of the ½ SBC for the block behind the train.

Thus, when the westbound train enters Blk 5, Sig 5 turns red and Sig 7 turns yellow. Since the cpODs serving the ½ SBCs controlling Blk 1, Blk 3, Blk 9, and Blk 11 are not detecting occupancy, the corresponding Sig 1, Sig 3, Sig 9, and Sig 11 remain green.

As the westbound train progresses to Blk 3, it will turn the Sig 3 red. Only when the caboose clears out of Blk 5 will it register as clear, allowing Sig 5 to turn yellow and Sig 7 green. The same process is happening for the eastbound train in [7].



6. The DABSC board from RamDen Enterprises forms the basis for the Wyoming Division's ABS logic system. Note the input labels on the right-hand side for eastbound and westbound home (EH and WH) and distant (ED and WD) detection.

The output labels on the left side go to the eastbound and westbound green (EG and WG), yellow (EY and WY), and red (ER and WR) signals. The LED signals use a common anode to the +5 terminal and require current limiting resistors, 1K recommended. Manufacturer Photo (www.modelrailroadcontrolsystems.com/dual-abs-signal-controller).

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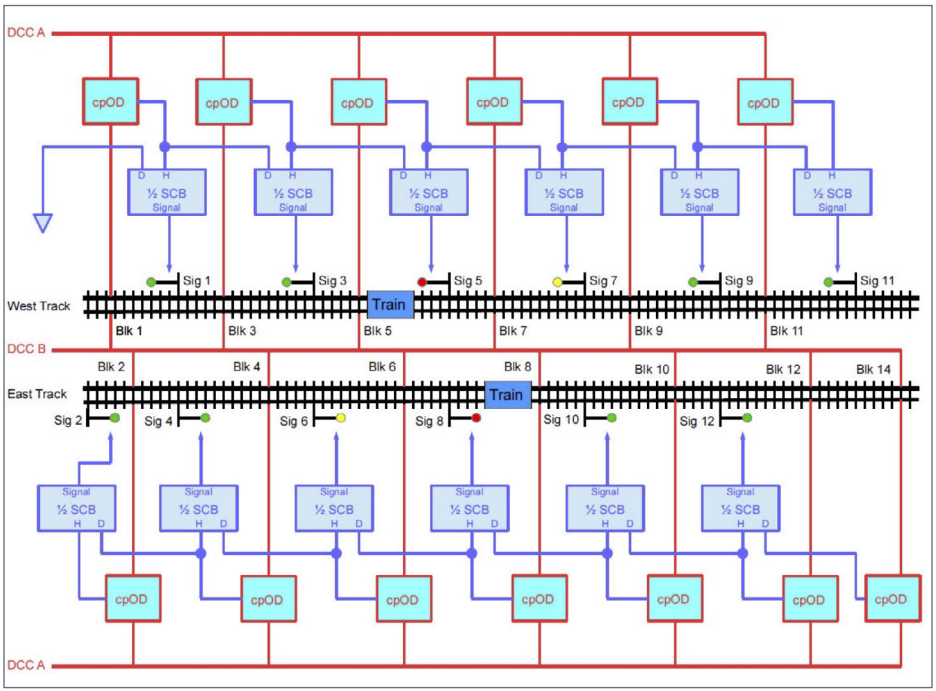
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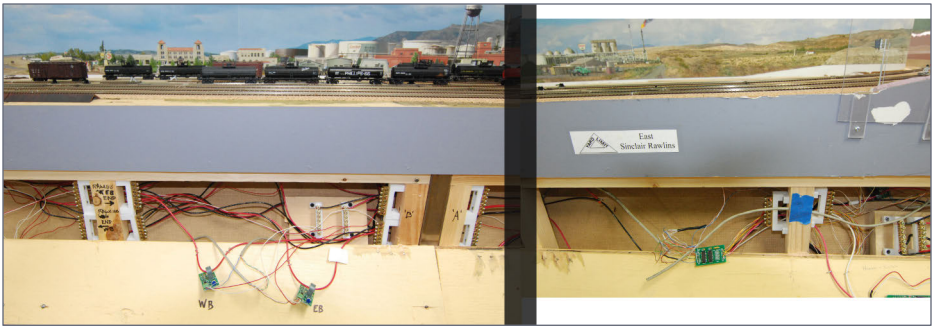
Once we had the coOD and DABSC boards wired, we installed them in convenient locations on the inside of wire tray doors near the blocks they served.

This helped reduce the wire needed. Since we use a star power network for 5V power, it was simple to run the power for the



7. ABS System Block Diagram for double track, right-hand running using DABSC boards. The westbound train (top) is moving right-to-left, while the eastbound train (bottom) is moving left-to-right. Blocks on the westbound track are odd, while blocks on the eastbound track are even. Each DABSC board is denoted as "½ SCB" in the diagram.

The two independently functioning halves allow the board to serve the matching blocks on both tracks, as long that each track is operating one way. *Drawing courtesy of Dennis Drury, RamDen Enterprises*



8. This is a typical installation of cpOD (top) and DABSC (bottom) boards on the Wyoming Division. The two photos in this composite, centered about 8 feet from each other, represent about 12 feet of the layout in front of the Rawlins/Sinclair Refinery with two wire trays opened. The cpODs [left] and DABSC boards [right] are mounted to the wire tray doors. The removable polycarbonate shield on the fascia protects the signal from operator elbows.

cpODs and DABSC boards along with the DCC power busses. We made liberal use of brass and white nylon terminal blocks for the signal wires [8].

SPECIAL BLOCKS AND ABS

All 1,006 feet of double track on the Wyoming Division layout are signaled with true ABS, except when passing through the four major yards at Cheyenne, Laramie, Green River, and Ogden, and the main staging yard.

Each of these is under direct yardmaster control, requiring the yardmaster to align the turnouts, and manually give a green signal to inbound trains.

The three other special areas that require operator action to act like ABS come where one ABS block meets two others.

These locations require manual control of turnouts by train operators walking along with their trains, and the positions of those turnouts set by those operators are used along with

occupancy detection to determine the aspects of their governing signals, somewhat like CTC.

These special blocks act automatically only after an operator's actions, so they may be considered simulated ABS or semi-automatic ABS, because they use occupancy detection after the operator's action.

The combination of these special block signals with the true ABS signals is seamless.

ORIGINAL PLAN OF SIGNALS AT DALE JUNCTION

Three signal blocks meet at Dale Junction: the two blocks of double-tracked mainline on either side of the junction and the Harriman Cutoff block. Further complicating Dale Junction, I use it to follow UP practice and change the current of running from right-hand running east of Dale between Cheyenne and Dale to left-hand running between Dale and Laramie.

UP began this change of running in 1905 when they double-tracked the entire railroad. The railroad built the new track 2 from Laramie to Dale to be widely separated from and longer than the original track 1 from the 1860s to give it a gentler grade, so this new route became the eastbound routing uphill.

Because the gentler grades were not as important for downhill running, track 1 became the downhill, westbound route.

The transition back to right-hand running is just inside the eastern yard limit of Laramie. This is not signaled since it is within the main yard of Laramie and therefore under yardmaster control.

I wanted to simulate ABS at Dale Junction, with two- or three-headed, three-aspect signals with separate red, yellow, and green lenses in a vertical, in-line signal head. Two (or three) signal heads were required on some masts for the two (or three) routes out of Dale diverging from one route in. I wanted

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the oversized single snow hood that covered all three lenses as used by UP in blizzard-prone Wyoming for those, though I didn't need signal bridges.

A switch panel mounted on the fascia in front of Dale controls the Tortoise machines at Dale Junction with rocker switches set inside 1-inch diameter holes on a map of the track through the junction.

Arrows over the track lines at each end define the routes for each operator to change current of running. Lighted green LEDs countersunk into the panel surface show the active operator the set route on the red track lines [9].

Track 1 carries westbound trains up Sherman Hill from Cheyenne to dale and track 2 carries eastbound trains down the slope toward Cheyenne. Track 3 is the bidirectional signaled Harriman Cutoff, which splits from tracks 1 and 2 in Cheyenne and merges with them again at Dale Junction.

At first, I designed signals with multiple heads on the masts that would simulate realistic running through this territory. I planned to use three-aspect signals with two, three, and five heads on a mast, with the outputs of the Tortoise switch machines that controlled the seven turnouts (three crossovers



9. The yellow switch panel set in the fascia at Dale controls the turnouts and the corresponding signals at Dale Junction. There are 16 other similar panels on the layout, but they are not connected electrically to the signals.



10. The eastbound approach to Dale Junction.

and the junction) also controlling the signal aspect LEDs. This initial plan didn't allow for simple occupancy detection because one ABS block merges with two other blocks.

DALE JUNCTION AND REVISED DESIGN FOR OCCUPANCY DETECTION

Because the layout is set in 1957, I originally wanted to avoid using computers or computer operators for the layout or its signal system at all during operating sessions.

However, Dennis Drury suggested that the Dale Junction signals could work with the occupancy-detected ABS if the Tortoise machine outputs could control the multiple heads from the multiple routes via an Arduino microcontroller .

The Arduino could sort the outputs from the DABSC boards to the proper signal heads, which would allow the signals to re-

flect the operators' settings of the Dale controls, and use ABS to provide safety from collisions.

Using an Arduino would furthermore avoid requiring a dedicated CTC operator job for this small portion of the layout. The Arduino would need a separate power supply, but it would respond automatically, first to the turnout positions, which would then reset the signal aspects according to block occupancy of the route set by the upcoming turnouts.

Dale Junction has seven turnouts, with three crossovers and one junction with the Harriman Cutoff. The signal mast protecting the eastbound approach to Dale Junction has five signal heads: three stacked on the left and two stacked on the right. The left stack is set by Tortoise and controls tracks 1 and 2 down to Cheyenne.

The top head controls the diverging route from track 1 (left) to right Track 2 (right); the middle head controls the second crossover, diverging route from track 1 to Track 2. The bottom head controls the third crossover from track 2 to track 1, which is not allowed because running from Dale to Cheyenne is right-hand only.

The right stack of heads controls Track 1, after arriving from Track 2. The top head controls the descent to Cheyenne on track 2. The bottom head controls the diverging rout to track 3, the Harriman Cutoff toward Cheyenne.

In other words, arriving at the Junction from Laramie, there are five possible routes, but two – continuing straight ahead on the Track 1 or crossing over to Track 2 and then immediately back to Track 1 – are not allowed.

The remaining three options – taking the first or second crossover from Track 1 to Track 2 and heading to Cheyenne on Track 2, or taking the first crossover and then the Harriman cutoff to Cheyenne – are possible based on turnout position and signal clearance [11].



11. Another view of Dale Junction. The turnouts are aligned for left-hand running to Cheyenne, which is not permitted, so all signals are red.

Approaching Dale from the east, the signals are on two masts with three signal heads for Track 1

The westbound signals beyond the water tower can also be seen. The westbound signals are on two masts with three signal heads for Track 1 on the left of the mast, and two signal heads for Track 3, the Harriman Cutoff, on the right. Parallel logic is used for the direction from Cheyenne to Dale via either Track 1 on the distant left or 3 on the distant right.

The top signal on the triple head approaching Dale on Track 1 controls the crossover from Track 1 to 2 for left-hand running to Laramie. The middle and bottom signals control the two crossovers back from track 2 to track 1, neither of which is permitted.

A westbound train arriving at Dale on the Harriman Cutoff (Track 3) will encounter a single mast with two heads. The top head controls the turnout from Track 3 to the far main of the double main for left hand running to Laramie. The bottom head controls the first turnout of the next crossover, which is not allowed.

The signals at Dale Junction show only red or yellow aspects, set by the selection of the turnout electrical Tortoise machine control panel and routed via Arduino [9].

These signals at Dale Junction never show green, which implies full track speed. All movement through the junction's crossovers is restricted, so the signals show yellow for reduced speed or red for stop (either the turnout or crossover is against the route, or the track immediately ahead is occupied.

HARRIMAN CUTOFF WITH REVISED DESIGN FOR OCCUPANCY DETECTION

Harriman Cutoff – track 3 – has a siding long enough to accommodate a train, and Dennis suggested using an Arduino to control this siding. We would treat the Cutoff and siding as a one-block-long section of double track, with single, bidirectional track on either side.

This created three blocks on the cutoff, each enough to accommodate a full 30-car train [12].

We replaced the Caboose Industries manual turnout lever controls at turnouts on either end with electrical slide switches mechanically connected to the turnout points by piano wire.

The Arduino supplies voltage to the slide switch contacts, and current flows only if the switch is closed. The manually operated slide switches push or pull the turnout points.

When the slide switch closed (when the turnout is set), a cpOD on each track would detect current through the slide switch and feed its output to the Arduino. The Arduino would then power the LEDs for the proper signal aspect.

A single Arduino could serve the signaling needs for the entire stretch of double track.

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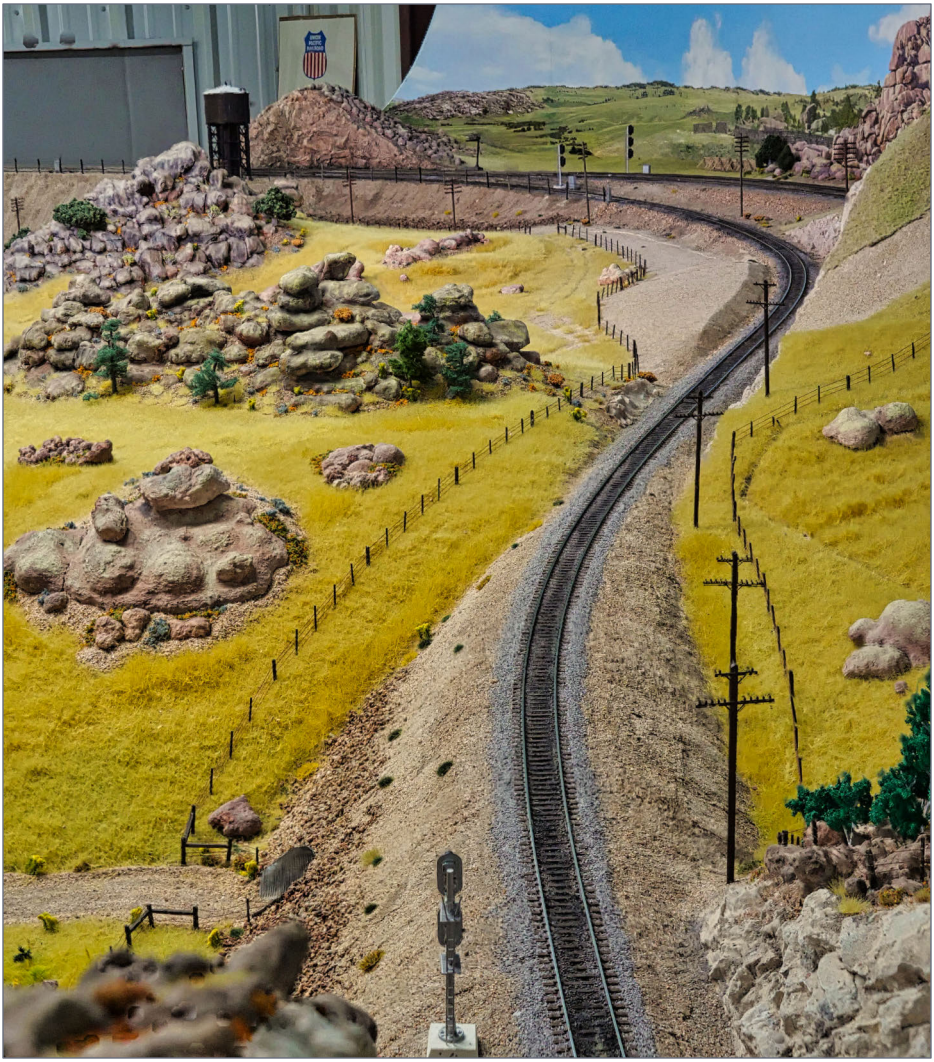
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12. The view approaching Dale on the Harriman Cutoff, Track 3. The near signal, facing away from the camera, has dual heads to guard the approach to a siding/double-track section of the cutoff. The upper signal controls the main, and the lower signal controls the diverging route. Because the double-track section is set for right-hand running, the diverging route signal is a constant red.



13. East end of double-track section of Harriman Cutoff and signals with double heads to control the siding. Note the slide switch embedded in the roadbed. The signal shows ahead restricted – no green signals used on this siding – routing the approaching train (behind the camera) to the right track.

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As at Dale, this Arduino arrangement on the Cutoff requires the train engineer to maintain ABS by moving the slide switches to set the turnout. Otherwise, it works seamlessly with the ABS network and requires no CTC machine or CTC operators. With Dennis' design, Dale and the entire Harriman Cutoff became integral parts of the Wyoming Division's occupancy detected ABS [13].



14. This signal bridge guards the eastern yard limit of Green River. To enter the yard requires permission from the YM or his helper, so the signal is normally red. When either of those yard workers manually changes the signal to yellow over red, a train may enter. There is no green aspect because reduced speed is required within all yards.

The signal head on the opposite side of the Green River bridge is a green-yellow-red ABS signal over the other right hand running track.

Photo [13] shows the east end of the Harriman Cutoff double track with the camera still facing west. This is a main with a siding on the prototype. The slide switch can be seen embedded near the roadbed.

Here the turnout is set for right-hand running on the double track. The upper signal is yellow for a reduced speed on the mandated right track, and red for the prohibited left track. Green is not used on these signals.

The slide switch-to-turnout arrangement at the other end of the double track is signaled and works the same through the same Arduino for an eastbound train coming this way down the hill toward Cheyenne.

YARDMASTER-CONTROLLED ACCESS SIGNALS

The entrances of the four major yards at Cheyenne, Laramie, Green River, and Ogden – except west Cheyenne and east Ogden, since they lead only to staging – mark the ends of strings of cPOD-DABSC controlled ABS blocks.

Two-aspect (red or yellow) signals guard the major yard entrances, and they are under yardmaster (YM), rather than ABS control. These signals default to red, which requires road crews to stop at the yard limits and get permission and instruction from the YM for yard entry.

Once the YM has aligned the yard turnouts to route the train into the yard, he presses a button that changes the signal to yellow over red.

About 30 seconds later, an NE555 timing circuit reverts the signals to red, so that the YM does not have to wait for the train entry to reset the signal or remember to do so later. These signals are not prototypical, but they ensure yard limit communications between train engineers and yard personnel and make for smooth yard operations [14].

The tracks within these four yards are unsignaled territory. Clearance and authority to move within them is under the sole authority of the yardmaster or yard foreman.

HARRIMAN SIDING AT WAMSUTTER

Wamsutter, Wyoming is at the eastern end of an 18-foot-long center siding between the two mains, a so-called Harriman Siding. These sidings are common for UP on the western plains and do double duty, being accessible from either main. This special signal installation has a double-head, three-aspect signal at each end of the siding, one for each main and siding combination [15].

On either end of the siding, each main has a turnout leading to the center siding, converging in a wye turnout. This is another instance of one ABS block connected to two others, including



15. Eastern end of the 18-foot-long Harriman center siding at Wamsutter. The signal shows restricted diverging, routing the oncoming westbound train to the center siding. Note the turnout alignment in front of the signal.

the main up to the turnout, with two main blocks beyond the turnout, and a second ABS block of the center siding.

Each of these turnouts includes a bent piece of piano wire to connect the throw bars of the turnouts to slide switches. Moving the proper slide switch sets the turnouts and routes through an Arduino, and on to the occupancy detector board for that block, setting the proper signal aspect.

The signals on the opposite end of the siding face the opposite direction to protect both the eastbound main and the center siding and operate identically. Also at each end are the ABS signals facing away from the siding and down the respective mains.

Each main paralleling the center siding makes up a block, and these signals protect the following blocks, both east and westbound. The rear of the eastbound main (left main) signal can be seen partially hidden by the phone pole and the crossing guard signals in the lower left corner of the picture.

Special signals at the start of Oregon Short Line

At Granger, Wyoming, 31 miles west of Green River, the westbound track for Portland, Oregon, junctions with the two main tracks. That route to Portland is the Oregon Short Line (OSL). The UP prototype has a wye in Granger that allows Portland traffic to join the east- and westbound mains, with access to Tracks 1 and 2. A model wye would require more space than we could spare, so our connection is only Portland-Granger-east through Green River to Cheyenne.

There are two crossovers to take upon leaving the OSL. First, the train must cross a siding, then the westbound main, then on to the eastbound main.

The siding is an alternate main, and the preferred westbound route onto the OSL. A westbound train on the siding from

Green River can pause there, either to wait for a train emerging from the OSL or to allow a following westbound main train to pass, without fouling Granger Junction.

The Granger OSL-UP junction and its signals are shown in [16]. On the far left is the normal 3-aspect signal on a mast with the big snow hood for the west (left)bound main. This signal faces right. Next is the eastbound main signal that is facing left. Finally, is the left facing signal for a train from the OSL coming through the mouse hole in the backdrop to junction with the main track.

Such a train should obey this signal as it travels left-to-right out of the square mouse hole. That signal is a standard ABS signal that is red if the block from the junction on east (right) is occupied, or yellow if the second block ahead is occupied, or if the block ahead shows a red.

The same occupancies drive the OSL exit signal as the westbound main's signal (the second from the left).



16. OSL Junction and its signals, including the fascia mounted signal and switch to help trains entering the OSL through the rectangular mouse hole.

That second section of tracks ahead is not a block, but the Green River yard tracks. The signal there is one of the normally red signals to stop all trains to make them wait for the YM to admit them to his yard.

Therefore, the third signal from the left, as well as the eastbound main signal, may normally only show red (first main block occupied) or yellow, due to the normally red aspect Green River YM controlled signal.

It may temporarily show green, if the YM controlled signal is changed to yellow for another train to enter that yard.

For an OSL train from Portland, there is also a signal set into the large yellow rectangle on the fascia in [16]. It will show a normally red aspect to make that OSL train emerging from the mouse hole stop for the engineer to call the dispatcher for permission to proceed onto the main at Granger.

With DS permission, the engineer pushes the button under the fascia signal, which is a momentary electrical switch to change the red to the yellow (top) aspect. It stays yellow for about 30 seconds, then reverts to red to stop the next train leaving the OSL.

This red is also a reminder for a train leaving the main onto the OSL to check the OSL ahead for opposing traffic, and to call the dispatcher to notify him he is leaving the main and going on to the OSL.

If no dispatcher is on duty to call, then an OSLbound train must visually verify that the mouse hole and the nearest part of the OSL is unoccupied before proceeding.

Likewise, a train exiting the OSL through the mousehole must visually ascertain that no opposing train is present, whether or not there is a dispatcher on duty. If there is no dispatcher, opposing trains must work out their meet.

ENTERING THE OSL TOWARD PORTLAND

The proper approach to enter the OSL is by the alternate main /siding to the right of the westbound main mentioned above [17]. If the other turnout onto the siding about 20 feet to the right of the junction and mouse hole is missed to go onto the siding, then the two trains cannot pass each other.

Similarly, a train coming out of the mouse hole and the train wishing to enter it will interfere if the siding is not used.

We plan to signal the OSL eventually, but all train crews on or going onto that hidden track must verify visually that the track ahead of his train is clear for now. If more than one train is on the OSL at once, they must avoid collisions visually. If they are going opposite directions, one must take a siding to clear the main for the other.

For trains of equal superiority, the train closest to a siding ahead of it will take the siding to let the other one pass. Of course, the City of Portland passenger train should be allowed to pass all other inferior trains as they take a siding. PFE trains also are superior to all other trains except passenger trains.

SUMMARY

The installation of a robust ABS system on the large Wyoming Division HO layout was simpler, and the cost was less than I dared hope.

The advantages of the RamDen DABSC boards are low cost, ease of installation, and small size, with simple operating logic from the user's point of view. They avoid having to have a computer and any computer or signal controller programming for the purely ABS signals.

Commercial signal controllers usually require programming, because they are made to be versatile to manage ABS and



17. Granger junction and signals on the Wyoming Division with the Aspen and Altamont tunnels brought close by modeling compression. The green signal is for the westbound main. Because most of the block ahead of the signal is in the tunnel, the ABS protection is in real use for this portion of the layout. We keep that OSL signal turned somewhat toward the aisle for operators to see, not square to the tracks through the hole for locos to "see."

The crossover shown from the right-hand main to the OSL and into the hole is primarily for trains leaving the OSL, but it can be a "last chance" emergency route to get to the OSL from the main in case and operator misses the preferred turnout to the preferred track, the siding. The turnout onto the siding is 20 feet behind the camera. Not seen just below the camera is the crossover for trains from OSL to take to cross over the westbound main and end up on the eastbound track nearest the bench outer edge. Also see the green track plan (June *MRH)* for the full Granger junction.

other signal configurations. Of course, we resorted to multiple Arduinos, which required programming, but the total cost of the DABSC boards plus Arduinos was less than the required number of other signal controller black boxes, even if we had used those with multiple modules.

Each Arduino cost about $28 on Amazon. It would have been difficult to buy multiple module black boxes for the number of blocks Allen and I laid out, so the cost would have been even higher because of the wasted capacity of unused controller modules.

We used 22AWG wire for all the signal wiring. I bought it at a surplus store in five colors – 5,000 feet per color, so it was cheap, even though this was far more wire than needed.



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No additional power was used directly from the DCC system, other than the tiny amount through the new resistive wheel sets, which did not put enough of an extra load on the 15-5A boosters of the Wyoming Division to matter.

Finally, the use of the individual cpOD boards, rather than a combination unit with several detectors on one chassis, greatly simplified wiring.

As with the DABSC double block boards, we did all the wiring, except the 5V, 5A star-wired power bus, conveniently right at each block. Multiple module units would require wiring out from it to each block, and an 8- or 16-module unit would require a lot of long wire runs.

We installed 41 masts, usually with a single three-light signal heads with a single snow hood. Many masts, such as those at Dale, both ends of the Harriman Cutoff "siding" and the Harriman Siding at Wamsutter, had multiple heads. Of the 41 masts, approximately 13 have multiple signal heads of either two or three lights each.

There are four bridges used with signals on both sides: at the Granite Quarry halfway between Cheyenne and Dale over the quarry lead and Tracks #1 and #2, Cheyenne west yard limits spanning four tracks, Laramie east yard limits, and the Green River east yard limits, all spanning multiple tracks. ☑

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VERRYL FOSNIGHT



Verryl Fosnight lived his early years in Wyoming. His family moved to southern California just as he was entering high school. After graduating as a physicist from Stanford, he researched electric propulsion for space use and RF proton sources for injection of extremely high density, high energy proton beams into nuclear fusion devices such as tokamak fusion reactors.

Verryl left tech for the family real estate business in the late '80s. He later retired and moved to Arizona. He built a house and observatory to do astronomy and astrophotography. He also included model railroading.

Verryl hosts operating sessions on his railroad that draw 20 to 30 modelers from all over AZ. In addition he hosts an annual session specifically aimed at operators from other states. ■

DENNIS DRURY



Dennis Drury provided the electrical engineering expertise to make signals on the Wyoming Division happen.

A former signalman and engineer for Southern Pacific, he has conducted clinics on setting up and using JMRI for operations.

Dennis models the Southern Pacfic's Klamath Falls Subdivision. ■

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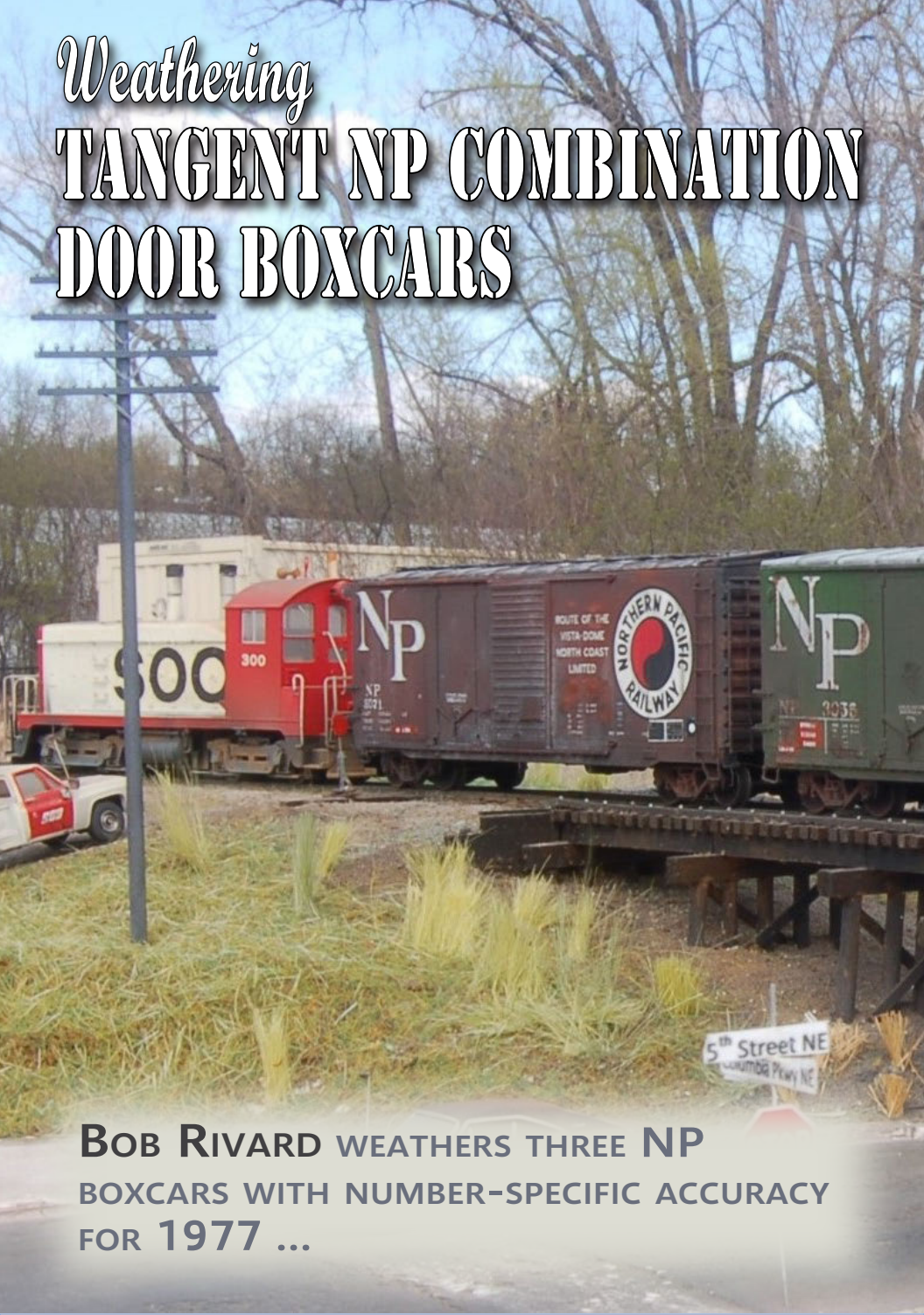


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VIEW READER COMMENTS

WHEN FELLOW MODELER FRANK JORDAN INFORMED ME TANGENT MODELS WOULD be offering combination-door boxcars, I knew I would be obtaining some of those models! This new NP boxcar from Tangent is based on cars built in 1959-1960, which lasted well into the 1980s. Since my modeling era is summer of 1977, I am always excited to find models and prototype photos from this period.

MODELING NP 3037 AND 3071

The first model I received from Tangent bore the number 3125, though I was prepared to change the number as needed to match prototype photos [1]. My goal is to represent how my models looked in my modeling year of 1977, and my go-to sites are Fallen Flags and Other Railroad Photos (www.rr-fallenflags.org) and Railroad Picture Archives (www.rrpicturearchives.net).

I want as many angles of a given car as possible, though especially images shot from above are helpful for modeling, since we almost always are viewing our models from above. I found several such photos that John Hill captured of Northern Pacific boxcar 3037 – another combination-door boxcar – in 1976, just one year before my 1977 modeling era.

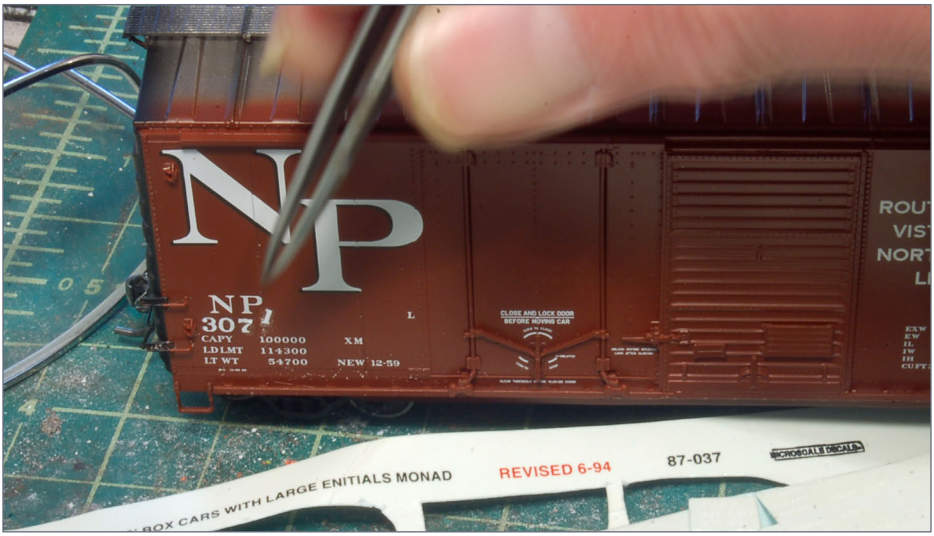
Chuck Zeiler shot photos of boxcar 3071 in 1980, revealing that the car still had its running board intact at that time. This was a rarity by that date, and it was a bonus to have photographic proof that I could leave the Tangent Models boxcar's running board intact.



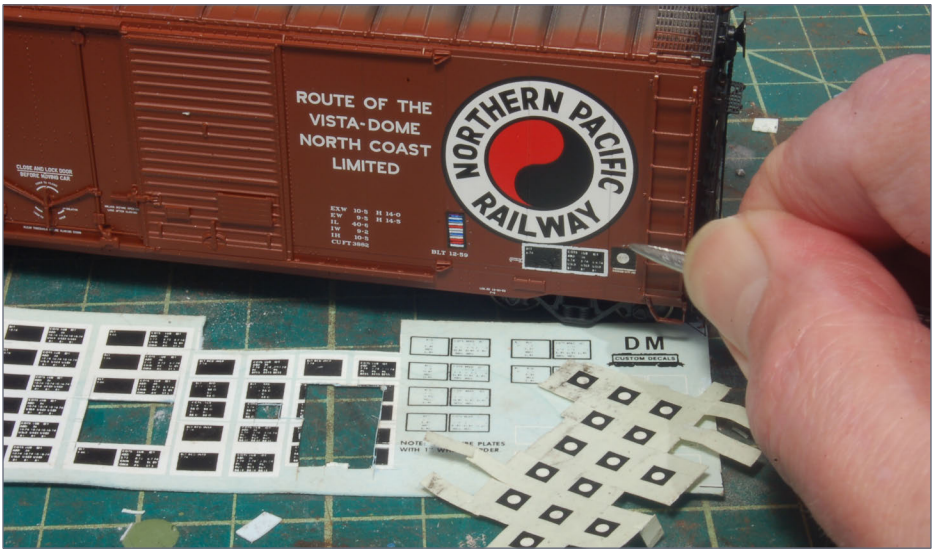
1. My factory-painted Tangent boxcar came wearing the number 3125, though the best-detailed photos I found for my era were of 3037 and 3071. I found the numbers easy to change.



2. I had to remove the factory-applied numbering, so I simply scraped it off using a new no. 11 X-Acto blade.



3. I replaced the numbers with decals from Microscale (NP Boxcar Set, 87-037).



4. I applied decals to represent the white wheel inspection dot, lube plates, and ACI labels, all of which were standard features in my chosen year of 1977.



5. I removed the running board from 3037 in preparation for painting. I plugged the holes with 0.040″x0.040″ styrene pieces, which I glued into place and filed to match the roof ribs.



6. NP 3071 is in the spray booth and ready for a coat of grimy black.



7. I mixed a batch of 50% Scale Coat II flat grimy black paint and 50% Scale Coat II thinner and airbrushed it on the model. I avoided the large white areas of the large NP and logo.



8. Acrylic matte varnish is the best way I have found to replicate the weathered, galvanized look of the cars' metal roofs. I mixed-in gray and white weathering powders – in this photo I am using chalk scrapings – until I had a thick paste the consistency of sour cream.



9. I painted the matte varnish paste onto the roof of 3037, being careful to avoid the stiffening ribs. The varnish dried to a dead-flat finish.



10. I gave the same treatment to 3071. I avoiding the running board as much as I could, though some over-paint was unavoidable. The paint on the running board blended later with additional layers of weathering.



11. I applied some light gray and white powders after the matte varnish dried, to give it the gritty, faded appearance of the prototype.



12. I applied raw umber and burnt sienna oil paints to replicate the rust blotches in the prototype photo.



13. I mixed some light gray oil paint and dry-brushed it to the roof to replicate some of the darker areas in the prototype photo. I followed this by brushing on Turpenoid to soften and blend these darker spots.



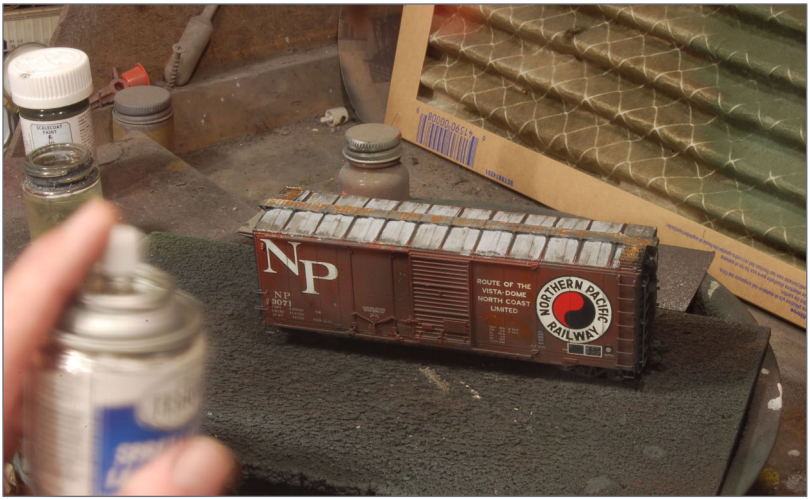
14. I used burnt sienna and raw umber oil paints to add rust spots to the running board, paying careful attention to the prototype photo.



15. With the primary rust and weathering completed, I returned the cars to the spray booth for another wash of 50/50 grimy black.



16. I observed from the photos that the white NP and the round logo appeared much cleaner than the rest of the car. To replicate this, I moistened a cotton swab with Turpenoid and rubbed it on the white areas of the logo and lettering to remove grimy-black overspray.



17. I sealed the weathering with Testors Dullcote. This provided a good foundation for additional weathering powders.



18. I applied several colors of weathering powders to give the trucks a convincing, weathered look. Removing the trucks from the model makes this process easier.



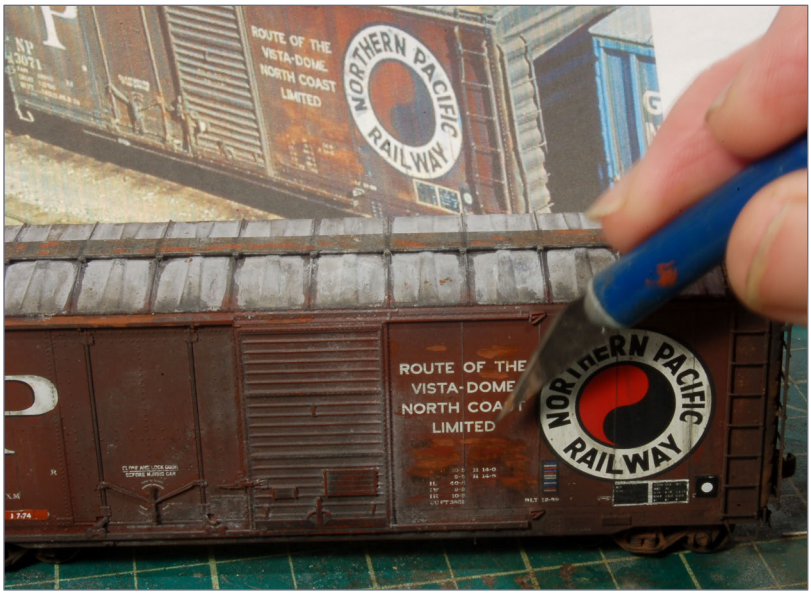
19. I used silver paint to highlight the air hose details. This small step is very important to achieve a realistic result.



20. I observed the prototype photo and applied weathering powders. I refer to this process as putting the icing on the cake.



21. The ends of the boxcar in the prototype photo show signs of heavy weathering. Rust and black powders worked well to replicate this look.



22. As a finishing touch, I carefully scraped grimy black overspray from the white lettering.



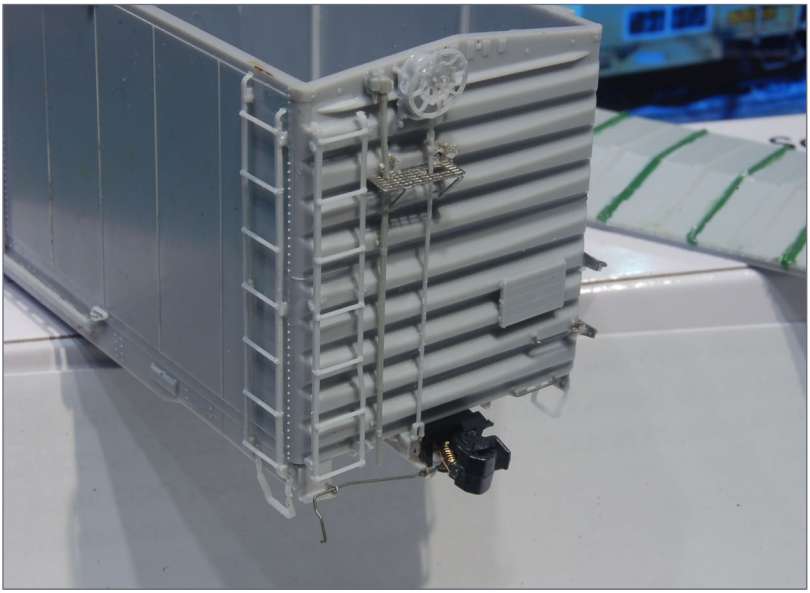
23. Weathering a car to look like the prototype takes many steps, but the results are worthwhile.

MODELING NP 3055

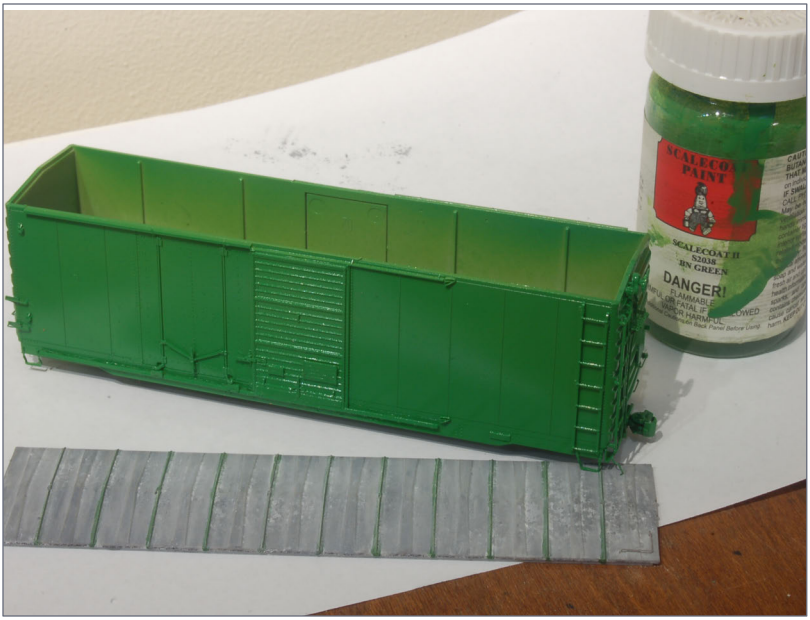
I really wanted to model one of the NP combination-door boxcars painted in the pre-merger cascade green paint scheme. I found a fantastic photo Chuck Zeiler took of NP 3055 in 1980 from a high vantage point, which showed me how the roof looked, confirmed that the railroad had removed the running board, and depicted the shade of green I needed to replicate. As of this writing, the only option for modeling this paint scheme is to purchase the undecorated kit from Tangent, assemble it, and paint it. ☑



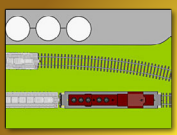
24. I studied the prototype photos to determine that Scale Coat BN Green 2038 was a good match. The partially assembled, undecorated Tangent kit is in the foreground.



25. I installed a few final details before heading to the spray booth.



26. I sprayed the model with Scale Coat II white as a primer, then followed with BN Green. I found the ability to weather the roof separately was an advantage of building the car from a kit. I used the same process I used for cars 3037 and 3071, though I applied the thinned black wash to the model before adding decals, to preserve the clean, white lettering.

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27. I applied decals from Microscale (set MC-4109) before using oils to rust the car per the prototype photo. Note that the photo had some rust blotches on the large NP and on the logo, which I replicated on my model.



28. I used a cotton swab and Turpenoid thinner to soften the rust blotches.



29. I gave the model a mist of grimy black wash after rusting.



30. I applied a coat of Testors Dullcote to hide the decal edges and provide a dead, flat surface for applying weathering powders.



31. Using the prototype photo as a guide, I applied weathering powders.



32. I added some scrape marks with an X-Acto knife to simulate many years of the door scraping the paint at this area.



33. I applied a coat of Testors Dullcote to hide the decal edges and provide a dead, flat surface for applying weathering powders.



BOB RIVARD



Bob Rivard has been fascinated with trains since the age of 5 when he received his first train set, the proverbial Lionel.

He really enjoys his job at KARE TV and has worked there for 34 years as a broadcast technician. He runs the robotic cameras during the 10 p.m. news. ■

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BUILDING A SMALL N SCALE LAYOUT PART 4



Model Railroad Hobbyist | July 2021

DAVE KILBORN COMPLETES HIS PROJECT LAYOUT...

VIEW READER COMMENTS

LAST MONTH, I covered all the foam with ground goop, prepared and poured resin for a river and a pond, and built scenery up for an abandoned mine on the river side of the layout. This month I'm finishing the layout.

I'll add rapids and a waterfall to the river and add a few buildings to represent a town. Additional ground cover, trees, and details will finish the layout.

FIXING THE POND

As I mentioned at the end of the last article, I must not have sealed the bottom of the pond well enough, so air bubbles formed after a few weeks [2]. My daughter jokingly suggested that it looked like a hot spring, but that's not what I was going for, so I needed to fix it. Of course, I could cut the whole pond out and start over, sealing the base with flex paste before pouring the resin, but I sought a simpler solution.

I painted Woodland Scenics Olive Drab Water Undercoat onto the surface of the pond, starting in the center and working my way to the shoreline. I tried to feather the undercoat at the edges of the pond with a bit of water [3]. After letting that dry for a day, I added a thin layer of Realistic Water (pre-tinted with Sage Green)



1.Train 2 speeds by the depot on the mainline while a pair of mountain goats above the right tunnel look on. From the porch light, it appears Lee and Maureen are up at the cabin. It's quite a hike up there, but they love spending time in the wilderness.

over the top and waited for that to cure to see if the fix was successful.

With the Realistic Water cured the next day, the result was acceptable [4]. I didn't get the shoreline feathered as much as I would have liked and if I were to do it again, I would use a lighter



2. The bubbles in the pond resin did not look right, so I had to fix it.



3. I painted some Olive Drab Water Undercoat onto the surface of the water to cover up the bubbles. I feathered the color at the edges by dipping my brush in water and pulling the color out a bit. I let this dry for 24 hours.

green or blue for the undercoat.

Still, this saved the time of ripping out the pond and redoing it. This will be on the list of projects to do once everything else is done, assuming I'm still not completely happy with it by then.

PLANNING AND PREPARING THE TOWN

Initially, I had planned to have a train station, a restaurant, a hotel, and a gas station to represent the town area, but decided to leave out the gas station for now because of layout space. I won't cover construction of the buildings – that would be enough for an article of its own – other than to note that each building features some sort of interior and lighting. Instead, I'll describe how I prepared the town space, installed the buildings, and wired the lights.



4. After the undercoat dried, I poured a thin layer of pre-tinted (Sage Green) Realistic Water over the surface. After that layer cured, this was the result. It's not perfect, but I'm happy enough with the result that I won't rip out and redo the whole pond.



5. Before starting the town, I put more ground cover on top of the mountain, and from the tunnels to the station area.

I first added some ground cover to the area from the top of the mountain down to the station area, using the same methods described in the previous article. I planted some trees that I already had on hand to give it a bit of life, and added some flowers using Woodland Scenics Plant Hues. I also added a Woodland Scenics built-up cabin nestled in the trees at the top of the mountain [1, 5].

I added basic ground cover consisting of gravel material and Noch Scatter material from the station area and around the track, down to the river. With this basic cover secure, I decided on the location of the road. I wanted the road to come from off the layout, across the three tracks, and into the town area.

I wanted an access to the station between the station siding and the inner loop. Blair Line makes wood rail crossings, both straight and in a few radii, including one that matched the 28.75″ radius on the inner loop just before the full turnback.

I used the included shims to make the center crossing just slightly below the rail heads, and secured the crossings in place with WeldBond. Once dry, I stained the crossings with a bit of my India ink/alcohol mix. I poured Woodland Scenics fine gray gravel mix down around the road, used a piece of foam the width of the road to pat the gravel smooth, and soaked the area with alcohol before securing it with scenic cement [6].

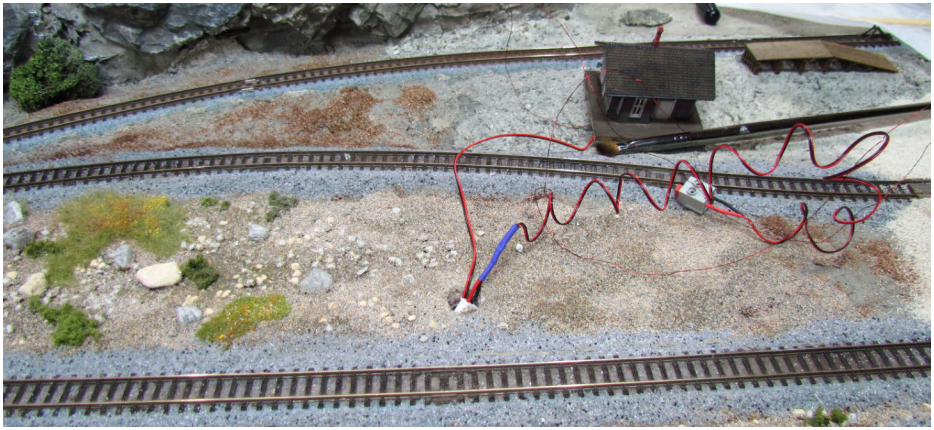
INSTALLING THE STATION

After determining exactly where I wanted the station, I used the handle of a foam brush to punch a hole through the foam in the center of the station's footprint to accommodate the two wires that would power the lighting. I fed the wires down through the hole and secured the station in place with clear caulking [7].



6. I made a gravel road from the edge of the layout to the town site, using Blair Line wood rail crossings to carry it across the two mains and the siding. The station will go in the space between the second main and the siding.

With the station secure, I added the gravel access and parking area to the station, using the same method as before [8]. With everything in place, I tested the station's lights and went on to the other buildings.



7. I punched a hole through the foam and fed the wires for the station lights through.



8. I secured the building with clear caulking, then spread out the gravel for the access and parking lot for the station.

INSTALLING THE HOTEL AND RESTAURANT

I used ¼″ basswood as a foundation for the hotel and restaurant, cutting it so it would also serve as a boardwalk in the front and rear of the buildings. I traced the buildings' footprints on the layout surface with a pencil. Then, using a knife, I cut away the ground goop so that the buildings would sit flat and level on the foam [9].

I wanted to use static grass for the ground cover in the area behind the restaurant, so I decided to add the ground cover first to avoid damaging the restaurant's lighting with the static grass applicator in such a tight space. I put down and secured Noch scatter material, then added a couple shades of static grass, leaving space for the road from the mine. I added ground cover and static grass between the rails of the siding track as well, to give it an unkempt look, making sure I kept the flangeways clear [10].



9. I set the hotel in place and traced around it with a pencil before trimming the goop out of the area so the building would sit flat on the foam. I then cut a hole through the foam for the wiring.



10. The space between the restaurant and the mountain was tight, so I added ground cover and static grass there first to avoid damaging the outside light. I added ground cover and static grass between the rails at the same time.

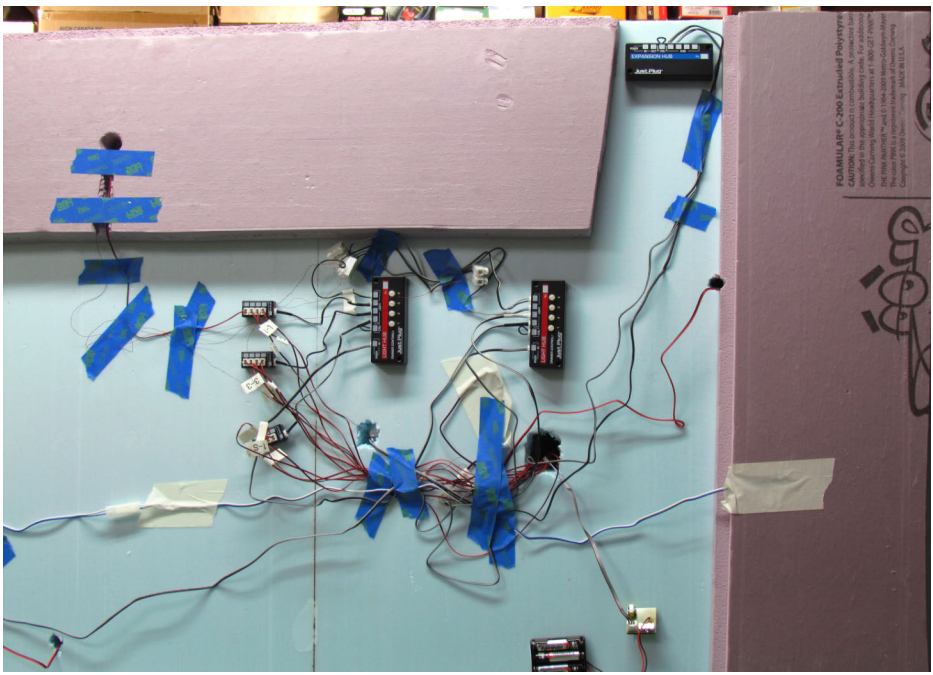


11. I added ground, and static grass to the area behind the hotel as I was working with the restaurant area. I was able to do so with the hotel in place, since there was more space to work with, and less danger of accidental contact with the static grass applicator.

The restaurant and hotel both had more wiring than the stations, so I cut larger holes with the knife blade [9]. I fed the wires through to the underside of the table and tested the lighting before securing the buildings in place with clear caulking. In the case of the hotel, I added ground cover behind the building after placing it, because I had a much less confined space to work with.

WIRING THE BUILDINGS

The cabin was the last building I installed. I pushed its wires through the foam above the tunnel, then fed it through the same hole as the track wires. I had to use an extension cable for the cabin, as the original wires weren't long enough to make it to the light hubs I had placed on the other end of the layout.



12. I labeled the wires and routed them to ports on my Woodland Scenics Just Plug system.

I had a total of 17 lights from the four buildings, including 12 lights in the hotel, two lights each in the station and the restaurant, and one more in the cabin. I tested each set of wires and labeled them.

Once I had everything labeled, I was ready to connect the building wires to power. I used the Woodland Scenics Just Plug System. I needed an Expansion Hub, two Light Hubs, and three Port Sharing devices with four plugs each.

I wanted the interior lights' brightness to match each other, so I used one Light Hub for the interior lights. Since the Light Hub has outlets to accommodate only four lights, I used the three Port Sharing devices to accommodate the 11 wires coming from the hotel, plus the interior light from the restaurant. I used the fourth port hub to accommodate the station interior light and then adjusted so the brightness for all interior lights matched.

Next, I used the second hub to plug in the exterior lights from the hotel, the station, the restaurant, and the cabin. I wanted these exterior lights to be slightly dimmer than the interior lights, since the exterior lights are not diffuse, but again, I wanted them to match each other for rightness.

I plugged the two light hubs into an expansion port and started fastening everything down to the underside of the layout. I used the two-sided foam tape included with the Just Plug devices to attach them to the underside, and painters' tape to secure and tidy the wires.

I used a Miller Engineering sign on top of the hotel, and, after routing the wires, I secured the battery pack using double-sided foam tape, though I may consider upgrading to a power adapter later. The sign includes a power switch, and I secured it as close to the edge of the layout as I could, facing the outside of the layout, with the included double-sided tape. It is still a bit of a reach to get to the switch at that location, but this would have to do for now [12].

FINISHING THE TOWN

With all the buildings in place, I put down some more gravel to finish the road between the buildings and a parking area around the buildings. I also added some gravel up the slope to the siding to accommodate a loading ramp. As before, I used a piece of foam to smooth the gravel, and secured it with alcohol and Scenic Cement [13].

The Woodland Scenics gravel comes with a complementary powder to form vehicle tracks. I put some of it down, but didn't really like the result, so I added it all over the gravel areas and blended it in the best I could [14]. This provided some color variation in the gravel, but I wasn't satisfied, so I added a wash of the base gray craft paint I used on the mountains to try to tie it in better [15].



13. I put down more gravel to complete the road and parking areas around the buildings.



14.The Woodland Scenics wheel track powder that came with the gravel improved the coloration somewhat.



15. A light wash using the gray craft paint I used for the mountains improved the color variation of the road gravel so that it is close enough.

I formed the edges of the road with Woodland Scenics fine gray talus mixed with fine gray and brown ballast. While the fine talus might have been a bit coarse for this application in N scale, I'm satisfied with it. I assembled and added railroad crossing signs from Osborn Models before securing the road with a 50/50 mix of matte Mod Podge and water [16].

I prefer the matte Mod Podge/water mix to secure coarser material because one coat of this thicker paste is generally sufficient to secure it, whereas Scenic Cement often takes 3 or 4 coats. I also used the mixture to secure the loading platform and ramp to the siding. The ramp was a kit from Blair line.

I still was not fully satisfied with the road's color, so I made another gray wash, this time with a drop of white to lighten it, and applied it to the road. It didn't quite provide the effect of wheel tracks I was after, but I think I'm going to call it good [17].



16. I used Woodland Scenics fine gray talus, mixed with gray and brown fine ballast to form the road shoulder.



17. The completed town scene with all the lights on, a boxcar, and a vehicle to add some life. Some trees and additional details would complete the scene.

ADDING SOME RAPIDS TO THE RIVER

Water has always been something I've been afraid to model. Getting a smooth pond or lake, or a calm river with EnviroTex or Realistic Water is easy, but it always seemed beyond my skills to make moving water look right. But I was determined to have a waterfall and a realistic flowing river on this layout.

I researched doing moving water more than anything I've ever tried to do. It is stunning how many different methods there are, and I went beyond model railroading – military, gaming, and sci-fi modelers do some fantastic modeling, too. I made a 12″ diorama river to test many different techniques, which helped me settle on the methods I used here.

For the river rapids, I settled on Woodland Scenics Water Waves, mostly because I had it on hand and got decent results with it. My only issue with Water Waves is that you need to keep working it until it starts to cure – about 10-15 minutes – to maintain the sharpness of the waves. Otherwise the material tends to settle and soften. I found it helpful to shine a light to see the shape of the waves as I created them.

I used a wooden craft stick (tongue depressor) to draw some Water Waves out of the jar and "stab" it onto the surface of the river to create waves. I worked my way along the river for a few minutes, then returned to where I started and used the stick to work the area up again to maintain the sharpness of the waves [18]. I focused on making the water most turbulent just before the bridge where the river narrows, and less turbulent in the wider areas.



18. I used Woodland Scenics Water Waves to make rapids.



19. Dry-brushing Woodland Scenics White Water Highlight onto the wave peaks helped accentuate the peaks.

Once the waves began to hold their shape, I stopped working the material and left it to fully cure overnight. I dry-brushed Woodland Scenics White Water Highlight onto the wave peaks to simulate white caps or foam. I allowed a bit to collect in some areas between the waves to simulate foam in the river [19].

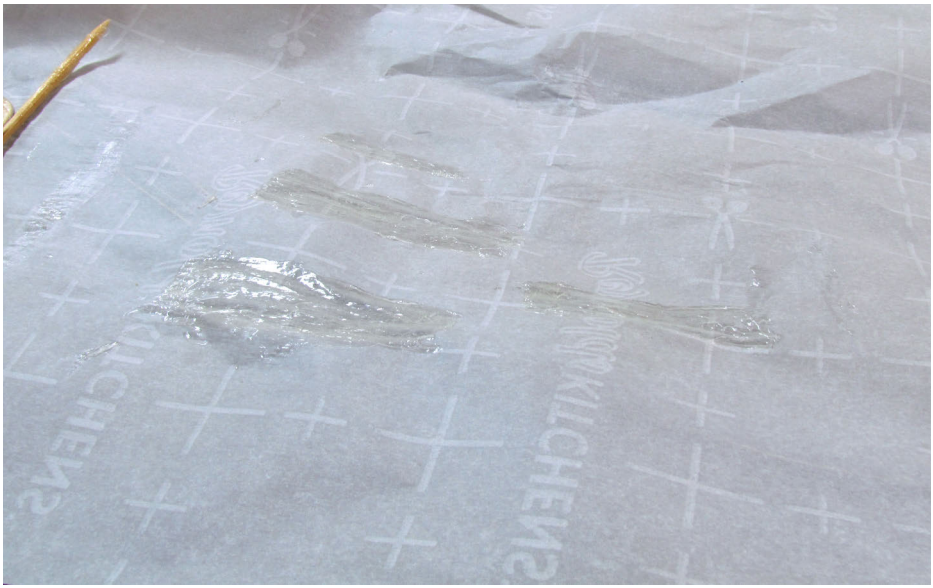
MAKING THE WATERFALL

I measured the approximate height of the waterfall and transferred the measurement to parchment paper. I spread out a thin layer of Woodland Scenics Water Effects a bit longer than the length I needed, and repeated the process several times to create at least three layers for the waterfall area,. I worked each layer with a toothpick to simulate cascading water [20]. Water

Effects takes longer to dry with increased thickness, so it helps to keep the layers thin.

After allowing the Water Effects a couple days to cure, I peeled the waterfall pieces off the parchment paper and dry-brushed the waterfall with White Water Highlight to bring out the cascading effect [21]. I found that the individual layers looked too thin, so I added a little more Water Effects opposite the painted side along the side edges to add more bulk, and left it to cure.

I test-fitted three pieces of waterfall to the layout and trimmed them to fit, then used Water Effects as an adhesive to secure the waterfall pieces in place [22]. I also used Water Effects to blend the waterfall into the rocks above and the waterline below [23].



20. I measured the rough height of the waterfall and marked it on a sheet of parchment paper. I feathered Woodland Scenics Water Effects onto the markings and used a toothpick to spread the Water Effects thin. I used the toothpick to put some raised areas into the waterfall that simulate the cascading water. I let this set up for a couple days.



21. I dry-brushed the waterfall pieces with White Water Highlight to bring out the cascading effect. Once dry, these were ready to place on the layout.



22. I used Water Effects to secure the waterfall pieces in place after testing the fit.



23. I used Water Effects to blend the waterfall pieces into the area, creating some churning water above the waterfall and blending it into the river at the waterline below.



24. After the Water Effects addition was mostly dry, I dry-brushed some of it and realized I needed much more white water to simulate the rough water flowing over the waterfall.

After the Water Effects dried, I added some White Water Highlight to bring out the cascading effect again. I found I needed more white water to get the effect I was after [24]. I used Water Waves again, but mixed in a combination of Woodland Scenics Soft Flake Snow and baby powder to provide the desired effect.

Neither material worked well alone as an additive. The snow material alone looked too coarse for N scale, and the baby powder didn't give enough of a white-water effect. Combining the two helped soften the snow material, while still maintaining the white-water effect.

Once I mixed up the white-water, I applied it with an old flat brush to the top and base of the waterfall. The brush worked well for "stabbing" the paste onto the water to form turbulence. The paste didn't always come off the brush as I wanted it to in the finer areas, but I used a toothpick to pull the material off the brush more reliably and work it in [25].

I made enough white-water mix to add some into the river at key points, like where the river bends and would kick up white water on the rocks, as well as the narrowing of the river. The brush worked well for adding material to create the extra white water [26].

While the results were not perfect, I was pleased with them. Completing this water feature was very satisfying, and provides confidence to do this again.

"SPRUCING" UP INEXPENSIVE TREES

I don't have a spray booth, so when I want to do spray painting, I do it outside in fresh air. Living in Saskatchewan, summer is usually the only opportunity for activities that require it, such as making trees. I made some last summer that would work for background trees, but I wanted to build some for the foreground.

I have a collection of pre-made trees to put on the layout. A few are nice detailed trees from Canyon Creek Scenics, some are



25. I used a mix of Woodland Scenics Water Waves, Soft Flake Snow, and baby powder to make a paste to simulate white water.



26. Here is the area after the white-water mix is added. While There is room for improvement, but I'm happy with these results.



27. I'll tone-down brightness of the JTT trees (left), and work on their trunks, which had a cardboard-like appearance out of the package. The Grand Central Gems (right) were considerably better than some of the JTT trees.

decent stand-ins that work as foreground trees, while others are background trees that will be mostly hidden.

I had a package of mixed JTT conifer trees and some Grand Central Gems I wanted to use in addition to the existing collection [27]. The Grand Central Gems were decent enough out of the package, and their trunks only needed a gray dry-brush treatment to look pretty good.

While some of the JTT Trees were OK, others were too vibrant, so I wanted to tone those down. All the JTT Tree trunks looked like cardboard, so I had to do some work to improve that.

I began with the JTT tree trunks, applying a dark brown wash. The wash toned-down the light, cardboard-like color and gave them a more natural look. Once I'd given all the JTT trunks a brown wash, I dry-brushed a medium gray on the trunks to add a bit more tone variation and highlight natural, knot-like areas on the trunk. This quick treatment didn't make them super-realistic, but it made the obviously fake trunks a bit more convincing.

With the trunks dry, I sprayed the trees with Rustoleum Hunt Club Green, which is a very close match to the Woodland Scenics conifer ground foam I used on the trees I made. You can see the difference in [28].

PLANTING TREES

Before I plant a large group of trees, I put down some Scenic Express Forest Floor mix [29]. The mix helps darken the area under the trees, making it seem fuller. Once I secure the forest floor with Scenic Cement, I use a hobby screwdriver that is about the size of the tree trunks to poke a hole through the ground goop and into the foam.

I used a variety of trees to make the forest, varying size and styles of trees, though in my modeling area, conifers are the most common. I started the outside of the area with what I think is a better-looking tree, poked a hole, dropped a dab of glue in the



28. From left to right, a comparison of four trees after treatment. the untreated Bachman tree, the JTT tree, the Grand Central Gems tree, and my own homemade tree.



29. Scenic Express Forest Floor material's dark surface makes the forest look fuller and more realistic.

hole and put the tree in. Friction generally held the trees in place, but I wanted more security since I plan to move this layout around regularly.

I test-fitted the next tree to be close, but not crowding the existing tree, put a hole where I wanted it, and planted the tree as before. I kept working my way around the forested area until it was covered [30]. I made sure to avoid planting the trees in rows, since trees don't generally grow that way.

ADDING FASCIA

I thought of just painting the pink and blue foam sides black or gray to finish the layout, but that would have left the backs of the tunnels exposed, and allow light to come through the tunnel portals. I pondered a while and spotted a roll of craft foam I initially bought to make roads for my HO scale layout. I could cover the sides and tunnel access with the foam but do it in

such a way that I could still remove the foam for easy tunnel access later.

The foam roll was three feet wide – almost exactly the width of my layout and half the length – which saved me a lot of cutting and (hopefully) waste. I used clear caulking to secure the foam.

Starting on the end with the big tunnel, I smeared caulking on the pink foam where I wanted to adhere the black foam. I put the black foam in place, lined it up with the top of the highest point, and pushed it into place. At the bottom, I took a couple weights and pinched the bottom of the black foam against the pink foam, smoothed everything out, and left it to dry.

I trimmed the black foam around the undulations in the layout once it was dry. I felt the location of the tunnel gap and cut around the edges to form a flap for maintenance access. The foam wanted to fold in and onto the tracks, but I glued craft sticks to the pink foam inside the flap as supports to keep the flap off the track [31].



30. I planted a variety of trees close together to get a dense forest look.



31. Two craft sticks helped hold the foam flap away from the tracks.

DETAILS, DETAILS

The layout is essentially complete, but I will keep adding details – whether animals, signs, foliage, or vehicles – for months. Details add life to the layout and portray its stories.

After painting mountain goats and a moose, I determined a natural location for them. Mountain goats like to hang out on ledges and rock faces, so I put six in two different locations, securing them with white glue on their feet [32]. I secured the moose and the deer the same way – with the moose near some bushes where it would forage [33] and the deer together in a field [34].

I also added a couple of crates to the loading dock with a boxcar and the truck pulling up to haul them away [35].



32. A pair of mountain goats graze on a ledge on a sunny summer afternoon.



33. A lone moose takes a break from foraging on some nearby brush to assess distant storm clouds.



34. A family of deer relax in a field where they often eat, while the adult male keeps watch.

LESSONS LEARNED

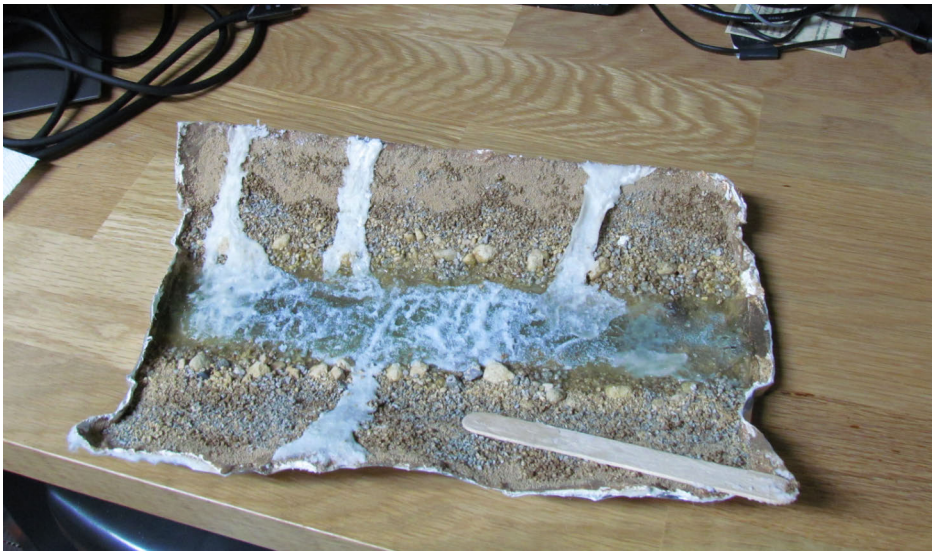
Using small dioramas to try different techniques is a great, inexpensive way to see what your results will be before doing it on a full-size layout. You can hone the technique on the diorama and apply your lessons to the layout so you get the result you want on the first try. I made a test bed to figure out how I was going to do the waterfall and rapids [36], which was very helpful to determine my approach on the layout and it cost very little.

Inexpensive model trees often don't look very realistic, but a few minutes of work can make them look less toy-like. You can use them as background trees or as stand-ins until you have a chance to make (or purchase) more realistic trees.

Not everything is going to turn out as you hope or envision, but if it is an acceptable level, it's OK to move on, and come



35. Frank backs his truck up to pick up the last of the supplies. It will be another month before the next shipment.



36. My test bed for trying out different ways of making the waterfall and rapids. This little piece let me get the look I wanted.



37. A wide-angle shot of the layout on the depot side.

back and redo it later. Scenery, for the most part, doesn't cost much, and many things can be reused, so redoing a bit here and there won't likely cost more than a few dollars. It really will just cost you some time, and at the end of the day, that's what a hobby is for.

FINAL THOUGHTS

This layout [37, 38] has been a great journey for me. It has given me a sense of completion after more than 30 years of starting the original version. I have learned so much from building this layout and I hope I have inspired you to dive in and build something, even if you aren't confident. If I can do it, you can do it. Enjoy the journey. ☑

RATE THIS ARTICLE



38. This is the river side of the layout with a sky backdrop, with two trains running.



DAVID KILBORN



David lives in Saskatoon, SK Canada with his wife, his mother and his two adult children. He has loved model railroading since four years old, when he saw his dad's model trains.

Issues with dexterity and vision in 2013 resulted in a switch from N scale to HO scale, but he missed N scale. When the Covid-19 lockdown hit, he decided to build this N scale layout that he wanted since he was 16.

David has worked at a remote mine site for 18 years, supporting management systems and regulatory compliance. He loves to travel, and looks for opportunities to do so by train. He plays bass guitar and dabbles in writing music and arranging. ■



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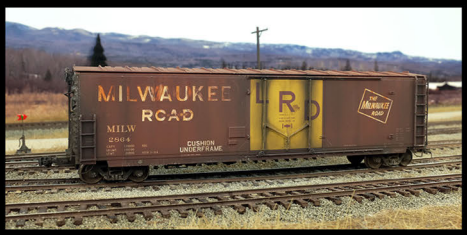
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Add Weight & Pulling Power to HO Locomotive

YouTube model railroader **railfan220** wanted to get more pulling power out of his locomotive, so he decided to add more weight to it. He added a whopping four more ounces of weight to his HO locomotive, increasing its pulling ability by almost 25 percent!

So check out this 8-minute video to see how to add weight to your own locos! ☑

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JULY NEWS column



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

VIEW READER COMMENTS

INDUSTRY NEWS

Trainfest 2021 cancelled

The 2021 edition of Trainfest, the 49-year-old show billed as "America's largest operating model railroad show," has been cancelled. This is the second year in a row that the event's organizers have cancelled the show, which in recent years has been held in November in the Wisconsin Expo Center in the Milwaukee suburb of West Allis. In announcing the cancellation, officials of the Wisconsin Southeastern Division of the National Model Railroad Association noted that with the uncertainty of COVID conditions and the possibility of a required cancellation later in the year, the unrecoverable upfront cost of producing the event could put future shows at risk. Beginning as a one-day event in 1971, Trainfest has grown into a three-day exposition occupying a display area the size of five football fields.

THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS

NEW CLUB CARS



The **Great Northern Railway Historical Society** and **Rapido Trains** have partnered in a project to produce an HO scale version of GN SW1200 switch engine No. 30. The model will be available with DCC and ESU LokSound. The ready-to-run switcher is being sold direct by Rapido with 20 percent of the sale price going to GNRHS. Interested parties should act promptly since only 60 of the GN SW1200 were produced and at press time almost half had already been sold. To purchase visit rapidotrains.com/products/ho-scale/diesel-locomotives/ho-scale-sw1200-great-northern-30-gnrhs-custom-0.

NEW PRODUCTS FOR MULTIPLE SCALES



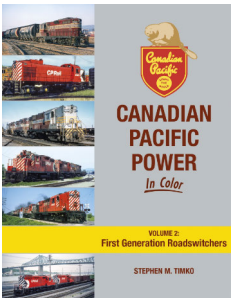


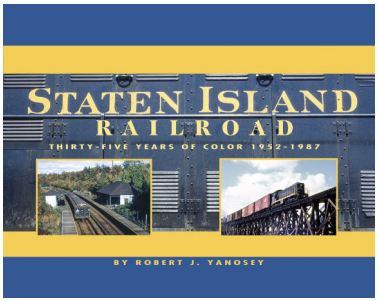
miniprints has announced a limited-edition Lionel Strang figure in N, HO, S, and O scales. Based on a recent full body scan of Lionel by miniprint's Bernard Hellen, all proceeds from sales of the figure will go to Lionel's One More Year charity to benefit the Psychosocial Oncology Clinic at the Princess Margaret Hospital in Toronto, Ontario, Canada. Lionel, formerly a columnist for *Model Railroader Magazine* and the current host of the A Modeler's Life podcast

(www.amodelerslife.com), was diagnosed with Stage 4 melanoma in September 2014. He decided in September 2015 to walk the 100 kilometers from the hospital to his home in Barrie, Ontario, the reason being that he had lived "one more year." It has become an annual event and fundraiser. Dime for scale, cheese puffs not included. For more information or to purchase visit miniprints.com.



Monster Modelworks now has available the Placerville Store kit in S and HO scales. It is based on the Whitley & Whitley building, built in 1920 in Placerville, CO, to serve the narrow-gauge Rio Grande Southern Railroad and the mines of the San Juan mountains. The kit contains 3D laser-engraved block stone and block stone coping, block stone corners, laser-cut doors & windows with glazing, metal roofing material, and a sign. The finished HO kit measures 4.5″W x 6.75″L x 3.5″H. The S scale kit measures 5.58″W x 7.33″L x 4.7″H. For more information visit the website at www.larkspurlaserart.com.

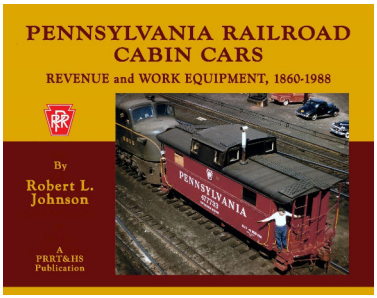




Morning Sun has released the second volume of Stephen Timko's *Canadian Pacific Power: First Generation*

Roadswitchers. This volume features a variety of CP road units including the rare Baldwin DRS-44-1000s, Alco and MLW RS-2s, later models including the RS-3s, GP7s, GP9s, RS-10s, RS-18's, and the unique FM H16-44 and H24-66 locomotives.

Also new from Morning Sun is a 96-page softcover edition of *Staten Island Railroad* by Robert J. Yanosey. This is an all-color review of SIR's passenger and freight operations in New York City's southernmost borough, from the St. George ferries to the Tottenville-Perth Amboy ferry. For additional information contact a dealer or visit www.morningsunbooks.com.



The **Pennsylvania Railroad Technical & Historical Society** has announced *Pennsylvania Railroad Cabin Cars – Revenue and Work Equipment, 1860-1988* by Robert L. Johnson. An in-depth look at Pennsylvania RR Cabin Cars, from their beginnings in 1860 through their gradual end in the Penn Central and Conrail eras. Presented in landscape format, the book is a 224-page Smyth sewn softcover book containing 61 drawings and 336 photographs, many in color. To order visit the PRRT&HS website at www.prrths.org.

O SCALE PRODUCT NEWS

Atlas O is booking orders through July 28 for two locomotives and six freight cars using tooling acquired earlier this year from MTH.



The list of new O scale items begins with a GE 44-ton center-cab diesel switch engine. The model is loosely based on a 380hp unit built by General Electric from 1940 through 1955. Road names on the Atlas model will be Burlington, Maine Central, Erie Lackawanna, Napa Valley Wine Train, Santa Fe, and US Steel.



R. Bale

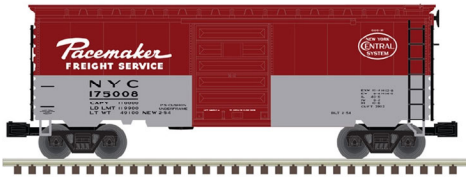
SD40-2 Diesel Electric Locomotive

The SD40-2 was one of EMD's most popular locomotives. During its 17 year production run that began in 1972, EMD produced nearly 4,000 of the 3,000hp SD40-2s. Although higher-horsepower locomotives were available, the reliability and versatility of the SD40-2 made it one of the best-selling models in EMD's history. The SD40-2s principal improvement over the SD40 was its modular electronic control systems. A variety of low front noses ranging from 81'' to 123'' in length housed additional electronic gear along with a more commodious toilet for crew members.

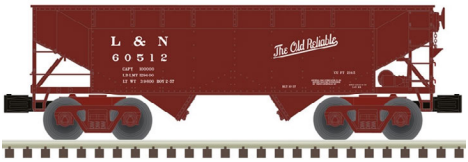


Atlas O has selected the popular EMD SD40-2 as the first road engine to be produced from former MTH tooling. In addition to Milwaukee Road, models in this initial release will be decorated for Burlington Northern, Chicago & North Western, CSX, Pan Am, Union Pacific, and Wisconsin Southern. Both the 44-tonner and the SD40-2 will be equipped with MTH DCS Proto-Sound 3.0 system.

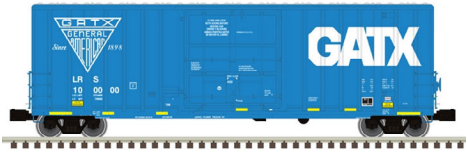
A standard 40′ PS-1 boxcar heads the list of freight cars Atlas O is producing from the former MTH line. Road names will be



Grand Trunk Western, Louisville & Nashville, New York Central, Rock Island, Seaboard Air Line, and Union Pacific. Specialty cars decorated for SLLX-Halloween, NPLX-Christmas, and PRLX-Thanksgiving feature functioning decorative lights. All versions have positionable doors.



A removable coal load will be included with an O scale twin-bay hopper with offset sides. Road names in this release will be Chicago & North Western, Delaware & Hudson, Great Northern, Louisville & Nashville, Missouri Pacific, and Norfolk & Western.



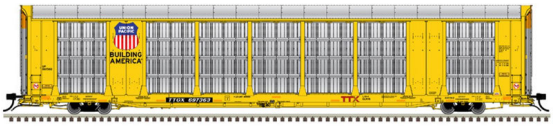
Road names for Atlas O's Premier 50′ Gunderson high-cube boxcar with a plug-door will be Arkansas-Oklahoma, Canadian Pacific, GATX, International Bridge & Terminal, Southern Railway of British Columbia, and two TTX schemes.



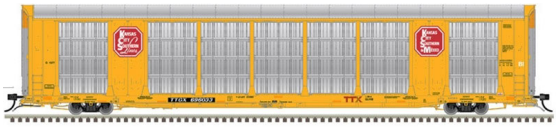
This Denver & Rio Grande Western car is one of six 50′ Airslide hoppers Atlas O is releasing from former MTH Premier series tooling. Other road names will be ADM Milling, Clinton Corn Processing, Corn Products Co., Peavy, and a BNSF buffer car.



In addition to Pabst Blue Ribbon and a generic beer scheme, this 8,000 gallon tank car will be available decorated for JAX, Lone Star, Olympia, Primo, Schlitz, and Strohs.



Atlas O Master series models arriving soon include this impressive Multi-Max auto carrier. Features include separately applied wire grab irons, detailed side screens, operating end doors, and a removable interior deck. Additional decks to convert the carrier from bi-level to tri-level are available as a separate purchase.



Road names on this release will be BNSF, CP-Soo, Kansas City Southern, Norfolk Southern, and Union Pacific. For additional information contact a dealer or visit www.atlaso.com.

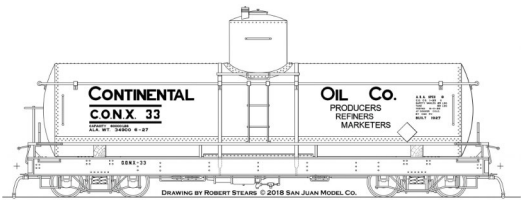


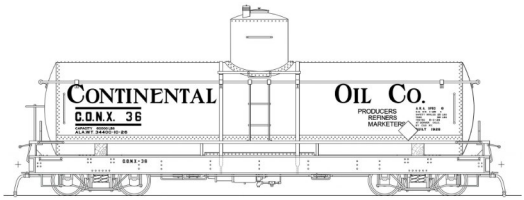


Frenchman River Model Works has released a kit of a 1940s 1:48 scale gasoline powered farm tractor. The kit consists of 19 resin parts and wire and is engineered to be easy to assemble. For more information or to purchase visit frenchmanriver.com.



San Juan Car Co. is booking reservations for narrow gauge tank cars with tall domes and distinctive outside frames. Both On3 and On30 versions of the ready-to-run models will be available. Decorating schemes include a 1940-era black car with white CONOCO lettering (above), and a similar scheme on a 1935 CONOCO car with green lettering on a silver tank.





Additional schemes include a1926-era black car with white sans serif lettering and similar graphics in serif lettering on a 1930 car.

Artwork is being completed for a Mexican National car with a silver tank. For additional information including making a reservation visit sanjuanmodelco.com.

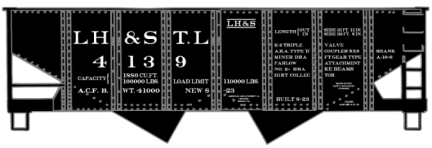
HO SCALE PRODUCT NEWS



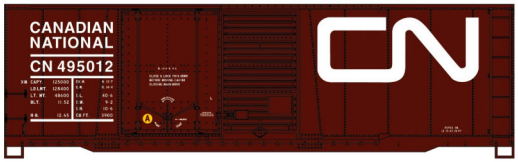
New HO scale car kits from **Accurail** include this 36′ double-sheathed wood boxcar decorated for Chicago Great Western. The model portrays a CGW prototype built in 1909 and decorated with a Corn Belt Route herald.



Accurail is selling a 3-car set of Chicago & North Western twin-bay covered hoppers with different road numbers.



An HO scale kit for a twin-bay USRA coal hopper decorated for Louisville Henderson & St. Louis is also available from Accurail.



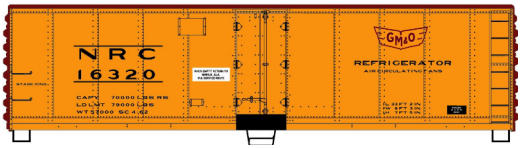
The HO scale kit for this 40′ Canadian National steel boxcar is based on a 1952 prototype built with a combination of plug and sliding doors.



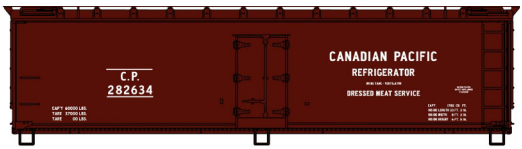
Kits for this BN Pullman-Standard triple-bay covered hopper are available in a 3-pack with different road numbers.



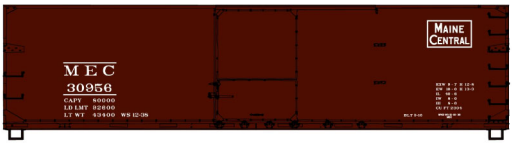
AC&F built the prototype of this HO scale Lehigh Valley automobile boxcar car in March 1927. Like the prototype, Accurail's HO scale kit for the 40′ car has double Youngstown sliding doors.



The lettering on this NRC/ Gulf Mobile & Ohio 40′ steel refrigerator car includes instructions to return the car when empty to Mobile, Alabama.



This 40′ Canadian Pacific wood sheathed refrigerator car with 4′ swing doors is fitted for dressed meat service.



Accurail's kit for this 40′ Maine Central double sheathed wood boxcar is based on a prototype built in 1918. All Accurail HO

scale kits include Accumate couplers and appropriate trucks with Delrin wheelsets. For additional information contact a dealer or visit www.accurail.com.



Athearn has announced a new run of the Genesis Southern Pacific MT-4 4-8-2 locomotive for August 2022. To be produced with and without the skyline casing that Southern Pacific began adding in 1939, the model will be available in six road numbers with road number specific features. As appropriate, the model will come with a standard black paint scheme, an early green boiler scheme, or a partial Daylight scheme. The partial Daylight scheme was painted on five locomotives for use on the San Joaquin Daylight passenger train.

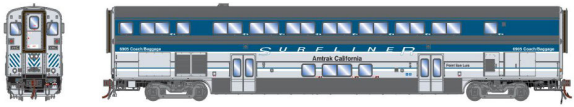


Road number and era specific features include a boiler tube or corrugated pressed steel pilot, Alligator or Laird Multiple Bearing crosshead, 120-C-6, 120-C-1, or 160-C1/C-2 tender, and a Boxpox style wheel center on the main driver as appropriate.

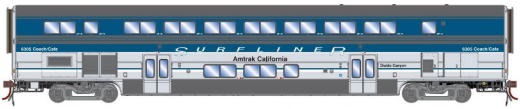


Features common to all the models include a front coupler pocket that will accept an operating coupler, see-through running boards with safety tread detail, detailed boiler backhead, adjustable cab windows and doors, metal handrails, factory applied detail parts, and LED lights. A tender mounted

Soundtraxx Tsunami2 decoder with dual cube speakers will be standard for the sound equipped model. A minimum radius of 22″ is recommended.



Athearn also announced a new Genesis car type, the Amtrak California Surfliner passenger cars. Featuring brand new tooling, the cars represent those used on intercity routes in California.



Four separate car types are included in the announcement, a Cab/Baggage/Coach car, a Coach/Café car, a Business Class car, and a Coach car. This release features a single road number for each car type, except for the coach car which will have two road numbers. Additionally, a 5-car passenger set consisting of two coach cars and one of each of the other types with different road numbers from the individual cars will be produced.

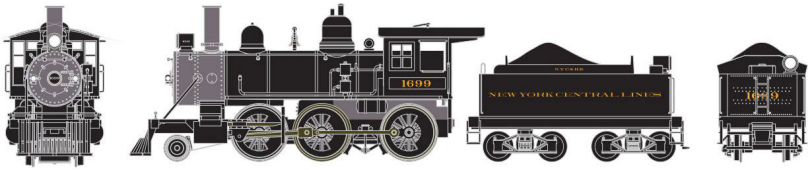


The non-sound cars include LED lighting with an on-board DCC decoder from NCE that functions in both DCC and analog DC with lights on both upper and lower levels. Sound equipped models include a SoundTraxx SoundCar decoder with Surfliner specific sounds including AC compressor, door operation including the "beep" sound, vacuum toilet, brake system, and the K5LA horn for the cab car. The SoundCar decoder also provides LED lighting for the cars including headlights and ditch lights for the cab cars.

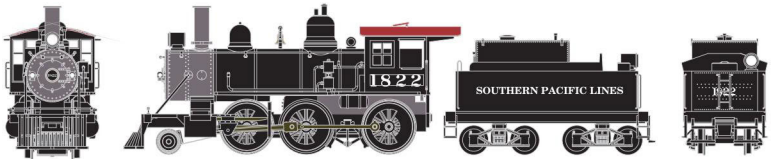


Also part of the August 2022 production is a Genesis HO scale 50' SIECO boxcar. It includes photo-etched cross-

over platforms, metal wheels, and separately applied grab irons, end ladders and brake wheels. Road names in this release include Ashley Drew & Northern, Atlantic & Western (Primed for Grime), Boston & Maine, Canadian Pacific (Primed for Grime), Norfolk & Western, and Virginia Central.



New in the Ready-to-Run line is an HO scale 2-6-0 Mogul steam locomotive. Based on Model Die Casting tooling, it has been upgraded and includes prototype specific smokestacks, domes, headlights, lead trucks and tenders. Road names in this release include New York Central, Boston & Maine, Canadian National, Denver & Rio Grande Western, Santa Fe, and Southern Pacific.



Suitable for the late 1800s, the model includes an upgraded drive mechanism, with sound equipped versions including SoundTraxx Economi sound decoders, and non-sound versions equipped with a standard 21-pin plug.



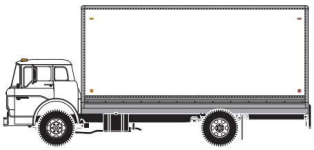
Another Ready-To-Run car announced for August 2022 is the 40′ triple-bay ribbed hopper with removable load. Available with a flat or peaked end, the car features factory applied wire grab irons, stirrup steps, end braces, brake

platform, and brake gear. Road names in this release are Conrail, Chessie System, BNSF, Central of Georgia, Norfolk & Western, and Canadian National. The model is equipped with machined metal RP25 contour wheels and McHenry knuckle couplers.





A 1:87 scale UPS 40′ parcel trailer is scheduled for August 2022. Fully assembled, the model features rubber wheels. The model comes in five different schemes, with a logo as seen above, and four no logo schemes, one without any colored stripes or ends, one with red ends, one with red stripes, and one with yellow stripes. Three road numbers are available for each scheme.



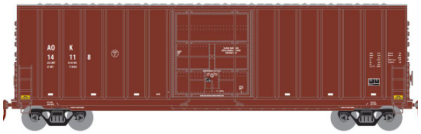
Athearn's 1:87 scale Ford C cab-over-engine truck is being released as a box van. Featuring a molded cab interior with separately applied steering wheel and clear window glazing, the model is decorated for Santa Fe, United Parcel Service, Delta, Western Pacific, Denver & Rio Grande Western, Burlington Northern, and a white unlettered version.



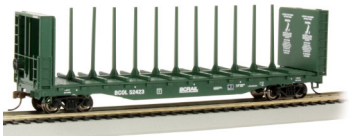
Announced for **Roundhouse** for August 2022 is a run of 34′ Overton passenger cars, suitable for the late 1800s. The model features clear windows and green tinted clerestory windows, end handrails and ladders, machined metal RP25 contour wheels, and body mounted McHenry couplers. The cars are available in sets of four, with one baggage car, one combine, one coach and one observation car. Single coaches with a different number from the one in the set are also available. Road names in this run are Boston & Maine, Canadian National, Denver & Rio Grande Western, New York Central, Santa Fe, and Southern Pacific.



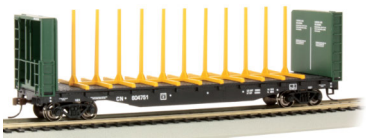
Also from Roundhouse is a 40′ wood reefer with swing doors. With paint schemes representative of the prototypes, the models feature Bettendorf 50-ton trucks with 33″ metal RP25 contour wheels, body mounted McHenry knuckle couplers, and a separately applied brake wheel. Road names in this release are Canadian National, Chicago, Burlington & Quincy; Chicago & North Western, Harding's, Kahn's, and Meriden. The models are available as singles or combined in a four-pack by roadname, with two of the four-packs containing two Harding's and two Meriden cars.



A new run of 50′ exterior post high cube plug door boxcars is also scheduled from Roundhouse for August 2022. Featuring a separately applied brake wheel and stirrups, the models are also equipped with body mounted McHenry knuckle couplers and RP25 contour metal wheels. Road names in this run include Arkansas-Oklahoma Railroad, BNSF Railway, Columbia & Cowlitz, Coe Rail Inc., Laurinburg and Southern, Illinois Central, and Oregon California & Eastern. For more information on Athearn and Roundhouse products, see a dealer or visit www.athearn.com.



Bachmann has released an HO scale 52′ centerbeam flatcar with bulkheads. The Silver Series model features Bachmann's EZ Mate Mark II couplers, and Celcon trucks with blackened metal wheels.



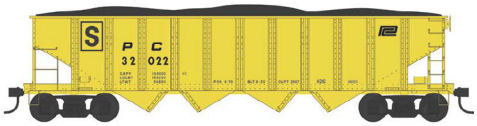
Road names are BC Rail, Canadian National, Burlington Northern, and Northern Pacific. For additional information contact a dealer or visit www.bachmanntrains.com.



Bowser is taking pre-orders for a new run of the HO scale 55-ton fishbelly hopper. Equipped with metal wheels and knuckle couplers, the models are anticipated to ship in April 2022. Roadnames include Akron, Canton, & Younstown; Cambria & Indiana, Central RR of PA, Delaware & Hudson, Norfolk & Western, Norfolk Southern, Reading Anthracite, Western Maryland, and Delaware & Hudson (MOW).



Expected in Spring 2022 is a run of H21 and H22 hoppers in HO scale. Featuring metal wheels and knuckle couplers, both clamshell and sawtooth door versions are part of the run.



Roadnames include Baltimore & Ohio, Bethlehem Mines, Erie RR, Penn Central, Pennsylvania RR, Union RR, PCC & StL, and the Virginian Railway. For more information visit a dealer or www.bowser-trains.com.



Broadway Limited is offering three styles of HO scale cryogenic tank cars. The models are based on 62′ high-capacity prototypes used to transport super-cold fluids such as liquid oxygen, nitrogen, and argon at temperatures as low as -320 degrees F. A standard car is available decorated for UTLX.



Road names for cryogenic cars with the top shielded include AirCo, Air Liquide, Air Products, American Cryogenics, Big 3 Welding, and Linde.



Cars with full-length walkways are available decorated for NCG, and Canadian Liquid Air. For additional information contact a dealer or visit www.broadway-limited.com.



InterMountain plans to release a large group of Canadian grain hopper cars this month. The HO scale models are based on 59′ 4550 cu. ft. quadruple-bay cylindrical covered hoppers built by National Steel Car between 1972 and 1985.



Models with trough hatches will be available for Alberta, Canadian Wheat Board, Ferrocarriles Nacionales de Mexico, Santa Fe (patched ex-Koppel car), and both CN and CP versions of the iconic red Canada car.



Models with four round rooftop loading hatches will be available for Canadian National (noodle scheme), Inland Cement, CNLX, two Potash schemes and three Canadian Pacific versions including one with script lettering.



All versions of InterMountain HO scale Canadian grain cars will have etched-metal roofwalks, wire grab irons, metal knuckle couplers, and 100-ton roller-bearing trucks with 36″ metal wheels.



For additional information contact a dealer or visit www.intermountain-railway.com.



Kadee has released to its dealers a Pullman-Standard PS-2 twin-bay covered hopper decorated for Soo Line. The HO scale ready-to-run model accurately replicates a prototype built by Pullman-Standard in 1957. The underbody brake system rigging, grab irons, ladders, end bracing, and eight round positionable hatches are all finely detailed plastic castings.



The lettering includes legible information on the ends under the overhanging roof. The model comes with Bettendorf-type plain-bearing trucks and Kadee metal knuckle couplers. For additional information contact a dealer or visit www.kadee.com.



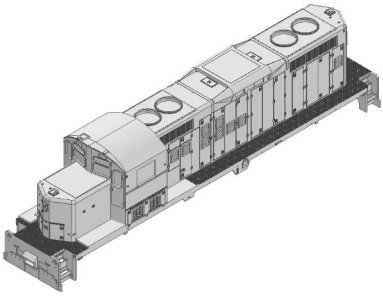
MAC Rail is selling 3D printed gondola covers that replicate fiberglass prototypes. Both early style (ribbed) and late smooth covers are available for HO scale 52′ 6″ gondolas. The covers are designed to fit Atlas, ExactRail, and Walthers Thrall and Tangent G43 gondolas. With minor modification the MAC Rail 3D cover will also fit Rapido's 52′ 6″ gondola.



The covers come with appropriate locks, a pair of Tichy 18″ drop grab irons, and instructions.

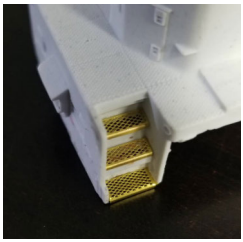


Also new from MAC Rail are 3D printed End-Of-Train (EOT) devices, flags, and storage racks. The HO scale non-operating EOTs are available in a variety of colors. They are designed to add operational interest through the process of adding and removing them from trains. Compatible EOTs are available for KD #5 regular, KD #58 scale, or Sergent EC87K couplers. For additional information visit macrailproducts.com.



Maple Leaf Trains has released 3D printed locomotive shells for Canadian National GP9RM diesel locomotives. This latest production run has both 36'' and 48'' etched fans. The kit includes the body shell, photo-etched parts, formed wire handrails, grab irons, eyebolts, clear headlight and class light lenses, and numerous detail parts. Each kit comes with three different styles of battery/utility boxes: with louvers on cab's left side, without louvers, and with raised utility box on right side.





Etched see-through steps with round or diamond-shaped holes are both available. The Maple Leaf body kit is designed to fit a Walthers Mainline GP9 chassis. For full details visit www.mapleleaftrains.com.



Mine Mount Models is releasing a new HO scale building kit, Wilson's Mustards. Measuring 9.5" x 5.5", the kit contains Mt. Albert Scale Lumber, Tichy windows and door, laser cut roofing, BEST Trains metal castings, and 3D printed resin details. Full-color instructions are included. Prior to the last day of Lionel Strang's One More Year Charity walk this fall, 10% of all sales of this kit will be donated to the charity, which supports the Psychosocial Oncology Clinic at the Princess Margaret Cancer Centre in Toronto, Ontario, Canada. For more information or to purchase, visit minemountmodels.com.



R. Bale

CANADIAN-BUILT 40' AAR BOXCARS

In the mid-1950s the Canadian Pacific Railway took delivery of 1350 40′ boxcars built by National Steel Car (NSC) of Hamilton, Ontario. The Canadian National Railway ordered 2900 of the same car with production split between NSC and Eastern Car Company of Trenton, Nova Scotia. The Canadian version of the 6' Youngstown doors applied to both the CP and CN cars had rivets in the valley of the corrugations, whereas the standard American version of the door used the raised section of each corrugation to accommodate the rivet joints. Easier to spot on the Canadian-built AAR cars was the unique National Steel Car end known as the NSC3.



National Scale Car has released another run of mini-kits for rebuilding a 40′ InterMountain 10′ 6″ IH boxcar with a 6′ door

into a Canadian National/Canadian Pacific AAR boxcar with Canadian-style Youngstown doors and NSC3 ends.



In addition to the ends and doors, the mini-kit includes a slack adjuster, tack boards, correct eight-rung ladders with attached sill steps, and accurate Black Cat decals. The modeler must provide the host InterMountain boxcar with either a diagonal panel or PS-1 roof.



Canadian National versions are available with either noodle or green leaf decals. Canadian Pacific kits are available with script, three-step gothic, or Multi Mark decals. For more information visit nationalscalecar.com.



Osborns Models in the UK has begun producing HO scale figures for the US market, including this motorcycle with rider. The model is available in both finished and unpainted versions. They, as well as other OO and HO scale figures, can be found on the Osborns Models website in the OO scale section under Osborns 3D at www.osbornsmodels.com.



New 1:87 scale vehicles coming from **Oxford Diecast** include a 1950 Olds Rocket 88 coupe. The car has thin white wall tires and is painted Canto Cream over Chariot Red.



Also new is a 1949 Mercury Coupe. The model is tricked out as a street rod with a flame paint job. For additional information contact a dealer or visit www.walthers.com.



PT Trains of Portugal has developed a series of HO scale international 20' dry van containers. A unique feature of PT's containers is the data printed on the top that can be read by the crane operator loading and unloading each container. The roof marks reveal important information including if it is a hi-cube container, its weight category, and what class of lading it contains.

PT 20′ dry containers scheduled for release this summer will be decorated for MSC, Blue Sky Intermodal, Maersk, Safmarine, Hamburg Sud, Seaco, Textainer, and Tarros Spa Shipping. For additional information visit Pacific Western Rail System at www.pwrs.ca.



R. Bale

B36-7 DIESEL LOCOMOTIVE

The B36-7 is a four-axle road switcher built by GE Transportation Systems between 1980 and 1985. Powered by GE's 16 cylinder 3,600hp 7FDL prime mover, the B36-7 was designed for priority service handling fast moving intermodal and container trains. The initial customer was Cotton Belt, however, of the total 230 B36-7 locomotives built, 180 went to Conrail and Seaboard System which became part of CSX. Some of the early units featured General Electric's Sentry Adhesion System, a newly developed wheel slip detection system.

VIEW READER COMMENTS



Rapido is producing five variations of GE's B36-7 diesel locomotive. Road names will include Santa Fe's short-lived Kodachrome scheme. Two Southern Pacific schemes will also be available including a late version with the Mars light and red emergency light replaced with a Stratolite above the headlight. Two road numbers will be available for the SP speed lettering scheme.



Two Conrail schemes will be available with both having front-only ditch lights, the iconic Juniata style font for the number boards and JBS CR repaint logo on the conductor's side.

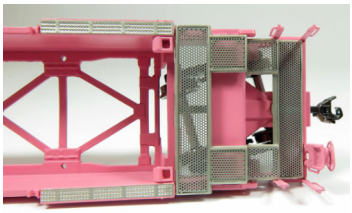


Rapido's HO scale B36-7 locomotives feature full underframe details, complete cab interior with lights, straight metal

handrails with plastic stanchions, working headlights, and switchable number boards. Road specific details include different pilots, anti-climbers, plows, fuel tanks, air dryers, antennas, wind deflectors, headlight locations, air-conditioning units, and three types of drop steps. All versions will be equipped with ESU LokSound DCC.



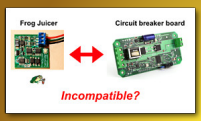
Also coming from Rapido is a rerun of 53′ Husky Stack well-cars. The HO scale models feature a combination of etched and plastic walkways, and 70-ton trucks with separate brake shoe detailing.



Six paint schemes will be available including Canadian Pacific, Ferromex, and four TTX variations.

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VIEW READER COMMENTS



R. Bale

USRA Boxcars

At the start of World War I, American railroads, particularly those serving east coast ports, were collectively in disarray. Against the background of a war emergency, the U S government nationalized the railroads in December 1917. Taking control was the newly established United States Railroad Administration (USRA). To assist in modernizing the fleet and relieve the shortage of usable rolling stock, the USRA designed two common 40′ boxcars: a 40-ton double-sheathed (DS) wood car, and a 50-ton single-sheathed (SS) 50-ton wood car. Double-sheathed boxcars are fundamentally wooden boxes so all the support had to be provided by a sturdy fishbelly underframe. Single-sheathed cars were like truss bridges with metal side bracing acting as the main structural support. Since the steel side bracing in a Howe truss pattern supported much of the SS cars structure, a simple underframe of two 12″ channels sufficed. There was little consensus among the railroad industry on which was a better design, so the USRA ordered both SS and DS boxcars. Five builders produced some 25,000 virtually identical USRA single-sheathed boxcars with most being delivered in 1919. Prior to the successful USRA cars, American railroads did not generally share common designs. Over the long-term, the USRA boxcars proved that a standard design could work on America's independent minded railroads. Many USRA boxcars were rebuilt in the 1920s and 30s with steel sheathing. Due to different approaches in installing metal sides, variations were numerous.



Rapido is preparing final tooling for a USRA 50-ton single-sheathed (SS) wood boxcar. The new HO scale model will be an accurate companion to the double-sheathed version of the USRA design Rapido introduced two years ago.



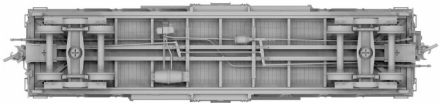
Road names for USRA SS boxcars with National wood doors (based on a Union Metal Products prototype) will be Ann Arbor, Baltimore & Ohio, Central of New Jersey, Chesapeake & Ohio, Chicago & North Western, Milwaukee Road (CMStP&P), Delaware & Hudson, Maine Central, Norfolk & Western, New York Central, Reading, Southern Pacific, and Richmond, Fredericksburg & Potomac.



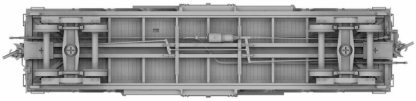
Cars decorated for Pennsylvania Railroad will be available with both Youngstown doors (above) and 3-panel Creco steel doors (Chicago Railway Equipment Co.) below.



Each road name will be available individually and in a 6-pack with unique numbers.



The ready-to-run models will come with KC brakes (above), however, AB brakes (below), that can be installed by the modeler if desired, will be included with each car.



Additional details on Rapido's new single-sheathed USRA boxcar include Murphy 5/5/5 steel ends, Andrews trucks with blackened wheelsets and in-line brake shoes, and Rapido's semi-scale couplers.



GE U-Boat fans will be pleased to learn that Rapido is well along in developing a highly accurate HO scale model of a U25B diesel locomotive. The all-new HO scale model is based on 3D scans of prototype

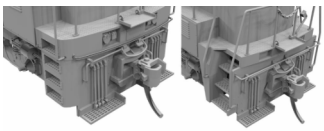
locomotives at the Southern California Railway Museum in Perris, and the Railroad Museum of New England in Thomaston, Connecticut.



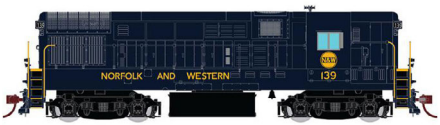
Both high and low nose hood versions of the U25B will be produced by Rapido. Phase variations as well as road specific details include three different exhaust stacks, three different air cleaner boxes, four styles of battery box doors, three different fuel and air tanks, and early high and later low style side doors. All units will have working step lights and a lighted control stand inside the cab.



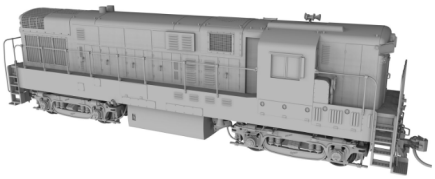
On the initial release U25B units with low nose hoods will be available for Great Northern, Santa Fe, Erie-Lackawanna, New Haven, and Penn Central. Locomotives with high nose hoods will be available decorated for Union Pacific, Frisco, and GE Demonstrator.



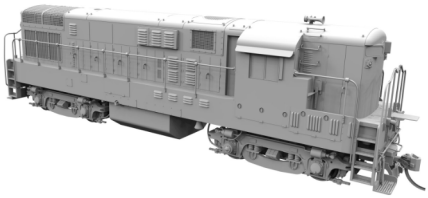
Road specific details include either round or straight pilots. Phase I, II, and III locomotives will be represented on Rapido's initial release, with Phase IV and other variations coming in future releases.



Rapido has relaunched the Fairbanks Morse H16-44 project. Built in the late 50s and early 60s, the H16-44 was Fairbanks Morse's entry into the 4-axle hood-unit market. It featured an 8-cylinder opposed piston diesel engine producing 1600hp.



Rapido is offering the Phase III version of the H16-44 with road name-specific details, Dofasco or FM trucks as appropriate, dynamic and non-dynamic brake carbodies, steam generators, full underbody piping and conduits, road name-specific fuel tanks, illuminated number boards, multi-color class lights, and either 21-pin DCC ready or ESU LokSound 5 sound/DCC.



The following road names will be offered for the H16-44: Baltimore & Ohio, Milwaukee Road, New Haven, Norfolk & Western (Blue), Penn Central, Virginian, Canadian National (green & yellow), Canadian Pacific (block), New Haven (Alpert scheme), Canadian Pacific (Action Red), and Canadian National (Noodle).



R. Bale

CANADIAN PACIFIC D10 TEN WHEELER

The CPR D10-class 4-6-0 Ten Wheeler was a versatile, multipurpose engine with more than 500 being built between 1905 and 1913. It became the most numerous class of steam locomotive in Canada, with several lasting until the end of CP steam service in 1961. Their 63'' drivers allowed the D10s to be employed effectively in both freight and passenger service across the Dominion and into the United States on CP's various connecting lines. The appearance of the D10 sub classes changed over the years with variations in headlights, walkways, appliances, fuel types, and tender configurations.

RATE THIS ARTICLE



Rapido is booking reservations for an HO scale CPR D10 class 4-6-0 steam locomotive for delivery later this year. Rapido is offering several versions of the D10 including D10g, D10h, D10j, and D10k sub classes..





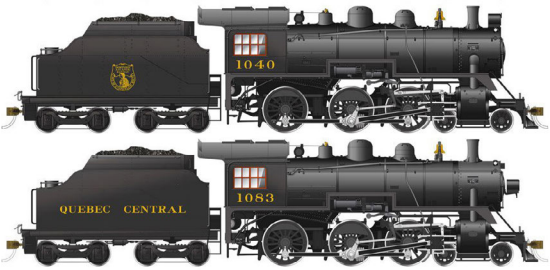
All versions of the HO scale locomotives will be DCC ready, and sound equipped models will be fitted with custom sound decoders that feature synchronized effects. The lighting system will include headlights, marker lights, number boards, and a flickering firebox. The model will negotiate an 18″ minimum radius, however, 22″ is recommended for more realistic operation.



Models decorated for Canadian Pacific will be available in multiple road numbers for class D10g, D10h, and D10k locomotives.



Class D10j locomotive No. 962, with a straight walkway, will be available in CPR's maroon scheme.

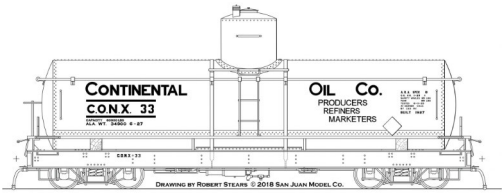


Nova Scotia's Dominion Atlantic Railway class D10h 4-6-0 will be available in two road numbers. A D10k will be decorated as Quebec Central No. 1083. For additional

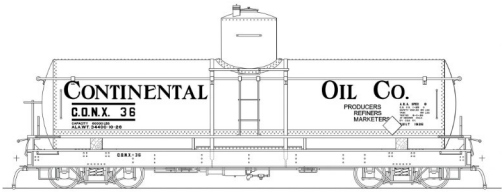
information contact a dealer or visit www.rapidotrains.com . In an exclusive arrangement with Rapido, Credit Valley Railway Company is offering a specially decorated version of the D10. Details are available at www.cvrco.ca.



San Juan Car Co. is booking reservations for narrow gauge tank cars with tall domes and distinctive outside frames. Decorating schemes for the HOn3 ready-to-run model include a 1940-era black car with white CONOCO lettering (above), and a similar scheme on a 1935 CONOCO car with green lettering on a silver tank.



Additional schemes include a1926-era black car with white sans serif lettering and similar graphics in serif lettering on a 1930 car.

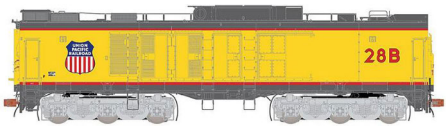


Artwork is being completed for a Mexican National car with a silver tank. For additional information including making a reservation visit sanjuanmodelco.com.



ScaleTrains.com has announced a third run of the Museum Quality Union Pacific "Big Blow" turbine in HO scale. The run will offer new road numbers with different details than previously released models. The new road numbers include #1, the first "Big Blow" turbine;

#6, with a dual dynavane air intake housing on the B unit; #10, new details on A unit; #18, Illinois Railway Museum version; #26, Utah State Railroad Museum version; #28, small ventilator housing on B unit, unique to this number; #30, unique air intake system on B unit.



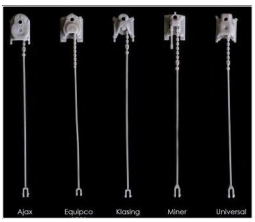
All the "Big Blow" turbines consisted of three units, the A "control" unit, the B "turbine" unit, and a fuel tender. The models come equipped with an ESU LokSound 5 DCC and sound decoders with Full Throttle, a large oval speaker, and a dual supercapacitor PowerPack in both the A and B units.



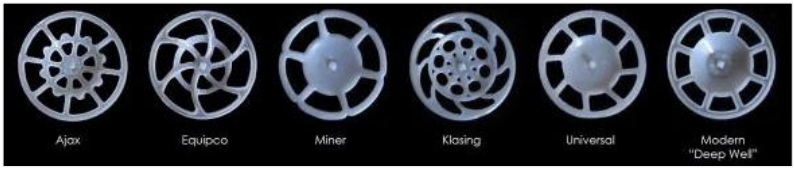
For full information on the new Big Blow turbines visit a dealer or scaletrains.com.



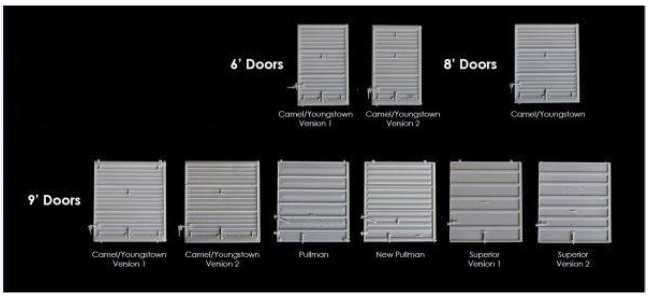
Summit USA has introduced a craftsman-level kit for an HO scale Denny's Restaurant. Components in the kit include milled styrene, laser-cut white and clear acrylic, self-adhesive micro-plywood, clear acrylic window glazing, roofing material, Plastruct clay tiles, self-adhesive signage, and detailed assembly instructions with pictures. Dimensions of the assembled structure are 9.5″ x 7″ x 3″ high. The parking lot base is not included. This is a craftsman kit and model building and painting skills are required. www.summit-customcuts.com.



Tangent Scale Models has announced new additions based on the 40′ PS-1 boxcar release to the Unique and Useful Parts Line.



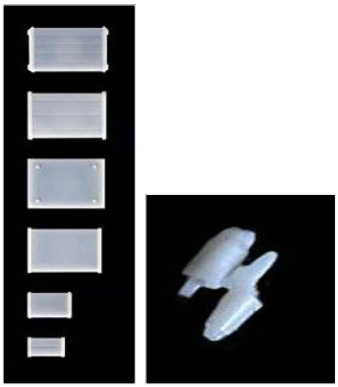
High-brake housings and brakewheels from Ajax, Equipco, Klasing, Miner, and Universal.



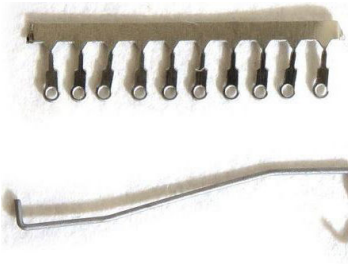
Camel/ Youngstown doors in 6′, 8′, and 9′, and 9′ Pullman, New Pullman, Superior Version 1 and Superior Version 2 type doors.

Two unpainted and five painted Pullman boxcar roof varieties.





Freight car tack-boards and retainers.







Wire coupler lift bars, rubber air hoses, and wire eye bolts. All items are currently in-stock. For more information visit a dealer or www.tangentscalemodels.com.



Walthers has released a new production run of a 55′ Evans 4780 cu. ft. triple-bay covered hopper. The HO scale Proto series model fetures etched-metal see-through walkways and end platforms, roller-bearing trucks with 36″ machined metal wheelsets, and Walthers Proto MAX metal knuckle couplers.



Road names are Boston & Maine, Farmer's Co-Op Association – St. Edwards Nebraska, Missouri-Kansas-Texas, Union Pacific patched for MKT, and three variations of ADM Arthur-Daniels-Midland.



Walthers plans to release a new Trinity 39′ 3281 cu. ft. covered hopper next month. The HO scale Mainline series model is based on a prototype built by Trinity beginning in the late 1990s. The model is equipped with appropriate roller-bearing trucks with 36″ metal wheels.

Road names will be TILX-Trinity Industries Leasing, VTGX-VTG North America, and two GATX cars decorated as GATX



Corporation and Iowa, Chicago & Eastern.



Walthers has released an HO scale Mainline series caboose based on an International Car Co. prototype. Features of the economy-priced model include a Stanray diagonal-panel roof, see-through running boards, and Barber roller-bearing trucks with 33″ metal wheels



Cabooses with closely spaced side windows in the cupola will be available decorated for Maine Central, Great Northern, and Northern Pacific. Cabooses decorated for Boston & Maine, Norfolk & Western, and Norfolk Southern will have widely spaced cupola windows.



The body of the caboose has molded drill points to assist hobbyists wanting to add individual grab irons which are available as a separate purchase.



Walthers has introduced an HO scale Cornerstone kit for a modern manufactured home with a stand-alone garage. The house includes two styles of front door, two non-working porch lights, electric and gas meters, furnace inlet and outlet pipes, and front window shutters. The garage includes detailed framing inside the structure and can be assembled with one large or two small overhead doors. The assembled

house has a footprint of 6.875″ x 3.313″. The stand-alone garage measures 3.125″ square. For additional information contact a dealer or visit www.walthers.com.



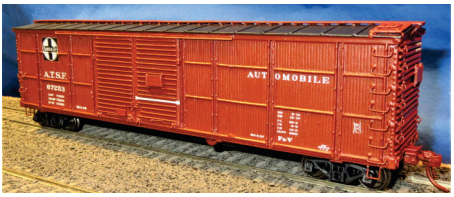
R. Bale

SANTA FE PANEL SIDE BOXCARS

The Santa Fe Railway owned both 40' and 50' boxcars with unique double-sheathed side panels. The truss support system consisted of flat strap metal diagonals and wide channel verticals. Wood siding was applied between the verticals and over the diagonals, leaving the vertical channels exposed. The result appeared to be a series of separate wood panels. Two equally spaced horizontal braces were applied to the panels and to the flat sheet metal doors. The cars were built with 7/5/5 Murphy ends and Murphy XLA roofs. An initial order of 1000 40' cars was built by Pullman-Standard to the Santa Fe design in 1923-24. They were designated Bx-3. In 1924 Santa Fe ordered 500 50' versions of the same unique design. The fifty-footers were designated class Fe-Q. In the 1930s Santa Fe began replacing the flat metal doors of both the 40' and 50' cars with Youngstown corrugated doors.



Westerfield has HO scale resin kits for 50' Santa Fe class Fe-Q, Fe-R and Fe-V automobile boxcars. Pullman built the cars in 1924 using the distinctive wood sheathed sections developed by AT&SF. Like the prototype, Westerfield's HO versions have a fishbelly underframe, 7/5/5 corrugated steel ends, and KC air brakes.



Westerfield kits are available for class Fe-Q door-and-a-half cars with a peaked metal roof in both 1924 and 1928 lettering schemes, and similar class Fe-R cars with a radial roof. The third version of the unique ATSF cars replicate class Fe-V prototypes rebuilt in 1934 with two Youngstown 6′ corrugated doors.



Also available from Westerfield is a resin kit for a Northwestern Pacific USRA double-sheathed express boxcar. The HO scale model replicates 1919-era USRA DS cars rebuilt in 1939 for NWP express service. The cars were upgraded again in 1949 with passenger steam, signal and air lines, and passenger style low uncoupling levers and retainer. They were painted in SP dark olive green with black roofs. Westerfield's kit (#12400) for the 1949 version includes decals for the colorful Redwood Empire Route Overnight lettering scheme.

The essential components in Westerfield kits mentioned in this report are one-piece urethane cast bodies and specific car detail parts. Additional details include Hi-Tech rubber air hoses, Yarmouth etched-bronze corner steps and eyebolts, proprietary decals, historical information, and extensive step-by-step instructions. Kadee couplers and correct Tahoe or Kadee trucks are available from Westerfield as a separate purchase. For details visit www.westerfieldmodels.com.

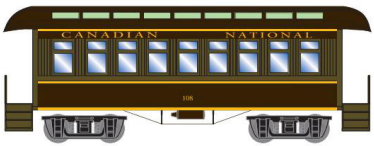
N SCALE PRODUCT NEWS



Coming from **Athearn** in August 2022 is an N scale 50' SIECO boxcar. It includes a scale profile brake wheel, photo-etched stirrup steps, screw mounted trucks, and McHenry knuckle couplers. Road names in this release include Ashley Drew & Northern, Atlantic & Western (Primed for Grime), Boston & Maine, Canadian Pacific (Primed for Grime), Norfolk & Western, and Virginia Central.



Another N scale car announced for August 2022 is the 40′ 3-bay ribbed hopper with removable load. Available with a flat or peaked end, the car features factory applied wire grab irons, stirrup steps, end braces, brake platform, brake gear. Road names in this release are Conrail, Chessie System, BNSF, Central of Georgia, Norfolk & Western, and Canadian National. The model is equipped with roller bearing or Bettendorf trucks with machined metal wheels and operates on code 55 and 80 rail.



Also announced for August 2022 is a run of 34′ Overton passenger cars, suitable for the late 1800s. The model features molded truss rods with turnbuckles, screw mounted trucks, and McHenry knuckle couplers. The cars are available in sets of four, with one baggage car, one combine, one coach and one observation car. Single coaches with a different number from the one in the set are also available. Road names in this run are Boston & Maine, Canadian National, Denver & Rio Grande Western, New York Central, Santa Fe, and Southern Pacific.





A 1:160 scale UPS 40′ parcel trailer is scheduled for August 2022. Fully assembled, the model features rubber wheels. The model comes in five different schemes, with a logo, and four no logo schemes, one without any colored stripes or ends, one with red ends, one with red stripes, and one with yellow stripes. Three road numbers are available for each scheme.



Athearn's 1:160 scale Ford C cab-over-engine truck is being released as a box van. Featuring a molded cab interior with separately applied steering wheel and clear window glazing, the model is decorated for Santa Fe, United Parcel Service, Delta, Western Pacific, Denver & Rio Grande Western, Burlington Northern, and a white unlettered version. For more information visit your dealer or www.athearn.com.



Bachmann has released a new N scale Bethlehem 100-ton triple-bay coal hopper car.



The new Silver Series model features Bachmann's body-mounted E-Z Mate Mark II couplers and Celcon trucks with blackened machined metal wheels.



Road names include Union Pacific, Conrail, Norfolk Southern, Pennsylvania Railroad, and Pennsylvania Power & Light.



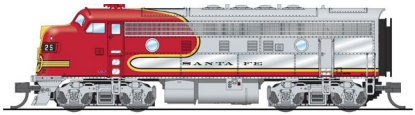
Bachmann has introduced an N scale model of a hi-cube boxcar. The ready-to-run model comes with body-mounted E-Z Mate Mark II couplers and Celcon trucks with blackened metal wheels.



Cars decorated for Santa Fe, Burlington Northern, and Denver & Rio Grande Western have a Youngstown corrugated sliding door.



A Union Pacific car has a plug-door. For additional information contact a dealer or visit www.bachmanntrains.com.



Broadway Limited has scheduled an August release for N scale EMD F3 and F7 diesel units. Individual F3A and F3B units will be available decorated for Santa Fe, Florida East Coast, Grand Trunk Western, Pennsylvania Railroad, Union Pacific, and Chicago, Burlington & Quincy.



Single F3A units will be available for Canadian National, Missouri-Kansas-Texas, and Soo Line.



Powered F3A and B units will be available with Paragon4 Sound DC/DCC sound system. Dummy B units will also be available. Variable details applicable to specific road names include operating Mars light, large or small number boards, dynamic brake, winterization hatch, skirt options, roof top antenna, lift lugs, and nose door number plate.



Also scheduled for release in August are EMD F7 units. Powered F7A units with Paragon4 Sound DC/DCC sound system will be available for Reading and Western Maryland.



Both F7A and F7B powered units will be available decorated for Santa Fe (Blue Bonnet scheme), Boston & Maine, Denver & Rio Grande Western, Great Northern, Kansas City Southern, Northern Pacific, and Southern Pacific (Black Widow scheme).

For complete details contact a dealer or visit www.broadway-limited.com.



R. Bale

EMD SD45-2 LOCOMOTIVE

The SD45-2 is a 6-axle, 3,600 horsepower 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 Dash-2 version. Although problems with EMD's big 20-cylinder engine had been mostly overcome, interest in the big, gas guzzling engine had begun to fade by the time the SD45-2 was introduced in 1972. Ninety of the 136 units built went to Santa Fe. Other original owners were Clinchfield, Erie Lackawanna, and Seaboard Coast Line.

VIEW READER COMMENTS



InterMountain is taking reservations through the end of July for an N scale version of EMD's SD45-2 diesel locomotive.



Road names will be Santa Fe, Santa Fe/BNSF, BNSF, Santa Fe (Kodachrome scheme), Clinchfield, MEC/Pan Am, Reading Blue Mountain & Northern, and Erie Lackawanna.





InterMountain's SD45-2 will be available for DC, DCC, and DCC with sound.



InterMountain is also taking reservations through the end of this month for N scale F7A and F7B locomotives. The models will be placed on a production schedule in August with a release date TBA.



Road names for InterMountain's F7A units include Amtrak, Ohio Central, Burlington Northern, and Frisco.



F7A diesels and companion F7B units will be available decorated for Union Pacific, Great Northern, Pennsylvania, Burlington, Santa Fe, Northern Pacific, Alaska Railroad, and Ferrocarriles Nacionales de México.



Additional F7A/F7B road names include Missouri-Kansas-Texas, and Western Maryland.



InterMountain's F-series models will be available for DC, DCC, and DCC with

sound. For additional information, including entering reservations, contact a dealer or visit www.intermountain-railway.com.



Kato plans to release a ten-car version of the Southern Pacific Morning Daylight in November. The ready-to-run N scale models replicate the colorful train that operated between Los Angeles and San Francisco during the 1940s and 50s.



The ten-car set consists of a baggage/chair car, articulated coffee shop, articulated kitchen, articulated dining car, two articulated chair cars, a single chair car, tavern car, parlor car, and a round-end parlor observation car. Individual articulated chair cars will also be released in November. Kato has developed a movable exterior diaphragm that creates a smooth appearance between the articulated cars.



Notable features include full interior details and shock absorber equipped trucks that offer positive electrical pickup when using interior lighting kits. Optional lighting kits that can be controlled by a DCC decoder are available as a separate purchase. The observation car has a lighted drumhead and marker lights.

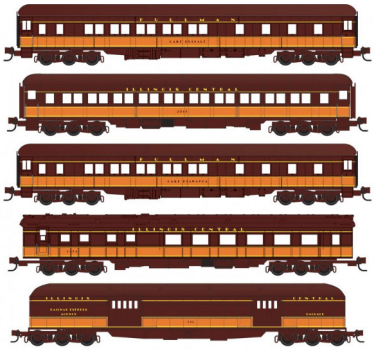


Both the full ten-car set and individual articulated chair cars will be available with factory installed interior lighting in

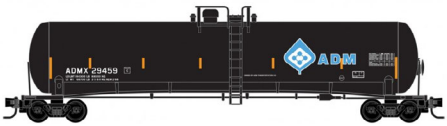
December. For additional information contact a dealer or visit katousa.com.



Among the newest N scale models from **Micro-Trains** is a Norfolk & Western 100-ton triple-bay open hopper. The rib-side model is based on a 3420 cu. ft. prototype built in the early 1970s.



Next month, Micro-Trains plans to release a 5-pack of Illinois Central heavyweight passenger cars to participating dealers. The consist includes a baggage car, coach, diner, and two 10-1-2 sleepers. All of the cars will come with six-wheel passenger trucks.



Also scheduled for release next month is a 3-pack of 56′ ADMX frameless tank cars.



Coming from Micro-Trains later this summer is a 3-pack of Union Pacific 60′ rib-side high-cube Plate F boxcars. Features include double plug-doors covering a 12′ opening and variations in roof details. Additional details of the N scale model include separate end ladders and brake rods, etched-metal brake platforms, and appropriate roller-bearing trucks with 36″ metal wheels. Contact an authorized dealer for additional information on all Micro-Trains products.



Rapido is in the final stage of preparing tooling for a PC&F B-100-40 boxcar. As shown in the computer renderings, the N scale model adheres closely to the 5195 cu. ft. prototype. Details include 12′ doors, half-height waffle sides, Car Pac loaders, and a full Hydra-Cushion underframe.



Road names in this release include Southern Pacific, Southern Pacific/Union Pacific shield, Columbus & Greenville, and two Golden West Service schemes.

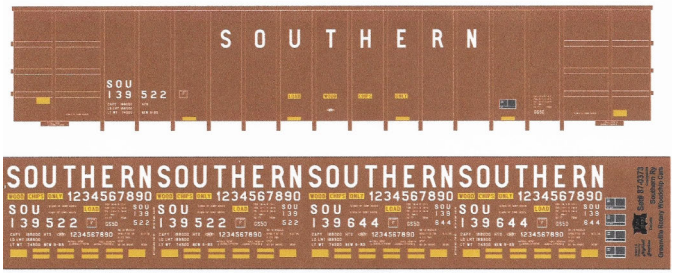


Two schemes will also be available for Amtrak cars (ex-SP) modified with Hennessy wheel door openers, brackets for the end of train device, and struts added to the trucks for extra stability at higher speeds. An undecorated version will also be offered. For additional information contact a dealer or visit www.rapidotrains.com.

NEW DECALS, SIGNS AND FINISHING PRODUCTS



ICG Decals has released an HO scale decal sheet for GATX Leasing 8000 gallon welded tank cars produced between 1948 and the 1950s. The quality silk screen decals are suitable for accurately decorating Tangent Scale Models 8000 gallon welded tank car in the 1948 to 1957 period. The set includes enough material to letter two different cars. For additional information visit www.icgdecals.com.



Mask Island Decals has issued a water slide decal for an HO scale Southern Railway rotary wood chip car. The set includes sufficient material to correctly decorate two cars. For additional information visit www.maskislanddecals.com.



Motrak Models has introduced a kit for a storage rack specifically designed to hold 12 bottles of BEST (Bolling Edgerly Scale Trains) Vetero weathering stains. Since the bottles are heavy, the rack is intended to be placed on a tabletop, not hung on a wall. The kit is composed of laser-cut 1/8″ Masonite hardboard. The assembled rack measures 9″ x 7.25″ x 9.8″ tall. To order visit motrakmodelsusa.com.

DISCLAIMER .....

The opinions expressed in this column are those of the writer and do not necessarily reflect the opinion of Model Railroad Hobbyist or its sponsors. Every effort is made to provide our readers with accurate and responsible news and information, however, neither Model Railroad Hobbyist or the writer of this column can be held responsible for any inaccuracies or typographical errors that may inadvertently appear in this column.

BRIEFLY NOTED AT PRESS TIME ...

Jacksonville Terminal Company has released three new N scale models in it's Visionary Series, a 20′ standard height container configured as a Caterpillar electrical distribution unit, a 48′ high cube corrugated container decorated for Phantom Fireworks, and a 53′ high cube 6-42-6 corrugated 4th of July container. Other prototype schemes will be available for 20′ standard height containers and 40′ standard and high cube containers. See a dealer or jtcmodeltrains.com for more information ...

Frenchman River Model Works is selling an O scale Thomas Yorke designed kit titled, "The Barn Find." The kit consists of four resin walls, a 1940s tractor kit, assorted scale lumber, corrugated metal, signage, and "the find" car. It measures 6.5″ by 7″ and 4″ high. For more information visit frenchmanriver.com.

Walthers has announced an HO scale Gunderson rebuilt all-purpose 40′ well car in five TTX schemes for delivery in August 2021. Also new from Walthers in August are single- and double-track Cornerstone engine house kits in HO scale. For more information visit www.walthers.com. ■

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SELECTED EVENTS



July

Due to COVID-19 restrictions, please check with any organization hosting an in-person event for the latest status of the event. ■

Ongoing

ONLINE, Zoom, dates vary, see website. Operation Special Interest Group Meetups – limited attendance available. For more information visit www.opsig.org/Virtual. Past meets are available online at www.opsig.org/Virtual/Past.

ONLINE, Zoom & YouTube, Wednesday & Saturday, see Facebook page. "New Tracks" Meetup, hosted by Jim Kellow, MMR. See newtracksmodeling.com for more information.

ONLINE, Facebook & YouTube, dates vary, see Facebook page. "NMRAx" organized by Gordy Robinson, Martyn Jenkins, Gert Muller, Jordan Kramer. See www.facebook.com/groups/nmragroup for announcements. Note: Taking a break for June/July due to NMRA online National Convention, back in August.

ONLINE, YouTube, every other Saturday. 4th Division, Pacific Northwest Region, NMRA hosts online layout tours and clinics. Archive available at www.youtube.com/c/4DPNRMovies.

ONLINE, Zoom, Second Tuesdays, 8pm EST. "Off the Beaten Track" featuring Narrow Gauge layouts, clinics and manufacturers. For more information visit groups.io/g/NNG.

July-August 2021

ILLINOIS, COLLINSVILLE (St. LOUIS), July 30-31. St. Louis Railroad Prototype Modeler's Meet. Gateway Convention Center, 1 Gateway Dr. For more information visit stlrpm.com.

ILLINOIS, WHEATON, August 8, September 12, October 10, November 14, December 12, Great Midwest Train Show, Dupage County Fairgrounds. For more information visit trainshow.com.

MISSOURI, SPRINGFIELD, August 21, 2021, Ozarks Model Railroad Association Train Show, Oasis Conference Center, 2546 N Glenstone Ave. For more information visit www.omraspringfield.org/train-shows.html.

NEW JERSEY, EDISON, August 14-15, 2021, Greenberg's Train & Toy Show, New Jersey Expo Center. For more information visit trainshow.com.

OHIO, DAYTON, August 14-15, 2021, Great Train Show, Montgomery County Fairgrounds. For more information visit trainshow.com.

OHIO, VAN WERT, July 24-25, 18th Annual Van Wert Railroad Heritage Weekend Model Railroad Show and Swap. Van Wert County Fairgrounds, 1055 S Washington St. For more information visit www.vwrrhw.com.

PENNSYLVANIA, KUTZTOWN, July 17, August 28. Renningers Model Train Meet, 740 Noble Street. For more information see renningers.net/events/model-train-meet.

PENNSYLVANIA, MONROEVILLE, July 24-25, Greenberg's Train and Toy Show, Monroeville Convention Center. For more information visit trainshow.com.

PENNSYLVANIA, OAKS (Philadelphia area), August 21-22, 2021, Greenberg's Train & Toy Show, Greater Philadelphia Expo Center. For more information visit trainshow.com.

TEXAS, STAFFORD (GREATER HOUSTON), August 14, 2021, Greater Houston Train Show, Stafford Centre, 10505 Cash Rd. For more information visit sanjacmodeltrains.org.

VIRGINIA, FREDERICKSBURG, August 7-8, 2021, Greenberg's Train & Toy Show, Fredericksburg Expo & Conference Center. For more information visit trainshow.com.

Future 2021-2022 by location

AUSTRALIA, SYDNEY, October 16-17, Great Train Show, sponsored by the Epping Model Railway Club, Grand Pavilion, Rosehill Gardens Racecourse, James Ruse Drive, Rosehill. For more information visit www.eppingmodelrailway.org.au/exhibition.

CALIFORNIA, IRVINE, September 8-11, Pacific Southwest Region/NMRA Convention, "Orange Blossom Special." Hilton Irvine/Orange County Airport Hotel, 18800 MacArthur Blvd. Visit www.psrconvention.org/OrangeBlossomSpecial2021 for more information.

FLORIDA, MELBOURNE, September 4, December 4, Original Melbourne Train and Toy Show, sponsored by Schultz Space Coast Trains, Azan Shrine Center, 1591 W Eau Gallie Blvd. For more information visit schultzspacecoasttrains.com.

FLORIDA, PLANT CITY, October 14-16, 2021. Sunshine Express II, Sunshine Region Regional Convention. 2102 Park Rd. For more information visit www.sunshineregion.org/region-convention.

GEORGIA, CARTERSVILLE, October 2-3, 2021. Piedmont Division Model Train Show, Clarence Brown Conference Center, 5450 GA-20. For more information visit themodeltrainshow.com.

ILLINOIS, BELLEVILLE, October 2-3, 2021. Great Train Expo. Belle-Clair Fairgrounds and Expo Center, 200 S Belt E #2650. For more information visit bcfairgrounds.net/belleville-great-train-expo.

ILLINOIS, WHEATON, August 8, September 12, October 10, November 14, December 12, Great Midwest Train Show, Du-page County Fairgrounds. For more information visit train-show.com.

MARYLAND, LINTHICUM HEIGHTS (Baltimore), September 10-11, 2021, Mid-Atlantic Railroad Prototype Modelers Meet, Doubletree by Hilton – BWI, 890 Elkridge Landing Rd. For mor information visit www.marpm.org.

MARYLAND, HUNT VALLEY, October 21-24, 2021, Mid-East-ern Region Convention – Mount Clare Junction Model Railroad – NMRA membership not required, Delta Hunt Valley, 245 Shawan Road, mtclarejct.com.

MASSACHUSETTS, WESTFORD, October 8-11, 2021, Mill City 21, the NER Convention. Westford Regency Inn, 219 Littleton Rd. For more information visit millcity21.org.

MISSIOURI, KIRKWOOD, October 9-10, 2021. 30th Annual Greater St. Louis Metro Area Train Show, sponsored by the Mississippi Valley N Scalers. Kirkwood Community Center, 111 S. Geyer Rd. For more information visit mvns.railfan.net.

MISSOURI, St. LOUIS, August 7-14, 2022, NMRA National Con-vention and National Train Show.

NEW ZEALAND, CHRISTCHURCH, October 2-3, 2021, The BIG Model Train Show, Pioneer Stadium, Lyttelton Street. For more information visit trainshow.co.nz.

NEW ZEALAND, LOWER HUTT (Wellington), November 14-15, 2021, RailEx Model Train Show, Walter Nash Centre, 20-22 Taine St., Taita. For more information visit www.railex.org.nz.

NORTH CAROLINA, HICKORY, September 1-4, 2021, 41st Na-tional Narrow-Gauge Convention, Hickory Metro Convention Center and Crowne Plaza Hotel. For more information visit 41nngc.com.

OHIO, CAMBRIDGE, October 17, 2021. Third Annual Buckeye Division Train Show, Pritchart Laughlin Center, 7033 Glenn Hwy. For more information visit div6-mcr-nmra.org/train-show.html.

OHIO, TOLEDO, October 21-24, 2021. Black Swamp Junction – NCR 2021 Convention, hosted by the NMRA, open to all, featuring clinics, tours, layouts, op sessions, and door prizes. Radisson Hotel at the University of Toledo, 31100 Glendale, Ave. For more information visit www.divisiononencr.com/2021.

OKLAHOMA, TULSA, October 6-10, 2021. 2021 Tulsa Union Convention, Indian Nations Division, Mid-Continent, and Lone Star Regions joint convention. Embassy Suites by Hilton Tulsa I-44, 3332 S. 79th East Avenue. For more information visit www.2021tulsaunion.com.

OREGON, EUGENE, May 10-14, 2022. PNR 2022 Regional Convention, Valley River Inn.

PENNSYLVANIA, ALLENTOWN, October 8-10, 2021. 25th National Trolley Meet, Agriplex at Allentown Fairgrounds, 17th and Chew Streets. For more information visit www.eastpenn.org.

PENNSYLVANIA, KUTZTOWN, July 17, August 28, 2021. Renningers Model Train Meet, 740 Noble Street. For more information see renningers.net/events/model-train-meet.

SOUTH CAROLINA, GREENVILLE, September 9-12, 2021. 2021 NMRA Southeast Region Convention, the Swamp Rabbit Express. Greenville Hilton, 45 West Orchard Park Drive. For more information visit swamprabbitexpress.org.

UNITED KINGDOM, DERBY, October 22-24, 2021. 75th+1 Grand Junction Convention, British Region regional convention. Derby Conference Centre. For more information visit www.black-diamonds.org.uk/convention.

WASHINGTON, CHEHALIS, October 9-10, 2021. Lewis County Model Railroad Swap Meet. Blue Pavilion, Southwest Washington Fairgrounds, 2555 N. National Ave. For more information contact tedstrains@lewiscounty.com.

MICHIGAN, WYOMING (Grand Rapids), October 9, 2021. The Greater Grand Rapids Fall Train Show, presented by the Grand River Valley RR Club. HSB Inc., 5626 Burlingame Ave SW. For more information visit www.grvrrc.org/index.html. ■



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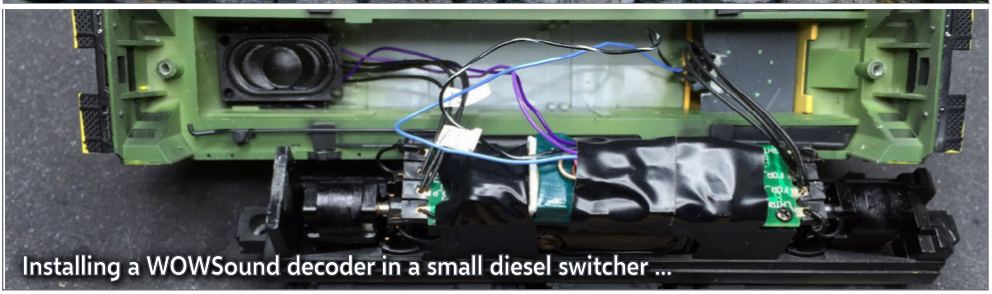


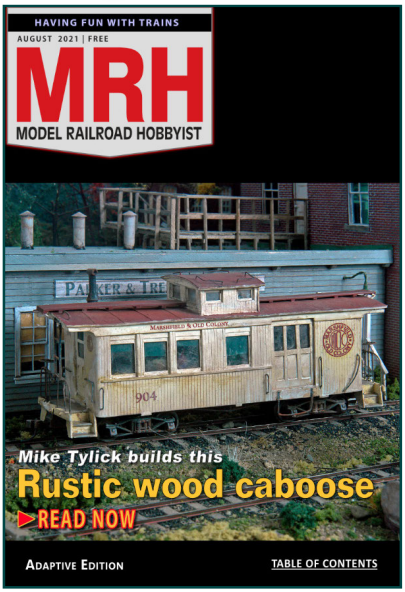
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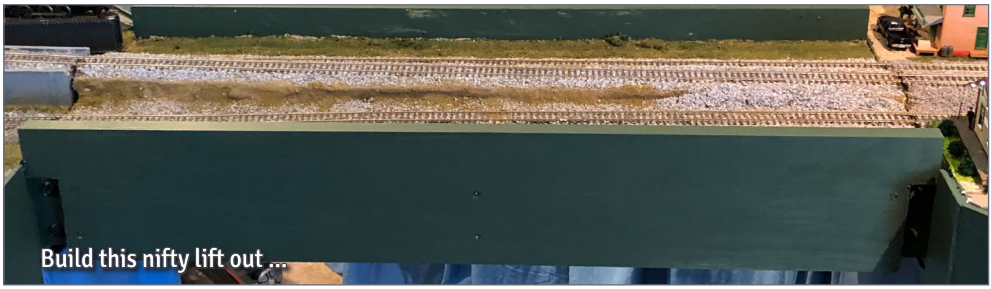


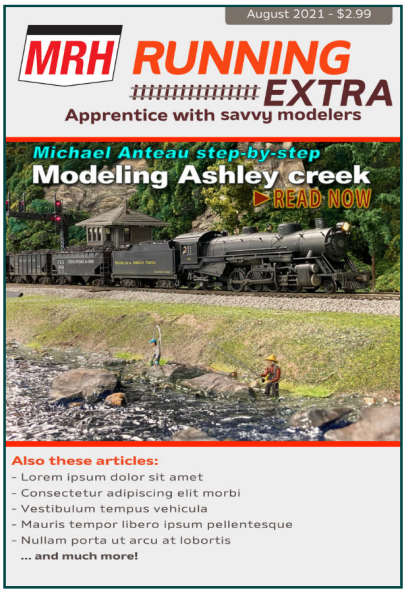
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