







ROADNAMES:

GP38

ATSF - BN - BNSF

B&O - CR - CSX

PC - NS - SOU



Southern High Hood Version

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- Road-specific details
- Incredible underframe details
- Multiple stepwells
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PC Version

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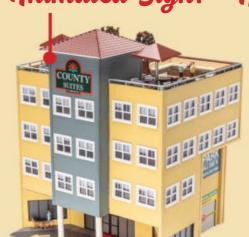
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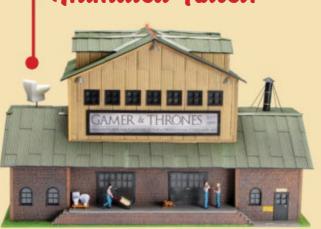
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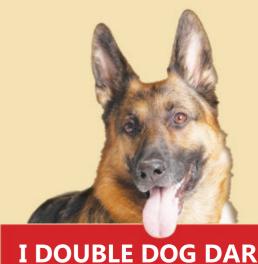


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Animated Toilet!



GAMER & THRONES O (279–4428) | HO (279–5141)



I DOUBLE DOG DARE YOU TO FIND BETTER TRAIN STUFF!



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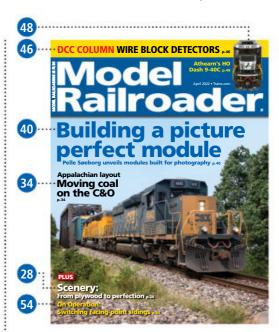
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Paving the way



On the cover: Two HO scale FREMO modules that can be joined in two ways make a great setting for a realistic photo. Pelle Søeborg photo



Next issue

In May, explore the operating possibilities a junction offers. Plus, pour a resin river, mark track clearance points, put the corners of your layout to use, and more!

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Track Plan Database

Looking for track plan inspiration?

Check out the subscriber-exclusive Track Plan Database on Trains.com, home to more than 500 plans in a wide variety of scales and sizes. Each plan can be downloaded as a PDF, and new plans are added to the database each month!



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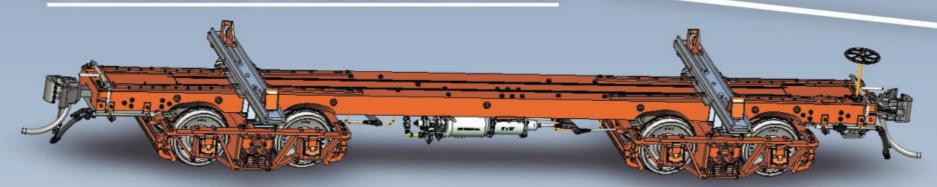
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PRESS RELEASE





KR Models proudly announce that we will be producing a logging car to complement our model of The Shay.

Logging railways used three basic types of log cars, the disconnect, skeleton and the flatcar. Skeleton cars were the most common, basically consisting of a wooden reach betweentwo freight car trucks. This arrangement allowed for the use of air brakes (unlike the disconnect), while maintaining its light weight and easy maintenance.

We will be producing 3 variants each at \$60.00, which comes complete with logs. A single log or a three log configuration.

To register your interest in this model please go to

https://www.krmodels.ca/products/expression-of-interest-ca

We will announce further details as the project progresses.



The Utimate Guide returns!

In 2018, our video team

launched an innovative annual special issue. *Model Railroading: The Ultimate Guide* was a winning combination of print and video – the key articles in the publication having companion videos for readers to enjoy on our website.

"Video is an incredible tool for explaining how to do

things," wrote David Popp in the inaugural issue. "Seeing how to apply a weathering coat to a boxcar or attach leaves to a model tree makes it much easier to learn the technique.

"However, there are still some things print does better. It's much easier to pore over a printed track plan or follow construction drawings when you can lay them out on the table in front of you."

The *Ultimate Guide* combines the best of both worlds.

Two annuals followed, but the gradual transition of our Model Railroader Video Plus content into Trains.com put plans for a fourth special issue on hold.

It is too useful a publication to let it slip into oblivion. The print and video teams are busy putting the finishing touches on an all-new *Model Railroading: The Ultimate Guide*. It reaches hobby shops and newsstands in April, but you can reserve a copy today by visiting our online store, kalmbachhobbystore.com.

Fans of our how-to videos will find many familiar names in this special issue, including Gerry Leone, who shows how to create a realistic lake scene, all the way from plywood to the finishing touches.

Steve Brown explains his



techniques for convincing concrete roads using just a few supplies.

Cody Grivno guides us through the process of striping, painting, decaling, and weathering an N scale locomotive.

Looks like the gang's all here – welcome back, *Ultimate Guide*! We missed you!





Expert modeler Gerry Leone shows how to build this realistic lake scene in the latest special publication. Gerry Leone photo

Model railroading is fun!

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We welcome contributions from readers, including articles, photographs, and drawings. For more information on submitting material, e-mail Editor Carl Swanson at cswanson@kalmbach.com. Model Railroader assumes no responsibility for the safe return of unsolicited material. We assume unsolicited material is intended for publication by Kalmbach Media unless otherwise noted. We assume letters, questions, news releases, and club news items are contributed gratis.

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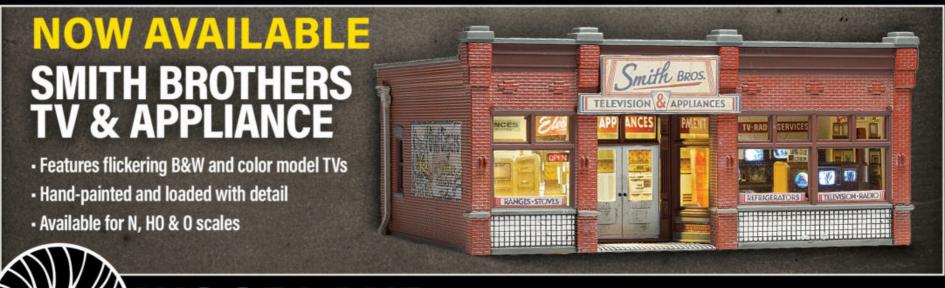
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www.nicholassmithtrains.com Model Railroader April 2022

Patrick Stanley was able to build this scale model of his family home thanks to Rail Scale asbestos siding shingles. Patrick Stanley photo

Finishing the family home

In "Ask MR" on page 22 of the June 2021 Model Railroader, you advised the reader of the availability of Rail Scale asbestos siding shingles. I have been searching for such a product since 1985, as I needed them to build a model of my family home. Your suggestion was the final piece I needed to complete the project. I've attached a photo of the completed model. I used it as a photo on the Christmas cards I sent to my family this year, which is why it has Christmas decorations and a tree in the window. Thanks for the timely suggestion.

Patrick Stanley, West Chester, Ohio

Telling a story with figures

Railway Post Office

I just loved the article by Clark Propst in the December 2021 Model Railroader. When I place figures in structures or vehicles, I arrange them so they tell stories – some dramatic, some comical. This makes a layout more lifelike.

Ignacio Metre Mas, Fresno, Calif.

A master of the art

I was blown away by Mont Switzer's article "Detail and weather war

emergency hoppers" [Nov. 2021]. Wow, Mr. Switzer has shown himself to be a true master of the technique! My thanks for Mr. Switzer and Model Railroader. Alan "Chuck" Crouse, Orlando, Fla.

Corrections

The locomotive in Dan Welch's photo of his HOn30 Sandy River & Rangeley Lakes layout on page 67 of February's issue is a Forney, not a Climax.

Craig Laing's name was misspelled in February's Trackside Photos.

Comments, suggestions, and additional information on *Model Railroader* articles and departments are welcome in this column. Every comment will be read, but not all can be printed or answered. Make your statement in 300 words or less, and send it to Railway Post Office, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail sotte@kalmbach.com. Please include your name, city, and state.

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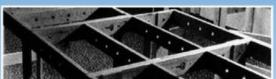
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Electro-Motive Division SD60 diesel locomotive. This Athearn Ready-to-Roll six-axle road locomotive is decorated for Chicago & North Western (Zito Yellow in two road numbers, Traditional Yellow with Operation Lifesaver logo in one number), EMD demonstrator (blue and white), Norfolk Southern (Union Pacific patchout in two numbers, blue Helm

Leasing patchout in one number), Oakway Inc. (blue and white), Soo Line (Candy Apple Red), and Union Pacific (lightning stripe). The HO scale diesel has wire grab irons and McHenry couplers. Direct-current models sell for \$159.98. Versions with dual-mode SoundTraxx Econami sound decoder list for \$229.98. Athearn Trains, 800-338-4638, athearn.com

Rapido adds EMD GP38 to HO product line

Rapido Trains announced that the next locomotive in its HO scale lineup will be the Electro-Motive Division GP38.

Initial road names offered on the Rapido Trains model will include Atchison, Topeka & Santa Fe; BNSF Ry.; Burlington Northern; Conrail; CSX (three schemes); Norfolk Southern (high short hood); Penn Central; and Southern Ry. (high short hood). The models will be offered in one to four road numbers per paint scheme. Additional features on the GP38 will include a detailed underframe; roadspecific battery box doors, fuel tank, truck sideframes, headlight location, and stepwells; and a detailed cab interior.

The release date for the HO scale GP38 has yet to be announced. Direct-current models will be priced at \$239.95. Versions with a dual-mode ESU Lok Sound decoder will sell for \$349.95.

Visit rapidotrains.com for the latest updates on this project.



Rapido Trains will offer the EMD GP38 with multiple dynamic brake hatches and air filters.

HO scale freight cars



- U.S. Navy helium tank car. Kit features resin castings, parts 3-D printed in PLA-type plastic, decals, assembly hardware, and photo-illustrated instructions. Trucks and couplers not included. \$29.99 plus shipping. Concept Models, con-sys.com
- **50-foot covered gondola.** Chicago, Burlington & Quincy (red); Nickel Plate Road (black); Rock Island (brown); Soo Line (brown); and Southern Ry. (silver). Three road numbers per scheme. Removable cover, 70-ton roller-bearing trucks, and 33" machined metal wheels with RP-25 contour. \$33.99. February

2023. Roundhouse line. Athearn Trains, 800-338-4639, athearn.com

Pullman-Standard 4,427-cubic-foot capacity low-side three-bay covered hopper. Atchison, Topeka & Santa Fe (class GA-151 in 1965 as-delivered scheme); CGF Grain Co. Inc. (1964 asdelivered scheme with TLDX reporting marks, three road numbers); Far-Mar-Co (1972 and 1975 repaints, three numbers each); Kansas City Southern (1964 as-delivered scheme); Milwaukee Road (1981 repaint, one number); Peavey Co. (1964 as-delivered scheme); and West Central Cooperative Grain Co., Omaha, Neb. (1964 as-delivered scheme with TLDX reporting marks, three numbers). Six numbers per scheme unless noted; also available as undecorated kit. Photo-etched stainless steel running boards and brake platform; wire uncoupling levers, brake rigging, and brake rods; and Kadee no. 58 scale couplers.

\$54.99. ExactRail, 866-945-1701, exactrail.com



• Southern Pacific class B-50-15 and B-50-16 40-foot boxcars. B-50-15: Wood sides and Murphy roof (Southern Pacific 1931-1946 and 1946-1952 schemes), wood sides and Viking roof (SP 1931-1945, passenger service, 1946-1952, and maintenance of way [single car and three-pack] schemes), and steel sides and Viking roof (SP 1931-1946 and early Overnight schemes). B-50-16: wood sides and Murphy roof (SP 1931-1946 and San Diego & Arizona Eastern) and steel sides and Viking roof (SP 1931-1946, 1946-1952, 1956+, and Overnight schemes). Corrugated and Dreadnaught ends and

Scientists identify new detail part

A team of microferroequinologists

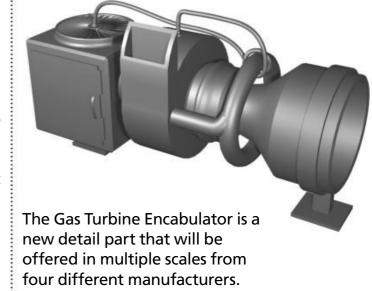
from the University of Sodor have announced the discovery of a previously unknown model locomotive detail part.

"We're very excited," said lead scale model train researcher Marty McFaux. "Scientists have long speculated about a missing link between the primitive Steam Encabulator and the better known Turbo Encabulator, but now we've proven its existence."

Dubbed the Gas Turbine Encabulator, the actual function of the detail part's prototype is not well known. Researchers are still trying to locate a surviving prototype that includes the part, a task that has proved difficult due to every known example having exploded in spectacular fashion, sometimes shortly after rolling off the assembly line.

Scientists speculate that the part should be installed on the front of a steam locomotive's smokebox, on the cab roof of an electric, or under the sill on the fireman's side of a diesel. "Never on the engineer's side, are you kidding? That would be a deathtrap," McFaux said.

As of press time, hobby manufacturers Details South East, B-Grade Products, Devilsinda Details, and Hobo Castoffs Ltd. have announced plans to offer the part in F, OO, L, and S scales.



Ben Lake illustration

AB- and K-style brake systems as appropriate; separate, factory-applied ladders and grab irons; and newly tooled T-section trucks. Single cars, \$54.95; three-packs, \$164.85; and six-packs, \$329.70. Rapido Trains, 905-474-3314, rapidotrains.com



• 100-ton four-bay hopper. Burlington Northern (black, herald over three lines scheme), Chicago & North Western (green), Conrail (brown with "can opener" and "Quality" heralds), CSX (black), Denver & Rio Grande Western (black with "Flying Grande" lettering), and Norfolk Southern (black). Four road numbers per scheme. Die-cast metal underframe, 36" RP-25 contour turned-metal wheels, and Proto-Max metal couplers. \$29.98. Walthers Mainline. Wm. K. Walthers Inc., 414-527-0770, walthers.com

HO scale passenger equipment



• Budd Slumbercoach. Amtrak (Phase 1 and 3 schemes, latter with as-built underbody configuration); Baltimore & Ohio (five road numbers); Burlington Northern (two numbers); Chicago, Burlington & Quincy (Northern Pacific scheme with CB&Q sublettering, two numbers); Missouri Pacific (one



Greenbrier-Gunderson Multi-Max auto rack. Paint schemes on this contemporary auto hauler include Union Pacific, BNSF Ry. (orange and white schemes), Canadian National (yellow with red or white "wet noodle" herald), Canadian Pacific (yellow and white schemes), CSX (yellow with "boxcar" herald), Kansas City Southern (yellow and white schemes), and Norfolk Southern (yellow with Thoroughbred herald). The N scale Rivet Counter line car, priced at \$44.99, is offered in four body types (early, intermediate, late, and current) and has car rack numbers and rack clearance data specific to each car number, ASF low deck swing-motion trucks, and body-mounted couplers. ScaleTrains.com, 423-299-3689, scaletrains.com

number); New York Central; and Northern Pacific. Four numbers per scheme unless noted; also available painted stainless steel but unlettered. Underbody detail with separate pipes and conduits, multi-color interior detail including roomette doors, GSC 41-NDO-11 trucks with disc brake detail, etched-metal end gates, and sprung diaphragms. \$119.95. Release date to be announced. Rapido Trains, 905-474-3314, rapidotrains.com

HO scale details and accessories

• Assorted 1950s vehicles. Sedan: Pink, police, red, and yellow. Taxis: City Cab Co. and Downtown Taxi. Separate, factory-applied details; molded interior with separate steering wheel; clear window glazing; and vinyl tires. \$29.99. February 2023. Athearn Trains, 800-338-4639, athearn.com

N scale freight cars

• Assorted freight cars. Farmrail American Car & Foundry three-bay Center Flow covered hopper, \$31.95. Georgia Pacific 65-foot 100-ton log car with roller-bearing trucks (two numbers), \$27.90 each. Rock Island (blue) 50-foot boxcar without running boards, \$30.90. Plastic wheelsets and Magne-Matic couplers. Micro-Trains Line Co., 541-535-1755, micro-trains.com

News & Products



Pacific Car & Foundry 5,195-cubic-foot-capacity class B-100-40 boxcars.

These waffle-side boxcars from Rapido Trains are decorated for Southern Pacific (as-delivered scheme and Golden West Service patchout), Golden West Service (Ventura County reporting marks), Amtrak (green and phase 4 schemes), Columbus & Greenville (Southern Pacific patchout), and Union Pacific (Southern Pacific reporting marks). The HO scale car is also available undecorated. The boxcars have separate, factory-applied metal grab irons and uncoupling levers; a Hydra-Cushion underframe; newly tooled trucks with in-line brake shoes and 36" metal wheels; and separate door rods and door tracks. Single cars are priced at \$49.95, an Amtrak three-pack lists for \$149.95, and a six-pack sells for \$299.70. Rapido Trains, 905-474-3314, rapidotrains.com

O scale freight cars



 General American 53'-6" doublesheathed express refrigerator car.

New road numbers: Railway Express Agency, American Refrigerator Express, American Refrigerator Transport, Soo Line, and Western Pacific. New paint schemes: Nickel Plate Road and Northern Refrigerator Car Co. (with Northern Pacific herald). Two road numbers per paint scheme. All cars painted green and black; also available undecorated. Sprung, die-cast metal General Steel Castings Commonwealth express car trucks; metal ladders, stirrup steps, and grab irons; operating doors and roof hatches; and detailed underframe. \$90.95 (undecorated, \$84.95). Master Line. Atlas O, 908-687-0880, shop.atlasrr.com

Z scale locomotives



• Electro-Motive Division F7A and F7B diesel locomotives. New paint scheme: Northern Pacific (Loewy twotone green). A-B set and single A unit.

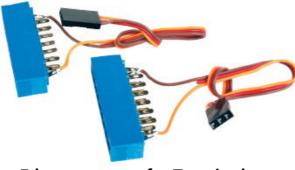
Prototype-specific details, 7mm motor with dual flywheels, directional light-emitting-diode headlights, optional front truck with mounted coupler, black-ened metal wheels, and AutoLatch couplers. American Z Line, 614-764-1703, americanzline.com

Z scale freight cars



• Pacific Fruit Express class R-70-20 mechanical refrigerator car. Tropicana (orange scheme with Tropicana lettering and logo). Seven road numbers (single car, two-pack, and four-pack). Blackened metal wheels and AutoLatch couplers. American Z Line, 614-764-1703, americanzline.com

Electronics/controls



• Edge connector for Tortoise by Circuitron switch machine. Designed to simplify converting existing Tortoise

by Circuitron switch motors for use with Walthers Controls products. Edge connector features plug-and-play wiring for Tortoise switch motors (sold separately). Includes 6" motor connection cable with plug for direct connection to stall motor controller (no. 942-161, sold separately). Model no. 942-144 designed for use Tortoises made after May/June 2020 with green printed-circuit (PC) board. Model no. 942-142 for older production Tortoises with tan PC board. Two-pack, \$9.98. Wm. K. Walthers Inc., 514-527-0770, walthers.com

Tools



• Flexi Loco Lifts. PT-61 (double) and PT-60 (single). Drive on/drive off locomotive lifts. Can also be used to store and transport models. Plastic kits (no glue required) with sides, adjustable end pieces, metal contact strips, screws, plastic clips, and end slides. For use with N, OO/HO, OO-9/HOe, HOn3, EM, and TT/HOm. Single, \$19.99; double, \$34.99. Prices may vary based on exchange rate. Peco, peco-uk.com

Books

More Intermediate Arduino and
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3-D Print Model Railroad Projects. By Paul and David Bradt with significant contributions and project examples by Dennis Drury, Steve Spence, and Tom Ward. Provides additional project ideas on intermediate level model railroading using Arduino micro controller and Raspberry Pi single-board computer. Also explores various 3-D print projects. Project examples include arc welding emulators, fast clocks, Automatic Block Signal systems, reverse loop control, and Java Model Railroad Interface applications. 3-D print projects range from simple items used on a layout, passenger cars and locomotives, and Arduino enclosures. Self-published, 153 pages. Softcover, \$24.99; Kindle, \$6.99. Available at amazon.com MR



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Midwest Railcar Corp. no. 200390, a 2,791-cubic-foot-capacity gondola, rolls through Ackerville, Wis., in a Canadian National freight train on March 21, 2021. The 52'-6" car is fitted with a Fiberglas cover produced by Ecofab. Cody Grivno photo

What are gondolas with covers carrying?

What kind of cargo is in those gondolas I see that have rounded covers on them?

John Martin

That depends on the kind of covers you're talking about. If the gondola in question has low sides and the cover is a tall one with lifting and stacking brackets on it, it's a coil steel car. Since steel is heavy, these cars usually carry only four to six coils each. They're loaded and unloaded by the same over-the-rails crane that lifts the covers on and off.

But modern coil steel cars don't resemble gondolas as much as they used to, so it's more likely you're asking about regular gondolas with low, arched lids. These are usually made of Fiberglas, white in color, and attached to the rim of the gondola with clamps. This kind of cover is fairly modern. Earlier gondola covers were slightly peaked, like the roof of a boxcar; many had running boards. Before that, a gondola's lading might be protected by a tight-fitting tarp.

Gondola covers are used any time the lading has to be protected from the weather. This could be because the cargo itself has to be kept clean, but these days ladings like that are more likely to be carried in covered hoppers. A more likely answer is that the lading is something the shippers don't want to blow away. Copper concentrate, for example, is often carried to the smelter in covered gondolas because its dust can be dangerous if inhaled. Likewise, covers are used on gondolas carrying contaminated or radioactive dirt from industrial cleanup sites to an incinerator, decontamination site, or landfill. Coal ash is another lading that a railroad would not like the wind to distribute along its right-of-way. These are the most likely cargos for a covered gondola, but others are possible.

Q Help! Here in the U.K., it's difficult to get HO scale American steam locomotive parts. I just got hold of what I was told was a Bowser E6 Atlantic locomotive body and chassis, but when I opened it up it turned out to be the Roundhouse model with some vital parts missing. These are the motor mounting plate, step gear, gear shaft, and worm gear. Where can I get these spare parts? I have a lovely

Pittman motor just waiting to install in it. Otherwise I will just have to run it unpowered in a double header lash-up.

Mike Broadsmith, Isle of Wight, U.K.

A I'm afraid that short of locating another identical model you can strip for parts, you may be out of luck. Though Athearn bought the Roundhouse line and sells some of its models in ready-torun form, those steam locomotives haven't been sold in kit form in many years. If you're able to fabricate (or perhaps 3-D print?) your own motor mount, you may have success remotoring the locomotive with generic gears and driveshafts from a manufacturer like NorthWest Short Line (nwsl.com).

Q I have an older Atlas HO scale GP7 that has developed a whirring sound in one of its gear towers when it runs in reverse (long hood forward). I'm guessing this sound may be caused by a lack of lubricant in the gear tower, or perhaps that the lubricant has dried out. Do you concur with this assessment, and if so, what type and brand of lubricant do you recommend?

Mark Masters

A We recommend light lubrication for the gears and wheel bearings of your model locomotives, and only when necessary. Model locomotive mechanisms are machined to tight tolerances and usually don't need much lubrication. A lot of modelers swear by LaBelle hobby oil; we suggest no. 108 light plastic-compatible oil for wheel bearings and no. 102 gear lubricant for gear towers and mechanical drivetrain linkages. You'll find LaBelle products in most train shops, as well as in the Kalmbach Hobby Store at KalmbachHobbyStore. com/product/modeling-tool/84073.

But the thing is, model train mechanisms ordinarily shouldn't make much noise – especially not in only one direction. Your Geep's problem might not be due to a lack of lubrication. Considering the age of your model, loose or worn gears or bearings may be the issue. While you have your engine on its back in a foam cradle for lubrication, check for any obvious signs of wear, excessive play, binding, and loose or cracked gears. If you find anything in need of repair, contact Atlas about replacement parts or consider aftermarket parts.

Q What is a lift frog and why are they used?

Bob Kolankoski, Scranton, Pa.

A Flange-bearing frogs, also known as lift frogs, jump frogs, or more colloquially leap frogs, are used on turnouts or diamonds where the main route sees far

Send questions and tips to senior associate editor Steven Otte at AskMR@MRmag.com.

more traffic than the secondary. On a traditional tread-bearing frog, the flangeways – gaps in the rail – allow the routes to cross over each other, producing that "clickity-clack" sound as the treads hit the railhead again on the other side of the gap. This produces wear on the wheels as well as the frog. The idea behind the flange-bearing frog is to reduce that wear for trains on the main route and to let those trains cross the frog at full speed.

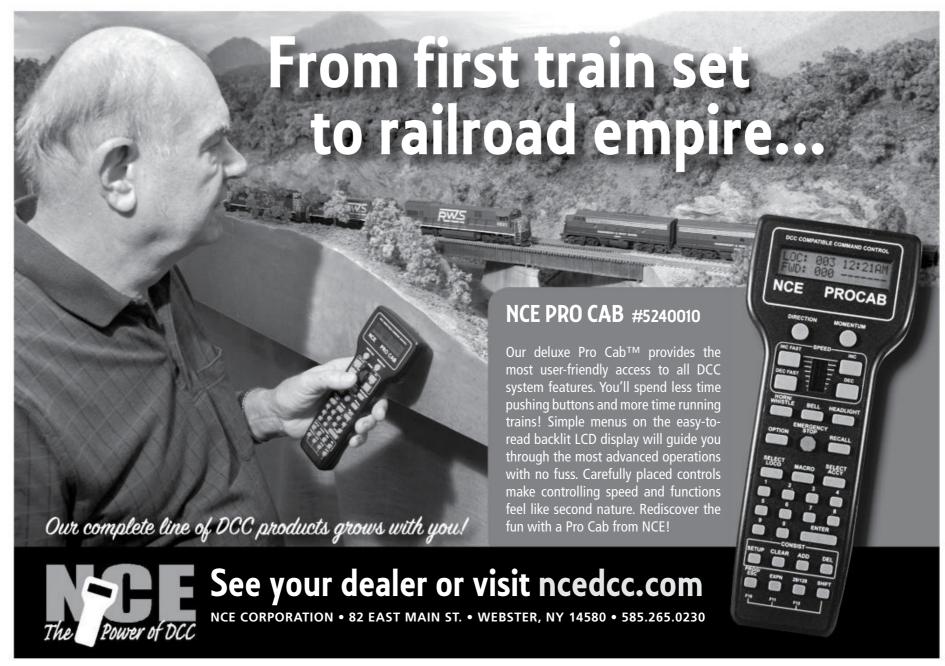
Here's how it works. The mainline railhead through the frog is solid – no gaps, no clickity-clack, and no wheel wear. On the secondary route, though, the flangeway becomes a U-shaped channel that keeps the train on track as the wheels rise a few inches to bear on the flanges, not the tread. The wheels then pass over the railhead and flangeway of the main line, enter the channel on the other side, and are lowered to bear on the treads again. Take a look at the photo to the right and you'll see the wear on the main rail where the secondary crosses it.



On a flange-bearing or lift frog, like this one on the diamond at Ridgley Tower, in Springfield, Ill., the main high-speed route crosses the diamond on a solid rail, while the secondary, low-speed route crosses over on its wheel flanges. Also called a "jump frog," flange-bearing frogs are used to reduce wheel wear on mainline trains on diamonds and turnouts where the secondary route is rarely used.

To make such a precarious-sounding transit safe, guard rails keep the opposite wheels on the straight and narrow, and speed is severely restricted on the

secondary route. This has given lift-frog crossings like the one in the photo the moniker of One-Way Low Speed diamonds, or OWLS.



• What locomotives are currently used to pull Amtrak's Auto Train? And does anyone offer them in N scale?

David Feitelson, Ocala, Fla.

A Though people today are most familiar with Auto Train as an Amtrak offering, the unique service began in 1971 under the auspices of a private company, the Auto-Train Corp. Using a fleet of dome cars, sleepers, dining cars, and auto racks acquired from other railroads, the Auto-Train ran from Sanford, Fla. (just north of Orlando) to Lorton, Va. (just south of Washington, D.C.) The train was so popular that the company added a second route, from Lorton to Louisville, Ky. But the Louisville route proved to be a money sink, and the company shut down in 1981.

Almost two years later, Amtrak acquired Auto-Train Corp.'s terminals in Lorton and Sanford and unveiled its own version of the Auto Train (dropping the hyphen from the name). Amtrak also continued to use the original Auto-Train passenger equipment and auto racks,



Amtrak Train 53, the southbound Auto Train, leaves the Lorton, Va., terminal behind General Electric P40DCs 818 and 835 on February 27, 2012. Typical motive power for the daily Auto Train is two or three of the four-axle passenger units. Al DiCenso photo

though those were supplemented with Amtrak equipment. The passenger cars were replaced with Amtrak's bi-level Superliner equipment in the mid-1990s, and 80 new auto racks were purchased for the Auto Train in 2006.

Today, the typical Amtrak Auto Train consist is a transition sleeper for the crew, six sleepers for passengers, four coaches, one diner, one lounge, one cafe car, and upwards of 23 auto racks.

Depending on its length, the train is pulled by two or three General Electric P40DC diesel-electric locomotives, standard for the Amtrak fleet.

Kato has produced the rolling stock needed to model the modern-day Auto Train in N scale, including the Amtrak Superliner bi-level passenger cars, a four-pack of auto racks, and the General Electric P42DC locomotive, which externally is a close match for the P40DC. (The only external spotting differences between the two are a small window for the rear hostling position and riveted-on front window frames in the P40DC.)

For HO modelers, Kato has also made the P42DC in that scale. Athearn has likewise offered a P42DC in HO scale (also known as the AMD 103), and Walthers has offered Superliner cars and Amtrak auto racks. Even O scale modelers are in luck, as Atlas O has announced a limited run of Amtrak P42DCs for mid-2022. Some of these models are out of production, but there's always a chance of finding them at a local hobby shop, swap meet, or train show.



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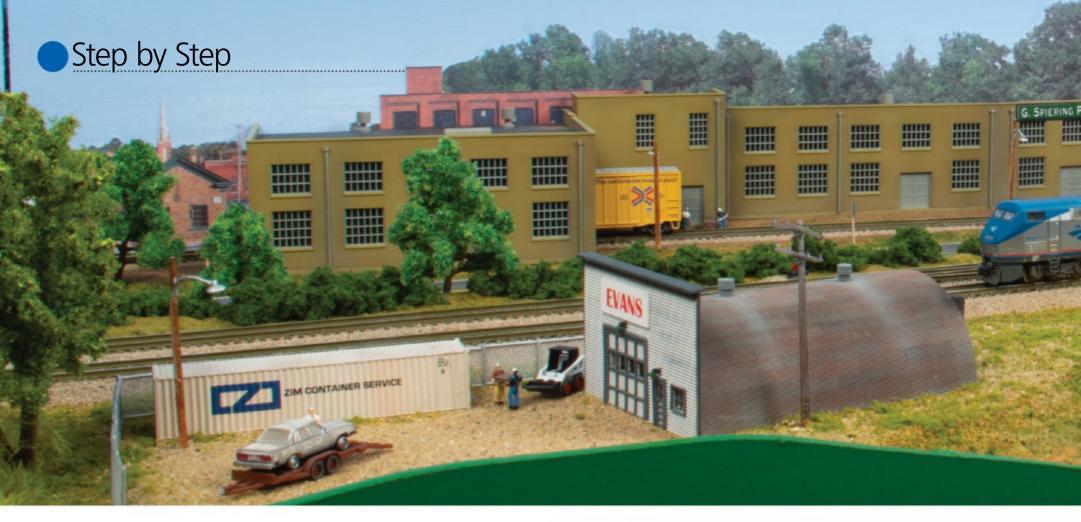


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Salvaging a salvage yard

One of the joys of being in the workshop with co-workers is the ability to bounce ideas off each other. We were on the home stretch of our N scale Milwaukee, Racine & Troy State Line Route layout when David Popp mentioned that it would be nice to have a few more foreground structures between Williams Bay, Wis., and Rockford, Ill. But we were short on

time, meaning building kits was out of the question. When I told David I had my scrapyard T-Trak module at home, our game plan came together quickly.

The module I built was part of the *Model Railroader* staff T-Trak challenge, featured in the June 2016 issue. The scene

was inspired by a prototype location along the Minnesota Northern RR in Thief River Falls, Minn. It consisted of a large Quonset hut and scrap piles from Monroe Models, a small Quonset hut from Rix Products, and a fertilizer plant from Blair Line (we set this aside in case we decide to expand the layout).

When David was researching the Rockford area, he learned there were several scrap and salvage yards. Though my salvage yard is lettered for a Minnesota business, it would certainly fit the southern Wisconsin/northern Illinois setting of the "mini Myrt."

Better yet, the buildings and scrap piles were already painted and weathered. Our hope was to cut the entire scene out of the module and plug it into the depression between Williams Bay and Rockford. Though that plan didn't come to fruition, installing the components piecemeal wound up working just fine. The repurposed salvage yard adds new sight lines to the layout, and it gives the N scale structures and details a new lease on life.

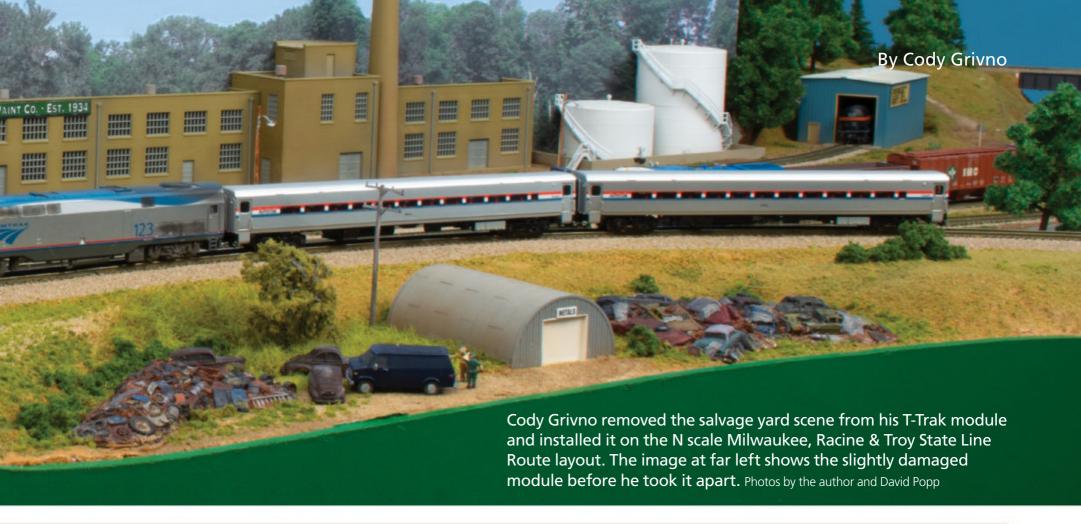
STEP 1 MODULE DISASSEMBLY



I carefully ran a utility knife along the joint where the tempered hardboard fascia meets the Midwest Products Cellfoam 88 scenery base. I worked in light passes to prevent the blade from wandering off course and to reduce the chance of the knife slipping and causing injury.



Next, I turned my attention to the Kato Unitrack. Though we weren't going to use the all-in-one track on the State Line Route, I needed to get it out of the way to aid in the disassembly process. As I carefully pried the track up, David used rail cutters to remove the track nails.





There's a grade crossing at one end of the module. To make it easier to remove the track, I used the utility knife to cut through the styrene sheet I'd used for the road. Then David came in with a putty knife and separated the track from the module's base.



When David built the T-Trak modules, he installed medium-density fiberboard (MDF) blocks so he had hard surfaces to nail the track to. With the track removed, I was able to get a five-in-one tool between the tempered hardboard blocks and MDF and remove the fascia.



I'd attached Cellfoam 88 to the insulation board below with acrylic sealant. I was hopeful I could separate the two materials with a putty knife, preserving the entire scene. Before I tried to separate the materials, David and I took a look at where the scene would be relocated.



We quickly realized two factors were working against us. First, the fascia was cut to the height of the existing depression, meaning it wouldn't conceal the foam along the front edge. Second, the site was about ½" too shallow. A piecemeal approach was necessary for this project.

STEP 2 STRUCTURES AND SCRAP PILES



Though I couldn't save the scene in its entirety, being able to reuse the painted and weathered buildings and scrap piles was worth the time spent cutting them out. I used a retractable snap-blade knife, visible in the upper left corner, to carefully cut around the cast resin pile of crushed cars and the two Quonset huts. I removed as much foam and adhesive as I safely could from the bottom of the structures and resin casting.



With the Quonset huts and pile of crushed cars removed, I was left with a wedge-shaped piece of scenery. It consisted of a scrap pile, three separate rusty cars, two figures, some static grass, and a tree. I gently worked a five-in-one tool under the scene to separate it from the module. Though I used slightly different scenery materials than what was used on the MR&T, they were close enough that I could blend things in seamlessly.



Next, I took the scene with the scrap pile, the Quonset huts, and the casting with crushed cars over to the layout to test some different arrangements. I set the scrap pile scene, smaller Quonset hut, and crushed cars into the depression. The main Quonset hut, not shown in the photo, is up the hill to the left, at the same level as the station. This arrangement gives the illusion of a larger salvage yard operation.

STEP 3 THE BIG PUSH



With just two business days to go before a photo shoot, I had to work fast to get the salvage yard scene completed. To minimize the amount of damage to the existing scenery, I outlined the crushed car pile, Quonset hut, and scrap pile scene with a metal pick. I made sure the marks were deep enough that they wouldn't disappear during the subsequent steps.

Don't use a marker or other inkbased products to trace the outlines as these may bleed when they come in contact with isopropyl alcohol.



Next, David applied water with a spray mister inside the lines I'd marked. This reactivated the scenery materials, making them easy to scrape off with a putty knife.

Though the paint inhibited the water from completely saturating the Sculptamold and plaster-impregnated gauze strips under the scenery, it helped soften the materials just enough that they were easier to cut. I initially used a snap-blade knife to cut through the scenery. I switched to a utility knife, as shown on page 26, since it was sturdier.



David also wet the paint-covered Sculptamold where the large Quonset hut would be located. Then I used the blade on a five-in-one tool to remove the papier-mache-like scenery material. As shown in the photo above, the Sculptamold came up fairly easily with the five-in-one tool.

I placed the larger Quonset hut into the scene and discovered I missed a few spots. Another pass with the five-in-one tool, along with sanding sponges, smoothed things out and allowed the laser-cut wood structure to seat properly.

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STEP 3 THE BIG PUSH (CONT'D)



With the scenery base for the large Quonset hut level, I turned my focus back to the depression. I used a utility knife to cut along the perimeter of the areas David sprayed with water. Then I slid a putty knife under the plaster-impregnated gauze strips and lifted them out. The piece I'm removing here is where the cast resin pile of crushed cars will be located.



We lucked out with the scrap pile scene. I removed the plaster-impregnated gauze strip, Sculptamold, extruded-foam insulation board, and Cellfoam 88 that originally occupied the space, leaving just the bare plywood exposed. The scrap pile scene could then be set in place with relatively little touch-up work required.



Before I secured the pieces to the layout, David used a ½"-wide paintbrush to apply the same flat, earth-toned latex paint he'd used throughout the layout to the edges where the small Quonset hut, scrap pile scene, and crushed cars would be placed. I applied the same paint to the edges of the scrap pile scene to hide the white foam underneath.

STEP 4 INSTALLATION



I used DAP Alex Plus, an all-purpose latex acrylic caulk, to attach the small Quonset hut, crushed car pile, and scrap pile scene in the depression. The large Quonset hut features laser-cut wood and cardstock construction, so I elected to use full-strength white glue to secure it to the layout.

Why did I use white glue on the larger Quonset hut? Well, if we ever need to move the building, we can soften the glue with water. Trying to slide a putty knife under the Quonset hut to break the bond of the latex caulk might put too much stress on the building, potentially breaking the thin wood of the structure.



A variety of details added visual interest to the area around the large Quonset hut. Woodland Scenics chain link fence (no. A2993) lines two sides of the lot, and the same company's wooden pole street light (no. JP5638) illuminates the yard. An intermodal container, commonly used by full-size salvage yards for additional storage, is seated between the fence and light pole. I used sifted Quikrete Tube Sand (no. 1159), available at most wellstocked hardware stores and home centers, for the gravel lot. Vehicles from Atlas and GHQ and factorypainted figures from Woodland Scenics round out the scene.



Blending scenery was the name of the game in the depression. I again used sifted tube sand, this time to blend the scrap pile scene with the foreground and to add a driveway for the small Quonset hut. Woodland Scenics ground foam, Clump-Foliage, and coarse turf, matched to colors used elsewhere on the layout, helped hide seams and blend the scrap pile scene, crushed car pile, and small Quonset hut into the existing scenery.

Though this wasn't the plug-andplay scene David and I had hoped for, I think the piecemeal approach turned out better. And we finished in time for the photo shoot! MR



Get on board and join the fun!

Locomotives are partially chrome plated to replicate the stainless-steel on the actual locomotives. The galvanic chrome plating process is done by hand and involves nearly 40-steps. It is the same process used in the automotive industry.





20582 Santa Fe F7B Diesel Locomotive

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20587 Santa Fe F7B Diesel Locomotive

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SCENERY TIPS you can count on

A few short weeks ago, this detailed urban setting was just bare plywood and track. Going from that to this is all just a matter of following some basic scenery construction steps. Conner Bruesewitz/Saturn Lounge photo

Simple steps to take your layout from bare plywood to showstopping scenes

By David Popp • Photos by the author

Scenery gives shape to the landscape and definition to the environment in which you run your trains. Without scenery, a layout is nothing more than a collection of track and trains. With scenery, a layout becomes a place as realistic as the world standing just outside your front door.

While the scenery process can seem complex, it really isn't difficult when taken as a series of smaller projects, each following basic construction steps like those shown here. It does, however, require a degree of patience, as you often need to wait for something to dry before you can work on the next step.

I find scenery work to be one of the most enjoyable and creative aspects of building a model railroad. It gives you a lot of room for personal expression, and when in doubt, you can always look to see how nature does it and try to replicate that. The best part is that your scenery doesn't need to be finished all at once. You can install a basic layer of scenery first to give your layout a

The State Line series

January: Meet the State Line Route
February: Benchwork

March: Track and wiring April: Scenery tips



finished appearance, but then continue adding scenic details to your model railroad for years to come as you have time and ideas.

Following are some of the scenery techniques we used on our State Line Route layout. These are just a starting point for layout scenery. But by mixing and matching the techniques and products shown here with others, the possibilities for your layout are endless.

While we've come to the end of the regular State Line series with this month's installment, look for more State Line projects in future Step by Step stories.

Backdrop



Horizon only: Rene Schweitzer and I installed the backdrop on the layout before doing any other scenery. First, we painted the ¼" medium density fiberboard (MDF) backdrop with sky blue latex paint and brushed a bit of white into the wet paint at the bottom to create a simple hazy horizon. Next, we cut out trees, buildings, and fields from several SceniKing (sceniking.com) N scale paper backdrops and applied them to the layout using spray adhesive.

Landforms



Foam contours: The first step in adding the landscape is to build a structure to support it. Ours is made with extruded-foam insulation board strips around the outside edges and crumpled paper and packing peanuts to fill in the middle. To begin, we framed in areas around the layout with strips of 1" foam. As shown in the photo, we used the contours cut into the fascia as a guide to mark where to cut the foam to make hills and valleys. The foam supports the scenery, so the fascia is still removable.



Slopes and angles: The hot-wire foam cutter is great for making slopes and angles. Along the roadbed, we installed foam board that was cut with slopes to represent places where the railroad built fills to support the right-of-way. We also cut angles into other sections of foam placed higher than the roadbed to simulate cuts through smaller hills. Even on the flattest sections of scenery, the land still has some contours to it, and gentle fills and cuts are the easiest way to make your railroad's right-of-way look realistic.



Quick cuts: Foam is easy to cut with a variety of tools. For this project, we used a Woodland Scenics hot-wire foam cutter. Simply plug it in and press the button. The wire heats up just enough to slice cleanly through the foam without producing too many fumes. (Even so, be sure to use the tool only in a well-ventilated space.) As shown here, Rene is using the cutter to slice through one of the foam strips, following the contour lines traced from the fascia as shown in the previous step.



Filling it in: Between the foamboard frame, you can use a variety of materials as filler. In some places we used wadded balls of kraft paper. The paper works well in any location that still can get some airflow, as it needs to dry out after the wet plaster cloth is applied. In confined locations where air flow can be a problem, we used foam packing peanuts. We held the paper filler and foam peanuts in place with masking tape. The tape also makes it easy to see the shape of your finished scenery layer, allowing you to make adjustments to places that seem low or high before you commit to covering them with plaster.



Gluing foam: The foam board can be attached using a variety of adhesives. One of my favorites is latex caulk. The caulk provides quick grab and has about 30 minutes of working time, allowing for easy repositioning of parts. Also, if you change your mind later, it's easy to pry the foam away from the caulk using a putty knife. When selecting an adhesive caulk, be sure to use one that is foam-safe, as some contain solvents that will damage foam. Acrylic latex caulk is almost always safe for foam.



Scenery that splits!

Since the layout is built in sections that can come apart, the scenery needs to be able to do that as well. Using the same techniques for along the fascia and the roadbed, we applied contoured foam strips on either side of the joint. The foam provides solid support for the scenery when the layout is separated. Before applying the plaster cloth, as shown on the next page, we slipped strips of .010" styrene into the joint to keep the scenery from gluing two sections of the layout together. – David Popp

Plaster



Plaster cloth: We used Woodland Scenics plaster cloth to form the solid ground sections of the layout. This is a plaster-impregnated gauze that, when soaked in water, becomes flexible so it can be applied over the foam and paper hills. You need a shallow pan to wet the plaster. We used a special pan from

Woodland Scenics, but an ordinarly paint roller tray will work just as well. It doesn't take much water to start the process, dip the plaster cloth into the pan to get it wet and then quickly apply it to the layout. Be careful to avoid wrinkles. You can fold the material over on

itself to make it fit shorter spaces. Once the plaster cloth sets, it produces a solid base for adding other scenic features.



Double layered: For the best results and the most support for your finished scenery, you will want to apply a double layer of the plaster cloth. We applied the second layer just after having completed the first. Once the plaster cloth has started to stiffen, you can apply another layer, as long as you are

careful not to crush or crack the first layer. If you wait to apply the second layer after the first has dried, be sure to spray the first layer with water from a misting bottle to dampen the surface and assure good adhesion between the two layers. Applying wet plaster over dry

plaster can cause the dry layer to leach water from the wet layer before it has a chance to set up properly. The outer layer can crumble away as a result.



Sculptamold: Plaster cloth is a good starting point for a scenery base, but it has a lot of little holes in it. We filled the holes by covering the plaster cloth with a thin layer of Sculptamold. This is a paper and plaster modeling material. Scupltamold sets quickly (10 minutes), so only work with small batches at a time.



Sanding: Scupltamold can sometimes produce rough surfaces in places on the layout. Fortunately, it is easily sanded using a coarse sanding sponge to remove any high spots.



Woodland Scenics Plaster

Cloth Sheets

Smoother still: The Sculptamold and plaster cloth are great for most of the basic scenery, but in some locations, we wanted a much smoother surface. For that, we applied a thin layer of joint compound, the same stuff used by drywallers. As shown in the photo, we applied joint compound under the areas

where our farm fields would be placed, as well as the location of the farmhouse. You can also use joint compound to make simple roads, such as the one shown above that leads across the tracks to the farmhouse. You can sand the compound smooth once it has dried, which makes it ideal for this use.



Plaster cleanup

Try as you might, plaster gets everywhere. Fortunately, it's easy to clean off nonporous materials, such as our plastic bridge abutments. Cotton swabs dipped in clean water remove plaster from most plastic and sealed resin surfaces, making it easy to work your scenery naturally around bridge piers. – David Popp

Ground cover



Paint it: To cover the plaster hills, we painted them with a pleasing brown interior latex house paint. You'll likely want to pick a color that represents the soil in the location you are modeling, although the brown that we used works well with our base layer of ground foam and Scenic Express dirt.



Planting the mat: With the mat cut to size, we next spread white glue over the scenery where the field would go. We then peeled the paper backing from the mat and carefully pressed the grass into place. If the edges don't lay flat, add more white glue for a tight fit.



Work in layers: Scenery works best when applied in logical layers. Anything requiring open soil is the place to start. This included the borders of our farm fields and our dirt roads. After applying full-strength white glue to these areas, we sifted Scenic Express Fine Dirt into it, then vacuumed up the excess.



Basic ground foam: We used Woodland Scenics Earth Blend fine turf (no. T1350) as a starting point in all places that would also get other grass or ground foam applications. This material has several colors of ground foam mixed together, producing a realistic light tan.



Grass mat fields: To make N scale farm fields, we used several sheets of Busch grass mats, including no. 1303 Summer Grass and no. 1302 Springtime. These provide a good representation of wheat, oat, or hay fields and feature lush static grass attached to a clear membrane. They cut easily with scissors.



Soaking the foam: After we'd covered an area with glue and ground foam, we soaked it with 70 percent isopropyl alcohol, followed by an application of Woodland Scenics Scenic Cement. The alcohol wets the foam and allows the Scenic Cement to easily soak into it.

Static grass

Static grass adds a lot of realism to a model scene, particularly the open wild spaces along railroad rights-of-way. It's also very easy to apply. Simply pick a color and size of grass that will work for your layout, invest in an inexpensive static grass applicator, and apply the grass after your base scenery layer. For the grass to stick well, your base scenery layer (ground foam, in our case) should be thoroughly soaked with diluted white glue or Scenic Cement. We applied our static grass right after soaking the ground foam in the previous step. Applying static grass to a wet surface is part of the magic that allows it to stand tall and stay that way for years to come.



Grass and applicator: We used Woodland Scenics Static Grass Flock Burnt Grass (no. FL633) for the layout. It has that look of drying summer grass and was about the right size for N scale wild grass. We used a GrassTech applicator, but there are a lot of applicators on the market. Woodland Scenics, Faller, Noch, and Peco also offer them.



Applying the grass: To apply the grass, fill the hopper partway full, insert a metal pin into the wet scenery, clip the grounding wire onto the pin, and turn on the applicator. The closer you can hold the applicator to the surface, the better the grass will stand up straight. When you are pleased with the results, let the scenery dry completely.

Fence and bramble



Fence line: Farm fields often have the remains of fences along them. In N scale, this is easy to simulate with simple posts; your eye tends to fill in the missing wire fence. After cutting stained stripwood to scale 8-foot lengths, I used a pushpin to make holes and installed the posts with a dot of white glue. I spaced the posts 8 scale feet apart.



Bramble and brush: It doesn't take long for the edges of fields to start growing things, including various bushes and trees. I used Woodland Scenics Medium Green Clump-Foliage to represent that growth. After running a bead of white glue along the edge of the field, I pressed small clumps of foliage into it.



Fence and bramble: Bushes and trees will grow anywhere that isn't cultivated, mowed, or driven over regularly, and untended fence lines collect a lot of vegetation. I added some Clump-Foliage along parts of my fence line as well. I also included a few small trees here and there too, representing more established growth.

Trees



Tree prep: Even a smaller layout like our State Line Route needs a lot of trees, particularly along the river scene. We used a variety of manufacturers' trees, but the dominant tree type on the layout is Noch no. 24603 Deciduous Trees. These have plastic bases that need to be removed before planting, but it's easy work for a sprue cutter.



Making holes: Thanks to the layout's plaster and foam scenery construction, I could "dig" holes for the trees with an awl. By planting the trees before the scenery had completely dried, the plaster was still somewhat softened by the diluted scenery glue, meaning no drilling was required. The trees are held in place with a dot of white glue.



Grouping: Trees tend to grow in groups, so that's how I've placed many of them on the layout. Odd numbers are pleasing, but it isn't a hard and fast rule. I placed a stand of trees at the top of the hill overlooking the quarry. The taller (older) trees are in the middle. The smaller ones outside represent the outward expansion of this stand.

Rocks



Rubber rocks: Southern Wisconsin doesn't have a lot of exposed rock faces, but in places such as our quarry and along the Rock River, we needed a few. I used a Shale no. 10 rubber rock casting from Cripplebush Valley Models. The material is easy to cut with scissors, and it conforms great to curved scenery surfaces, such as in our quarry wall.



Gluing rubber rocks: Being that the rubber rocks are flexible, using a flexible adhesive is a must. I lined the quarry walls with foam sheet stock from Woodland Scenics, then I glued the rubber rocks to it using DAP latex caulk. I used a number of pins to hold the castings in place for 24 hours, until the caulk had set completely.

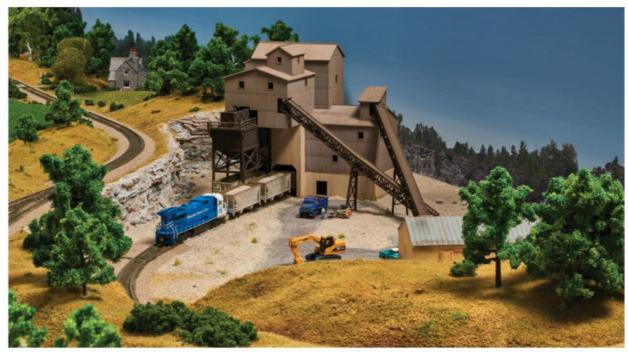


Seams and gaps: With everything pinned in place, I was then able to fill in the seams and gaps between the rubber castings while the caulk was still drying. I mixed up a thick batch of Sculptamold and carefully worked it in along all of the edges, trying as best as I could to keep if off the rock faces and preserve the casting detail.

Rocks (cont'd)



Painting rocks: The rubber castings and Sculptamold take ordinary acrylic craft paint well. After coating everything with a base coat of the same brown latex house paint we'd used for the scenery, I applied four different colors of grays and tans using a technique called drybrushing to achieve the final look. Working from photos helps a lot for defining color.



Finished quarry: Obviously we did a lot more scenery work to make the finished quarry than I've explained here. However, you can see the final painted rock faces clearly in this image. This technique takes some practice, and it always looks odd right up until the moment that you put the final highlight color over the top.

Clear water



Sandy river bottom: There are two bodies of water on the layout, and each uses a different technique. The murky Rock River will be covered in the May Step by Step. Our Turtle Creek, shown here, has a sandy bottom. To simulate this, I used Scenic Express SEO436 Unscreened River Rock, sifted into white glue spread over the painted riverbed.



Edge cleanup: Once the resin has hardened, you can remove the styrene dam. It should just peel away from the layout. There is usually a lip left along the edge where the resin crept up the side of the dam. I removed the edge with a sharp knife. Be careful here! If you cut too deeply in a single pass, you can chip the edge of the resin. You can cover some of the chips with waves, as shown in the next photo.



Resin prep: I let the sandy bottom dry completely before proceeding to the next step. I used a strip of .060" styrene sheet as a dam, temporarily gluing it to the layout with clear latex caulk and locking it in place with masking tape. The tape acts as a second layer of protection, should the caulk not make a complete seal. (Yes, that can happen!)



Ripples: To give the creek the illusion of moving water, I added some Woodland Scenics Surface Water – Water Ripples (CW4515). This is a clear paste that can be applied to the surface of any model water to simulate waves. I applied a thick coat of paste to the surface with a soft paintbrush, teasing it into small waves and being careful to avoid brush marks. You can apply multiple coats to get tall waves, if desired.



Pouring layers: I let the caulk dry for 24 hours before pouring Woodland Scenics Realistic Water (C1211) into the riverbed. This is a one-part resin with no mixing required. You can pour it in ½" layers, letting it harden overnight before adding the next layer. We needed two layers for our project. The hardened resin dries crystal clear.



Watch it on Trains.com!

Trains.com and Model Railroader Video Plus members can watch the complete State Line Video series, showing you how we built this funfilled N scale railroad from the benchwork to the finished scenery.









3 Todd runs a train of empty hoppers westbound past Monroe Yard. The cars are bound for the Hill Top Coal Processing Plant, seen at right.

odd Smalley has been a model railroader since he and his brother received their first train set for Christmas and took a Cub Scout trip to see an

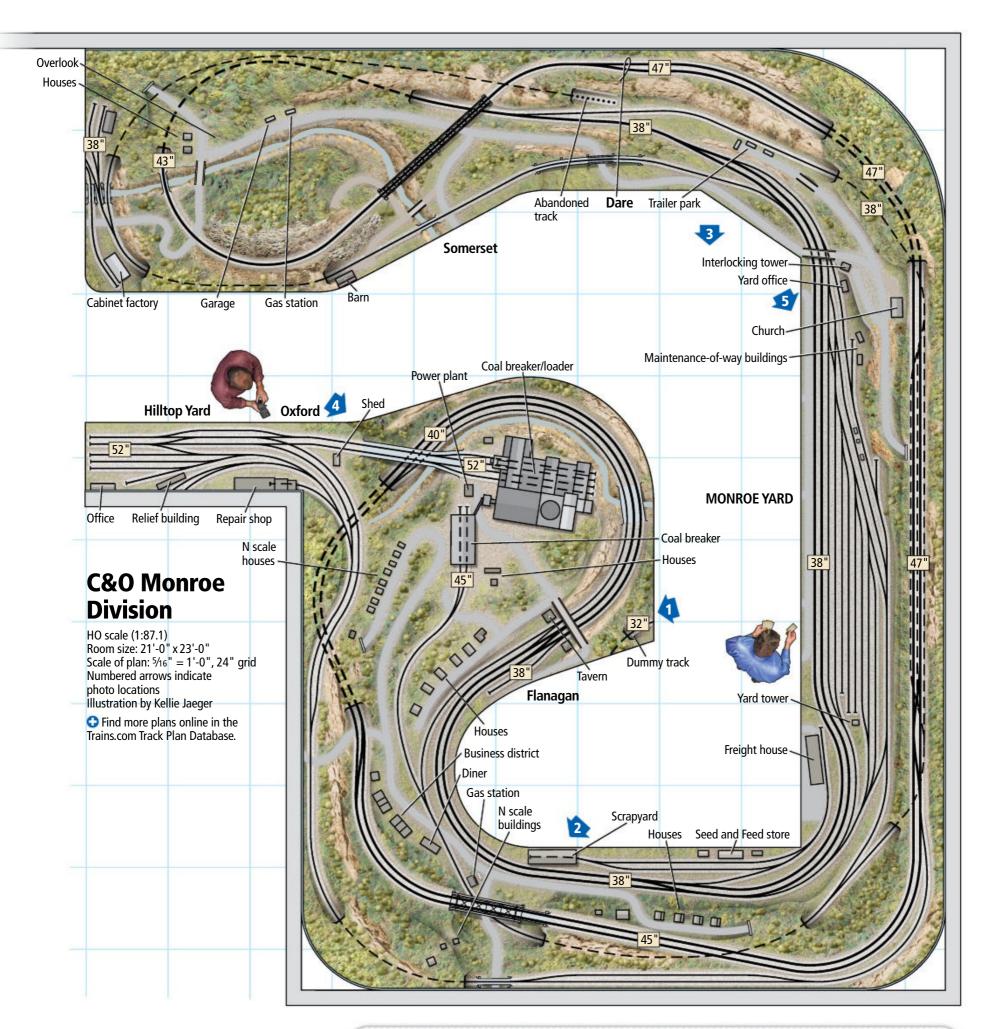
operating layout 40 years ago. But he never had a layout of his own until 15 years later. That's when he and his wife bought a house with a basement that he could dedicate to a model railroad.

the trestle over Somerset Valley while below a local waits for clearance to take the main. Todd is proud of his bridges; this one was built from a Central Valley kit. The road bridge is kitbashed from an N scale railroad bridge kit.

After reading an article on Allen McClelland's HO scale Virginian & Ohio and watching operations on the prototype Chesapeake & Ohio, he decided to model Appalachian railroading in the 1960s and '70s. He designed a layout with a combination of low benchwork with high mountains in the background to create the look of a railroad "down in the valley."

The track plan is a backwards-G-shaped dogbone to allow continuous running. It's a freelanced plan designed to allow adequate aisle space while fitting around support columns.

One of Todd's favorite scenes on the railroad allows the viewer to look up a sweeping valley toward a large coal breaking plant in the distance. The scene is so effective that visitors often don't notice that the coal plant is built around a support column.



Preparing the foundation

Todd started by preparing the room. He attached furring strips to the walls to hold the backdrop and installed recessed ceiling lighting. He then hung white plastic sheeting to protect the ceiling and attached tempered hardboard to the furring strips, coving the corners. After caulking all the seams and screw holes, and sanding it smooth, he painted the backdrop sky blue.

To support the layout, Todd built L-girder benchwork, following instructions in Linn Westcott's book *How to*

The layout at a glance

Name: C&O Monroe Division

Scale: HO (1:87.1) Size: 21 x 23 feet

Prototype: C&O, Chessie System

Locale: Appalachia Era: late 1960s-early '70s

Style: walk-in

Mainline run: 150 feet

Minimum radius: 30" (main), 24" (other tracks)

Minimum turnout: no. 6 (main), no. 4

(other tracks)

Maximum grade: 2.5 percent

Benchwork: L-girder Height: 38" to 52" Roadbed: cork

Track: Atlas code 100 flextrack

Scenery: plaster gauze over cardboard

webbing or foam board

Backdrop: painted tempered hardboard **Control:** MRC Prodigy Digital Command

Control



Build Model Railroad Benchwork (Kalmbach Books, out of print). He then installed cookie-cutter plywood subroadbed on risers to establish track elevation and topped it with cork roadbed.

The track is Atlas code 100 flextrack with turnouts from Shinohara and Peco. Most turnouts are operated with Caboose Industries ground throws, while a few are controlled by Tortoise by Circuitron switch motors.

Trains on the layout are controlled by an MRC Prodigy Digital Command Control (DCC) system with five wireless cabs. About half of Todd's locomotives are equipped with SoundTraxx sound decoders. Traffic on the single-track sections of the railroad are controlled by a Past Time Hobbies system with signals from NJ International.

Constructing scenery

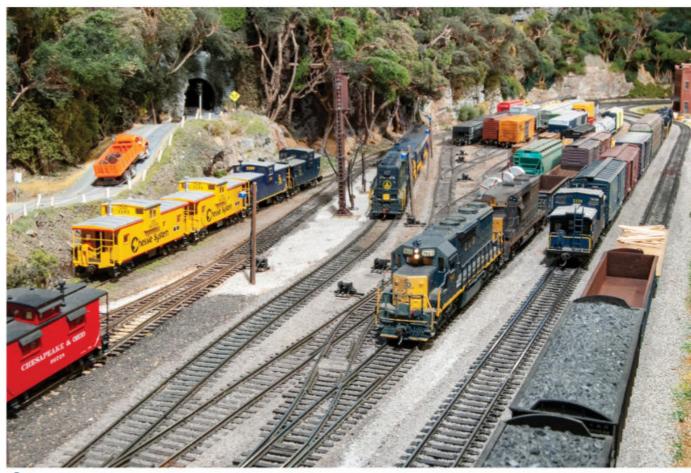
Landforms are constructed of plaster gauze laid over either cardboard strip webbing or extruded-foam insulation board. Basic ground texture is created using a mix of natural dirt (from Todd's backyard) and water that he applies with a paintbrush. Another method he uses is to mix coarse dirt with fine ballast, spread it over an area, then add various textures and colors of ground foam. The ground cover is next soaked with wet water (water mixed with a few drops of dishwashing detergent to cut the surface tension), then a 50-50 dilution of white glue and water to secure it.

Todd cast his rocks with plaster and colored them with acrylic paints and alcohol-based India ink washes. He highlighted the rock faces with gray and white acrylics.

Some trees and bushes are made from puffballs of poly fiber, painted black and covered with a variety of textures and colors of ground foam. Others are built on armatures of Scenic Express SuperTrees or the dried roots of plants in Todd's yard. Dead trees and some of the larger live specimens are represented with Scenic Express SuperSage.

Todd's first attempt at making water was with a two-part epoxy resin that gave off an odor that haunted the family home for about a week. For his second effort, after painting the creek bed, he applied a coating of Woodland Scenics Realistic Water. This product, Todd says, "came out great with no odor and a nice wet shine."

Although Todd built about 90 percent of the layout himself, he mentions that he's had help installing rocks and



6 Monroe Yard is the operational heart of the layout. Here, no. 7420 is putting together an outbound manifest freight while a pair of trains pass on the double-track main. The locomotive is an Atlas model.

planting trees from Dave and Dan Wendt, Calvin Niehoff, Woody Hanger, and his brother, Toby.

Structure lighting and detailing

Structures on the layout are a combination of kit-built, kitbashed, and scratchbuilt. Todd has built his structures using a variety of materials, but prefers to work with wood.

Most of the structures have interior lighting, powered either by old DC power packs or AA/AAA batteries. Buildings at the front of the layout are more detailed than those in the distance. All are weathered using paint, chalks, and weathering powders.

Some of Todd's road bridges are built from kits, while others are repurposed N and HO scale railroad bridges. All are either kit-built or kitbashed, with the exception of the Hill Top Mine bridge. Scratchbuilt by Dave Wendt, this bridge was featured on the cover of the 2009 National Model Railroad Association calendar and in the October 2007 edition of *Scale Rails*.

Planning the next layout

Todd says that building this railroad has been a lot more fun than he ever imagined. He assures modelers to not be afraid to experiment when it comes to any aspect of construction, because, more often than not, they will be surprised at what they can do. With his new interest in operation, he plans to make his next endeavor a point-to-point design. He's also planning to install a better lighting system and valance.

Todd wants to thank his wife, Juretta, for, in his words, putting up with him and his many evenings in the basement. He also wants to thank Greg Simpson and John Burchnall for bringing his railroad to MR's attention.

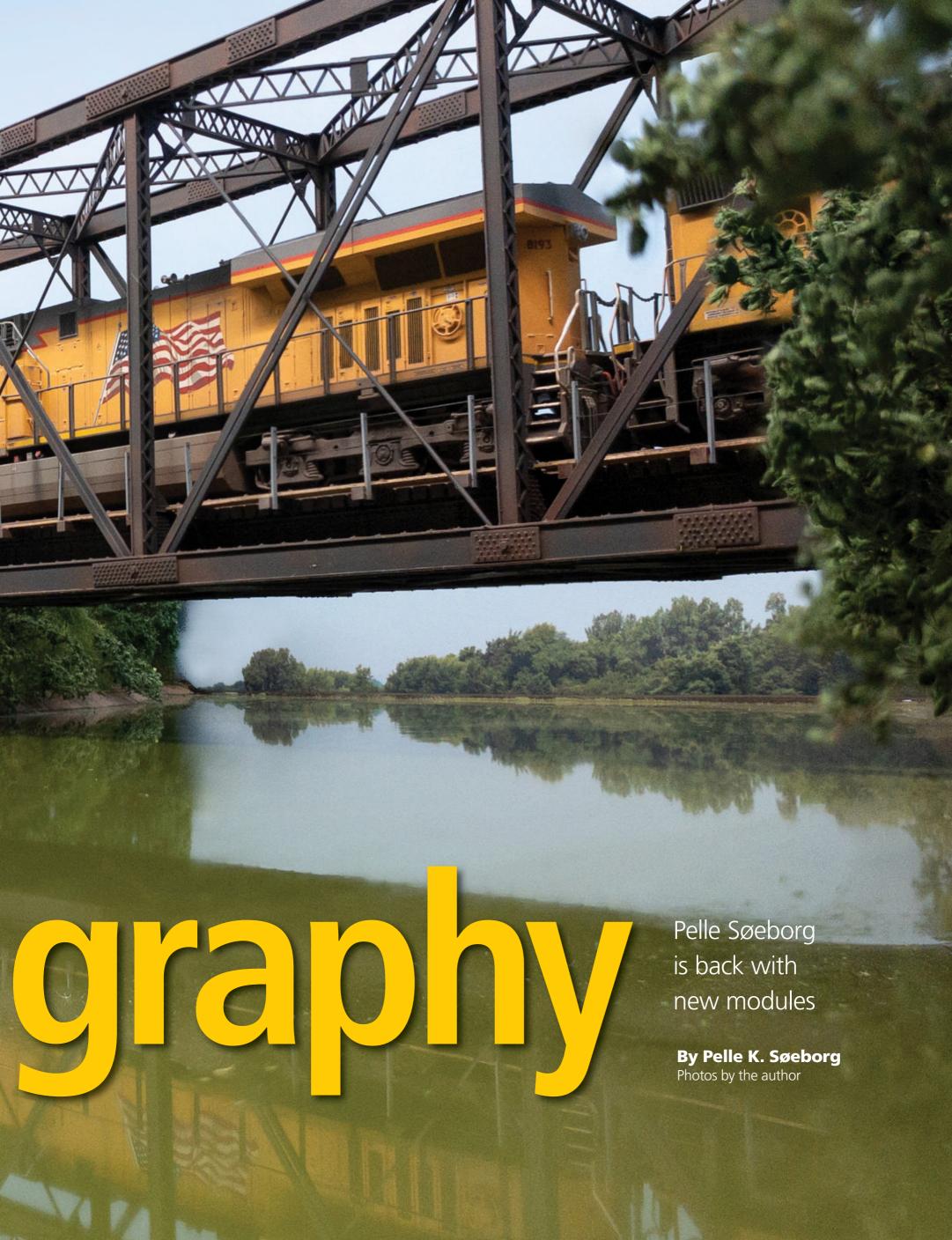
Lou Sassi is a regular contributor to Model Railroader and its special issues.



Meet Todd Smalley

Todd Smalley has been into model railroading since his childhood. He lives in Middletown, Ohio, with his wife, Juretta. They have four adult children and four grandchildren. Besides working on his layout, Todd enjoys railfanning and helping others with their layouts.







2 Even a small module can offer the illusion of vast spaces. The backdrop obviously plays a big role, even though it's a simple blue sky.



3 CSX power leads a train in the opposite direction. A simple thing like a service road along the track not only looks good, but also creates the necessary free space you need to get a good shot of a train.



The Adobe Lightroom camera app lets you manually adjust ISO, exposure, white balance and focusing. The green outlined areas tell you what's in focus.

Making a cell phone do more

I take all my pictures with my iPhone. I shoot via an Adobe Lightroom camera app. It has a professional mode that allows you to shoot in RAW and manually adjust ISO, exposure, and white balance, and manually focus. I shoot a series of pictures of the same scene with different focal points. Then I stack and merge them in Photoshop to get maximum depth of field. Some manual patching and touch-up is required to get a perfect result. – *Pelle Søeborg*

fter my first modules were finished, featured in the February 2021 issue of *Model Railroader*, I needed something to keep me occupied during the winter months and COVID-19 lockdown, so I began planning my next

project. I settled for a two-section module with a single-track main line that would fit on top of my closet if I needed to store it to make room for other projects. Like my first module, it follows the specifications of the European FREMO-US standard.

The module consist of two $0.5m \times 1m$ (20" x 3'-4") sections. I stayed with the Midwestern theme for several reasons. First of all, I still have plenty of scenery material left over from when I built my Daneburg layout, but also because I traveled that area on my most recent trips to





Pelle designed the sections so they can be put together in two ways. The blue numbered arrows indicate the photo locations.



As on his previous modules, Pelle used Central Valley Model Works tie strips with Micro Engineering rail for the track. The ballast is from Arizona Rock & Mineral. Pelle mixed three shades: 130-2 Northern Pacific, 135-2 Union Pacific, and 138-2 CSX/Southern Pacific.

the United States, and it therefore stands freshest in my memory.

One square meter isn't much area if you want plenty of space between the different elements, so I planned for a simple scene featuring a bridge crossing a river and a country road crossing the track. I love bridges and trestles and have never missed an opportunity to incorporate one on previous layouts, so I had no

doubt that a bridge should be an element on this module, as well. It's the signature structure, actually.

The bridge is a Central Valley Model Works 150-foot Pratt truss bridge kit. For my money, CVMW offers the best looking bridge kits on the market. The kit requires some skills to build, though. For one thing, you have to cut all the girders to correct lengths and angles. I added a

The layout at a glance

Name: Midwest Modules

Scale: HO (1:87) Size: 20" x 6'-8"

Prototype: Primarily Union Pacific, but could be any Midwestern operator

Locale: generic Midwest

Era: modern

Style: FREMO-US modules
Mainline run: none
Minimum radius: none
Minimum turnout: none
Maximum grade: none

Benchwork: laser-cut plywood modules

Height: none Roadbed: cork

Track: Central Valley Model Works ties and Micro Engineering code 83 rail Scenery: extruded-foam insulation board Backdrop: photo print on lightweight PVC

Control: none

walkway along each side of the track to make the bridge look more up-to-date.

Though my modules follow the specifications of the European FREMO-US standard and can be part of a large modular layout, participating in FREMO events is not my main goal with them. I designed them to be optimal for photography. Taking pictures of my trains in realistic looking scenes has become a

Building a layout for photography



After Pelle made drawings for the module frame parts, he had them laser-cut. The framing is $\frac{1}{2}$ " birch plywood.



The basic terrain consists of foam insulation board. The roadbed is cork.





The sections can be combined in two ways, which gives more photo locations. The photo to the left shows how the modules look if they will be part of a FREMO event with the mandatory "valley profile" at each end. The photo to the right shows how the modules can be rearranged if Pelle needs more scenery in the background when he takes a picture.



5 A rural road and a passive grade crossing is the main feature on one of the module sections. The pavement is made of Woodland Scenics Smooth-It plaster. Pelle made the cracks with a pointed tool. The coloring consists of several light black washes with a little brown added to the mix.

nice spin-off of my model railroad hobby. To optimize the photo possibilities I designed my module sections so they can be combined in two ways.

I included spaces where I can place my camera – in this case, my phone. The scenery is designed so these open spaces blend in with the rest of the scene and won't be noticed. It could be in the form of a service road or just a simple thing like not placing a bush or a tree that will block the view from where I want to shoot.

With the scenery materials we can get today, the bar for how realistic it's possible to make your scenery look has been raised quite considerably. I use everything I can find that looks usable. I have even found stuff in a Warhammer game shop that was useful.

All in all, this has been a rewarding little project. I'm quite happy with the result, which I will enjoy for a while until I start on a new one.









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Wiring block detectors



Block detectors like the Digitrax BD4N can be used to drive signals on a DCC-powered layout (see the September 2021 DCC Currents). Here's how to wire them. Photo courtesy of Digitrax

Model railroaders have always loved the idea of working signals. Ideally, the signals would mimic those of their favorite railroad.

Signaling has been around for a while, but not until software like JMRI (jmri.org), low-cost microprocessors, associated DCC electronics, and light-emitting diodes (LEDs) came along has it been practical for all model railroad dreamers to signal their railroads. To make matters even better, there are a number of signaling systems on the market today to give the modeler choices that meet their needs.

For your signals to work, you have to have a means of detecting your trains. This is usually accomplished with block detectors. To use block detection, modelers need to wire their track in a way they haven't before.

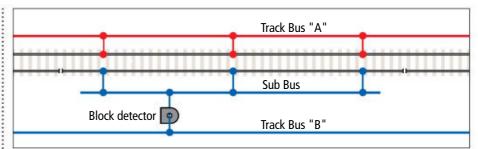
Many modelers I encounter have questions or are having wiring problems. So this month I'll provide you with a number of wiring diagrams that I hope will clear up issues and questions you may have. I hope that this large number

of diagrams will make this column easier to follow.

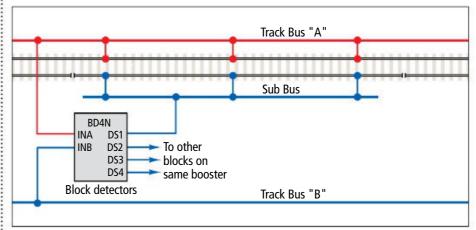
Block detectors come in two basic types: the single detector, such as the NCE BD-20 (ncedcc.com); and the multiple detector in one module, such as the Digitrax BD4N (digitrax.com). There are other manufacturers of block detectors I haven't yet explored, but I think it's safe to say they'll fall into one of these groups. Stay tuned for a future column!

When you have a sufficiently long block to detect that has multiple feeders, it's important that all feeders connect to a sub bus 1. The sub bus is connected to the main bus through a single block detector or a single channel of a multiple detector 2. Other blocks within the same booster district are connected to the other detectors of the multiple detector module.

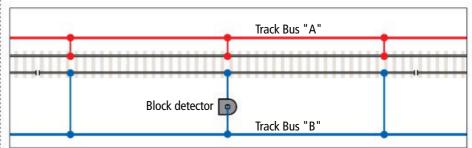
Be aware that each multiple detector module must be used within a single DCC booster district. If you have multiple boosters, each will need its own multiple detector module(s).



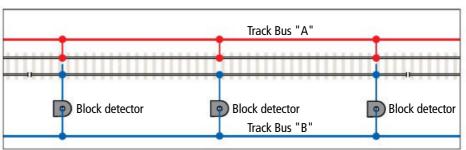
1) Single block detector. This is the right way to wire a single block detector. Note that the power from all feeders of the block go through the detector. Graphics by Kellie Jaeger and Allan Gartner



2 Multiple block detector. This is the correct way to wire up one detected block of a multiple block detector module. For simplicity, only one block is shown here. Other blocks connect to the module in the same way.



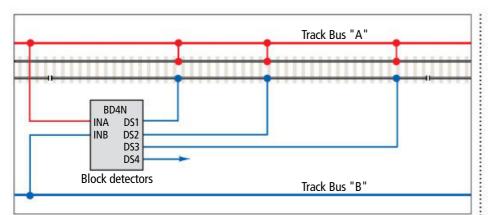
3 Split decision. This is one of the ways that you can go wrong with wiring up a single block detector. All the power from the detected block must go through the detector.



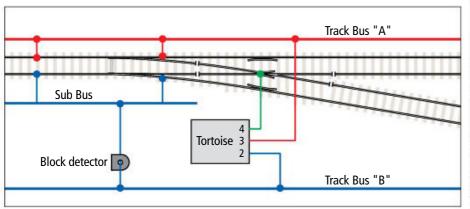
4 Too many detectors. This is another way you can go wrong with a single block detector. Hopefully, not many of you have tried this, as it could be expensive.

There are a couple of ways you can go wrong and will want to avoid. You can see in 3 one of these mistakes. It shows multiple feeders for a long block, with some of them going around the detector. This would either be unreliable or not work at all.

Another thing you could do wrong is to route each feeder through its own block detector, as though each fed a separate block 4. The same is true of the multiple detector module 5. Even if this worked, it's unnecessarily complicated and costly.



5 One block per detector. This is a way to misuse a multiple detector module for a single detected block. It may not look complicated, but it's expensive and unreliable.



7 Routing with a Tortoise. Using a Tortoise by Circuitron's internal switch to power a frog results in this configuration. Again, frog power will not be detected.

For turnouts, I have

depicted some options. If you're power routing your frogs, you can use a Tam Valley Depot (tamvalley-depot.com) Frog Juicer 6. The frog is not detected if you wire your turnout as in this diagram. It's possible, maybe even likely, that the detector shown in this diagram may drop out as your locomotive passes over the frog.

If you're using Tortoise by Circuitron switch motors

(circuitron.com), see 7 to do the same thing. Like when using the Frog Juicer, the frog will not be detected and the detector may drop out briefly.

For a turnout with a "long" – a couple of inches long, that is – frog that you want to detect, 8 shows a way to do it with a Frog Juicer. If you do this, you may

split the power drawn between the detectors shown. Either or both of the detectors may briefly not indicate an occupied status. To detect a frog when using a Tortoise, see ②. You could have the same problem with brief lack of occupancy.

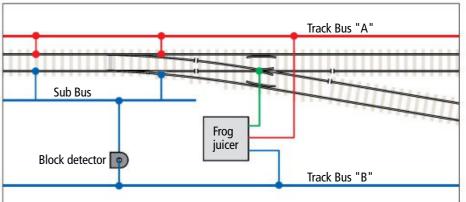
There isn't a way to use a multiple detector module to indicate occupancy of a powered frog, as the power has to be detected after the Frog Juicer or Tortoise pow-

ers the frog.

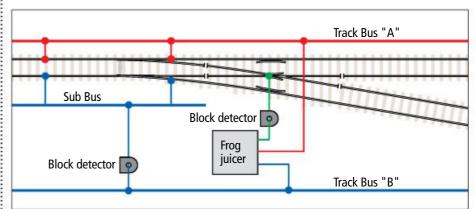
Hopefully I've answered your questions here and helped you head off problems when implementing block detection.

Q&A

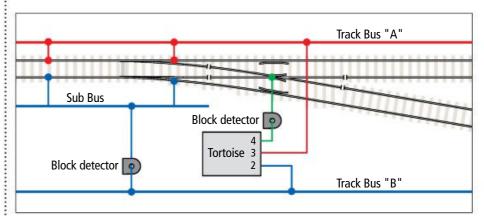
Q Is there any way to use the voltage on my main line bus to illuminate a 12V light-emitting



Turnout detection. If you are power routing your turnouts, this is one way to wire a block detector equipped with a Tam Valley Frog Juicer. The frog power isn't detected.



8 Detecting a juiced frog. If you want to detect your train as it passes over a frog, this is a way you could do it with a Tam Valley Frog Juicer.



9 Detecting with a Tortoise. This is a way to detect a locomotive passing over a frog when using a Tortoise. Again, the detector may briefly not show an occupied status.

diode (LED) or a 12V light bulb? I want to illuminate some red and green lights on the fascia to show the position of semaphore signals. I have both the NCE system powering my layout with DCC and also a DC bus around the layout that powers the Tortoise switch motors.

Pete Hall

A The easiest way to light an LED on your control panel when using a Tortoise is to put a bipolar LED (one that is red in one direction and green in the other) in series with the motor lead to the

Tortoise. To power the white LED in your semaphore signal, put a resistor in series with it and then attach the free end of the LED to your +12V bus and the free end of the resistor to the other connection on your 12V bus. If the white LED does not light, just turn it around. You won't hurt it. The value of the resistor should probably be about 1,000-2,000 Ω . If the LED is too bright, use a higher value resistor. Use a lower value resistor if it's too dim. Don't get carried away. Too low a value for the resistor could burn out the LED. MR



BE AWARE THAT





Athearn Genesis 2.0 HO scale GE Dash 9

HO scale modelers who were jealous when reading my review of an N scale Norfolk Southern GE Dash 9-40C in January's issue have reason to celebrate. Athearn has added an accurately modeled, finely painted, and well detailed HO scale version of that locomotive to its top-of-the-line Genesis 2.0 imprint. And, to add to the good news, Athearn is also offering the more common wide-cab Dash 9-44CW version, as well as the Canadian Dash 9-44CWL. All variations feature brand-new body tooling, five-pole skew-wound motors with dual flywheels, light-emitting diode (LED) lighting, and see-through etched-metal grills, steps, and lift rings.

A popular locomotive. In 1993, General Electric launched the Dash 9 line of diesel-electric locomotives, making incremental improvements over its already successful Dash-8. The new locomotives rode on GE Hi-Ad six-wheel trucks, had microprocessor control circuits, and were powered by a 4,400hp, 16-cylinder 7FDL diesel engine.

The Dash 9 series made standard many improvements that were tested as options on the Dash 8. One was the split cooling system, which is visible in the flared rear radiator enclosure being thicker than on the Dash 8. The cooler inlet air temperatures that resulted improved the prototype's fuel economy and lowered emissions. The Hi-Ad trucks, combined with microprocessor-controlled anti-slip technology, was another innovation new to the Dash 9. Hi-Ad trucks are the most easily spotted external difference between the Dash 9 and the Dash 8.

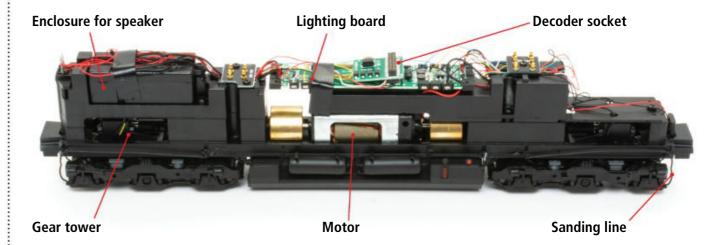
General Electric built 2,771 Dash 9s, making it one of the builder's most successful models ever. Numerous railroads across North America bought them, in addition to roads in Brazil and Australia. Although GE has introduced more advanced Evolution locomotives since the Dash 9, most of the Dash 9s are still in service today.

The primary external differences between the Dash 9 models are in the cab. Norfolk Southern was the only purchaser of the standard-cab Dash 9-40C, also known as C40-9 in GE's backward-and-forward nomenclature. These locomotives had square cab air conditioners on the roof that earned them the nickname of "Top Hats." The more commonly seen C44-9W bears the standard North American Safety Cab, with two rectangular front windows and a large, boxy air conditioner enclosure behind the conductor's side. The first orders from BC Rail and Canadian National are equipped with the CN version of the comfort cab and designated C44-9WL. These wide-nose

cabs have four front windows, a different nose profile, and no air conditioner behind the cab. (Both later purchased standard C44-9Ws.) Athearn is offering all three models.

A real looker. Athearn's HO scale NS C40-9 is a handsome, imposing model that bristles with prototypical detail. All the grab irons are wire, and close to prototypical thickness. The radiator grills and the steps are see-through etched metal, as are the intake grills on the rear radiator compartment doors; being able to see light through the body is impressive. The trucks are equally well detailed, with rotating bearing caps and a wealth of separately applied parts. The windshield wipers are separately applied, finely molded parts, as are the dual firecracker antennas, horn, m.u. hoses, lift rings, sand filler caps, air tanks, and under-sill piping. The cab windows can be opened and closed.

Our sample model is painted in Norfolk Southern's Thoroughbred scheme, which being mostly black,



Our sample model was direct-current only. The model is ready for installation of a DCC decoder, though, with a 21-pin socket and speaker enclosure.

would seem to not offer much to evaluate when looking at the paint job. The paint is smooth and evenly applied, though, and the white printing is crisp and opaque. There are gaps in the herald where it crosses panel door lines, but I've seen that in prototype photos, too, so I wouldn't bother trying to fix them. The many warning labels on the engine compartment doors, sill, and nose are all legible under extreme magnification, though the smaller type of the GE labels on the cab sides are not.

I found dimensioned drawings of the NS Dash 9-40C in the May/June 1997 issue of *Diesel Era*. All the dimensions I laid my scale rule on matched up with those in the drawing. The article also included many prototype images, which matched the model in appearance, paint scheme, and placement of details and warning labels. Though none of the photos in the article showed a white sill stripe like on our model, NS no. 8855 showed that stripe in prototype photos taken in 2005 and later.

Smooth operator. The review sample Athearn sent us was direct-current only. I tested it at first with an older power pack with momentum and braking, but the model didn't like the power pack's pulsed voltage output. The motor made a lot of noise, and I had a hard time holding a consistent voltage or speed. So I hooked up a no-frills power pack from an old train set (coincidentally, an Athearn), and to my relief, the model ran smooth as silk. I would not recommend using a pulsed-power pack with the direct-current version of this locomotive, or with any modern-day model, for that matter. Pulsed power was created to overcome the limitations of open-frame motors; today's motors don't need such brute-force techniques.

The model started rolling silently at just about 1V. This voltage was too low to illuminate the LED headlights and ditch lights, but it was enough to keep the engine creeping along steadily at less than 1 scale mph. (In fact, it was so slow that our speedometer couldn't measure it. I estimated its speed to be around .25 scale mph). You'll have no problem gently coupling to cars full of delicate cargoes with this engine.

The locomotive accelerated smoothly through the full range of the power pack. At the pack's maximum voltage, 15V, the

PERFORMANCE CHARTS				
DRAWBAR	4.48 ounces			
PULL	62 free-rolling HO scale freight cars			
SCALE SPEED (OC)			
VOLT	S	SCALE MPH		
1		<1		
3		13		
6		35		
9		56		
12		80		
15		112		

model topped out at 112 scale mph. This is a bit less than double the rated top speed of the prototype, 70 mph.

The headlights and ditch lights came on at around 3V, getting slightly brighter with increased voltage. Both are directional. The ditch lights shine steadily in the direction of travel; without a DCC decoder to control them, there's no way to make them flash at a grade crossing, as is required of the prototype. There are also micro-LED ground lights mounted under the sill above the front trucks; these work, but shining on black trucks in a normally lit room, they're not that visible. They would probably be more effective during night operations.

The model is pretty hefty, weighing in at 1 pound, 6 ounces. Combined with its all-wheel drive, this gives the model an equally hefty drawbar pull of almost 4½ ounces. This is enough to pull 62 free-rolling 40-foot boxcars on straight and level track. I was disappointed not to be able to test this in a real-world environment, since all the project layouts in the MR offices, including the Milwaukee, Racine & Troy, are DCC powered. It would have been fun to see how many cars this brute could tug up the 3 percent grade to Skyridge on the MR&T.

Instead, I put together an oval of Bachmann E-Z Track from a train set in our storeroom. Despite the locomotive's six-wheel trucks and long wheelbase, it didn't seem to have a problem transiting 18" curves or no. 5 turnouts. It would probably look and perform better on broader curves, though.

A modern marvel. Since a significant fraction of HO modelers still run direct current, it's good to be able to review a DC-only locomotive now and then. Doing so reminded me how smooth and satisfying operating such a model can be. Athearn's Genesis 2.0 Dash 9s are accurately engineered, fully detailed models that would look great pulling a

Facts & features

Price: \$249.98 (direct current, no sound), \$339.98 (Digital Command Control, sound)

Manufacturer

Athearn Trains 2904 Research Rd. Champaign, IL 61822 athearn.com

Era: 1993-present (NS model as decorated, 2005-present)

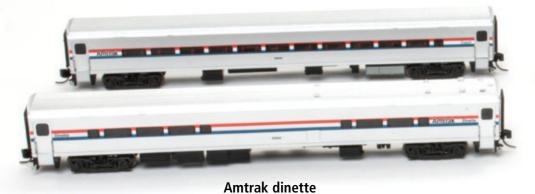
Road names: C40-9: Norfolk Southern (Thoroughbred scheme). C44-9W: BNSF Ry. (Heritage I and Heritage II schemes), Chicago & North Western (yellow and green, three road numbers), and Union Pacific (Armour Yellow and Harbor Mist Grey). C44-9WL: BC Rail (red, white, and blue) and Canadian National (North America map scheme). Four road numbers per scheme unless noted.

Features

- 21-pin Quick Plug decoder socket (direct current version)
- All-wheel drive and electrical pickup
- Blackened metal RP-25 contour wheels, in gauge
- Detailed cab interior
- Etched-metal grills, steps, and lift rings
- Five-pole, skew-wound motor with dual flywheels
- Flexible engineering plastic handrails
- Light-emitting-diode headlight, rear light, ditch lights, and ground lights
- McHenry scale knuckle couplers, mounted at correct height
- Minimum radius: 18" (larger recommended)
- Movable cab side windows
- Prototype-specific body, paint, and details
- Separately applied brake gear, piping, horns, antennas, air conditioner, and other details
- SoundTraxx Tsunami2 sound decoder with dual sugar-cube speakers (DCC version)
- Wire grab irons
- Weight: 1 lb., 6 oz.

coal drag or intermodal hotshot on your modern-day layout. And they're no slouches in the power department, either. Give them a look next time you're in your local hobby store. – *Steven Otte*, *senior associate editor*

Amtrak coach



SEPTA coach



SEPTA cab car

Rapido N scale Horizon/Comet passenger cars

N scale modelers can now see some Horizon passenger car action, and catch a few Comets as well. Rapido has 1:160 versions of the HO cars we reviewed in the May 2021 issue of *Model Railroader*.

The Horizon fleet was built by Bombardier in 1989 and 1990. The 104 cars were based on a Pullman-Standard design Bombardier had purchased for "Comet" commuter coaches. There were four types of cars – two series of coaches, coach-dinette cars, and all-table cars.

Comet cars were produced over four decades, starting in 1970 with delivery of coaches, cab cars, and bar cars to the New Jersey Department of Transportation for use on Erie Lackawanna commuter trains. These were known as Comet I cars, and eventually saw service on transit systems in Utah, New England, and the Southeastern Pennsylvania Transportation Authority (SEPTA).

Comet II cars came in 1982 and '83, this time built by Bombardier. Comet III and IV cars would follow, with Alstom building Comet V cars in 1999.

We received samples of both the Amtrak Horizon cars and Comet cars, decorated for SEPTA. All of the cars were neatly painted silver with striping appropriate for the prototype. The stripes were opaque with sharp edges.

The white outline around the Amtrak name on the Horizon cars shows attention to detail, as does the black-painted window gaskets on the tinted, flushmounted glazing.

Underbody detail is plentiful, and appears to be molded in one piece, with a few separately applied parts. The overall effect is impressive.

Other separately applied parts include photo-etched metal gates at the end doors and stirrup steps at the corners, plastic diaphragms at the ends, and wire grab irons at the side doors. Our cars were painted in Amtrak's Phase III scheme and still had their fold-down steps. The Horizon cars ride on outsidebearing General Steel Industries G70 trucks. A feature of the Comet cars is the inside-bearing trucks with their distinctive stabilizer arms.

A favorite feature is the lights. In addition to interior lighting, which can be switched on and off with the included Rapido Lighter magnetic wand, there are switchable marker lights on each end. The SEPTA Comet cab car has switchable headlights and markers to simulate pushpull operation. The lights work on direct current and Digital Command Control.

The Rapido Horizon passenger cars ran well on our new N scale Milwaukee, Racine & Troy project railroad. Being

Facts & features

Price: \$59.95 (coach and dinette), \$69.95 (AMT, CDOT, MNCR, SEPTA cab), \$76.95 (MBTA, NJ Transit cab)

Manufacturer

Rapido Trains Inc. 500 Alden Rd, Unit 21 Markham, ON L3R 5H5 Canada rapidotrains.com

Era: 1989-2010s (as decorated)

Road names: Amtrak Horizon (coach and dinette cars): Amtrak Phase III (narrow or wide stripes), Amtrak Phase IV, Amtrak Phase VI, Amtrak California; Comet cars (cab and coach cars): AMT Montreal, CDOT Connecticut, MBTA Boston, MNCR New York, NJ Transit, and SEPTA, all in multiple road numbers. All body styles also available undecorated.

Features

- Constant, controllable interior, cab car, and marker lighting
- Full underbody and interior detail
- Inside-bearing or outside-bearing trucks, as appropriate, with metal wheelsets, narrow in gauge
- Knuckle couplers, at correct height
- Weight: 1.3 ounces (.2 ounces light according to National Model Railroad Association Recommended Pratice 20.1)

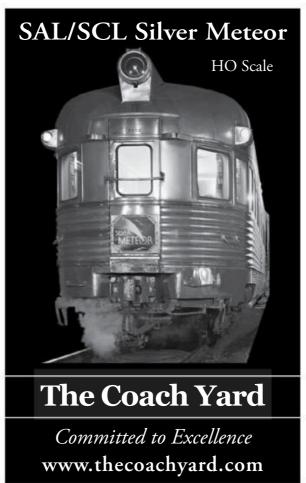
able to illuminate the red markers on the end of the train was fun, and the cars tracked well whether pulled or pushed through the layout's turnouts.

Rapido's Horizon cars are perfect for modern "layout-sized" regional trains. If you're looking to add that service, check out Rapido's well-made cars. – *Eric White, senior editor*



Rapido's N scale Horizon and Comet passenger cars have detailed undersides. This is the Horizon car. The convertible steps were removed as the cars aged.









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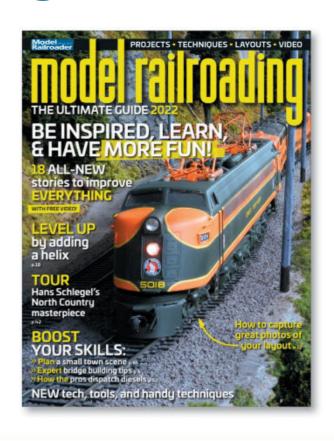
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Atlas O PRR X29 O scale boxcar

The Pennsylvania RR's X29 boxcar was once spread across the nation. O scale modelers who want examples for their layouts have another shot at Atlas O's detailed model in new road numbers.

The PRR purchased or built nearly 29,000 of these cars beginning with the 1924 purchase of 2,000 from American Car & Foundry, built to the railroad's design. The X29 design was based on the American Railway Association 1923 proposed standard design, on which the PRR had considerable input.

The cars were a significant part of the logistics effort to keep the nation and its military supplied during World War II. After the war ended, the well-worn cars were often rebuilt with new roofs, ends, and sides, retaining only the trucks and floor from the original X29 car. They were reclassed X29B, D, and G. An inset sill is the most obvious giveaway. Another problem was rust near the floor line on the sides of many cars, which resulted in many unrebuilt X29s receiving patch panels.

The Atlas model depicts an original car repainted in 1964 and used by the maintenance of way department to haul railroad supplies, or "stores," hence the large yellow S in a box at the top of the left side.

Details indicate the car would have been in express service before being assigned to the stores department. These include stirrup steps and handrails by the opening end of the door and a train steam line running along the center sill, with steam connections at the ends. The model also has opening Youngstown corrugated doors, a common application from various builders.

I compared the dimensions of the model to drawings in the Railway Prototype Cyclopedia Vol. 24 by Pat Wider (2012, RP CYC Publishing), and they matched within inches. The freight car color (red) paint is smoothly applied, and the lettering is all sharp and opaque. All grab irons and ladders are separate parts, and the brake system features full piping.

The Barber S-2 trucks are sprung and feature turned metal wheelsets, which

Brake cylinder

Facts & features

Price: \$79.95 Manufacturer

Atlas O

378 Florence Ave. Hillside, NJ 07295 shop.atlasrr.com

Era: 1964-1968 as decorated

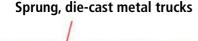
Road names: Pennsylvania RR; Chesapeake & Ohio; Chicago Great Western; Detroit, Toledo & Ironton; Lehigh & New England; and Nickel Plate Road. Four road numbers each.

Features

- ABS body
- Die-cast metal chassis
- Different door styles
- All metal separately applied grab irons, ladders and stirrups
- Flat or corrugated ends as appropriate
- Detail variations as appropriate for each version
- Minimum radius curve: 24"
- Weight: 1 pound, 2 ounces (2.5 ounces heavy by National Model Railroad Association Recommended Practice 20.1)

were in gauge. The scale-sized knuckle couplers were mounted at the correct height. The model weighs 1 pound, 2 ounces, 2.5 ounces more than National Model Railroad Association Recommended Practice 20.1.

These cars were everywhere from the 1930s through the 1960s. Maybe there's room for one or two on your layout. -Eric White, senior editor





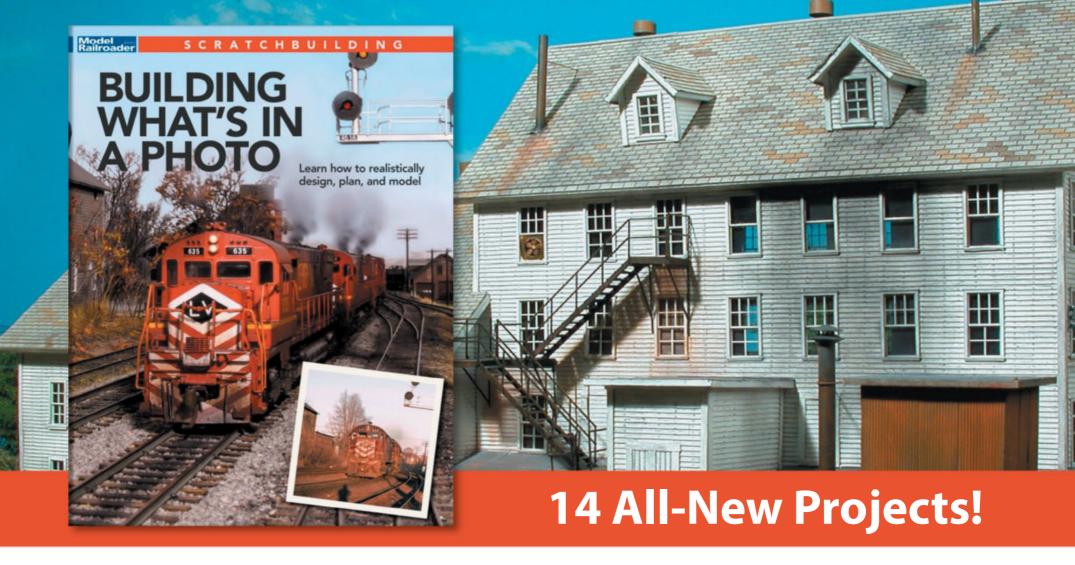
Brake reservoir

Proportioning valve

Steam line

The underside of the Atlas O X29 features a detailed braking system with proportioning valve, brake reservoir, and air cylinder, plus associated lines.

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Switching facing-point sidings

A reader's question

prompted a fond memory. On a dreary day 20-odd years ago, I piled out of the car with three friends to watch the switching when we happened upon Burlington Northern Santa Fe's Bend-Madras Road Switcher. It was working former Oregon Trunk trackage far from prying eyes in Culver, Ore. One of the crew confronted me, visibly upset, mistaking me for a railroad official. I soon learned why.

Gary Richards, the reader, asked how to switch trailingpoint and facing-point switches. Movement through a trailing-point switch proceeds from the frog toward the points, making it easy to back into the spur to pick up or spot a car. The opposite, moving from the points toward the frog, is more difficult. The photo shows examples of each. The switch in the foreground is a facing point; the one to the left of the diamond is a trailing point.

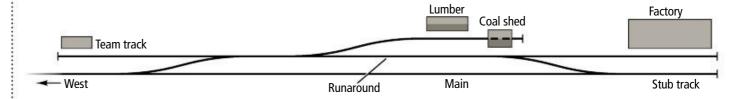
The track diagram illustrates a typical small town at the end of a line. Facing-point switches serve a lumber and coal shed, a factory, and a stub track. There's also a team track on a trailing-point switch. Pulling all the pickups before spotting the setouts is a general rule of thumb. I'd modify this by dividing it between the trailing- and facing-point moves. In other words, pull outbounds from the team track, then spot its inbounds.

To expand on this, let's assume the train is blocked with the engine leading, followed by cars for the team track, factory, coal shed, and lumber, in that order. For clarity, I'll designate the right as east and the left as west.

Here's the key: Leave the train on the main line west of



Tight quarters sometimes require intricate track arrangements that challenge switching, as in this June 7, 2000 scene on the Oregon Trunk at Redmond, Ore. Jerry Dziedzic photo



the runaround switch. I often see operators trap themselves, blocking runaround moves by pulling all the way into town. Instead, keep the runaround and the in-town main line clear.

Uncouple from the train and use the engine to grab the pick-ups from the team track. Pull east on the runaround and uncouple them there. Next, use the main to return the engine to the train and couple to the team track setouts. Pull them east and then shove into the team track to spot them. Return to the train and pull it east into the runaround, including the caboose. Uncouple from it, couple to the team track pulls left there, and shove them east into the stub track. Then, bring the engine down the main to run around the train. Pick the caboose off the runaround, leave it on the main, and return to the facing point setouts. This puts the engine west of them, making it easy

to switch the lumber, coal shed, and factory.

Reassembling the train requires shoving east off the runaround into the stub track and coupling to the cars left there. Finish by pulling the works west through the runaround and shove east on the main to grab the caboose. Good work! Time for beans.

Railroaders have served

facing-point switches with time-honored shortcuts including gravity drops, flying drops, and Dutch drops. Each of these maneuvers rolls a car through a own momentum uncoupled from an engine, impractical on model railroads. Most prototype rulebooks now



OPERATORS
TRAP
THEMSELVES,
BLOCKING
RUNAROUND
MOVES BY
PULLING ALL
THE WAY INTO
TOWN. – JERRY

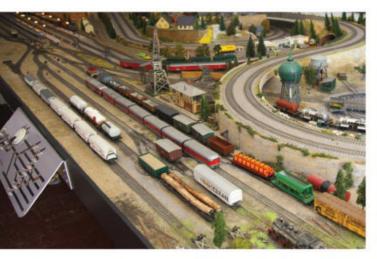
frown on drops, if not prohibit them, leading us to why.

That day in Culver, the crew had attempted a gravity drop to roll a pick-up from a facing point spur on a descending grade. It went bad when the cars stopped and fouled the switch. The crewman demanded to know who I was, no doubt because I had just witnessed a rules violation. My out-of-state driver's

license helped me persuade him that I wasn't a railroad official. Fortunately, a runaround saved greater embarrassment, and tensions eased.

As the train departed, a radio call from the now-friendlier train crew lit up our scanner: "Problem solved. All's well on the Oregon Trunk."











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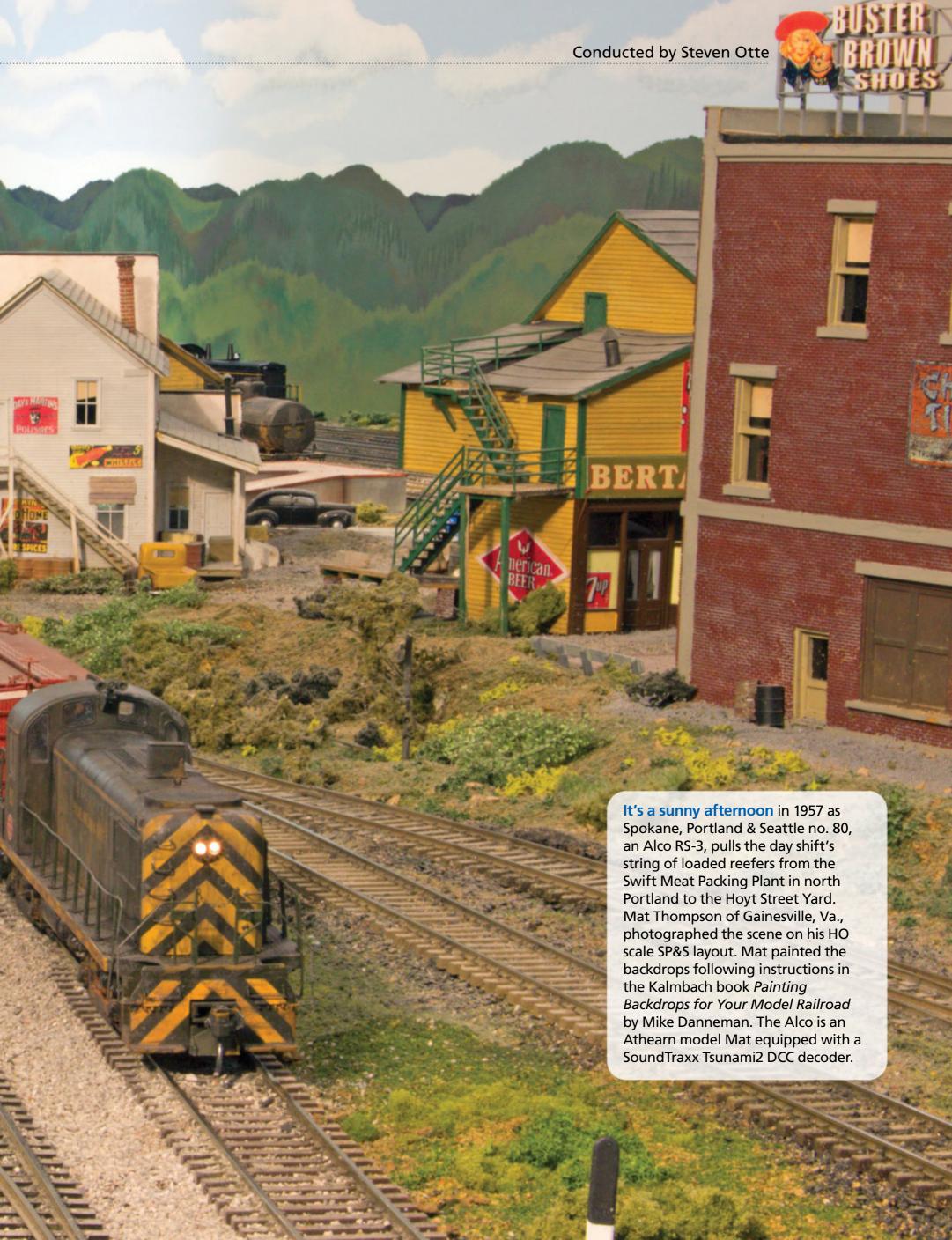














The engineer has stepped down from the cab to inspect Bluefield & Allegheny Central Berkshire no. 777 as a double-headed southbound coal train rolls slowly past the Mount Frigid engine terminal. The action takes place on Nathaniel Emerson's HO scale B&AC layout. The locomotives are Bachmann Trains and Broadway Limited Imports models, and the coal tipple is from a Wm. K. Walthers kit. Nathaniel, from Atlanta. Ga., shot the photo.

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Rio Grande Southern no. 40 drifts slowly downgrade toward San Rafael with a couple of stockcars in tow. Gary Downes of Huntington Beach, Calif., shot the photo on his Sn3 narrow gauge model railroad. Locomotive no. 40, a class C-19 2-8-0 Consolidation, is a brass P-B-L model.



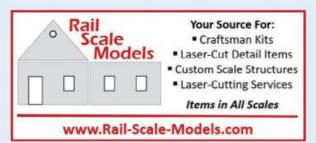
Union Pacific caboose 25201, having arrived this morning on a priority freight from Spokane, is shoved into the caboose servicing track at Waverly Yard, where it will be inspected and resupplied for its trip back to Spokane tomorrow. Rod Vance of Farmville, Va., staged and photographed the scene on his HO scale UP Willow Creek Subdivision layout. Rod scratchbuilt the caboose servicing facility from wood and styrene. The Fairbanks-Morse H10-44 diesel is a Walthers Proto 2000 model; the caboose is by Atlas.













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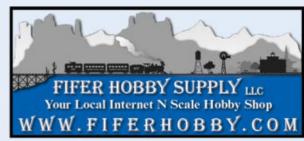


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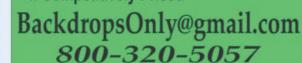


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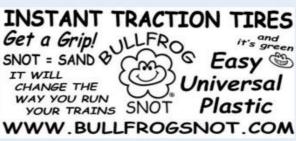


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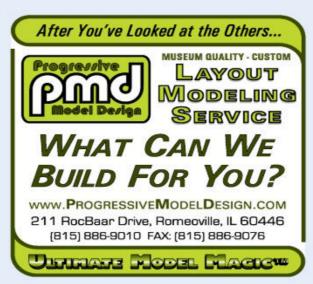


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All ads must be prepaid and pertain to the subject of model railroading.

Schedule of Events

- CO, DENVER: Rocky Mountain Train Show April 2-3, 2022. National Western Complex, 4655 Humboldt St., Denver, 80216. Saturday, 10:00am-5:00pm, Sunday 10:00am-4:00pm. 2-1/2 acres of model trains, all scales, 30 layouts, 600 sales tables, clinics and more. Admission \$13.00, under 12/scouts in uniform FREE. Discounted tickets available for military/first responders. Free Parking. 303-364-0274, www.RockyMountainTrainShow.com information@RockyMountainTrainShow.com
- CT, ANSONIA: Classic Shows, LLC will hold a Train and Toy Show on Sunday, April 3, 2022, from 9:00am-2:00pm at Warsaw Park, 125 Pulaski Hwy (Route 243). Admission \$6.00, children 15 and under are free with an adult. For information, please call 203-926-1327 or go to www.ClassicShowsLLC.com
- FL, PINELLAS PARK: Suncoast Model Railroad Club Train Show/Open House. Saturday, April 9, 2022. SHOW- New venue! Pinellas Performing Arts Center, 4951 78th Avenue N., Zip: 33781. 9am-3pm. Admission: \$7.00, Children \$2.00, under 11 free. Free parking. Food/snacks. Tables: Hugo Sacco: saccohugo459@gmail.com OPEN CLUB HOUSE- 12355 62nd Street North, Suite A, Largo, FL 33773. Admission: free. www.suncoastmrrc.com
- **GA, ATLANTA:** Scott Antique Markets (featuring Anton's Antique Toy & Train Show), April 7 10, 2022. Atlanta Exposition Center, 3650 & 3850 Jonesboro Rd., Atlanta, GA 30354. Thursday: 10:45am-6pm, Friday & Saturday: 9am-6pm, Sunday: 10am-4pm. Admission \$5, good all weekend. Contact: Anton 937-397-3499, or email: tweissmann6@gmail.com
- IL, COLLINSVILLE: 15th Annual St. Louis Railroad Prototype Modelers meet. Gateway Convention Center. July 29-30, 2022, Friday 9:00am-9:00pm and Saturday 9:00am-5:00pm. Admission: \$35.00 for both days; \$25.00 for Saturday only. For information, www.stlrpm.com or Contact: John Golden at golden1014@yahoo.com or Lonnie Bathurst at bathurst@litchfieldil.com or 217-556-0314
- IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the State Fairgrounds. Sunday, March 13, 2022. 10:00am-4:00pm. Early bird shopping starts at 9:00am for \$10.00. Admission fee \$5.00 from 10:00am-4:00pm. Free parking. Largest show in downstate Illinois! Over 35,000 sq.ft. of trains! For info call Ray at 217-544-4295 or visit www.springfieldtrainfair.com
- IL, URBANA: Lincoln Square Train Show, 100 W. High St., Urbana, IL 61801. March 26-27, 2022. Saturday 10am-5pm, Sunday 11am-4pm. Hosted by Illinois Terminal Division, NMRA. FREE public admission. Display layouts in multiple scales. Free parking and wheelchair accessible. Refreshments available. Vendor table info at http://itd.illinoisterminaldivision.org/show/show.htm or via trainshow@illinoisterminaldivision.org
- IN, INDIANAPOLIS: Indy Junction 2022 Train Show. 3 Days May 20th, 21st & 22nd, Indianapolis Marriott East. Hosted by MWR, NCR, and MCR NMRA Regions & RPM Conference. Friday 5pm-9pm, Saturday 10am-6pm, Sunday 10am-3pm. \$8 Admission. 13 and under free. FREE Parking. Train sales & displays. Info@IndyJunction2022.org or IndyJunction2022.org

- IN, PERU: Miami County Model Train Show and Swap Meet. Saturday, April 16, 2022, 10:00am-4:00pm EST. Miami County Fairgrounds, 4-H Project Building, 1029 W 200 N, Zip: 46970. All scale trains, books and memorabilia. \$3.00/person. 5 and under free. Free parking! Vendor tables \$20. Covid restrictions may apply. Questions, contact Paul Forman at 765-432-1052.
- KS, HERINGTON: 2nd Annual Herington Railroad Days. April 30 & May 1, 2022. 9am-4pm both days. Herington Community Building, 810 S. Broadway, Herington, KS 67449. Admission by donation. Buy/Sell/Trade model railroad equipment and railroad memorabilia, clinics, workshops, operating layouts. Special A&SVRR excursions onsite! Concessions and free parking. Visit the Historical Museum and Railroad Annex. heringtonrailroaddays.com
- KS, KANSAS CITY AREA: Turkey Creek Division train show/swap meet. Saturday, August 6, 2022, Lenexa Community Center, 13420 Oak Street, Lenexa, Kansas 66215. 8:00am-3:00pm; Layout tours 3:30pm-8:30pm. Admission: \$10.00, NMRA members \$9.00 at the door. 12 and under free with paid adult. Pre-register to receive \$2.00 off admission. Vendors/registrants contact Jack Ferris, fhs1955@gmail.com, 816-804-0152. www.tc-nmra.org
- MI, KALAMAZOO: Annual Spring Swap Meet. Kalamazoo County Expo Center, 2900 Lake Street. Saturday, April 2, 2022, 10am-3pm. Admission \$3.00; Children 10 and under free (when accompanied by an adult). Vendors, railroad memorabilia, model trains, accessories. Concessions, free parking and more! Presented by Kalamazoo Model Railroad Historical Society. Contact: David Hayes-Moats, 269-344-0906, http://www.kmrhs.org
- MN, WOODBURY: Newport Model RR Club Flea Market & Train Show. Woodbury High School, 2665 Woodlane Drive, Woodbury, MN 55125. Saturday, April 9, 2022, 9:00am-2:00pm. Admission \$5.00. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Don, 763-257-5443
- NH, DOVER: The Great Northern New England Spring Train Show. Dover Lodge of Elks #184, 282 Durham Road, Dover, NH 03820. Saturday, April 2, 2022, 10:00am-3:00pm. Admission: \$5.00 per family. Exhibitor tables \$30.00, includes entrance fee. All scales, operating layout, railroadiana items, and food on premises. Contact Ed Martin, efmenter@aol.com or 603-362-4300
- OH, MT. HOPE: CJ Trains Spring Train and Toy Show. Mt. Hope Event Center, 8076 St. Rt. 241, Zip 44660. Saturday, March 19, 2022, 10:00am-4:00pm. Admission: \$5.00, under 12/FREE. \$25/dealer table, 600+ 8' dealer tables. Contact: Jon Ulbright, PO Box 446, Wooster, OH 44691. 330-262-7488, cathijon@sssnet.com www.cjtrains.com (GPS info: 8076 St. Rt. 241, Millersburg, OH 44654)
- OK, BIXBY: Greater Tulsa Area Train Show. Bixby Community Center, 211 N. Cabaniss Avenue, Bixby, OK 74008. Saturday, April 2, 2022, 9am-3pm. Admission: \$5.00 adults, under 18 free w/ paid adult. Buy/Sell/Trade. Operating train layouts and door prizes. Concessions available. For further information visit: www.ttos-soonerdiv.org
- PA, HAWLEY: Model Train Show & Sale. Hawley Fire Department, 17 Columbus Ave., Hawley, PA 18428. Sunday, April 24, 2022, 9:00am-3:00pm. Admission \$3.00, under 12 free with adult. Bill Delling, 618 Fem St., Hawley, PA 18428, 570-226-3206.
- PA, MONACA: Beaver County Model RR Spring Train Show & Sale. Monaca Turners, 1700 Old Brodhead Road. Sunday, April 3, 2022, 10:00am-3:00pm. Adults \$5.00, under 12 free. All scales, 50/50 raffle, food, fun for the whole family! Sponsored by Beaver County Model RR & Historical Society. Contact: Walt Steiner, 724-843-3783 or www.bcmrr.railfan.net or beaverctymrr@gmail.com
- WA, CHEHALIS: Lewis County Model Railroad Club, Annual Spring Train Show and Swap Meet. Southwest Washington Fairgrounds, Blue Pavilion Building, 2555 N. National Ave., Chehalis, WA 98532. April 2-3, 2022. Saturday 10:00am-4:00pm and Sunday 10:00am-2:00pm. Admission \$5.00. Free parking. Contact information: Ted, 360-985-7788 or TedsTrains@LewisCounty.com
- WI, LA CROSSE / ONALASKA: La Crosse & Three Rivers Railroad Club's 41st Annual Model Railroad Show. Omni Center, 255 Riders Club Road, Onalaska, WI. May 19-20, 2022. Saturday 9:00am-5:00pm, Sunday 10:00am-4:00pm. Adults \$8.00, \$7.50 with a non-perishable food item, children 11 and under free w/ adult. Info: Belva Thompson, 608-780-7364
- WV, CHARLESTON: KVRA Model Railroad Show. Charleston Coliseum & Convention Center. 200 Civic Center Dr., Charleston, WV 25301. March 12-13, 2022. Saturday, 10am-5pm, Sunday, 10am-3pm. Admission \$5.00, under 12 free. Tables \$30.00. Clinics, layouts, new and used equipment for sale. Website: www.kvrailroad.org Contact Joe: 304-539-6721 or kvrailroad@gmail.com

All listed events were confirmed as active at the time of press. Please contact event sponsor for current status of the event.

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Paving the way



When son Pete, age 4, asked to help Dad with a modeling project, Dave Abeles gave it some thought, then realized that removing a few screws offered far more opportunities for rewards than perils. Dave Abeles photo

Some of tomorrow's model railroaders are born with an innate love of trains. Perhaps something about flanged wheels being guided by a pair of rails is innately appealing to them. Or maybe it's the lure of creating miniature worlds that accurately resemble those we encounter in our daily lives or wish we could have experienced.

But other future modelers are molded, lovingly shaped by watching their elders enjoy their hobby.

The accompanying photo may show either or both cases in action. "Recently my youngest son asked to help me with a repair project on my workbench," Model Railroader contributor Dave Abeles told me. "I gulped: Pete is only 4 and needs close supervision when in my layout room, let alone with sharp or hot tools and scale models on the workbench.

"Still, it was a request I could accommodate with just a few minutes of time," Dave realized, "and with a few screws to remove, I figured it would cause no harm. I hoisted him up to my lap and helped him with the task, which he seemed fascinated with for a few minutes. Since the camera was at hand and set up for a future article, I set it for a timed series of photos, of which this is the best."

I'm sure you'll be as curious as I am to get an update on young Pete's attitude toward the hobby in, say, five years from now.

None of our four children

ever asked to help me with a project on the Allegheny Midland. Our oldest son, Dave, was press-ganged into service when I needed someone to hold a length of lath as I drew the easement curves, a task so boring that I'm sure it

cured him of any future interest in what he perceived as model railroading.

Our oldest daughter, Deb, later mentioned that she might have become interested had she received a little encouragement. My bad. And John, our youngest son, said that if we had Digital Command Control soundequipped locomotives when he was a lad, that might have won him into the fold.

That he paid a lot of attention to what I was doing became obvious one day when I was sitting underneath the railroad, completely hidden by the skirting as I worked on some wiring, when he brought some friends in to see the Allegheny Midland. He first gave them the "instant death if you touch anything" warning, then provided a very detailed and accurate lecture on the railroad and how it operated. I was impressed. So why didn't I pick up on that cue and invite John to play a more active role on the railroad?

Looking back, he probably didn't have time anyway. He was a star athlete in several sports and went to college on an athletic scholarship. He also played in the band and the county symphony orches-

tra, and was a straight-A student. Who had time for another hobby? (Or so I keep telling myself.)

John's son, Iordan, is indeed a and has been one since he was a toddler. Why? Who knows? I remember him as a youngster dragging a bar

stool around the Allegheny Midland to get a better view of the trains, and when he was slightly older he did some of the earliest test runs on the Nickel Plate when it comprised perhaps 6 to 9 feet

So I encouraged Jordan, but not my own kids, it appears, with positive results. But did that matter? Maybe Jordan was hard-wired to be a model railroader at birth, as I was.

But was I really? My mother liked steam locomotives, but she told me I always ran to the window to watch steam trains pass our wartime abode near New Orleans. Maybe it was in the genes she passed on to me, and I passed on to Jordan.

I believe we should build our model railroads for ourselves first, then our visitors – be they family, crew members, or outsiders – second. I realize that there are many of us, especially grandparents, who build model railroads to entertain the grandkids, and that's a noble cause. But scale model railroading is aimed primarily at mature youngsters and adults.

To the extent that we can accommodate family members and casual visitors, fine, but I cannot imagine design-

ing or building or operating the Allegheny Midland or Nickel Plate Road, or Dave Abeles' Conrail, with that primarily in mind.

As Dave's photo demonstrates, there's no need for that anyway. Pete will grow into the railroad – if he feels the urge. MR



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