

REVIVING A **GORRE & DAPHETID** LOCOMOTIVE! p.30

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Updating a scenic gem

- 2,850 square feet • 23 scale miles of mainline
- And **Howard Zane** keeps on building! p.42

PROJECT RAILROAD:
**Build a realistic,
lightweight layout** p.36

PLUS

DCC Corner: How to mend your shorts p.60

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Southwest scenery on an N scale dream layout p.52

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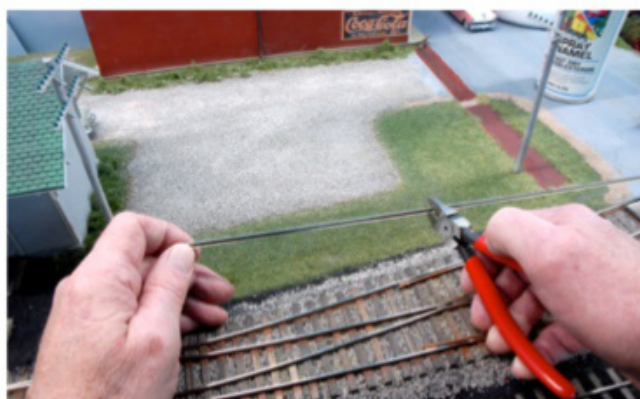
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• Online bonus ModelRailroader.com



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MREXTRA

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These are the "good new days"



On the cover: Motive power lines up for departure on Howard Zane's recently updated HO scale Piermont Division. Forrest Nace photo



Next issue

In the March issue, we visit a 1970s-era Western Maryland layout. Plus, scenery and structures for our Wingate layout, adding interest with mini-scenes, and more!

MREXTRA

ModelRailroader.com
subscriber extra



Video on
MRVideoPlus.com

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Model railroad deconstructed.

Gerry Leone looks back on dismantling his old Bona Vista layout to start all over again.

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Handlaying track. Learn the basics for laying good-looking, smooth-running track with contributing editor Tony Koester.

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Andy and the G-D Line. Our late executive editor Andy Sperandio describes operating the famed Gorre & Daphetid.

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Read the article, then watch the video! After you learn about a modeling technique in the pages of *Model Railroader* magazine, log in to Model Railroader Video Plus from your smartphone, tablet, or other internet-enabled device to get in-depth, step-by-step instructions. It's like being at the workbench or the layout with your favorite MRVP staffer.

In this month's Step By Step column, author Mike Roselle shares his method for modeling rails embedded in the street using foam sheets. While this technique works well, there are several other ways to model a street-running railroad. For another approach from MRVP, follow the link below to see how producer David Popp modeled rails embedded in a brick-paved street using air-dry clay. That video is also part of the Winston-Salem Southbound project layout series.

Visit MRVideoPlus.com to get more out of your hobby. Click on the free videos tab for a preview.

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VISIT THIS LAYOUT ATTRACTION!

If you ever have the opportunity, EnterTRAINment Junction in West Chester, Ohio, is definitely worth a visit. For the next best thing, check out this virtual tour on MRVP.

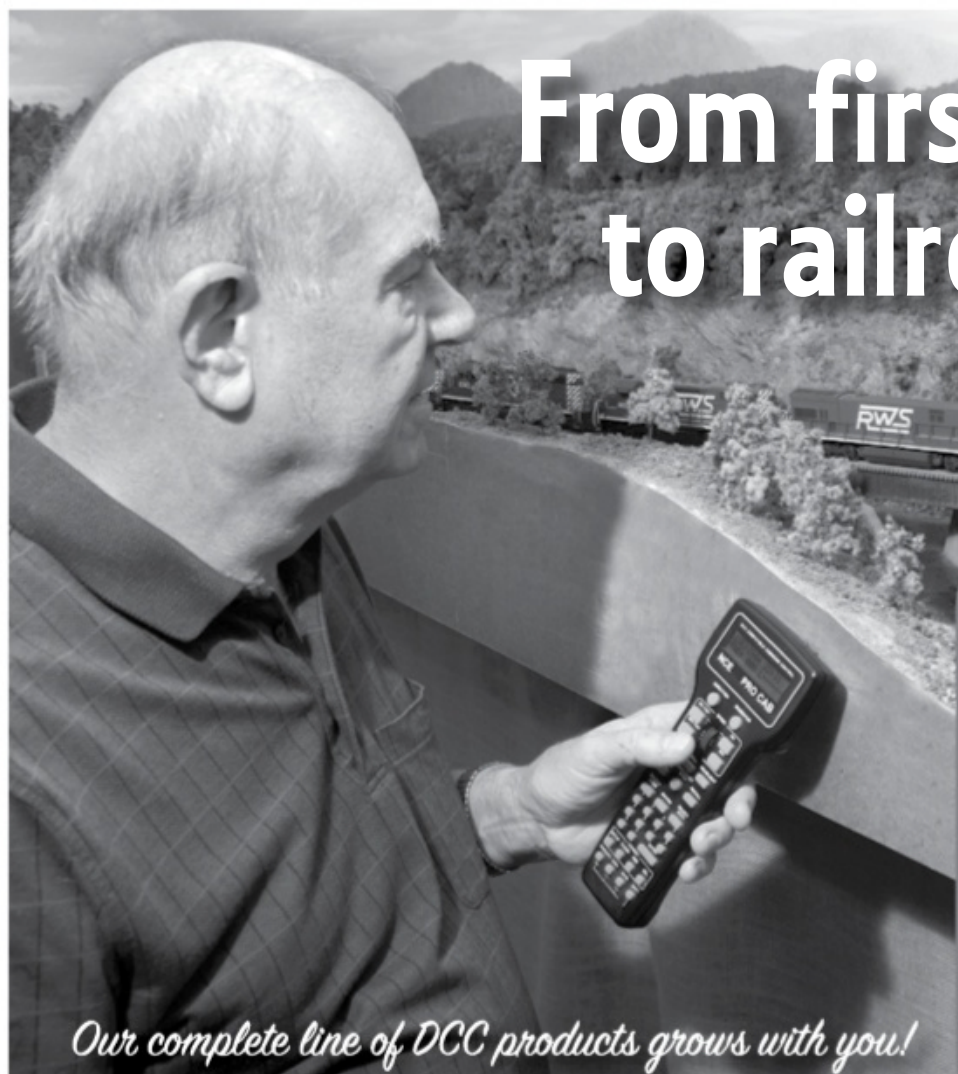
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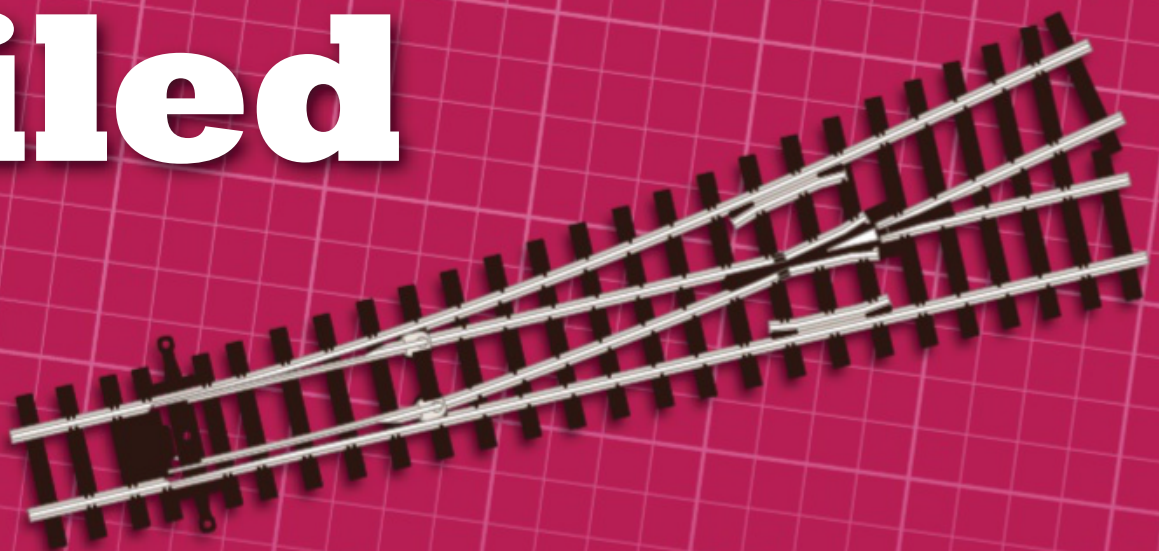
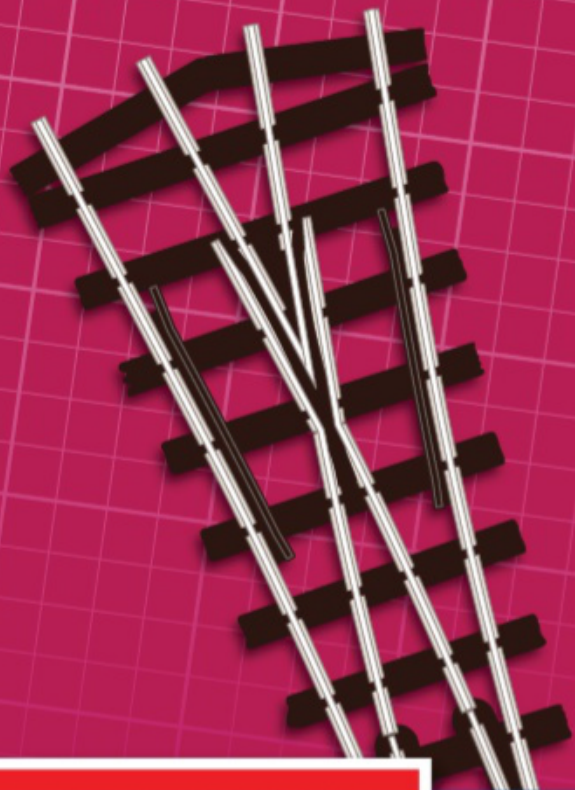
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Delivering the hobby world to your door



With a click of a button, Ben Lake of the Model Railroader Video Plus team launches a live remote broadcast from Trainfest in Milwaukee. Carl Swanson photo

Trainfest, the giant show held each November in Milwaukee, was one for the record books — for a number of reasons.

Billed as “America’s Largest Operating Model

Railroad Show,” this year’s edition featured more than 70 layouts covering a space equivalent to five football fields, plus 120 hobby dealers and manufacturers, a dizzying number of new product

introductions (see “News and Products” on page 10 for a detailed report), and numerous hands-on activities and clinics for everyone from toddlers to modelers.

This year, for the first time, the Model Railroader Video Plus team shared the excitement via live streaming video.

I’ll spare you the technical details (because I don’t understand them!), but I was on the sidelines when the lights came on; the cameras pointed at hosts David Popp, Cody Grivno, and Steve Sweeney; and MRVP’s Ben Lake tapped a button to send live video to six Kalmbach Media tracks-related websites.

If you missed seeing it live, the Trainfest videos are archived and can be viewed for free at MRVideoPlus.com.

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curated playlists guiding viewers through specific modeling processes to in-depth prototype railroad information.

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N scale



Chicago & North Western Pullman bi-level 400 train set. Kato's latest bookcase set is in hobby shops now. The N scale C&NW Pullman bi-level 400 set features an Electro-Motive Division E8A diesel locomotive, a coach-buffet, two four-window coaches, a coach-parlor car, and a cab-coach. The locomotive has directional golden-white light-emitting-diode headlights. The cars feature

blackened metal wheels, all-wheel electrical pickup, and directional head and taillights on the cab-coach. Direct-current sets retail for **\$260**; versions with a Digital Command Control (DCC) motor and light decoder are **\$355**; and sets with an ESU LokSound DCC sound decoder are **\$485**. Kato USA Inc., 847-781-9574, katousa.com

Many new items unveiled at Trainfest 2019

A variety of new products were announced at Trainfest 2019. The 48th annual show was held on the second weekend of November at State Fair Park in the Milwaukee suburb of West Allis, Wis.

Kato showed a production sample of its latest N scale bookcase set, the Chicago & North Western Pullman bi-level 400 (above). The set is offered in direct current and two Digital Command Control versions.

Athearn Trains unveiled three brand new International Car Co. cabooses in its HO scale Genesis line (below). The models are based on Chicago, Burlington & Quincy; Union Pacific; and Seaboard Air Line prototypes.

Atlas Model Railroad Co. debuted its Atlas Trainkids line. The initial offering is an Amtrak Acela passenger train (opposite). Though the equipment isn't scale specific, it's gauged to run on HO scale track.

ScaleTrains.com has added an Electro-Motive Division SD45 diesel locomotive to its HO scale Rivet Counter (page 12) and Operator lines. The six-axle road units are due out this summer.

Finally, Accurail announced that it's releasing an HO scale American Car & Foundry 2980 covered hopper kit. See page 14 for a pre-production drawing.

We couldn't fit all of the product announcements from the show into print. To see the complete list of announcements from Trainfest 2019, visit ModelRailroader.com.

HO scale



International Car Co. cabooses. Athearn displayed pre-production samples of cabooses decorated for Chicago, Burlington & Quincy and Ft. Worth & Denver; Union Pacific (classes CA-8 through CA-10); and Seaboard Air Line and Pittsburgh & West Virginia. The HO scale Genesis series models, scheduled for release in June 2020, will have light-emitting-diode interior lighting, interior details, and wire grab irons. Direct-current model with interior lights are priced at **\$109.98**. Versions with lights and dual-mode SoundTraxx SoundCar sound decoder are **\$149.98**. Athearn Trains, 800-338-4639, athearn.com

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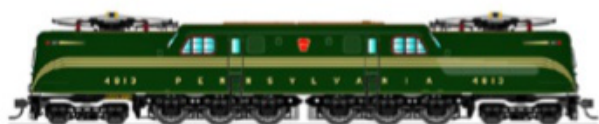


Conducted by Cody Grivno



HO scale locomotives

- **General Electric U28 and U28CG diesel locomotives.** Road names to be announced. All-new tooling; etched-metal grills; steam generator details on U28CG; separate, factory-applied detail parts; prototype-specific headlight placement; and metal knuckle couplers. Direct-current and Digital Command Control versions will be offered. Pricing and release date to be announced. Master Line. Atlas Model Railroad Co., 908-687-0880, atlasrr.com



- **Pennsylvania RR GG1 electric locomotive.** Pennsylvania RR (Dark Green Locomotive Enamel with brown roof, five gold leaf stripes, and Futura or Roman lettering in three numbers each; Dark Green Locomotive Enamel with buff broad stripe and Roman lettering in two numbers; and Tuscan Red with buff Roman lettering and five stripes in two road numbers) and Penn Central (black with white herald in two road numbers). Also available painted Dark Green Locomotive Enamel and Tuscan Red but unlettered. Dual-mode Paragon3 sound decoder with Rolling Thunder and die-cast metal body and chassis. \$399.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com



- **General Electric ES44AC diesel locomotive.** New paint schemes: CSX (Honoring Our Veterans and Honoring Our First Responders). Plastic body, Kadee-compatible remote-controlled Proto-Couplers, illuminated number boxes, die-cast metal chassis, and light-emitting-diode lighting. Direct-current model, \$219.95; with Digital Command Control/Digital Command System Proto-Sound 3.0, \$309.95. MTH Electric Trains, 410-381-2580, mthtrains.com

HO scale freight cars

- **Bethlehem Steel Co. F68BH finger-rack flatcar.** Trailer Train (Oxide Red, yellow with black "TT" logo, and yellow with 1991 speed logo). Six road numbers per scheme; also available undecorated. Factory-installed finger rack details; MacLean-Fogg tie-down details on decks; 100-ton trucks with hydraulic snubber and bracket details, rotating bearing caps, and truck-mounted brake beams; and die-cast metal semi-scale long-shank Type E couplers. \$44.99. May 2020. Rivet Counter line. ScaleTrains.com, 844-987-2467, scaletrains.com

HO gauge

Amtrak Acela passenger train set.

A new line of kids' trains is available from Atlas Model Railroad Co. The Acela passenger set (\$99.95) includes a remote-controlled locomotive and attached first class car, a business class car, a cafe car, an unpowered locomotive, a remote control, and four straight and 12 curved plastic snap-together track sections. The locomotive requires four AA batteries, and the remote requires three AAA batteries (not included). The remote-controlled locomotive features a user-activated horn, bell, and welcome announcement. The wheels are gauged to run on HO scale track. Atlas Model Railroad Co., 908-687-0880, atlasrainkids.com

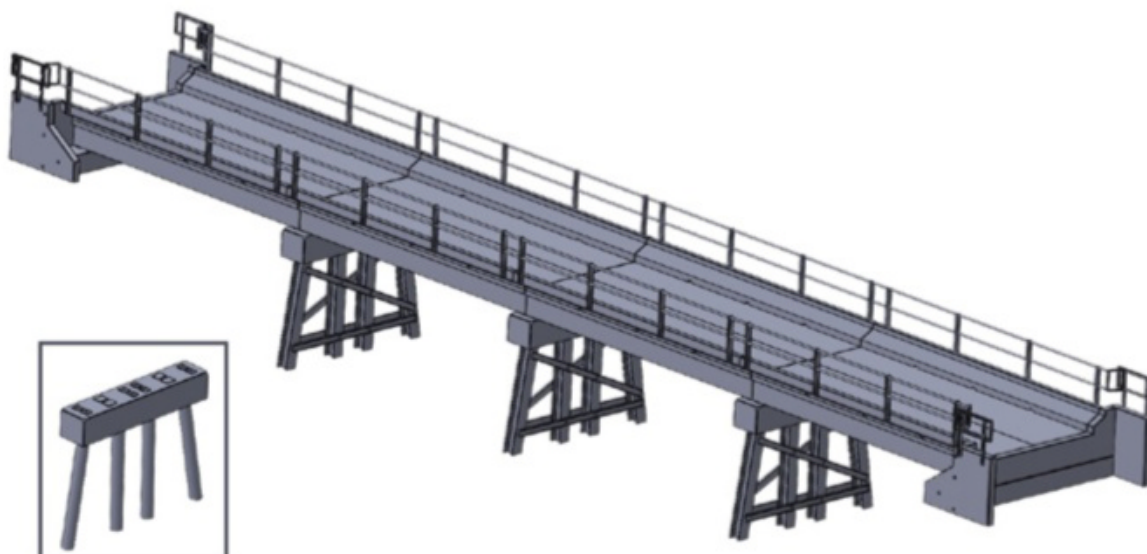


HO scale



Electro-Motive Division SD45 diesel locomotive. These six-axle road units are the latest additions to the ScaleTrains.com lineup. The Rivet Counter line SD45 will be decorated for Pennsylvania RR, Southern Pacific, Chicago & North Western, and Seaboard Coast Line. The HO scale models, due out in summer 2020, will have prototype-specific details. Direct-current models with a 21-pin connector for Digital Command Control decoder will sell for **\$184.99**. Versions with ESU LokSound 5 sound decoder featuring two PowerPack super capacitors will list for **\$274.99**. ScaleTrains.com, 844-987-2467, scaletrains.com

HO scale



Modern short span concrete railroad bridge. Coming soon from Wm. K. Walther's Inc. is this injection-molded plastic kit with parts for four spans. The HO scale short span concrete railroad bridge includes abutments, handrails, and concrete and steel H-piles. The Cornerstone Series kit is based on precast concrete designs used from the 1960s to the present. The bridge (**\$39.98**) measures 17⁷/₈" x 2¹³/₁₆" x 2⁷/₈". Wm. K. Walther's Inc., 414-527-0770, walther's.com

Multiple scales

MC1H104P21 mobile decoder.

SoundTraxx has released this new decoder that plugs into many Athearn or other manufacturers' models equipped with a 21-pin motherboard. The MC1H104P21 (**\$23.95**) is also compatible with other SoundTraxx mobile decoders and products. The decoder's max stall current is 1A. The decoder, which operates in National Model Railroad Association Digital Command Control only, has four function outputs, 15 Hyperlight effects, and a 28 point speed table. SoundTraxx, 970-259-0690, soundtraxx.com



• **60-foot high-cube Plate F boxcar.** BNSF Ry., Canadian National, Mexican Rail Transportation Group (TFM), TTX, and Union Pacific. Separate, factory-applied latch bars; 100-ton roller-bearing trucks with 36" turned-metal wheelsets; and roof with X and diagonal panels. \$29.98. June 2020. Walther's Mainline. Wm. K. Walther's Inc., 414-527-0770, walther's.com

HO scale passenger equipment



• **72-foot smooth-side baggage car.** Pre-production sample shown. Pennsylvania RR (Tuscan Red with keystone herald and *Fleet of Modernism* schemes), Baltimore & Ohio, Southern Pacific, and Union Pacific. Also available painted aluminum but unlettered. \$64. Bachmann Trains, 215-533-1600, bachmanntrains.com

N scale freight cars



• **Evans 5,277-cubic-foot-capacity boxcar.** Ferdinand RR, Canadian National, Laurinburg & Southern, Ontario Northland, Mississippian Ry., and Wisconsin Central (Sault Ste. Marie Bridge reporting marks). Retooled with body-mounted Micro-Trains no. 1015 couplers, CNC machined metal wheels, and 70- or 100-ton trucks. \$27.99. ExactRail, 866-945-1701, exactrail.com

• **Gunderson 50-foot high-cube double-door boxcars.** Flat roof: Atchison, Topeka & Santa Fe ("Quality" herald); BNSF Ry. (Oxide Red with circle cross or post-2005 herald); Burlington Northern; CP Rail; Milwaukee Road; Minnesota, Dakota & Western (Milwaukee Road patchout); Southern Pacific (Golden West Service patchout); and Union Pacific. Peaked roof: Denver & Rio

Grande Western, Golden West Service; Southern Pacific (classes B-70-43 and B-70-43R); and St. Louis Southwestern (classes B-70-42 and B-70-42R). Six road numbers per scheme. \$26.95. Value Line. InterMountain Railway Co., 800-472-2530, intermountain-railway.com

N scale details and accessories



- **Assorted freight car loads.** Welded rail racks for flatcars (\$14.95), hopper-style container load for gondolas (\$7.95), ice breaker (\$8.95), open-top container load for gondolas (\$5.95), Sherman tank (\$8.95), and wheel rack for flatcars and highway trailers (33" or 36" wheels, \$11.95 each). Unpainted 3-D printed parts. Available direct from manufacturer only. English's Model Railroad Division of Bowser Manufacturing, 570-368-2379, bowser-trains.com

HO scale

General American 1957-design 8,000-gallon welded general service tank car.

Tangent Scale Models has released a new run of these mid-century freight cars. The HO scale tank car is decorated for General American (black lease scheme, 12-1974+) and Clinton Corn Processing Co. (original 1958+) in four road numbers per scheme. The model (\$44.95) has factory-applied tank handrails and Kadee scale-head couplers. Tangent Scale Models, 828-279-6106, tangentscalemodels.com

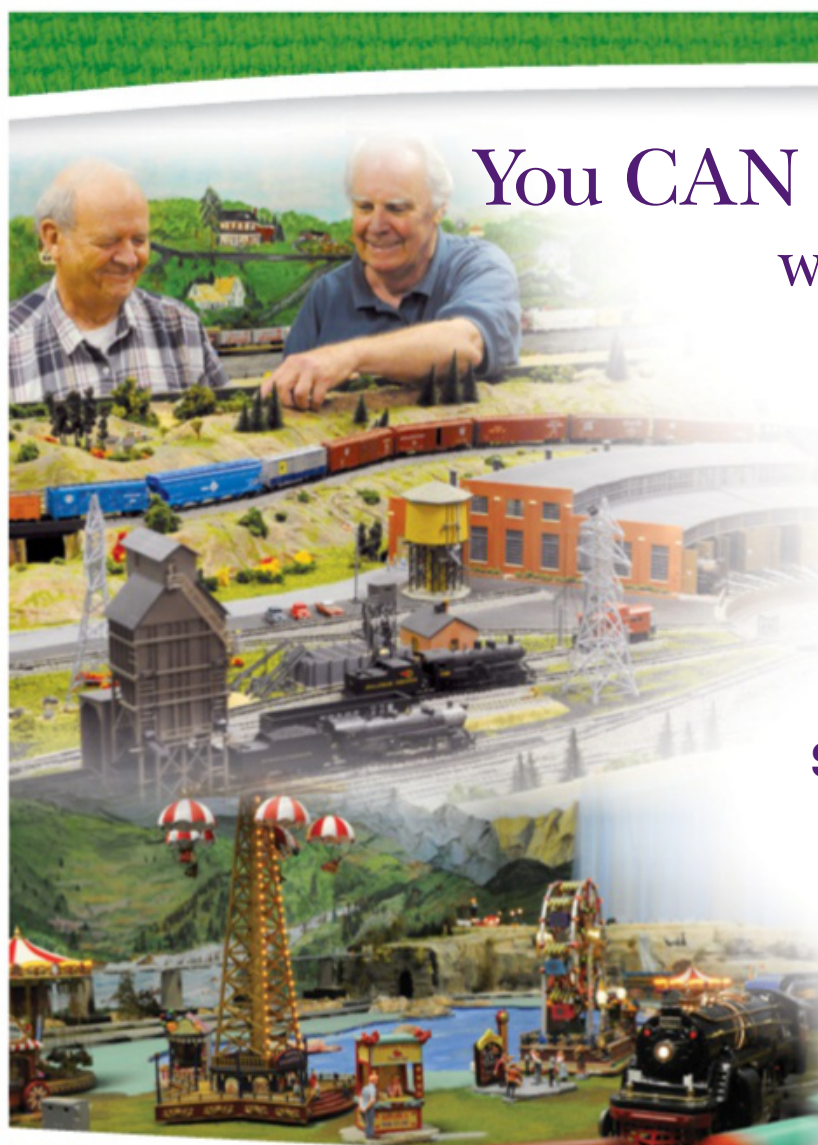


- **20-foot standard height intermodal container.** Ocean Network Express, Evergreen, Hanjin, JTC holiday container (single unit, \$18.95), Lotus, Maersk Sealand, MOL, and Triton. Injection-molded plastic with JTC magnetic connecting system. Two-pack,

\$29.65. Jacksonville Terminal Co., 904-253-3430, jtcmodeltrains.com

N scale structures

- **Loading dock.** Kit features laser-cut wood dock support legs, floor, ramp, and



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HO scale



American Car & Foundry 2,980-cubic-foot-capacity two-bay Center Flow covered hopper. Accurail's newest freight car kit is scheduled for release in 2020. The HO scale American Car & Foundry 2,980-cubic-foot-capacity two-bay Center Flow covered hopper will be lettered for Northern Pacific; Burlington Northern; Chicago, Burlington & Quincy; Chicago & North Western; Denver & Rio Grande Western; Erie Lackawanna; Great Northern; and Union Pacific, with additional road names to be announced. The model will also be offered as an undecorated kit and painted gray with data only. The injection-molded plastic kit (**\$19.98**) will have plastic wheelsets, one-piece plastic trucks, a steel weight, and Accumate couplers. Alternate holes are provided for mounting Accumate Proto:HO scale-size couplers. Accurail, 630-365-6400, accurail.com

walls. Other details include windows, door, roofing, boxes, and sacks. Footprint is 6" x 1 1/4". \$19. QuickKit line. The TrainMaster LLC, 740-405-4722, thetrainmaster.com

Z scale freight cars

• **2019 Christmas car.** Low-side car with laser-cut transparent Plexiglas snowmen. \$40.99. Märklin Inc., 573-365-9522, marklin.com

Track



• **HO scale flextrack.** Codes 83 and 100. Nickel silver rail and plastic ties with wood grain detail. Five-pack, \$29.99; 100-pack, \$499.99. Lionel LLC, 800-454-6635, lionel.com

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News & Products

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HO scale

Rustic Cabin. This factory-assembled and painted plastic structure from Woodland Scenics features board-and-batten siding, a covered porch, and a shake shingle roof. The HO scale cabin (\$64.99) also includes two rocking chairs, a wood pile, a television antenna, an electric meter, and a light-emitting-diode porch light compatible with the Just Plug Lighting System. Woodland Scenics, 573-346-5555, woodlandscenics.com



Electronics/controls



• **R/C locomotive receiver.** Compact design can fit into many G scale locomotives. Receiver features two relay-type function contacts for activation of horn, whistle, or bell on a separate sound unit. Receiver can be battery powered (batteries not included) or powered by a fixed

DC supply of 7 to 22V. Receiver has connection for motor power and two function outputs. 3.5A max continuous power. \$99.99. PIKO America, 619-280-2800, piko-america.com

Scenery



• **Clamshell stone roads.** Small (N/HO), medium (HO), and large (HO/O). Each flexible vinyl sheet measures 3 3/4" x 12". Compatible with Chooch peel-and-stick adhesive (sold separately). Two-pack, \$19.99. Chooch Enterprises, 425-273-4794, choochenterprises.com

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The Interstate RR shares an interchange track with the Greenville & Ohio RR on Jack Varadi's HO scale layout. Bruce Gathman photo

Spic and span

I enjoyed the article on Jack Varadi's Greenville & Ohio Railroad ["Freelancing an Appalachian short line," December] and appreciate his craftsmanship. Based on my New Haven RR experience, Interstate Alco no. 33 has to be fresh out of the paint shop to have the top of the white hood that clean. The New Haven received its Alcos with orange hoods and dark green cabs. It wasn't long afterward that the New Haven painted the tops of the hoods dark green to hide the "soot."

I've subscribed to *Model Railroader* since 1963 and enjoyed every issue. Keep up the great work.

David Varholý
Mystic, Conn.

Terrific scenery

Congratulations to John M. Johnson on a beautiful scenic trip through Driftwood, Pa. ["A place on the Pennsy, circa 1955" by Paul J. Dolkos, November]. The low hillsides covered in vegetation and trees are terrific. The structures "just fit in" to the scene and are very convincing.

I'm about to attempt my third opus, this time in N, and John's treatment of the hills and trees is giving me some hope of a similar result. Thanks, John.

Geoff Schupp
Duncraig, Australia

Switch motors

Thomas F. Fava's article was clear and concise ["How to install a stall-type

switch motor," December]. I take one further step and solder 6" leads in each of the eight tabs, enlarging the holes slightly to hold 22AWG wire. The end and center wires are black, and red and green wires fill each pair of remaining tabs. The other ends connect to an eight-position terminal block that is fastened underneath the layout and connect to power, frog and lights.

As Tom indicated, drilling the hole for the actuating wire in existing trackage is tricky/difficult, which is why I use a variation of the Anderson/Eschelman linkage to line the turnout. It only needs a 1/8" hole, in any of six positions (four on the sides or two centered), and by varying the lengths of the upper and lower cranks you can accommodate any length of throw required. I form a piece of spring

wire (0.032" or 0.039") between the Tortoise and bottom crank, with a "Z" bend in the center to give some spring action and provide a small positive pressure of the point against the stock rail.

This has worked well for a lot of years.

Roger Thomas
West Windsor, N.J.

Timeless advice

At a recent used book sale, I found *Model Railroad Track and Layout*, 5th ed., by [Kalmbach Media founder] A.C. Kalmbach, for \$1. The book, published in 1951, is a little rough around the edges but in generally great shape. And while some parts and articles are dated, I'm shocked to realize how many things in our hobby haven't changed over the years.

I treasure this find as a part of history, and as a statement of what a great hobby model railroading is.

Milton J. Allemand Jr.
Hahnville, La.

Roseville Roundhouse club

Thank you for running the article on the Roseville Roundhouse Model Railroad Club ["From the Sierras to the Valley," December], written by Ken Kilby, a member of the club.

Sometime after Ken submitted the article, we received news that the lease on our building at the Placer County [Calif.] fairgrounds was being terminated. After some obvious turmoil, we're pleased to announce that we've been given space by a church group near Roseville.

But the design considerations of the layouts in the article (both HO and N) mean they were never intended to be moved, and so after our final show of the year at the International RailFair [Nov. 9-10], the layouts will be cut up, dismantled and disposed of. Two new layouts will be built at our new site. To help fund this unexpected expense, we've set up a GoFundMe account for donations.

Keith Waddell, president
Roseville Roundhouse Model
Railroad Club

Those interested in contributing to the effort are invited to visit the club's website, rosevillerroundhouse.org. – Ed.



2009 contest grand prize winner Ron Foreman

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3. Each entry must include a description of the photo. Describe the train in the picture, what it's doing, and the name, locale, era, and scale of the layout, module, or diorama shown. Include the name of the person who did the model work, the brand names of any equipment shown, and any special modeling techniques used.
4. Digital enhancement of photos is

acceptable. However, over-enhancement of images – such as excessive sharpening or color adjustment, an abundance of digital smoke or steam, or the digital insertion of real-life objects or backgrounds into the photo – will diminish your chances of winning.

5. All entries must be received in our office by close of business on Jan. 31, 2020. Non-winning entries will be returned only if accompanied by a stamped, self-addressed envelope.

6. Published photos become the property of *Model Railroader* magazine. *Model Railroader* may retain any entry for possible future publication in our Trackside Photos department or another part of the magazine, at regular payment rates.

7. Judging will be conducted by the *Model Railroader* staff, which reserves the right to not award all prizes. Winning entries will be published in the July 2020 issue. Kalmach Media Co. employees and their families are not eligible to enter.



It's not always possible to prevent bubbles when pouring water. Brush-on waves can help conceal these blemishes. If one really bothers you, cover it with a boat, floating log, or other similar scenic camouflage. Steven Otte photo

Can I fix a bubble in a cured water feature?

Q I was working on some scenery when I saw bubbles in the Woodland Scenics Realistic Water in my river. It was already cured, and I was wondering if that had ever happened to you, and if you knew how to get rid of them without messing up the river.

Braden Gryskiewicz, Wadsworth, Ohio

A That's a hazard of pouring water features, especially if you use a resin product that requires mixing. We often use the side of a power drill chuck held against the side of the resin cup to vibrate the bubbles out of mixed resin before pouring. The same technique can be used to cause bubbles to rise to the surface after pouring. I'm afraid that once the water is cured, though, there's nothing you can do to get a bubble out. You can camouflage it, though.

Brush-on waves, which you can make with clear silicone caulk or a modeling product like Woodland Scenics Water Effects, can make small bubbles a lot less noticeable. (They can help disguise dust, too.) If a bubble is especially visible and bothers you, you can put some scenery item over it, like a rowboat, a floating log (with the bottom sanded flat), a duck (likewise), or a dot of green paint to represent a lily pad.

Q I'm somewhat new to Digital Command Control and have a couple of questions regarding Peco Electrofrog turnouts. If you don't have a switch machine hooked up and plan to line the turnout manually, what do you do to power the frog? There's one wire coming off the bottom of the frog that I believe should be connected to a switch at some point to power the frog. Or do you not do anything to the turnout and use it as is? I'd eventually

like to use the new Walthers turnout machines, but I'm not sure these will work with the Peco turnouts, as it's a plug-and-play type machine. Would I have to use one like the Tortoise by Circuitron switch motor? Thank you for any advice you can send my way.

Gary Bender, Hampton, Va.

A If you leave the Peco Electrofrog switches as they are, out of the package, the frog is powered by the points con-

tacting the powered stock rails on either side. This is what you'll want to do if you plan to line your turnouts by hand.

The electrical contact can become unreliable, though, especially when the track gets dirty. So you have the option of cutting the jumper wires on the bottom of the turnout to isolate the frog from the points, and power it separately using the wire that comes attached to the frog. Connect that wire to the center contact on a single-pole double-throw (SPDT) switch, then connect the two outer contacts to the feeders that power the stock rails. You can use a simple toggle switch attached to the fascia, but you'll have to remember to flip the switch each time you line the turnout.

Another popular idea is to use a slide switch mounted trackside to line your points and detail it to look like a ground throw. Check out the article "Simple, reliable turnout controls" in the September 2004 issue of *Model Railroader*.

When you convert to under-table switch machines, this process gets a bit easier. Both Walthers Layout Control System switch machines and Tortoise by Circuitron switch motors come with a built-in SPDT switch that toggles when you line the points. Hook up your wires to the appropriate contacts on the switch machine and your frog will be powered properly no matter which way the turnout is lined.

Q In a mixed train, would freight cars usually precede the passenger cars?

Joe Mizell, Little Rock, Ark.

A Mixed trains were used on short routes and branch lines where the level of traffic couldn't justify a separate passenger train. This means that a single passenger car or combine was usually sufficient. Although there were exceptions – the phrase "there's a prototype for everything" comes to mind – the passenger car was usually tacked onto the end of the local freight. One of the reasons for this was to place the passengers as far as possible from the locomotive exhaust. If there was freight switching to do on the way, having the passenger car on the end of the train made it easy to drop it on the main and spare the passengers the jolts of repeated coupling and uncoupling. And putting it

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

on the end of the train also let it take the place of a caboose, giving the conductor and brakeman a place to ride and work.

Q I'm wondering why I often see the scale in HO scale track plans written as 1:87.1. Is it not 1:87?

Peter Witt, Copenhagen, Denmark

A Not exactly. HO scale is 3.5mm on the model to 1 foot on the prototype. Since one of those measurements is metric and the other imperial, the ratio doesn't work out to a nice, round number. It actually comes out to 1:87.08571 ... and on and on. Rather than print all those digits, we round it to one decimal place, 1:87.1, to make it clear that it's not an exact ratio like S scale's 1:64.

Q A few years ago I met Mat Chibbaro at a train show and purchased a copy of his book *Model Railroading in Small Spaces* (Kalmbach Books, 2011). I later built his "Norwest Terminal" switching layout as directed in the book. Now that I'm retired and have more free

time, I've begun to dabble in DCC, adding decoders to a few locomotives and buying a few sound-equipped engines. I also bought an MRC Prodigy system to run the layout. What special considerations do I need to follow when wiring Atlas sectional track and turnouts for DCC? Mat's track and wiring diagram show two sets of leads that would go to a DC power pack. Can I do the same with DCC?

Brian Hagberg, Germantown, Md.

A If you know how to wire the layout for DC, you can wire it the same way for DCC. If anything, DCC wiring is simpler than wiring for direct current, since you don't need separate blocks to run multiple engines simultaneously. As small as that plan is, and having no reversing sections, there should be no problem wiring it as one power district.

Q I have a question about freight car trucks and rolling capability. I have a few identical cars from the same manufacturer, yet some roll great and

the others don't. I've checked the trucks for burrs or bent axles. Any suggestions or ideas?

Bob Devine

A You've already checked a few of the things I would suggest, so the next step is to eliminate other possible sources of friction. First, do the axles fit the trucks properly? The points of the axles should ride in the center of the cones in the sideframes. If the axles are too long for the sideframes, there will be too much pressure on the points of the axles; too short, and the axles will ride on the sides of the cones, not the points. Flex the sideframes to return them to the proper length for the axles or replace the trucks.

Another possibility is that the wheels might be rubbing against the car's center sill or underbody details like brake lines or stirrup steps. Check for obstructions like those.

The next step is to check that the screws holding the trucks on are neither too tight nor too loose. If they're too loose, the wheels might rub against the


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underside of the car when the truck wobbles. If they're too tight, the trucks might not track well around curves, causing internal binding. Ideally, the mounting screw on one truck should be tightened so the truck pivots freely but doesn't wobble. The screw on the other truck should be about a quarter-turn looser, so it can wobble slightly.

For more help, read "How to tune up a freight car" by Cody Grivno in our January 2018 issue. Good luck.

Q In your Track Plan Database, I found a layout that would perfectly fit my train room. It's the "Ma & Pa Pennsylvania Division." When was that layout featured in your magazine? I want to purchase that back issue.

Neil Bennett, Aspen, Colo.

A The article "Modeling the Ma & Pa" was in the December 2005 MR. If that back issue is no longer in stock, you can read it (and more than 1,000 other issues) by subscribing to our Archive at modelrailroader.com/archive. **MR**

READER TIP



The 27" deep shelf portion of Jim Jansen's layout is protected from dust by a box cover that hinges up to form the backdrop. Jim Jansen photo

From dust cover to backdrop

The **switching portion** of my layout is protected by a hard box cover that's hinged. When closed, it protects the layout and provides a work surface. When open, it forms the backdrop, with sky, clouds, hills, and trees painted on it. This portion of the layout is about 10 feet long by 27 inches deep. Now I'm looking for good ideas to cover the other side of the layout, where a box cover can't be used. – Jim Jansen



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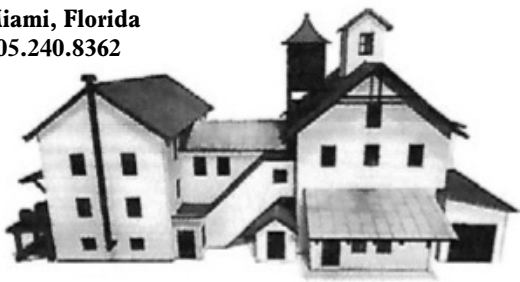
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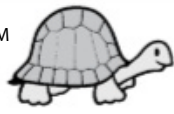
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'The completely revolutionary new C-D scale and gauge'

In 1937, Ed Packard of Cleveland Model & Supply Co. Inc., manufacturer of flying airplane models, introduced $\frac{3}{16}$ " to the foot, 1:64 scale, $\frac{7}{8}$ " gauge, C-D (Cleveland-Designed) Gauge, with a two-page advertisement in the April issue of *The Model Railroader*.

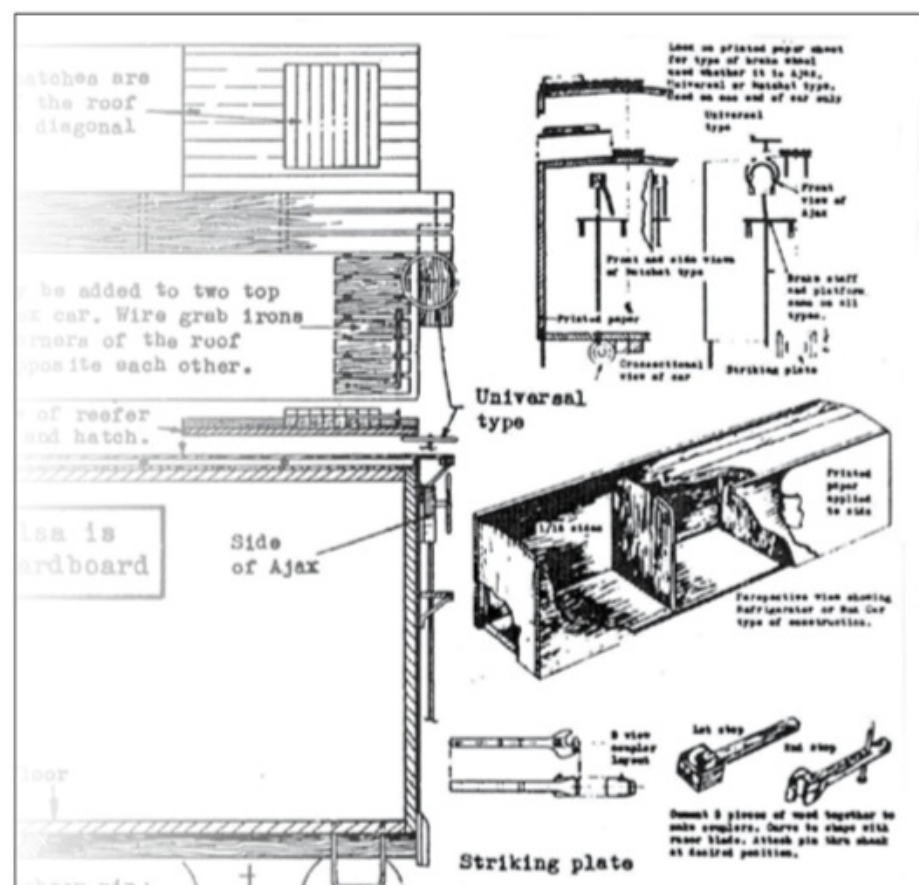
Initially offered as what were called Rep kits, the models were representational, meant to fill a yard as scenery. They were sold as "dry kits" without glue or paint. The model locomotives and cars were paper – not embossed card – on balsa wood.

The Rep kits line included a Chicago, Milwaukee, St. Paul & Pacific (Milwaukee Road) *Hiawatha* and tender for 95 cents; a coach, express car and Beaver-Tail observation at 75

cents each; and freight cars at 24 and 45 cents each. A balsa Chesapeake & Ohio 4-6-2 Pacific and Pennsylvania RR 0-6-0 switcher were 85 cents and 65 cent each.

Freight cars used Varney's HO scale artwork enlarged to 1:64 scale. With detail parts printed on thin balsa sheets, care had to be taken to cut out drivers and truck frames, and shape couplers and the other details required to replicate locomotives and cars.

Operating models were introduced in December 1937 and included locomotives made of stable pine – a finer grade of wood used by woodworkers – with metal frames, motors, and moving parts. Called the C-D Super RR Line, rolling stock received metal couplers, trucks and two-rail insulated wheels.



The instruction sheet for a Cleveland Model & Supply Co. Inc. boxcar includes the method for forming the coupler from laminated balsa, then carving it to shape. Trucks were also made from balsa.



This C-D gauge Rock Island boxcar is a balsa model wrapped in printed paper. Intended to be used as scenery when first released in 1937, upgrades offered later included metal trucks and couplers to create operating models.

Packard felt a mid-size gauge was needed between O at 1:48 scale and HO at 1:87. OO gauge 1:76 scale was too near in size to HO. [See Heritage Fleet, December 2017 –Ed.] Packard called 1:64 the only truly American scale and gauge. Not quite.

The British had been modeling 1:64 in the 1910s as H-1, or Half Gauge 1, which is 1:32 scale, and Märklin previewed a beautiful 1:64 scale locomotive, goods wagons, and coaches in 1932, but they never saw production.

A.C. Gilbert bought American Flyer in 1938, and planning to modernize the line, opted for 1:64 scale O gauge as the direction he wanted to go. Representatives from Gilbert had met with Packard to review his line and returned with information to make changes in time for introduction of Gilbert's 1939 catalog.

As Packard's C-D Gauge influenced American Flyer, so in turn did Flyer influence Cleveland's advertising, which promoted its lower costs as the best means to convert Flyer's

trains by replacing trucks and couplers to make the O gauge models accurately run on correctly gauged track.

Whatever Packard's hopes, C-D arrived late in the Depression and lacked support from other manufacturers. The National Model Railroad Association adopted C-D in 1943 as 1:64 S scale. A 1949 *Model Railroader* survey indicated it jumped from .7 percent of the hobby in 1941 to 7.6 percent in 1948 after American Flyer changed in 1946 from 1:64 three-rail O gauge to two-rail S gauge.

A 1950 all-scales catalogue listed Midgauge (appropriate) Stinson, S. Pikes (formerly C-D), and Dayton Model producing steam and diesel locomotives. Freight cars saw

production from the above, including Strafford, Northeastern and S. Pikes; passenger cars, from the above plus Super Scale. For any to have survived, American Flyer played an important role, as scale modelers and tinplate enthusiasts were dependent upon each other. MR





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How to model embedded rails

Whether its a lone streetcar, four- or six-axle road units hauling a couple of cars to a local industry, or commuter trains moving passengers, people enjoy watching full-size trains navigate rails embedded in concrete or asphalt. But when it comes time to re-create that on a model railroad, the enthusiasm often fades.

Styrene sheet and strip (April 2008 *Model Railroader*, pages 36-38), Woodland Scenics Smooth-It (Feb. 2018 MR, pages 42-44), posterboard (Nov. 2000 MR, pages 78-83), air-dry clay (see the Winston-Salem Southbound project on Model Railroader Video Plus), and even

commercial offerings, such as Walther's street track inserts (no. 933-3140), are a few solutions modelers have at their disposal for modeling embedded rails. While working on my HO scale Christmas layout, I found that craft foam sheets made it easier than ever to simulate embedded rails.

Foam sheets are sold in various sizes, colors, and thicknesses at craft stores and even some big-box retailers. I like the foam because it's easy to cut and it takes paint well. The material can be secured to a model railroad with white glue or foam-safe construction adhesive (DAP Dynaflex 230 and Liquid Nails Projects are two examples).

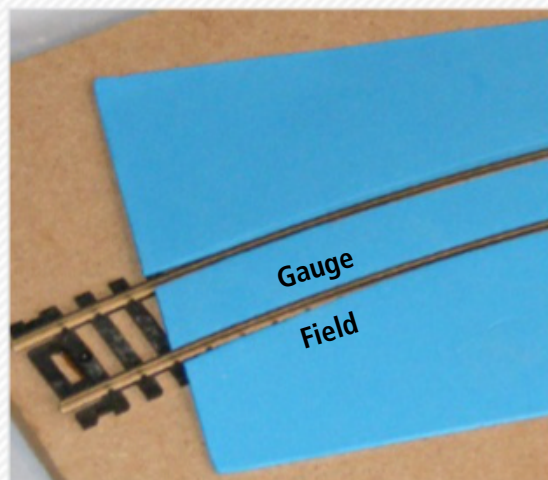
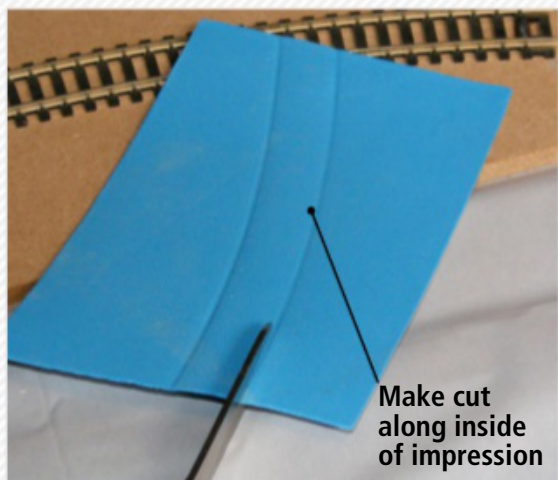
Though I used craft foam to re-create street running, you could also use the sheet material to model rails cutting through an industrial lot or tracks embedded in asphalt or concrete at a terminal.

The foam is easy to find, and you most likely have the tools, paint, and adhesive on hand to add embedded rails to your layout. Give this technique a try.

Mike Roselle lives in Canandaigua, N.Y. This is his first byline in Model Railroader.



STEP 1 MAKING AN IMPRESSION



I put a piece of track on a scrap of tempered hardboard to demonstrate my techniques. First, I set a sheet of plain or self-adhesive craft foam on the track. Then, using a scissor handle (or any other tool that won't tear the foam), I pressed down firmly on the sheet over the length of the rails. I used scissors to cut the foam along the inside of the impressions.

I wound up with three pieces of foam – one for the gauge and two for the field. I test fit the piece for the gauge to check flangeway clearance. The field pieces should fit snugly against the outside of the rail.

STEP 2 TIME FOR PAINT

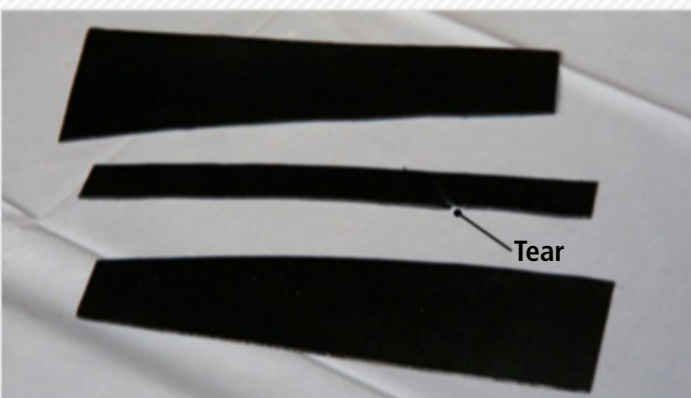
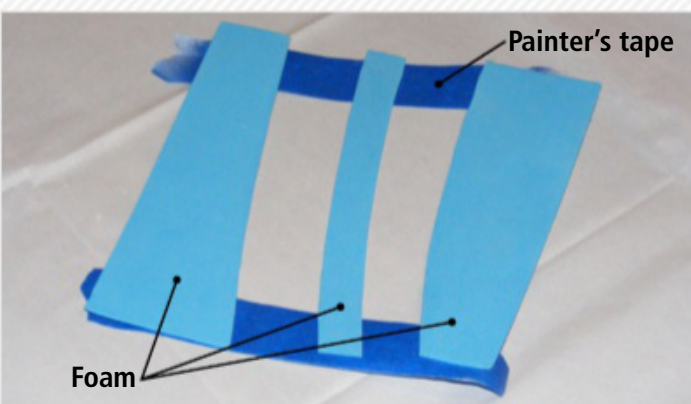
With the final adjustments made to the foam, I was ready to begin painting. To prevent the foam from moving around while the spraypaint was being applied, I attached it to loops of blue low-tack painter's tape [Removable mounting putty, sometimes called poster tack or poster putty, would be another option for holding the foam in place for painting – Ed.]

I spray-painted the foam with flat black enamel to simulate asphalt (dark gray is a reasonable match for concrete). Do all painting in a well-ventilated area and wear proper personal protective equipment. Once the paint dried, I carefully removed the masking tape. As you can see in the bottom image, I tore the foam strip for the gauge.



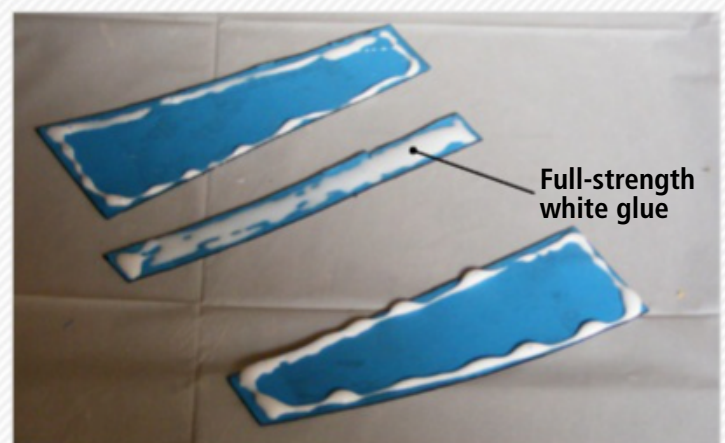
An Amtrak California train rolls through Oakland's Jack London Square in this prototype photo taken on March 11, 2008. Mike Roselle shares an easy way to model embedded rails with craft foam. Thomas Danneman photo

STEP 3 EASY INSTALLATION



Finally, it was time to install the foam. I applied full-strength white glue to the bottom of the foam, whether or not it had self-adhesive backing. Foam-safe construction adhesive, spread into a thin coat with a putty knife, could also be used. Add books or weights to hold the foam in place while the construction adhesive dries.

You can see what the foam looks like after it's been installed in the bottom image. Hopefully, this quick and easy technique will encourage you to add some embedded rails to your layout. **MR**



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Resurrected Gorre & Daphetid no. 10 pulls a train on Kenichi Matsumoto's Denver & Green River Northern RR HO layout in Japan. Charlie Getz, past president of the National Model Railroad Association, commissioned Kenichi to cosmetically restore several of John Allen's locomotives. Kenichi took things a step beyond.



Miracle in **MONTEREY:** The restoration of G-D Line no. 10

Rumors of a missing stash of John Allen's
HO scale locomotives turn out to be true

By Charlie Getz • Photos by Kenichi Matsumoto



For many, especially long-time readers of *Model Railroader*, the name John Allen doesn't need an introduction. Considered by some as the greatest model railroader of all time and called "The Wizard of Monterey," John, through his seminal model railroad the Gorre & Daphetid, was innovative, inspiring, and ahead of his time.

Over the years, MR has published many articles from and about John Allen, including one on the philosophy and planning of the Gorre & Daphetid (pronounced "gory and defeated"), featured in the March 1963 issue.

John's untimely death in 1973 and the tragic destruction of his model railroad by fire a few days later came as a shock to those who admired what he had accomplished.

Almost a decade earlier, as a 16-year-old brand-new modeler, I was fortunate to meet John at his home in Monterey, Calif., and see that fabled model railroad in person. John was most gracious, and the visit left a lasting positive impression, confirming that this hobby was a worthy lifetime endeavor.

The Gorre & Daphetid was the first model railroad I visited. I don't recall the second, but it must have been a severe disappointment in comparison.



Kenichi started by disassembling the burned locomotive and assessing the damage.



The vintage open-frame motor was beyond repair, but Kenichi was able to locate a duplicate of the original.



The original headlight bulb was still in the casting on the front of the boiler.



Even the wire to the headlight with its resistor survived the fire. The discoloration on the inside of the boiler hints at the extent of the damage.

Marking John's contributions

When planning *The Magic of Scale Model Railroading*, the National Model Railroad Association (NMRA) exhibit at the California State Railroad Museum in Sacramento, we recognized the need to acknowledge John's many contributions in some way. The exhibit isn't aimed at model railroaders as much as the general public, and serves as an introduction to our fascinating hobby. Thus, any tribute to John would have to be subtle, as it would mean little to the majority of the more than 600,000 annual visitors expected to view the exhibit.

For example, visitors will see the original Timesaver, singed in the fire but saved, in the section of the exhibit highlighting operations. This switching game was described in the November 1972 issue of *Model Railroader* and was a favorite of John's.

We were also given business cards for the Great Poobah (John's title bestowed by his operators; his friend Jim Findley was known as the Apprentice Poobah) and a lovely John Allen-built car that once graced the Pacific Fast Mail office layout. But we found little else that survived the fire. It was widely known that the only surviving locomotive was number 34, on display for decades at the offices of *Model Railroader*.

Missing satchel, found

For many years, the internet sites dedicated to the memory of John and the Gorre & Daphetid mentioned the existence of a missing "satchel of burned locomotives" from the G-D Line.

According to the story, the neighbor who bought John's Monterey home after the fire salvaged parts of the railroad and placed 22 severely burned locomotives in an old satchel, with intentions of donating them to the Pacific Coast Region (PCR) of the NMRA, John's home region. John was a very active NMRA member and indeed, the Timesaver was donated after his death and used by the PCR for decades for its switching contest.

The rumors were true. A satchel of burned locomotives was given to Bob Dupont when he visited John's former home shortly after the fire to see what could be salvaged. Bob would later become NMRA president in 1986 and serve until 1990. Not knowing what to do with the satchel, Bob placed it in his attic where it sat for decades until being rediscovered after his death, then passed on to PCR member Rod Smith.



Kenichi created a new insulating driver rim from styrene. The original plastic had melted away.

A few years ago, Rod contacted me as the then-current NMRA president, and I immediately accepted them. No longer in a satchel, some 15 of the burned locomotives had been placed in a box and most were in pretty sad shape.

I haven't included a photo, as it's far too depressing. In one case, the damage was so severe that the lead

weight had melted out of the boiler and formed a new base for the locomotive. Most were blackened, almost unrecognizable lumps.

A very few, though burned, appeared salvageable for the exhibit. It occurred to me that having a cosmetically restored genuine G-D Line engine would be a coup. I immediately thought of my friend Kenichi Matsumoto for the job.



Much of the work involved cleaning. Kenichi shows CRC 5-56, which is a lubricating product similar to WD-40.

A little history

John Allen

While many longtime model railroaders are familiar with John's name and his Gorre & Daphetid layout, it's been 47 years since he died.

John was a professional photographer whose hobby was model railroading. He combined the two in a series of advertising photos he produced for Varney, a leading manufacturer through most of the 1950s and into the '60s. John took many of the photos on an early version of his layout built in his first home.

Between the ads and features in *Model Railroader* and other hobby magazines, John and his layout quickly gained fame in the '50s and '60s. In addition to his photography, John was well-known for operating his layouts in a prototypical manner.

Andy Sperandio, a former MR editor, was stationed in California while in the Army, and joined John's operating sessions on the final G-D Line.

After John died of a heart attack on Jan. 6, 1973, at age 61, then-MR editor Linn Westcott published a 10-page remembrance in the April 1973 issue.



Charlie Getz

Charlie is a former president of the National Model Railroad Association (NMRA). He was born in Japan while his father was stationed there. Charlie had a 40-year career in environmental law in California.

Charlie has held many positions in the NMRA and with the Pacific Coast Region. He models in narrow gauge in both HO and O scales.

Pacific Fast Mail

Pacific Fast Mail (PFM) was an importer of brass models, primarily locomotives, from builders in Japan. Longtime MR readers likely recall the back cover ads that ran in the magazine for more than 20 years from the mid-1960s to the mid-1980s.

Pacific Fast Mail was formed by Bill Ryan in 1953 and coincidentally first sold slide sets of John Allen's G-D Line. The company quickly became the premier importer of brass locomotives, initially from Japan and much later Korea.

For some years, John Allen took photos for PFM and apparently was "paid" in part with brass engines.
— Eric White



With the drivers reassembled, Kenichi could finish the frame.



He replaced missing parts such as handrails ...



... and the bell pull.



Finally, Kenichi refinished the locomotive to match photos.

Resurrected from the ashes

Kenichi is an avid John Allen fan and an expert in working with brass locomotives. A former editor of *Train*, Japan's largest model railroad magazine, Kenichi credits John with inspiring him to become a model railroader back in the 1950s. For years he has been laboriously re-creating a few of John's locomotives using the same source material.

As explained in the book *Model Railroading with John Allen* by Linn Westcott (out of print), John created many of his engines from modified domestic kits or brass imports.

Kenichi, through photo interpretation and research, determined the origins of each locomotive, the modifications made by John, and even the detail castings applied. Kenichi then re-created those locomotives brilliantly, even perfectly reproducing the weathering used by John. The pictures of his reproductions on his lovely home layout are inspiring.

Kenichi readily agreed to the challenge of cosmetically restoring one or more of John's locomotives, and I selected the three least-damaged

examples. Coincidentally they were in numeric sequence: nos. 8, 9 and 10. Number 8 was named the *Sergeant Ennis* and was a Mantua Belle of the Eighties 4-4-0 with tender built by John from a kit in 1947. Numbers 9 and 10 were 0-4-0Ts.

Number 9, John's first engine from 1946, started as a Varney Dockside kit. It was detailed by John in 1950, and originally used at Port, a large city scene that greeted visitors to John's layout. Number 9 was also in the photo that motivated Kenichi to become a model railroader, so he was especially thrilled to see that engine, even in its blackened state.

Number 10 was a Pacific Fast Mail (PFM) import made by Japanese manufacturer Sakura, a fabricator of die-cast metal gearboxes for Tenshodo, among others. Sakura, also known as Nikko Models in Japan, made a die-cast metal copy of the Varney Dockside when that model was no longer available, only with a larger cab. Pacific Fast Mail imported the engine and John used his as a switcher.

A visit reveals the miracle

I sent the engines to Kenichi in Tokyo in May 2018. When my wife, Margaret, and I were in Tokyo in October 2018, we visited Kenichi. After touring Kenichi's impressive brass collection and his outstanding Denver & Green River Northern RR home layout, he proudly showed us a fully restored G-D Line no. 10 that exceeded my expectations. Beautifully painted, lettered, and weathered, it matched every photo I'd ever seen, down to the Weston engineer in the cab.

To my utter astonishment, Kenichi placed it on a track and proceeded to run the engine as smoothly as it must have operated on the G-D Line. To my delight, even the original headlight bulb worked. The train in the photo includes a pair of Varney ore cars, and a caboose Kenichi built to replicate one of John's from a Keystone Locomotive Works kit.

This apparent miracle was the result of both Kenichi's skill and his dedication to the memory of John Allen. As the

MORE ON THE WEB

Registered users can download a PDF of Linn Westcott's memorial article on John Allen at ModelRailroader.com



With the paint dry, Kenichi assembled the locomotive and took it to his layout for a test run.

photos demonstrate, Kenichi first completely disassembled the burnt and blackened engine.

Fortunately, the major components had survived the intense heat and were neither melted nor distorted. He did have to fashion new handrails, a bell rope, and some details that had been damaged or come apart. He laboriously cleaned all of the parts and lovingly reassembled them, replacing parts where needed.

At some point, Kenichi decided to go beyond what was requested and make the engine come to life. He found a duplicate of the motor Sakura had used and replaced the destroyed part. That he did so speaks volumes about his dedication to the memory of a modeler who inspired so many around the world.

The work continues

Kenichi has since restored no. 9, his favorite engine that he had earlier replicated, and is working on no. 8, apparently a far more difficult challenge. I have little doubt no. 8 will soon join no. 10 on display at the NMRA exhibit in Sacramento.

As for no. 9, at my request, the NMRA board decided to give Kenichi this engine

since he would accept no compensation for his work. After all, these engines started the process as lumps of carbon with nothing but sentimental value.

But for Kenichi's skill, they would have remained little but sad curiosities. I like to think John would have approved. Now the Wizard of Monterey can be celebrated with the public display of just a

few of the pieces that helped earn him the title.

My thanks to Kenichi for his consummate skill, but also to John, who both inspired a 16-year-old kid so many years ago and convinced a fellow in Japan to become a model railroader. Truly this hobby is worldwide and a bit of a miracle in its own right. [MR](#)



Kenichi Matsumoto hosted Charlie Getz and Charlie's wife, Margaret, at his home in Japan in October 2018. Kenichi's Denver & Green River Northern RR fills a 42'-6" x 22'-6" space.



Building WINGATE in O scale

PART 2: Constructing the layout while keeping weight and complexity under control

By **Tony Koester** Model photos by the author



Four-foot-long fascia sections painted "CTC Machine Green" are made from 1/8" hardboard attached to the angles with no. 8 sheet-metal screws. They overlap each section to ensure correct vertical and horizontal alignment of sections and slip over 30"-wide folding-leg tables.

The Wingate series

January: Choosing a prototype and developing a plan for a one-town railroad

February: Using foam board benchwork, handlaying track, and wiring for DCC

March: Adding structures, scenery, and rolling stock

April: Maximizing the operational play value of a compact model railroad

Wingate is a 1/4"-scale railroad. It also happens to have the rails spaced at the prototypically correct 4'-8 1/2". The rails in almost all other scales are also spaced at that distance, but not O scale. I chose to correct this minor error, as I'll discuss shortly, but please feel free to ignore the slight gauge difference or even build Wingate in another scale or gauge. After all, the rails through the prototype location were originally 3-foot gauge.

Most of those who model to Proto:48 standards – that is, essentially to prototype specifications – dive into the deep end of the pool in all respects. The Wingate project marches to the tune of a slightly different drummer. Although it's not mandatory that the layout be built to be portable, that was one of my main goals. That meant it had to be compact, lightweight, and rugged. So delicate details that wouldn't survive frequent handling – telephone and power lines, for instance – were ruled out. It was also built against magazine deadlines.

Building it in lightweight sections does have some advantages. I can tote it to shows or conventions; I can set it up in our enclosed porch for operation and store it when it's not in use; I can move it, should a relocation ever be needed; and it will be easy to transport to the new owner's home if I decide to sell it.

One other attribute crossed my mind. Let's assume I decide to dismantle the HO railroad gracing my basement. After the basement is renovated as living and storage space, I could set up folding-leg tables and enjoy this O scale railroad for years to come. Expanding it with more 4-foot sections and later removing them would be a breeze in comparison to dismantling my built-in layout.

Correct gauge vs. fine scale

I assume most modelers following my example will use Atlas O or Micro Engineering 5-foot-gauge flextrack and Atlas O turnouts. But even mentioning Proto:48 (P:48) modeling leads to the assumption that everything is done to fine-scale standards.

This is all rooted in the fact that long ago, when scales and gauges were numbered – 0, 1, 2, etc. – "Naught scale" wound up with a small gauge error. Rather than spacing the rails the correct scale 4'-8 1/2" apart, it was rounded off to 1 1/4", or 5 scale feet.

The Proto:48 modelers thought, as long as one was correcting the gauge by 3 1/2 scale inches, why not go the extra mile and model everything else as accurately as possible, as well? Not only gauge, but also everything from wheel profile to grab iron diameter?

My goal is a bit short of that high mark. I wanted to correct the gauge error, and it made sense to then adopt fine-scale wheel profiles. I also wanted to use scale-size rail – codes 100 and 125 for the Nickel Plate Road (NKP)'s St. Louis Division.

Beyond that, though, my main objective was to build a portable, operating layout in a reasonably short period. So you'll notice details that aren't quite as fine or accurate as they might be. The scratchbuilt depot, for example, is a few scale feet short because of the width (12", or 48 scale feet) of the molded-plastic shingle sheet that was available.

Such things can be corrected later if they start to bug me or the railroad acquires a permanent home. Meanwhile, I have a solidly built, operating railroad with reasonably accurate models on and alongside the tracks. Maybe it should be called SortaProto:48 modeling.

Eliminating benchwork

By limiting the width to that of the typical folding-leg table, 30", I could use standard 2"-thick, 8-foot-long foam board panels. Or so I thought; the 30"-wide ones I bought years ago for a 1:29-proportion project were no longer locally available. So I bought four sheets of 4 x 8-foot foam board. I cut them into 30" by 48" panels to fit in my wife's small SUV. These four were used for the four scenicked sections. The remaining 18" wide panels were used for staging yards.

To protect the edges, I purchased 1/16" thick 2" aluminum angles and bonded them to the sides and bottom of the long side of each section using foam-safe



Each 30" x 48" layout section of Tony's portable Proto:48 one-town railroad is light and small enough to be carried and to fit in the back of a small SUV. Structures, trees, and backdrop sections are removable.

construction adhesive. The angles come in 8-foot lengths, and I had them cut into 4-foot lengths.

To attach the 1/8" x 6" x 48" hardboard fascias, which also align the layout sections on the tables, I drilled 1/8" holes into the fascia panels on roughly 12" centers. I used those holes to serve as a template to drill 3/32" holes through the aluminum angles. I then inserted no. 8 x 1/2" self-tapping sheet-metal screws. Should they ever strip the threads in the thin angles, I'll simply insert no. 10 or 12 screws.

When the layout sections are being set up, the 4-foot fascia sections are staggered so as to have 2 feet of each one (except the end pieces) on each section to hold them together and in alignment when the sheet-metal screws are inserted. This precludes the need to have mechanical fasteners (rail joiners) to align track sections at the joints between benchwork sections.

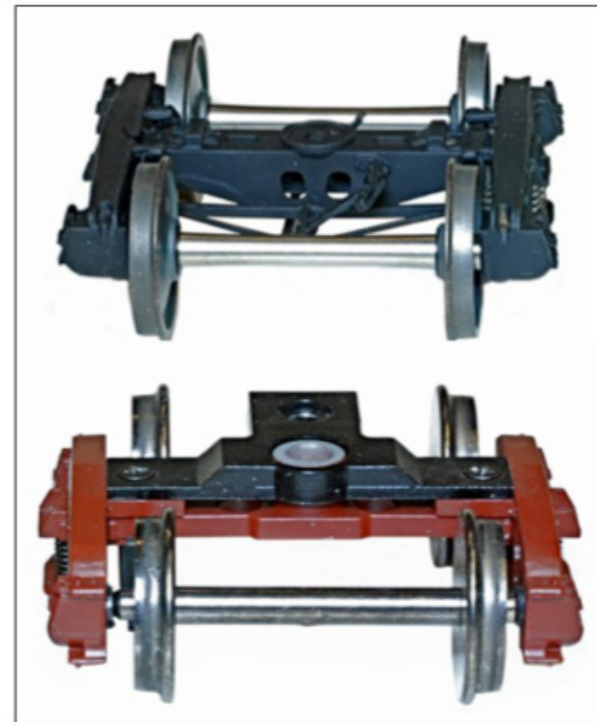
Marking the track centerlines

One of the huge advantages of modeling an actual location is that you know exactly what track was there, and often what it was used for. At Wingate, there was a main line, the west end of a long passing track, a couple of elevator tracks, a track serving a coal bin, and one that once served a small stockyard and maybe a poultry shipper.

At the east end of town, that added up to four parallel tracks. Using the prototype's typical 13-foot track spacing, that meant I needed 3 x 13 feet, or 39 scale feet, plus another 8'-6" to account for tie width – 47'-6" in total. In 1/4" scale, that used about a foot of the available 30" width. By locating the track nearest to the front fascia (the South Elevator Track) 4" from the edge, that put the main track a comfortable 7 1/4" from harm's way. The elevators on the South Elevator Track could be represented by flats. So far, so good.

I taped together sheets of graph paper and drew the plan to the scale of 1/8" to the inch, or 1 1/2" per foot. After eliminating the Stock Track due to lack of space and making some adjustments to keep turnouts away from the section joints, I had a visually and operationally plausible version of Wingate – the very definition of a Layout Design Element (LDE).

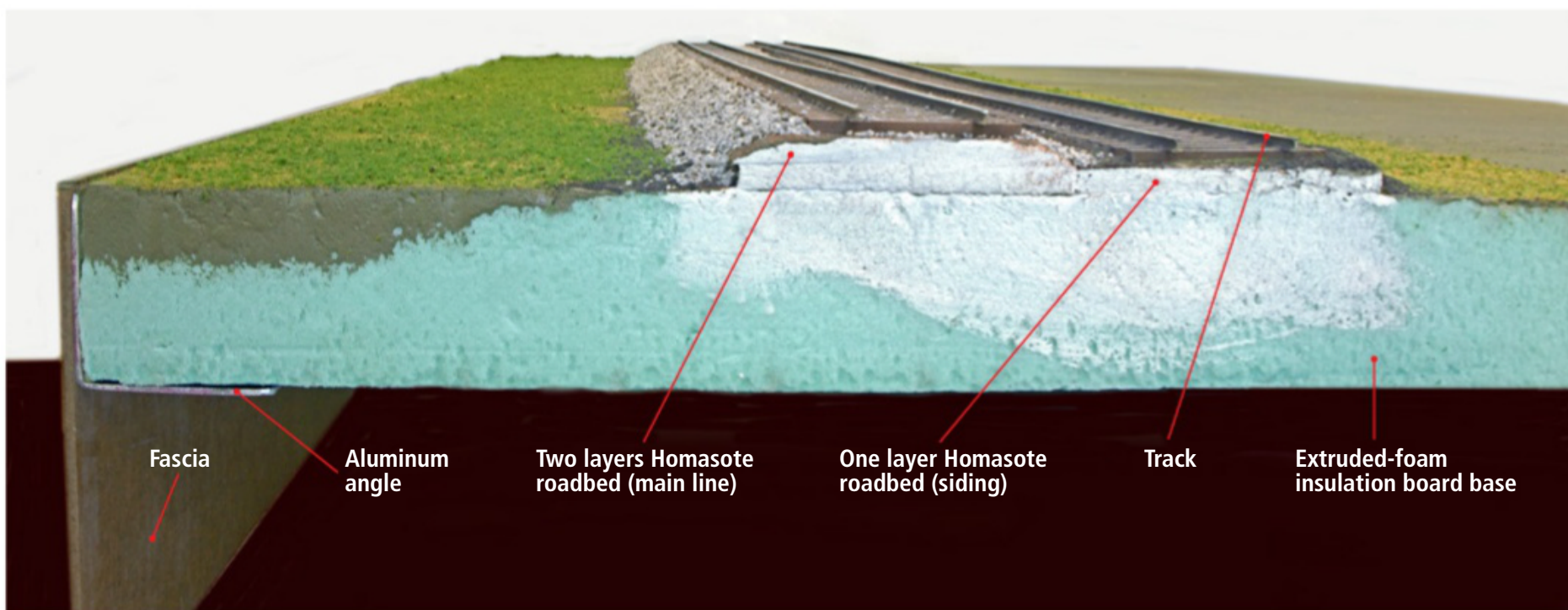
I bought a 50-foot roll of 30"-wide paper at an office-supply store and transferred the drawing to it. As a work surface, I bought two 6-foot tables and set them up on our enclosed porch. The total layout length, with 4 feet of staging at the east (right) end and 8 feet at the west end, is 24 feet, but it can be operated with only 4 feet of west-end staging.



A comparison of the profile of Proto:48 (top) and standard O gauge RP-25 wheels shows the appearance gains offered by prototype-based fine-scale standards. The sideframe spacing is also narrower.

I started by drawing four parallel lines 13 scale feet apart, with the first line 4" from the fascia. Locating the turnouts so they didn't straddle a joint was critical, and I wanted the runaround to accommodate two 40-foot cars. I also wanted to use no. 7 and 8 turnouts, partly to be sure that those using Atlas O's no. 7 1/2 turnouts wouldn't encounter an impossible alignment task.

The only practical way to lay out the runaround was to spot a pair of 40-foot boxcars on the pencil-drawn main line and use other boxcars to check clearances during a runaround. I had to adjust turnout locations several times to allow sufficient clearance while ensuring no turnout bridged a section gap.



Each layout section is made from 2" foam board. The front and rear edges are protected with 1/16" x 2" aluminum angles into which the fascia sections are screwed. Two layers of milled Homasote from Cascade Rail Supply make up the roadbed.

Handlaying turnouts

Describing how to handlay a turnout would require a separate article, which I wrote years ago (see the December 1989 MR, reprinted in *Trackwork and Lineside Detail for Your Model Railroad*, Kalmbach Books, 2000). Briefly recapping, the process began by drawing centerlines to locate the turnout ties. I made copies of American Railway Engineering Association (AREA) plans and glued them to the foam base, then used yellow wood glue to fasten the ties to the template. I sanded the ties smooth and stained them using thinned Minwax Ebony. I located the frog using the AREA template and spiked it down. I checked its location by positioning the straight and curved stock rails using a Proto:48 track gauge.

The diverging-route stock rail should be straight as it passes the frog, as the frog itself has no curved route (there are no right- or left-hand frogs in common U.S. usage). Note that the diverging stock rail has a slight kink where the point contacts it, thus protecting that critical point from being contacted by onrushing flanged wheels. With the stock rails spiked down, it was easy to locate the closure rails between the point castings and frog. Each closure rail was soldered to its point and connected to the same bus as its adjacent stock rail to preclude any possibility of a short circuit.

I left a gap at the ends of all four rails of the frog to electrically isolate it from the other rails. The gap was filled with strips of Plastruct gray ABS plastic dipped in cyanoacrylate adhesive (CA) and, when dry, cut and filed to shape. The frog can be left dead if your locomotives will pass over it without hesitation, or it can be powered by switch motor contacts, double-pole double-throw (DPDT) switches on the control panel, or an automatic circuit like the Tam Valley Frog Juicer.

The switch points are lined using HLS-200 high (main) and TRS-102 low (siding) switch stands from All Aboard Trains (all-aboard-trains.com). – Tony Koester



After the track centerlines were drawn, Tony used boxcars to ensure the runaround track created by adding a no. 8 crossover was long enough to accommodate a pair of 40-foot cars while still avoiding having any turnout straddle a section joint.

Homasote roadbed

I bought milled Homasote roadbed from Cascade Rail Supply (cascaderailsupply.com). It offers $\frac{1}{4}$ " and $\frac{3}{8}$ " thick roadbed with square shoulders or a 30-degree bevel.

I first used foam-safe adhesive caulk to bond $\frac{1}{4}$ " unbeveled roadbed on both sides of all mainline centerlines and beveled $\frac{1}{4}$ " roadbed for the sidings. Then I used yellow carpenter's glue to apply a second layer of $\frac{1}{4}$ " beveled roadbed along the main track centerline. This raised the sidings a scale foot above the terrain and the "high iron" by two scale feet.

To create the transition between the ballasted main line and the unballasted sidings, I glued an 18" long layer of beveled-edge roadbed on the diverging side of each mainline turnout. I tapered it down to the siding level with a Stanley Surform rasp and a block sander. I then sanded the top surfaces smooth.

I sealed the Homasote roadbed with Kilz, a primer, paint, and sealant in one. This was probably overkill, but the railroad will be exposed to a variety of temperature and humidity conditions.

Track and turnouts

The NKP's St. Louis line through Wingate, Ind., wasn't a heavy hauler that required 132-pounds-per-yard rail, which would be code 148 (.148" high) in O scale. Even code 138 rail, representing 115-lb. prototype rail, would be a bit heavy. I opted for code 125 rail (approximating 100-lb. rail in O scale) for the main and code 100 (75-lb.) rail for the sidings. This relatively light rail would

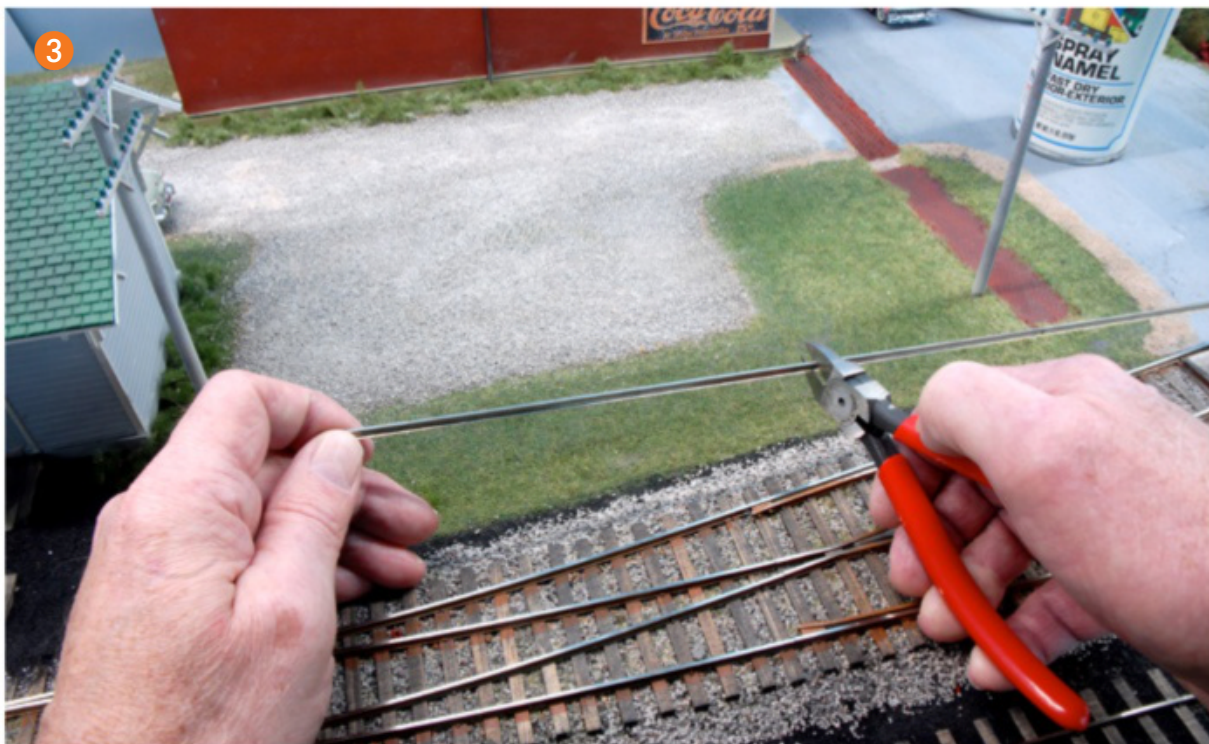
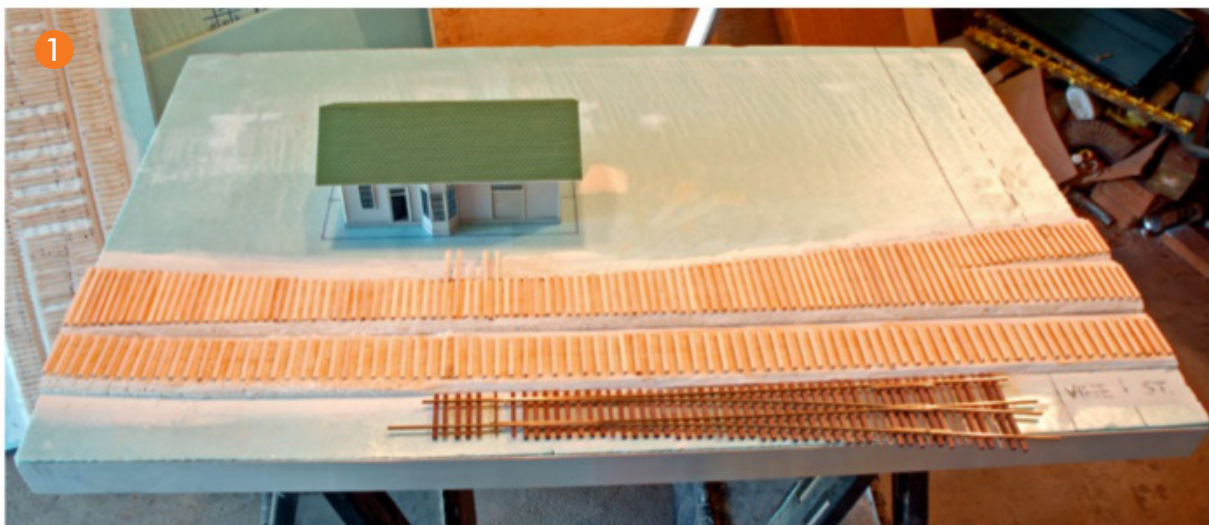
reinforce the more delicate looks of the scale-width P:48 wheels and flanges that I planned to use.

Since building this one-town layout was an experiment to see for myself what O scale has to offer, I used as many different sources for track components as was practical. For example, I purchased two custom-built code 125 no. 8 turnouts and a no. 8 crossover from Bill McConnell of O Scale Turnouts (oscaleturnouts.com). The company offers turnouts and crossovers in both Proto:48 and O gauge two-rail.

The track plan is drawn with no. 7 and 8 turnouts. However, I'm sure most of you who are contemplating the construction of a similar one-town layout in $\frac{1}{4}$ " scale will use either "standard" 5-foot-gauge O two-rail or three-rail track components.

Atlas O offers no. 7½ turnouts in both two- and three-rail. With a bit of adjusting, they should drop right into this track plan. They also offer space-saving no. 5 turnouts. No. 5s are a bit sharp for a crossover but will work for low-speed switching purposes. As in any scale using commercial turnouts, creating the crossover will require some work to cut and fit adjoining ties on the two right-hand turnouts. Refer to a drawing of a prototype crossover for guidance, mark the tie cuts with a white pencil, and check your work at frequent intervals.

I bought packages of standard 8'-6" ties and turnout ties from Right-O'-Way Models (right-o-way.us). Several modelers recommended using Walthers no. 948-360 code 70/83 spikes for both code 100 and 125 rail, which turned out to be excellent advice.



1 The two turnouts in front of the depot were patterned after a custom-built no. 8 turnout from O Scale Turnouts (foreground) and are close together to allow fitting both on one layout section. **2** Black “art sand” formed the shoulders of the mainline track and served as ballast for sidings. A foam brush moved sideways spread it and, later, the rock ballast for the main line smoothly. **3** A heavy-duty rail cutter from HobbyAdvisors makes quick work of the heavier rail sizes typical of O scale. **4** The sand and ballast were soaked using 70 percent isopropyl alcohol, and thinned white glue was then dribbled in. As the glue dried, Tony wiped it and any stray particles off the tops of ties.

With OST’s turnouts on hand, I felt more comfortable handlaying the remaining turnouts using code 125 rail furnished by fellow NKP modeler Jim Canter. (See “Handlaying turnouts” on page 55.) Jim sells 9"-long strips of molded plastic ties into which code 125 rail slips at the proper P:48 gauge. Eight strips (6 feet) cost \$21 (1203 Rotherham Lane, Beech Grove, IN 46107).

I used code 100 weathered rail from Micro Engineering in the sidings. I shimmed it up to meet the code 125 rail with .020" styrene “tie plates.”

Fine-scale castings for the frogs, points, and guard rails came from John Pautz of American Switch & Signal. The points simply slip onto the closure rails. John recently sold his line to Jay Criswell of Right-O'-Way.

I used silver-bearing solder to join a length of Clover House (cloverhouse.com) printed-circuit (PC) board tie material to the tabs on the points as a switch rod. The points must be insulated

from each other, so I filed two gaps on the copper top surface. I also drilled a hole in the outer end to connect to illuminated high (HLS-200 for the main track) and low (Adlake TAS-100 or Racor Model 22 TRS-102 for sidings) switch stands from Larry Stanley at All Aboard Trains (all-aboard-trains.com). I plan to add the NKP’s distinctive white and red sheet-metal “targets” to the high-level stands.

Many railroads had their own specifications for turnouts. Again, I followed Bill McConnell’s practice by using American Railway Engineering Association (AREA) standards. That group’s specs call for a slightly shorter overall lead, and hence turnout length, than the equivalent Nickel Plate Road turnout specs, which was a bonus on this compact layout. It allowed Bill to use no. 8s rather than 7s in the crossover he made

for me. He has offered to supply copies of AREA turnout templates (email wcm@oscaleturnouts.com). The National Model Railroad Association also has spec sheets for turnouts at nmra.org.

The crossover had to be located and sized to fit within the 48" length of one layout section. I adjusted the crossover’s east-west alignment using a full-size template OST supplied during the final design stage.

For the staging tracks, I used code 125 Proto:48 flextrack from Right-O'-Way. They also offer standard O gauge nickel-silver flex track in codes 100, 125, and 148.

Since the OST turnouts didn’t include tie plates, I didn’t use them on the hand-laid track. I plan to make fac-similes from styrene. Other details, such as joint bars (available from Proto Craft, protocraft.com) every 39 scale feet, will also be added.

MORE ON THE WEB

Tony Koester demonstrated his track hand-laying techniques in a video you can watch at ModelRailroader.com

Staining ties, painting track

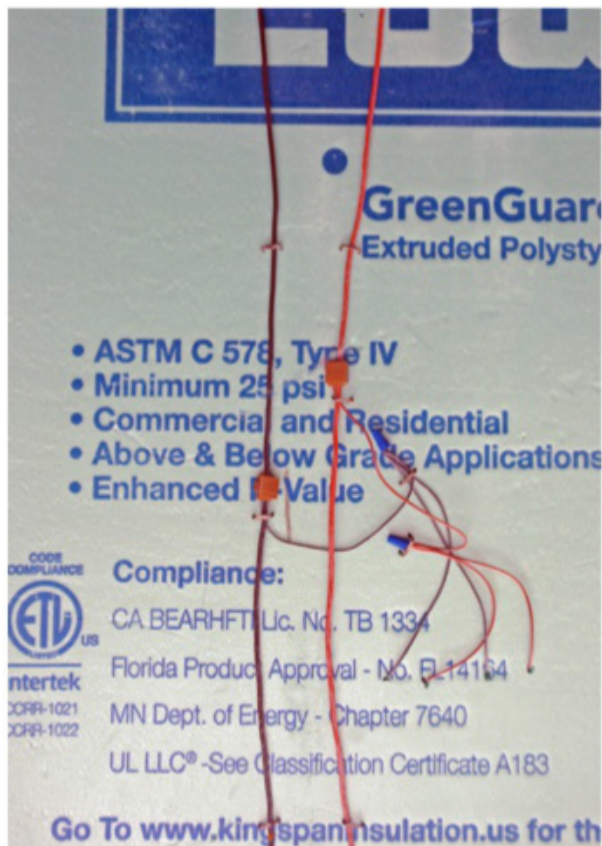
For the hand-laid track, I applied a thinned coat of Minwax Ebony stain. I sprayed plastic ties with Rust-Oleum Camouflage, a medium brown. Sidings got a light coat of primer gray, and both were dusted with a spray of flat black.

When this was dry, I wiped the sides and base of the rails with a rust-colored felt-tip pen. Rusty rail was common in the days when refrigerator cars were cooled with ice to which liberal doses of salt had been applied. The melt water ran out of drains in the car floor and onto the steel rail and tie plates. Even ties and ballast often acquired an orange patina.

Wiring for radio DCC

Although this one-town railroad would work well with conventional direct-control block wiring, I'm a strong advocate of Digital Command Control (DCC). The NCE DCC radio system I use on my large HO railroad has proven to be trouble-free, and DCC offers numerous benefits.

Since this was designed to be a switching-demonstration layout, I wanted the locomotive that ran like a Swiss watch. It had to be a road locomotive, as that's what the NKP used on second-class local No. 45, and it had to be a single-unit diesel, as I couldn't afford to give up the added length of a light Mikado or Berkshire with tender.



Bus wire and feeders follow the DCC red/black wiring convention. They fit in grooves cut into the bottom side of the foam board and are held in place with dollops of foam-compatible glue.



Digital Command Control layout control is provided by a tethered NCE PowerCab. A ProtoThrottle radio cab resembling a diesel control stand works with the PowerCab and provides enhanced realism and flexibility.

Some years ago, Red Caboose (through InterMountain) produced beautifully detailed, unpowered Electro-Motive Division GP9 kits; Atlas O later acquired the tooling. New GP9s bumped steam from this division in July 1955. We'll discuss powering it in part 3 of this series. I built one of the RC GP9 kits and dropped it onto a custom chassis from Right-O'-Way, also discussed in part 3.

Wiring a railroad for DCC is amazingly simple. Run two bus wires, one red and one black, and put the black one toward the rear of the layout for consistency. Then connect red (south rail) or black (north rail) feeders between the rails and the bus wires.

For a short railroad like this powered by a low-current locomotive, 12 or 14AWG bus wires are adequate. But just in case someone shows up with a current-hogging locomotive, I used 10AWG solid wire for the two buses. I used 18AWG solid wire for feeders; the end was flattened, bent and flattened to resemble a spike head, and soldered to the unseen back side of the rail with silver-bearing solder. The other end was attached to the bus using 3M Scotchlok insulation-displacement connectors (also known as "suitcase connectors"). The bus wires run in grooves cut in the bottom of the foam panels.

I wired the railroad for regular DCC using NCE's PowerCab, which is tethered to the railroad – no great concern when the town is only 12 feet long. I added plug-in panels placed horizontally in the foam panels at both ends to enable me to reach the staging yards while controlling a locomotive if needed.

As the railroad developed, Iowa Scaled Engineering (protothrottle.com) announced the ProtoThrottle, a hand-held radio throttle resembling a modern diesel control stand. On a small railroad, you want to milk more realism out of every facet of its operation. I'll discuss it in more detail in part 4 of this series.

Ballasting the track

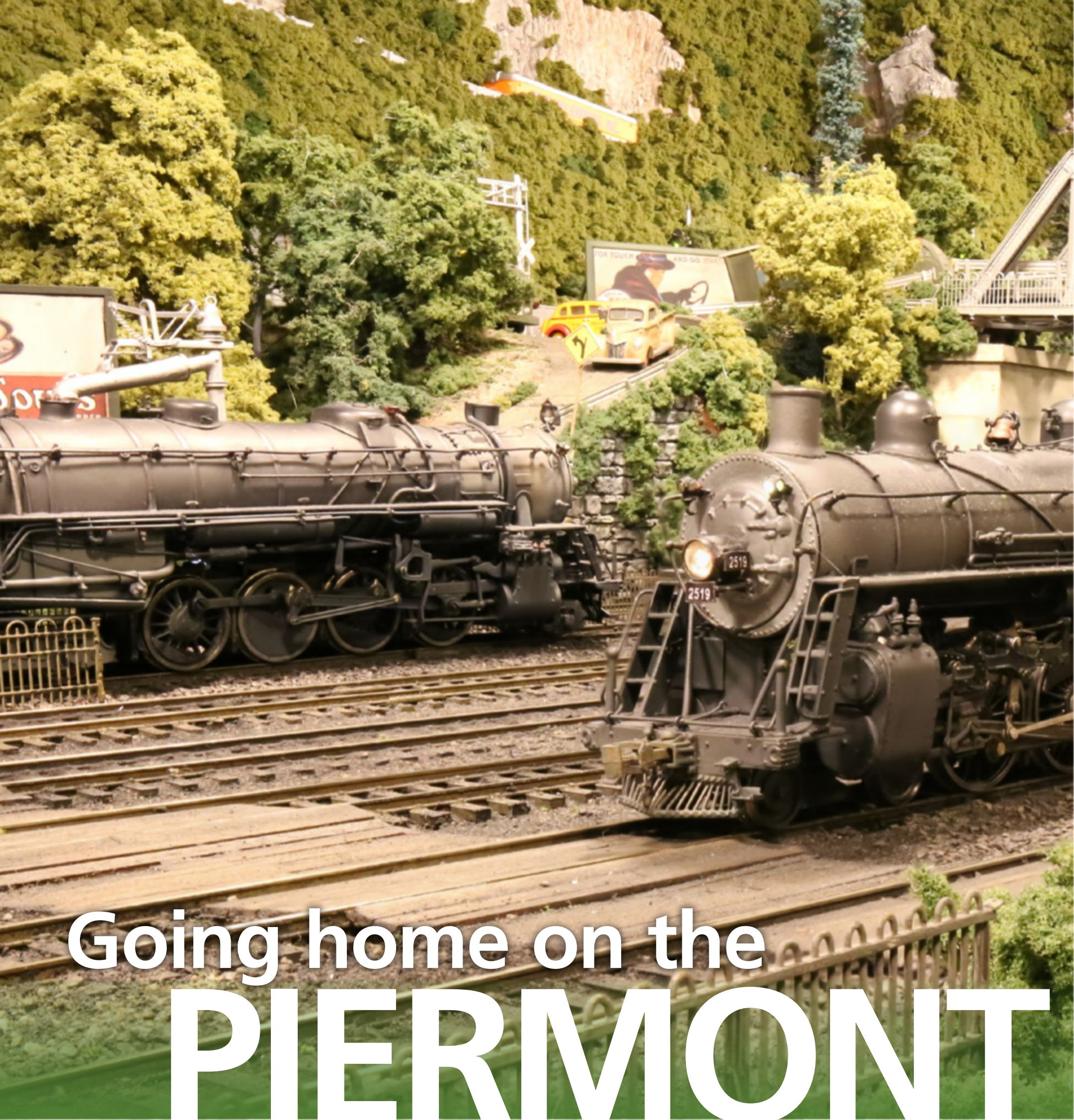
In the steam era on railroads like the Nickel Plate that fired their locomotives with coal, cinders were used to form a roadbed under the ballast. Filling in the shoulders of the Homasote roadbed required a lot of material, so I used large quantities of black sand from Sand Art (sandartsupplies.com).

I used a spoon to distribute the sand and shaped it with a 1" foam brush moved sideways – at right angles to the rails. The black sand formed all of the "ballast" for the sidings and the roadbed for the main line. I sprayed the sand with 70 percent isopropyl alcohol as a wetting agent, then dribbled in a 50/50 mix of white glue and water.

After the sand had dried, for main-line rock ballast I used Arizona Rock & Mineral (rrscenery.com) no. 138-3. As before, I soaked it with isopropyl alcohol and liberally applied the 50/50 water and white glue solution.

Next up

With a base and track for the one-town railroad called Wingate in hand, in the March 2020 issue of MR we'll focus on scenery and structures. 

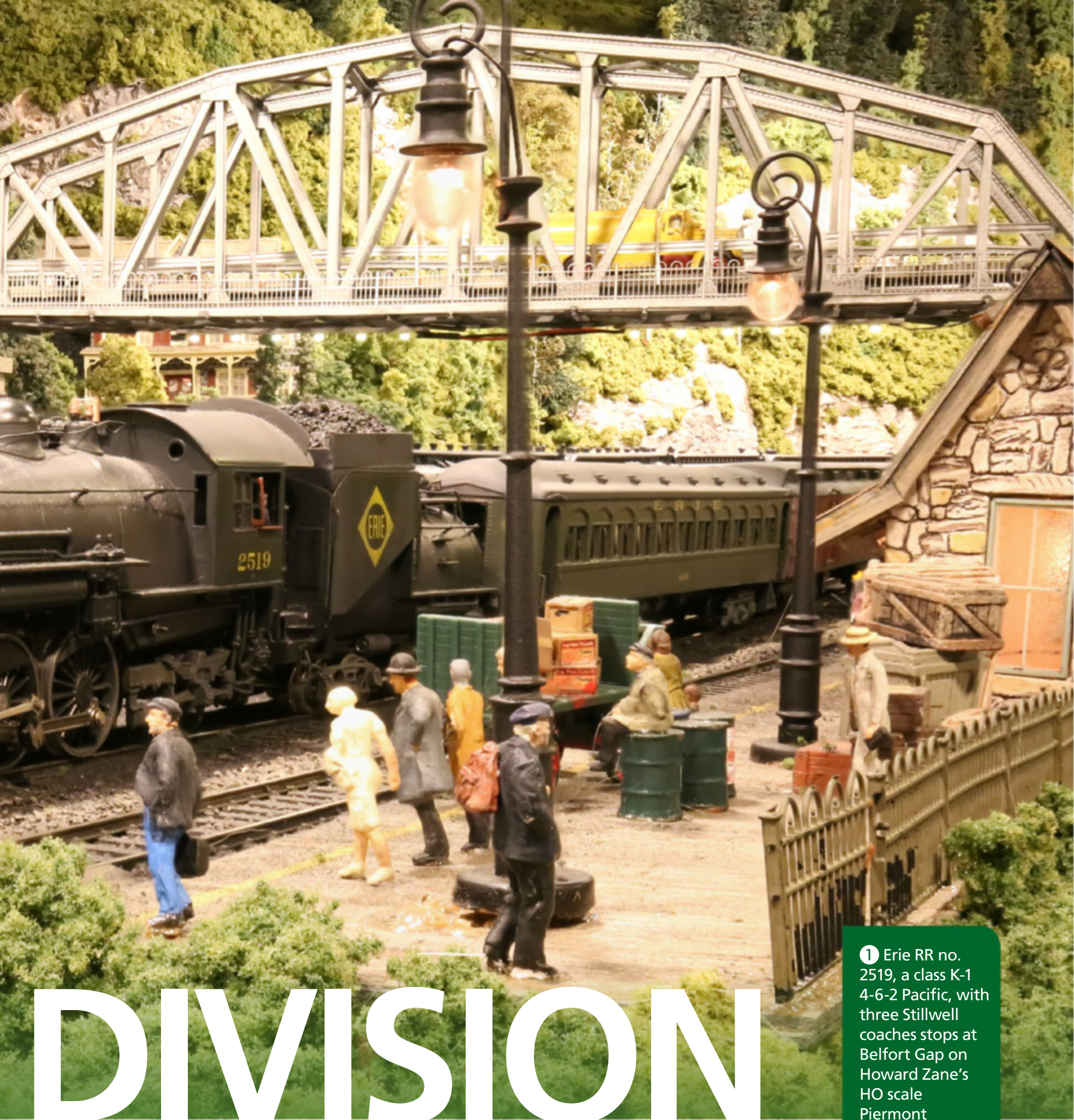


Going home on the PIERMONT

This 60 x 70-foot HO scale masterpiece gets a major revision and a new Northeastern focus

By Howard Zane • Photos by Forrest Nace

My HO scale Piermont Division has continuously evolved over the more than 35 years since I began building it. Virtually every scene has been redone at least once. I've expanded the railroad with two major additions to my home. The original 26 x 26-foot basement layout space (section 1) gained 1,200 square feet (section 2) in 1995 and another 800 square feet (section 3) in 2001. Today, the model railroad fills about 2,850 square feet and



DIVISION

features a 1,400-foot mainline run, which is 23 HO scale miles.

The Piermont Division has been featured in several hobby publications and videos over the years, including the recent *Art of Model Railroading Video Series* DVD from Nace Videography (nacevideography.com). The original 26 x 26 layout appeared in the April 1993 *Model Railroader* and, after its two major

expansions, was again featured in the February 2004 issue.

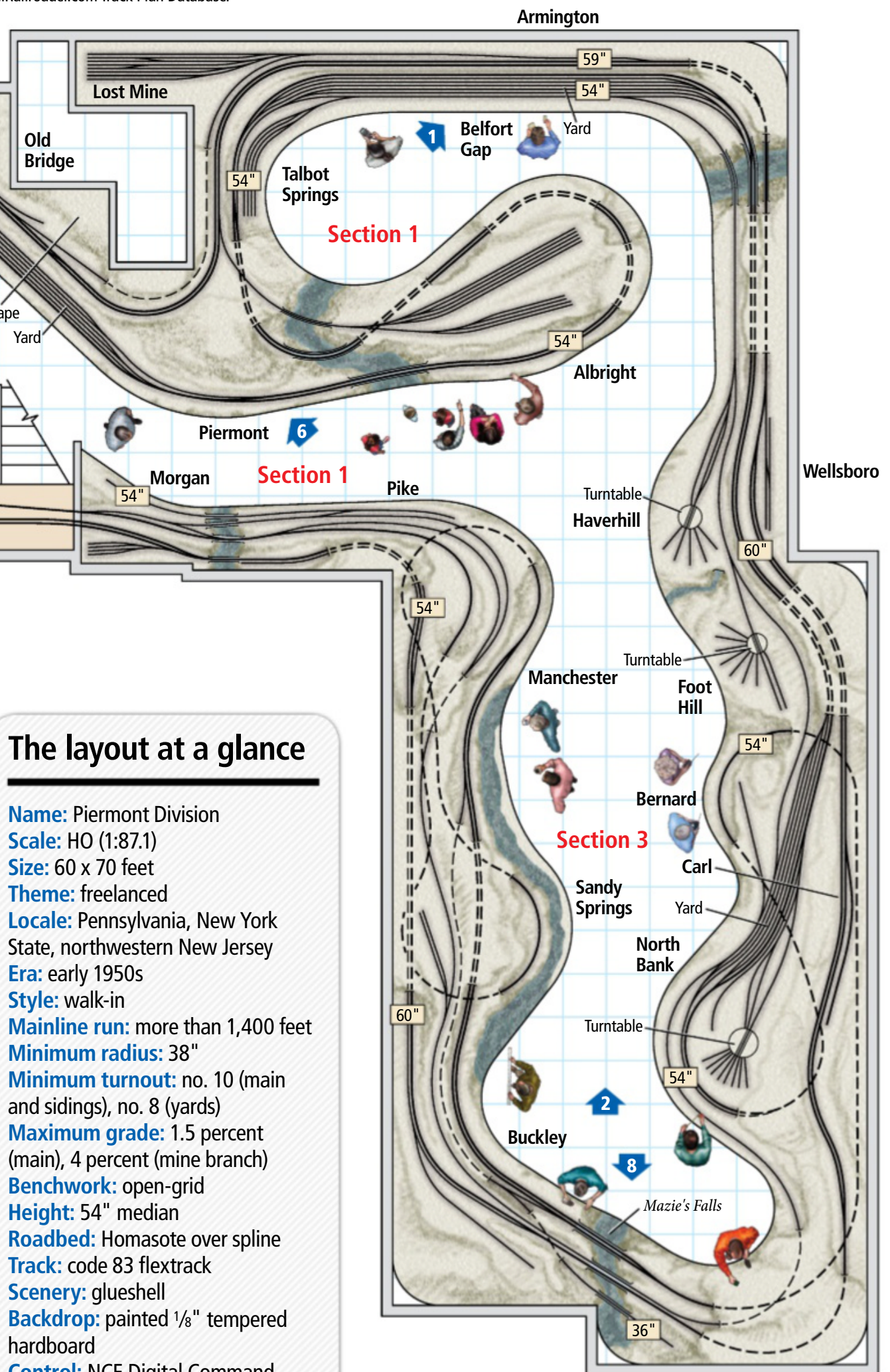
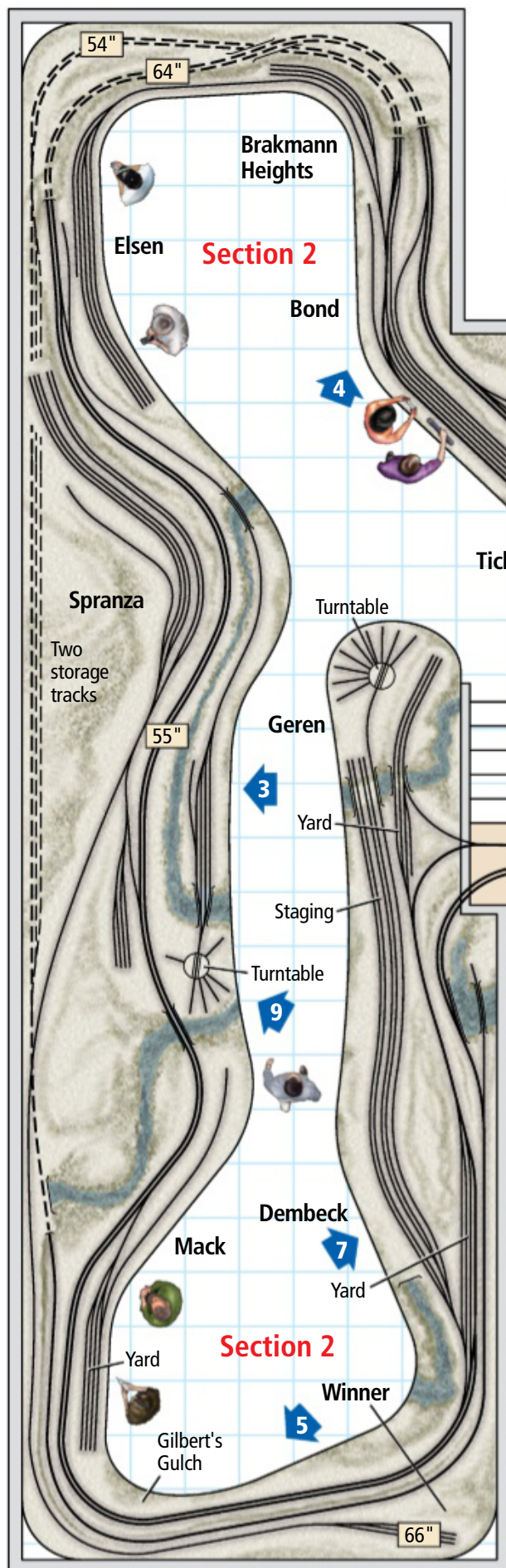
In addition to several new sections, perhaps the biggest change to the railroad occurred a couple years ago. Familiar readers will note that previously I ran equipment lettered for Appalachian railroads. As shown in these photos, that equipment has been replaced by steam and diesel locomotives based on Northeastern

① Erie RR no. 2519, a class K-1 4-6-2 Pacific, with three Stillwell coaches stops at Belfort Gap on Howard Zane's HO scale Piermont Division. Fond memories of riding in the cab of the prototype with his Uncle Ike helped inspire Howard to shift the theme of his 60 x 70-foot layout from Appalachia to the Northeast.

Piermont Division

HO scale (1:87.1)
Layout size: 60 x 70 feet
Scale of plan: 1/8" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Rick Johnson

Find more plans online in the
ModelRailroader.com Track Plan Database.



The layout at a glance

Name: Piermont Division
Scale: HO (1:87.1)
Size: 60 x 70 feet
Theme: freelanced
Locale: Pennsylvania, New York State, northwestern New Jersey
Era: early 1950s
Style: walk-in
Mainline run: more than 1,400 feet
Minimum radius: 38"
Minimum turnout: no. 10 (main and sidings), no. 8 (yards)
Maximum grade: 1.5 percent (main), 4 percent (mine branch)
Benchwork: open-grid
Height: 54" median
Roadbed: Homasote over spline
Track: code 83 flextrack
Scenery: glueshell
Backdrop: painted 1/8" tempered hardboard
Control: NCE Digital Command Control



prototypes. The reason for the switch goes back to the beginning of how I got into trains.

A lifetime of trains

Dec. 12, 1941, changed my life, as well as my dad's life, forever. Just days after the Pearl Harbor attack, Dad was entering the Navy but didn't know

THE LAYOUT IS AN EXPRESSION OF MY OWN IMAGINATION. THE ART OF MODEL RAILROADING IS PARAMOUNT FOR ME.

exactly when he would have to report, so our family celebrated Christmas early. This included my first train set clicking off O gauge miles under the tree. Being 3½ years old, I thought the train was really neat, but my Dad was hooked, spending almost every hour prior to leaving for the military, running model trains.

Every Christmas thereafter, until I left home after college to join the Army, revolved around model railroading. My dad's layout grew to a 16 x 96-foot three-rail O gauge empire in our basement.

In addition to my Dad's impressive railroad, other childhood memories also drove me

to a lifetime of model railroading. Two of my uncles ran steam locomotives, one on the Erie RR and the other on the Pennsylvania-Reading Seashore Lines. I spent about five years getting cab rides in Erie class K-1 4-6-2s and Pennsylvania RR class K4s 4-6-2s. By the time I was 12, I could actually run the K-1, with my Uncle Ike's

hand over mine on the throttle.

Another notable experience came in 1958, when I spent almost a year working on the Southern Pacific Lines. But the real driving force occurred in 1962, when I discovered the works of model railroading pioneer John Allen, including his HO scale Gorre & Daphetid. I became determined to build something just as impressive.

What to model?

I built my first model railroad while living off-post during my Army service. It was a simple 6 x 11-foot layout based on the Southern Pacific RR. However, I was originally from

the Northeast, and the SP didn't hold my interest.

When I got out of the Army and moved into a new house, I became a Pennsy modeler in honor of my Uncle Ed, who ran a PRR K4s. I would've modeled Erie to honor Uncle Ike as well, but at that time there wasn't much HO steam power available for that road.

In the early 1980s, I fell in love with Appalachian railroads and started to work on the Piermont Division. As seen in photos from previous articles, the layout's Appalachian scenery hosted mainly locomotives and rolling stock from the Western Maryland, Chesapeake & Ohio, Baltimore & Ohio, Norfolk & Western, and Virginian.

Then a couple of years ago, I realized my only history with those Appalachian railroads was

② Taken from the aisle between Buckley (left) and Bernard (right), this shot shows the mountain scenery that stretches all the way to the layout room ceiling. The room is lit by more than 200 recessed and track light fixtures.

③ Several Shay geared locomotives are the primary power for the Maryland Western tourist railroad. Howard built the converted tourist flatcars from LaBelle kit parts.





④ The Piermont Division is set in the transition era, when steam locomotives shared the rails with first-generation diesels. At Bond, a New York Central Mohawk 4-8-2 and a pair of Electro-Motive Division F units on adjacent tracks stand ready to depart with their eastbound trains.

through photographs and videos, not real experiences. This realization became overwhelming, so I sold or traded most of my Appalachian equipment and replaced it with models based on prototypes from railroads I remember firsthand. My models reflect prototypes from the Erie; PRR; New York Central; Lehigh Valley; Delaware, Lackawanna & Western; Central RR of New Jersey; and New York, Ontario & Western.

I kept the layout's scenery, as the former Appalachian setting is quite similar to Pennsylvania, northwestern New Jersey, and New York state. The time period also remains the same, early to

mid-1950s during the steam-to-diesel transition.

Except for the prototype-based equipment and architecture, everything else on the layout is mythical and an expression of my own imagination. The art of model railroading is paramount for me.

Blended deck design

When I began building the Piermont Division in the 1980s, my basic plan was to have long runs with ample passing sidings, as the main line is mostly single track. There would be realistic running distances between towns and cities, with many

sidings and spurs, serving various industries.

I understand the thinking behind a double-deck layout, such as increasing running distances, but I hate the look of a separate upper deck. I also think that using a helix to connect decks is a waste of space.

The Piermont Division is actually double deck, but with both levels on the same scenic deck. I refer to the design as a "blended deck" layout. Instead of a helix, the main line climbs a long 1.5 percent grade to reach the upper level.

I set the median track height for the layout at 54". At this height, it's easier to work under



sections placed end-to-end around all the room walls with some areas jutting out into the aisles. Originally the layout had 5-foot aisles. As scenes got expanded over the years, aisle width shrank to about 3 feet, which is still quite ample. Benchwork legs are 2 x 4s with additional diagonal bracing.

The subroadbed is made of $\frac{3}{16}$ " splines that I cut from 8-foot-long 1 x 12 shelf boards and attached to risers. Splines give the curves natural ease-ments. I topped the splines with $\frac{1}{2}$ " Homasote roadbed.

Several of the large yards are built on $\frac{1}{2}$ " plywood. I constructed smaller yards and sid-ings on $\frac{1}{2}$ " Gatorboard. This foam board won't warp and can be easily cut with a box cutter.

For most of the layout I laid code 83 flextrack that I painted and weathered. All mainline curves are superelevated with .040" styrene strips placed under the outer rail. After ballasting, I weathered the track with powdered artist's charcoal affixed with clear matte spray finish.

I used no. 10 turnouts on the main line with no. 8 turnouts in some yards. The largest com-mercially available curved turn-out has 32"/36" radii, not wide enough curves for the Piermont. Instead I bent the curved turn-outs from no. 10 turnouts, using a technique that I learned from Geren Mortensen. In addition to

5 An Erie class R-1 2-10-2, one of seven on the Piermont Division, hauls a local freight westbound into Dembeck over Gilbert's Gulch. The locomotives on the layout are all brass models, including the R-1, which is an Alco Models import from the 1970s.

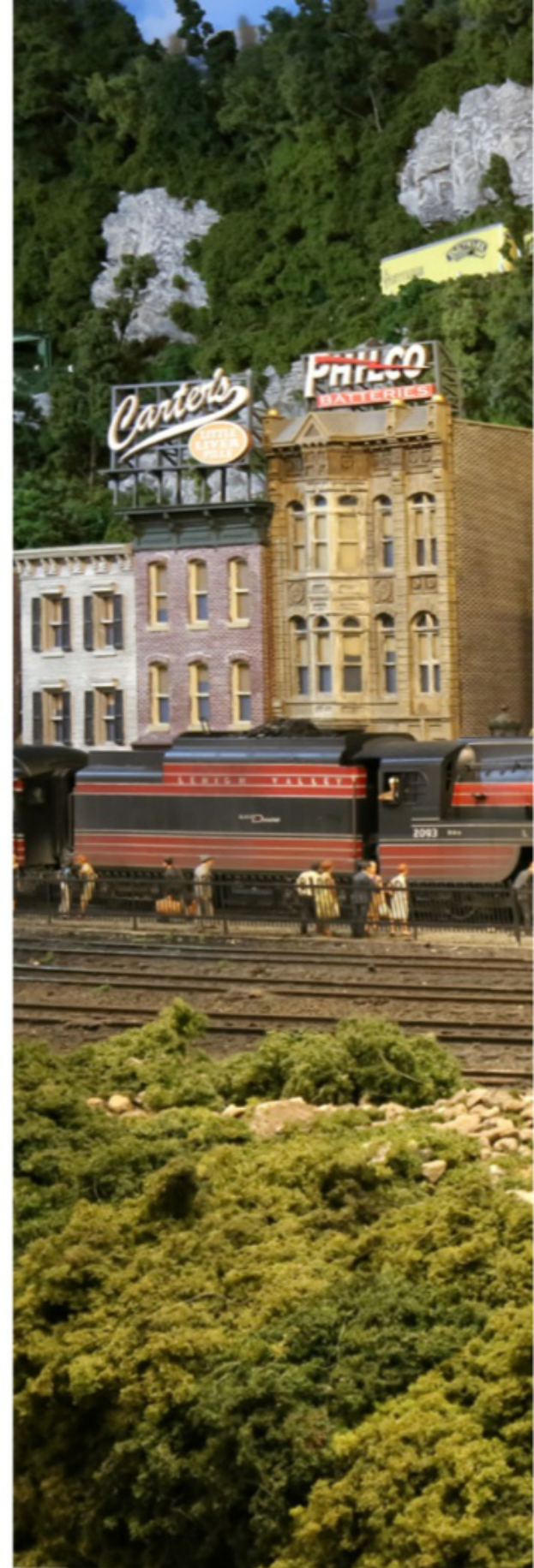
the benchwork, and I find it eas-ier and more efficient to model mountain scenery from this height up to the ceiling. I also find that viewing a model rail-road is more realistic the closer the track height is to eye level.

There's also a branch that runs up to the mines at Winner and Spranza, where the grade is 4 percent. Shay geared locomotives haul trains on this line. This is also the route of the Maryland Western tourist rail-road on the Piermont Division.

Building the layout

The benchwork is all 1 x 4 open grids built in 3 x 8-foot





6 A Delaware, Lackawanna & Western class P-1 4-8-2 pulls into Piermont, the oldest town on the layout. The locomotive will haul its train 4 scale miles (266 feet) to the town of Bernard. The mainline route is 23 scale miles, which would take the average train about an hour to complete.

being a talented modeler, Geren also took photos for my book *Howard Zane: My Life With Model Trains* (Howard Zane, 2006).

In the past I've used dual cab control, Dynatrol analog command control, and Digitrax Digital Command Control (DCC) to run the railroad. The layout is currently wired for DCC using an NCE system.

Mountain scenery

Scenery on the Piermont Division is hilly and mountainous, as are the real locations

I form the basic landforms using my own "glueshell" technique. First, I use hot glue to attach cardboard strips together to form a lattice. Then, I cover the lattice with red rosin paper also secured with hot glue. Next, I brush a coat of full-strength white glue over the paper.

Once dry, the surface is very rigid. The surface is also strong enough that I can attach plaster castings or other scenery textures directly to it. This glueshell technique avoids the mess of wet plaster that can come with plaster hardshell scenery techniques.

THE ENJOYMENT AND PRIDE OF BUILDING SOMETHING MYSELF IS FAR WORTH ANY AESTHETIC SHORTCOMINGS ... GETTING THERE IS HALF THE FUN!

that inspired it. I refer to layout scenery as being either positive, which is terrain above track level, or negative, which is terrain below track level. At its highest point the track reaches 66" on the mine branch near Winner. The track at Mazie's Falls near the town of Buckley drops to just 36" above the floor.

As much as possible, I made sure that the layout fascia wasn't flush with track level. That way only scenery, not fascia, should be visible in layout photos.

I built all the rivers and other water features on Gatorboard bases recessed into the terrain. The river bases feature small stones to add visual interest. To model the water I used Enviro-Tex Lite stained with Pullman Green paint. I use a pour thickness of 1" to 1½", which I find enhances the illusion of depth.

There are several waterfalls that I made from clear silicone caulk. I added texture to the waterfall surfaces using a wide-tooth comb or plastic fork.

I then added highlights with white paint.

Building models

Most of my rolling stock is scratchbuilt or built from vintage wooden kits that I've collected over the past 50 years. I have about 1,500 wood kits waiting to be built. Recently I finished 50 wood open-top hoppers and 35 LaBelle passenger cars. I've also built some resin car kits from Funaro & Camerlengo, Sunshine, and Westerfield.

Although there are a few craftsman structure kits from



7 The Lehigh Valley Black Diamond and John Wilkes, both led by streamlined 4-6-2s with shrouds designed by famed industrial designer Otto Kuhler, meet at Dembeck. Howard scratchbuilt the station from styrene.

Fine Scale Miniatures and South River Model Works, about 90 percent of the structures on the Piermont Division are scratch-built from basswood, styrene, or a combination of materials.

I admit I can't build a wood kit, be it a railroad car or structure, that looks as good as an off-the-shelf, ready-to-run model or ready-to-plant structure. However, for me, the enjoyment and pride of building something myself is far worth any aesthetic shortcomings my models may have. I believe that model building is best reflected in the old saying, "Getting there is half the fun!"

Rebuilding section 1

As readers will note in the track plan on page 44, the original Piermont Division, what I call section 1, is quite different from the 2004 plan. There was also a utility room in the center. Back in 2006, a large visitor got stuck going through one of the duckunders in this section. After pushing and pulling, we couldn't extricate the fellow. I got my reciprocating saw and cut away sections to free him. The following day, some friends from a local model railroading club came over and helped me remove the rest of this area.

With everything gone, I had the furnace and water heater moved to one side of the room and concealed them behind a floor-to-ceiling mountain. I then rebuilt the section with a design that eliminated duckunders. If I've learned anything from this hobby, it's to avoid duckunders, as they seem to get lower every year.

Last year, with the help of a good friend, I added six new scenes to the layout, including two HO housing developments, three engine terminals with roundhouses, and a huge staging yard worked into the town of Dembeck.

The locomotive fleet

My steam locomotives are imported brass models that are heavily modified with Faulhauber can motors, Boo Rim gearboxes, SoundTraxx Tsunami DCC sound decoders, and working class and marker lights. The cab interiors are detailed with illuminated dials on the backhead, flickering fireboxes, and crew figures. Jan Willard does all the electronics and other modifications to my steam locomotives.

I painted and weathered my steam locomotives using techniques that I learned from my friend Bobby Hunter, who passed away a few years ago. To simulate nickel steel or Russia Iron boiler jackets on the steam locomotives, I used locksmith graphite applied in a swirling motion with a cut-down paint brush. It's a simple technique and only takes a few minutes to do a large locomotive boiler.

I made the coal piles in the locomotive tenders from clay covered with actual coal pieces.

I have several lumps of coal that I occasionally break apart with a hammer to replenish my scale coal supply.

My diesel locomotives are also first-generation brass imports. They have better out-of-the-box running qualities than brass steamers, so they don't require as many drivetrain modifications. The diesels have sound decoders and other electronics installed by Jan Willard. I also paint and weather them.

Every steam and diesel locomotive will eventually have a

8 At Mazie's Falls, the scenery starts from the ceiling and descends to 18" above the floor. Both passenger trains are led by Erie 4-6-2s, a K-5 on the upper line and a K-5b with a Vanderbilt tender on the lower line.



SoundTraxx CurrentKeeper installed in it. These stay-alive capacitor circuits keep locomotives running smoothly over stretches of dirty track.

Running trains

Currently, I don't hold any formal operating sessions on the railroad. A well-known model railroader refers to me as "that damn diorama builder from Maryland," but I'm not offended, as it's probably a true statement. Like a music note that



9 A lone New York Central 4-6-0 Ten-Wheeler rests inside the roundhouse at Mack. Howard scratchbuilt the structure as well as the railroad workers' houses next to it. The 90-foot turntable is from Walthers, and the chain link fence is an Alloy Forms kit.

completes a chord, the running of the trains over the finished layout completes the artistic scene for me and most likely for my visitors. On a layout of this size, virtually any operational scenario can be modeled.

I encourage visitors to bring along their own equipment to run as long as it's DCC equipped. I would also welcome any newcomers to operate on the Piermont Division if they could help maintain it.

I still have plenty to do on the railroad, including installing telephone poles, signs, and other details. Much of my hobby time these days is spent building in my upstairs shop, but I'm getting close to finally completing my model railroad.

I've drawn up plans for another addition, but now being 80 years old, I think I'll hold off and enjoy playing with the trains I have. **MR**



Meet Howard Zane

A retired commercial pilot and industrial designer, Howard Zane is the co-founder of the Great Scale Model Train Show in Maryland, where he now resides. Howard and his wife, Sandy, are also members of the old-time string band Back Step Cindy, playing banjo and fiddle, respectively. They hope their six grandchildren will pick up both traditions of trains and music.



Big train through the Southwest

The 20 x 30-foot Four Corners & Five Lakes features contemporary railroading in N scale

By Cody Grivno • Photos by the author and Eric White

The American Southwest and the Great Lakes are two regions seldom associated with each other. But John Tindall's freelanced Four Corners & Five Lakes (FCFL) serves as a link between Milwaukee and San Diego. The 20 x 30-foot model railroad depicts modern day railroading with long manifest freights, unit trains, and Amtrak trains rolling through the arid landscape of the Four Corners region.

A long, winding road

John has been a model railroader for more than 40 years. He became

interested in trains through his father. "The only place I've ever lived that didn't have a model railroad was my college dorm room, but I fixed that over time," John said.

The Four Corners & Five Lakes Ry. is John's third N scale layout and the second with an FCFL theme. He also had two HO scale model railroads, including one with his dad.

"I grew up with my dad's southwestern Santa Fe layout, so I have a long history with desert scenery," John said. "My first N scale layout was set in Wisconsin, but I became bored modeling local scenery.

"In 2002, my wife and I completed a 21-mile hike through the Grand Canyon. It was during that hike that I had the first notions of the FCFL. During the flight home, the concept was solidified. By the end of 2002, all of my locomotives had been repainted from Canadian Pacific red to FCFL Desert Sunrise Orange." [See "What's in a paint scheme?" on page 57. – Ed.]

Prototype inspiration

John describes the FCFL as a "mashup" of the Atchison, Topeka & Santa Fe; Great Northern; Milwaukee Road; and Algoma Central, when the latter operated a railroad and fleet of ships on the Great Lakes. He adds that the concept for the FCFL is strongly influenced by Great Lakes marine traffic and maritime history.

"I like freelancing because it not only allows a lot of freedom as a modeler, but it also allows me to create an alternate universe with its own history, characters, and setting," John said. "Occasionally I'll have fun writing little stories about

1 A pair Electro-Motive Division SD90/43MAC diesel locomotives are in charge of an eastbound intermodal train rolling through Salvation Point. The scene takes place on John Tindall's N scale Four Corners & Five Lakes layout.



ns

② A unit train carrying plastic pellets heads to Phoenix on the high line while an eastbound intermodal train starts the climb to Durango, Colo., below. John's model railroad is set in the Four Corners region of the U.S.





The Four Corners & Five Lakes story

My Four Corners & Five Lakes Ry.

is a Class 1 railroad that operates between Milwaukee and San Diego. It's a vital part of FCFL's transportation network, which also includes Great Lakes bulk freighters, ocean-going vessels, trucking, and intermodal.

The Four Corners Division handles a heavy volume of mainline freight and serves local agricultural, manufacturing, and mining/quarry customers. The division also handles passenger service to Many Lost Ways National Park.

However, I've always been fascinated by Lake Michigan and Great Lakes shipping, hence the connection the FCFL has to the Great Lakes transportation network. Eventually, I hope to model the FCFL's operations on Jones Island in Milwaukee. This would be a separate switching layout that connects in staging.

– John Tindall

scenes on the layout or about the history of the railroad.”

John shares his layout with local friends and the world through the internet and social media. “It’s fun to maintain an online presence for the railroad,” John said. “I have a website and Facebook page with more than 500 followers.”

Sharing space

Work commenced on the FCFL in 2008. Before building benchwork, John tore down his original tabletop FCFL layout that was situated in the middle of the then-unfinished basement. During the basement renovation, John added abundant can lighting. He selected colors for the layout room to give it a Southwest feel. He eventually plans to add photos and memorabilia from the Southwest and Great Lakes regions to further reinforce the layout’s theme. “The finished floor, walls, and ceiling give operators slightly more creature comfort than other basement layout rooms,” John said.

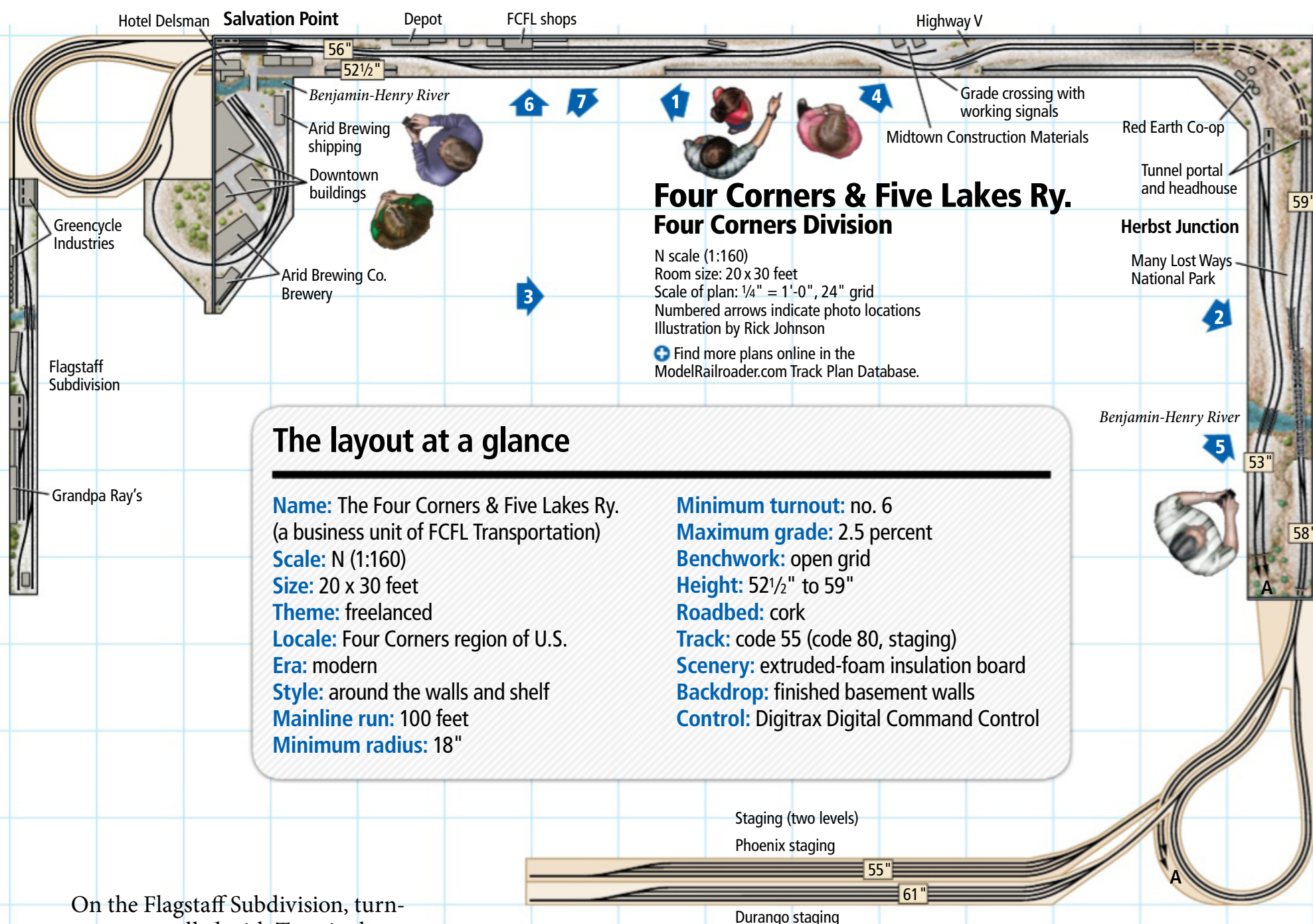
The open-grid benchwork is fastened to the basement walls with lag screws. John’s track plan is an original design. He wanted the layout to have a generous

3 John’s 20 x 30-foot model railroad fits along the walls of the basement, leaving the rest of the rec room open for playing board games, watching television, or other family events.

mainline run with sweeping curves, dramatic topography, a water feature, and lots of bridges. John’s goal was to integrate the layout with the basement recreation room. “I think the layout is interesting for how it’s part of the basement without dominating it,” John said. “There’s plenty of visible track, but with hidden track, passages through walls, and careful use of space, the basement is still open enough for other uses.”

The backdrop is painted on the finished basement walls. “I selected a sky blue latex paint and brushed it on the walls,” John explained. “While the blue was wet, I brushed in ceiling bright white paint to give the sky some depth.” Once the paint dried, John cut terrain and buildings from Walther’s Instant Horizons backdrops. He attached the backdrops to the wall with white glue.

John used Atlas code 55 track on most of the layout. He used Micro Engineering code 55 rail on the Flagstaff Sub, as Atlas track was in short supply when he was working on that section. The staging yards have Atlas code 80 track.



On the Flagstaff Subdivision, turn-outs are controlled with Tortoise by Circuitron slow-motion switch motors. Atlas under-table switch machines with hidden momentary contact switches beneath the fascia are used elsewhere.

Southwestern scenery

The scenery base on the FCFL is carved extruded-foam insulation board covered with joint compound. John used homemade molds to cast the Hydrocal rocks. He blended latex paint to the desired red-orange color. With the paint still wet, John sprinkled on sand gathered from various locations in Arizona. He can say that the ground cover in Flagstaff came from the prototype location.

"On two separate trips to Arizona, my boys and I collected about six quarts of soil and sand from various locations," John recalls. "Benjamin and I were walking through downtown Flagstaff filling resealable plastic bags with all the different colors of dirt we could find. We relied on our friends to haul it back to Wisconsin rather than trying to get it on a plane."

Another scenery gathering trip required more storage. "I'll never forget

hiking near Horseshoe Bend in Page, Ariz., with my son, Henry, and a five-gallon bucket of red sand," John said.

John turned to Woodland Scenics products for the vegetation. He used the same company's trees, as well as offerings from JTT Scenery Products. John scratchbuilt the cacti from wire.

When it came to adding water features, John was meticulous about his work to prevent wood grain from showing through. "I prepared the plywood surface by skim-coating it with joint compound, sanding it, and repeating until it was smooth," John noted. "I then painted the riverbed with black latex paint, feathering in orange and red at the banks."

After the paint dried, John poured an 1/8" layer of Enviro-Tex Lite epoxy in the riverbed. He used clear silicone caulk to add wave and boat wake effects.

John is especially proud of the Benjamin-Henry River scene. "The lower bridge is scratchbuilt from strip and sheet styrene and Micro Engineering bridge flextrack," John said. "I'm pleased with how the water and surrounding landforms turned out." The high bridge

is three Walthers double-track truss bridge kits stitched together with strip styrene.

Towns and structures

The desert scenery on the FCFL is complemented by towns and industries. One of the key locations is Salvation Point, home to the railroad's enginehouse and carshop. John combined a Rix enginehouse kit and a Design Preservation Models (DPM) modular industrial building to model the sprawling scene.

The carshop features a repairman working on a center-beam bulkhead flat-car. John hid the light-emitting-diode (LED) welding circuit in the car shop and ran several fiber optic strands behind the car and through a hole in the car. The figure is positioned to hide the ends of the strands. All the viewer can see is the flashing light simulating a blue flame from his torch. [See 6 on page 57. – Ed.]

There's also a shopping district in Salvation Point, which John populated with DPM buildings modified to fit the



4 Four Corners & Five Lakes Electro-Motive Division SD40-2 no. 1668 switches a pair of cars at Midtown Construction Materials. Though well worn, the unit still displays its original Five Lakes Ry. Inland Sea paint scheme.



5 Amtrak's *Badger State* hustles over the Benjamin-Henry River with General Electric P42DC no. 194 on the point. The river, which flows through the Many Lost Ways National Park, is a popular destination for fishing and boating.

narrow space between the tracks and backdrop. Hotel Delsman, named after relatives who often host John's family during holidays, is a landmark structure in Salvation Point.

As John's interest in prototype operations has grown, so has the number and types of industries. Grandpa Ray's Produce in Flagstaff is a scratchbuilt packing and cold storage facility that ships product in refrigerator cars and receives tank cars of corn syrup.

Greencycle Industries is a plastic recycling plant, taking in loads of plastic

scrap and shipping hoppers of plastic pellets. He used PVC pipe to model the pellet silos at the industry.

The narrow layout design has proven beneficial when it comes to structures. The Benton Manufacturing building in Flagstaff and the coffee shop in Salvation Point are the front and back of the same kit.

However, of all the structures on the layout, the one with the most significance is Janibelle's Clean Plate Club. The restaurant is named after John's mother, and the sign has a special story attached

to it. "I had the idea to name the restaurant after her, and wanted the sign to look like her handwriting," John said. "I met her for lunch and had her write her nickname, Janibelle, over and over. She died unexpectedly a few weeks after that. I spent the sleepless night before her funeral in my workshop soldering and bending wire to make the sign, which actually does look very much like her handwriting."

Running trains

Initially John was focused on main-line running, but has become more interested in operations and added more rail-served industries. "The Flagstaff Subdivision has several industries that make for challenging switching that keeps a local crew busy for most of the session," John said. "The Flagstaff Local can be run with a distributed power unit (DPU), allowing the crew the flexibility of a locomotive on either end of the train." John notes that he hasn't seen this prototypical practice used on other model railroads.

John runs trains with a Digitrax Digital Command Control (DCC) system. The long tunnel between Herbst Junction and Flagstaff is protected by a

block signal. The track is cut into isolated blocks for the addition of more signals.

John installed a working grade crossing signal east of Salvation Point. “This project was driven entirely by my younger son, who saw a working grade crossing signal at Trainfest,” John said. [See page 10 for more on Trainfest. – *Ed.*] “He assumed it was easy to install, and insisted we add one in a weekend. It took longer than that.”

Double-stack trains, unit coal and plastic pellet trains, and manifest freights make up the mainline traffic. Amtrak operates a daily intercity train that calls on Salvation Point and Herbst Junction. There are also locals that serve Herbst Junction, Flagstaff, Gallup, Globe, and industries at Salvation Point. The Salvation Point Yard is the railroad’s hub.

One of the more interesting jobs on the FCFL is the Steam Shuttle service from Flagstaff to Durango. But don’t call this train an excursion. It was inspired by the Algoma Central’s train from Sault Ste. Marie to Hearst, Ont., which provided a vital link to remote areas of the Canadian province. “Though tourists do account for plenty of ridership, the Steam Shuttle is essential to those living ‘off the grid’ and cabin owners deep in the wilderness,” John said. “The train includes a heavyweight coach/observation and a combine. At Salvation Point, the train picks up a boxcar with supplies and equipment for wilderness living – anything from chain saws and lumber to boats and ATVs.”

John uses four-position car cards to keep freight cars moving. For operating sessions, he transcribes the information into Microsoft Excel to generate one-page switch lists for each train. At some point he’d like to use Java Model Railroad Interface (JMRI).

Trains on the FCFL operate following a sequence. John can run a complete two-to three-hour session by himself or with multiple operators. Positions include the yardmaster at Salvation Point, a local crew at Flagstaff, and two or three road crews. The trains are verbally dispatched. “There are mileposts, and a session could use track warrants,” John said. “But I need a dispatcher who understands the layout well enough to run it.”

Assembling the fleet

John acknowledges that he takes a lot of license with his rolling stock. He’s a big fan of the Great Northern, so there are freight cars painted Glacier Green



Four Corners & Five Lakes SD90/43MAC displays the railroad’s eye-catching Desert Sunrise paint scheme.

What’s in a paint scheme

When a railroad picks a paint scheme, there’s usually a connection to the regions or industries it serves or the railroad’s corporate history. The Monon had two paint schemes: red and gray as a nod to the University of Indiana and black and gold for Purdue University.

BNSF Ry. has used a variety of paint schemes that pay homage to Burlington Northern and its predecessors and the Atchison, Topeka & Santa Fe. Omaha Orange and Pullman Green hearken back to the Great Northern Ry., while cigar bands and the circle-cross herald are hallmarks of the Santa Fe.

The Four Corners & Five Lakes Desert Sunrise scheme features accent colors that salute the railroad’s vast network. Silver indicates the Rocky Mountains, green reflects the Great Lakes, maroon is a connection to the desert Southwest, and gold is for the Plains. – *Cody Grivno*



6 Mini scenes like this one at the Salvation Point Shops draw visitors into the layout. John used an Evan Designs welding circuit, fiber optics, and a strategically placed Preiser figure to model a freight car being repaired.

and Big Sky Blue earning their keep on the modern FCFL. Though John may be flexible with what he runs, he has strict standards for freight cars before they’re put into service “My basic rule for rolling stock is it must have roller-bearing trucks, and boxcars can’t have running

boards,” John explains. “Before anything runs on the layout, it gets Micro-Trains trucks and Fox Valley Models metal wheelsets.” John weathers the trucks with Testor’s Dullcote and powdered pastels. He paints the wheelsets Rail Brown.



7 Four Corners & Five Lakes EMD MP15DC no. 534 works the Salvation Point Yard. The yard is the hub of the FCFL's Four Corners Division.

Once the car meets those requirements, John may patch out reporting marks and/or heralds, add weathering and graffiti, or even repaint cars. "I can count on one hand the number of cars on the layout that are just as they were out of the box," John notes. "Every car on the layout at least gets a wash of 70

percent isopropyl alcohol and India ink. I also make washes using various brown and rust-colored craft stamping inks and alcohol.

"For the heaviest weathering, I use a sanding stick to distress lettering on a car, then dab on rust spots with burnt sienna acrylic paint," John added. "I then make a slurry of rust-colored weathering powder and alcohol and blot this over the rust spots. Next, I apply one of my washes (light rust or heavy rust), pulling down with my brush. This pulls some of the slurry with it, making rust streaks that run down from the acrylic rust spots. If the wash is too heavy, I repeat the process with clear alcohol."

The FCFL's current locomotive paint scheme is blue and orange, but there are older locomotives still in service that display the railroad's history. Examples include an original Four Corners Electro-Motive Division SD40 and a pair of Five Lakes Ry. & Steamship units wearing the Inland Sea scheme.

Every five years the FCFL shops paint a locomotive to commemorate the railroad's anniversary. The 15th anniversary unit released in 2017 was painted in a modernized Inland Sea scheme.

A family hobby

Looking back, John would have added more industries and at least one

more town to the layout. "Having operated on several other railroads since building the FCFL, I think it lacks the sense of moving from place to place that other layouts provide," John said.

"However, creating more sense of movement would probably involve peninsulas that would eliminate the multipurpose usefulness of the basement."

John incorporated many lessons learned from previous layouts into the FCFL. "Take your time," John said. "Focus on the details like making the roadbed smooth, gapping the track properly, and adding enough feeders. I feel the extra time and painstaking attention to detail on those techniques has resulted in a railroad that runs very well. Derailments and stalls are infrequent."

The Four Corners & Five Lakes has given John the privilege of meeting incredible modelers and making good friends. And through the layout, model railroading has been passed down to a third generation in the Tindall family. John's sons, Henry and Benjamin, are his constant modeling, train show, and railfanning companions. Both have an N scale model railroad in their bedroom. "I will always treasure the Saturday morning, snow days off of school, and 'just five more minutes' before bedtime operating sessions with my boys," John said. 



Meet John Tindall

John Tindall lives in Milwaukee with his wife and their two sons, who share his love of full-size and model trains. John also enjoys researching and diving Great Lakes shipwrecks and volunteers on a dive team conducting field surveys under the supervision of the Wisconsin Underwater Archaeology Association. John is a vice president of client claim advocacy for a large commercial insurance agency.

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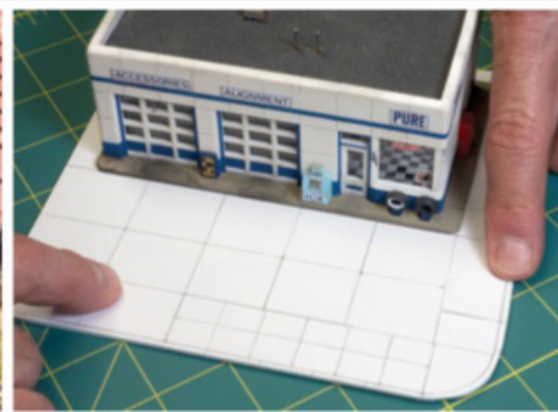
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More solutions for shorts



1 Budget-friendly solution. Voltscooter Engineering offers two versions of its Automatic Fuse. The unit on the left is for use with boosters rated at 5 amps or greater, whereas the one on the right works best with boosters rated at 2.5 amps or greater.

In past columns (June 2017 and May 2019), I discussed various ways to prevent short circuits and how to deal with them when they occur. This month I have a few new devices and tricks to share with you that hopefully will be of some use with this common Digital Command Control (DCC) problem.

There are a couple different issues I want to address. First, there are the all-too-frequent shutdowns that occur due to accidents, derailments, or other incidents on the layout. When these occur, the booster or command station will shut down unless you have a device of some kind installed between it and the short.

Previously, I've shown how to use either the DCC Specialties PSX series of circuit breakers or the Digitrax PM42. However, there are other devices available, so let's take a look at them.

Voltscooter Engineering (voltscooter.com) offers two versions of its Automatic Fuse for use with DCC **1**. The basic unit sells for \$5.95 and

can be set for trip currents of about 1.1 to 3 amps (A) and is recommended for use with boosters rated at 5A or greater. It includes a push button for resetting the unit should it not automatically reset.

A more advanced model sells for \$12.95. This version comes with a built-in reset toggle switch and light-emitting diode (LED) and is designed to be fascia mounted. It can be set for trip currents of .6A to 1.8A, and is recommended for use with boosters rated at 2.5A or greater. Both are available at reduced prices in multiple-unit packs.

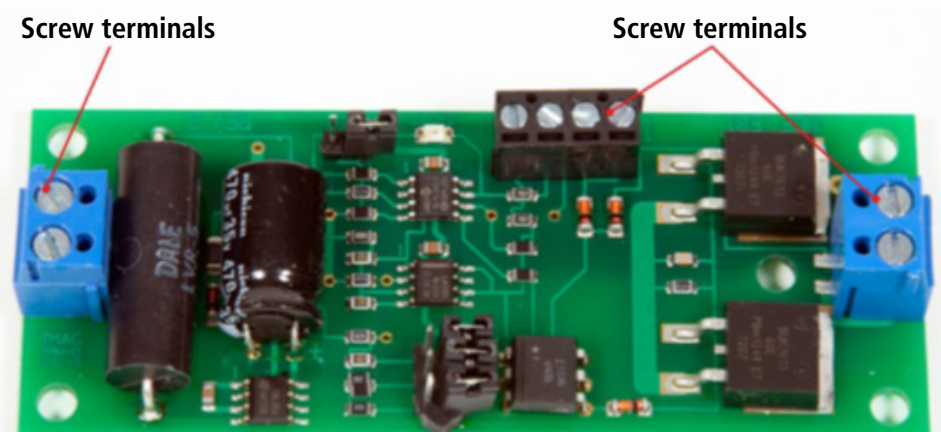
Both Voltscooter Automatic Fuses are wired into one of the DCC bus wires feeding the block you wish to protect. When a short occurs, the fuses trip, preventing the short from shutting down your booster or command station. In most cases, the units will automatically reset when the short is cleared. If this doesn't happen, then the reset switches allow you to manually reset the device. Both versions of the Auto-

matic Fuse use screw terminals for wire connections, so no soldering is required to install them. They've been successfully tested with both NCE and Digitrax systems and offer a comparatively inexpensive alternative that definitely is a step up from ballast lamps.

Another option I haven't previously mentioned is the NCE EB1 **2**. This solid-state device is rated for use with boosters up to 10A and can be set for trip currents from 2.5A to 8A. A manual switch can be used to reset the unit. Another nice feature is the ability to set the short circuit response time from $\frac{1}{60}$ to $\frac{1}{2}$ second. The EB1

also uses screw terminals for quick and simple solderless wiring.

The second situation that commonly leads to shorts occurs when a locomotive enters a turnout from the heel end with the points set for the other route **3**. If the frog is power-routed, then its polarity will be set wrong for the locomotive entering the turnout, and as soon as the locomotive's wheels cross the gaps at the frog, a short will occur. One approach to address this issue is to use a Tam Valley Frog Juicer, as I've shown in the past. [See "Back to basics: powering all-live turnouts" in



2 Adjustable protection. The NCE EB1 circuit breaker can be set for trip currents from 2.5 to 8 amps and response times of $\frac{1}{60}$ to $\frac{1}{2}$ second.

the December 2015 DCC Corner column. – Ed.]

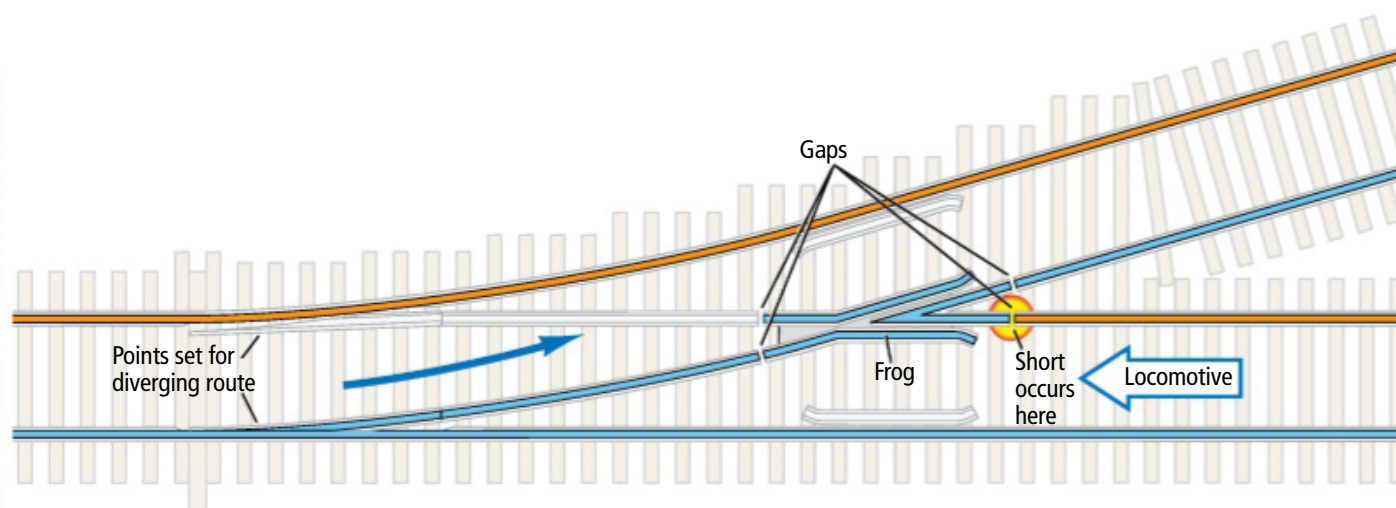
A new alternative is the DCC Specialties Frog-AR **4**. This device can be used to provide the correct polarity to four frogs, two frogs and a reverse loop, or two reverse loops. The operating current can be set individually for each frog output at 1, 2, 3, or 4A, and the solid-state circuitry provides a quick response speed that's faster than most, if not all, existing circuit breakers and boosters.

According to the designer, the Frog-AR "is fast enough that the circuit breaker doesn't have time to respond. Second, the current is limited during the short, so the current never exceeds the circuit breaker trip current." One thing to look out for when using the Frog-AR or one of the Frog Juicers: By instantly correcting the frog polarity, it allows a locomotive to run through the frog, then derail at the points set against it, potentially creating another short there.

Let's take a look at another low-tech approach to dealing with this problem. This less-expensive option employs a ballast lamp. I discussed these in the July 2017 DCC Corner column and showed how to use them to act as a whole-block circuit breaker of a sort. As I've said in the past, they're relatively slow to act and don't actually cut off the flow of current, but they're cheap and work most of the time.



I PREFER TO PROTECT ONLY THOSE TURNOUTS AT CRITICAL POINTS WHERE I KNOW OPERATORS ARE LIKELY TO FORGET TO SET THE TURNOUT CORRECTLY BEFORE ENTERING IT. THE ONES NEEDING THIS FIX THE MOST ARE THOSE WHERE A LOT OF TRAFFIC WILL BE APPROACHING FROM THE HEEL END OF THE TURNOUT.
– LARRY



3 Turnout short. When a locomotive enters a turnout from the heel end with the points set against it, a short will occur when the locomotive wheels cross the frog's isolating gaps.

In this particular case though, instead of using the ballast lamp to protect an entire layout block, we want to focus our efforts on the frogs of individual turnouts. By installing a 12V ballast lamp in the feeder wire that goes to your frog, any time a locomotive enters from the heel end with the points set for the wrong route, the ballast lamp will light up and prevent power from being interrupted in that block.

While you could place a ballast lamp on every turnout frog lead, that would be overkill. Instead, I prefer to protect only those turnouts at critical points where I know operators are likely to forget to set the turnout correctly before entering it. The ones needing this fix the most are those where a lot of traffic will be approaching from the heel end of the turnout.

One particular problem turnout on my Piedmont Southern layout is at the entrance to the main ladder in Monroe Yard that I wrote about in the March 2019

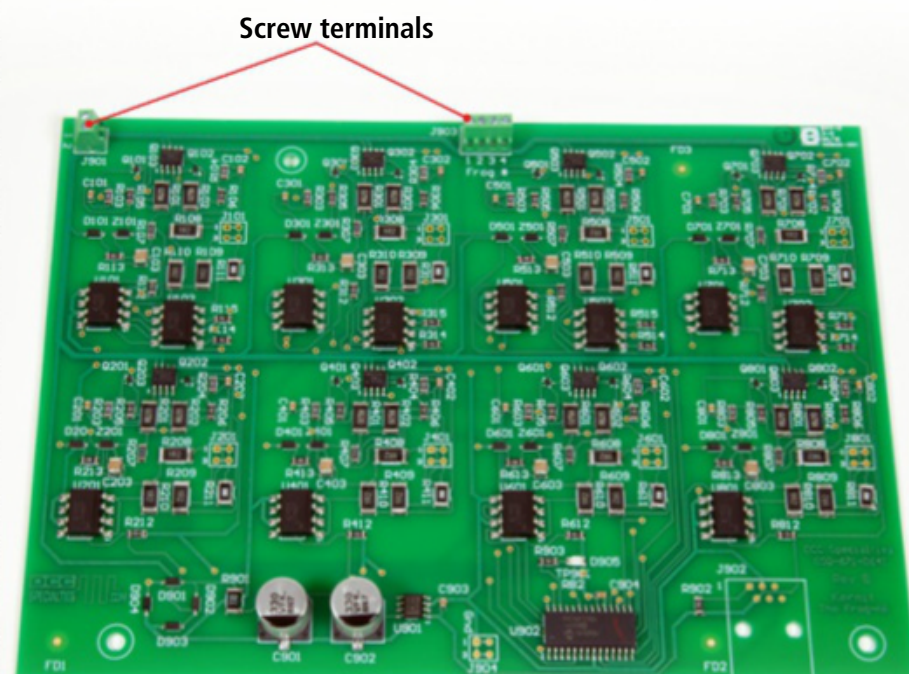
column. This turnout is a problem because when a route is set for one of the yard tracks up the ladder, the turnout on the main arrival and departure track is set against locomotives traveling through it.

Installing a ballast lamp on the frog of this turnout isolates the resulting short, preventing it from killing power to the whole block. This works well in this situation because it's usually a busy yard crew running a single switcher that forgot to reset the turnout.

One potential limitation of this solution is that, like the Frog-AR and Frog Juicers, the locomotive will keep running over the frog and may either jump the points or derail when it hits them.

Also, if the circuit breaker or booster powering the block with this turnout has a faster response time than the light bulb, the circuit breaker or booster may shut down before the light bulb turns on.

If this happens, then it may be necessary to extend the shutdown time of the circuit breaker or booster, if that's possible. You only need a small amperage bulb, since it only has to carry the operating current of a single locomotive. Of course, there may be combinations of hardware where the only option is the high-tech one. Give this or one of the other devices mentioned above a try after you've identified trouble spots during your next operating session. **MR**



4 Flexible solution. The DCC Specialties Frog-AR can be used either to correct frog polarity or as a reverse loop auto-reverser. Although it looks complicated, wiring is easy with the screw terminals provided on the board.



Walther'sProto HO scale EMD SD9 diesel

An HO scale General Motors Electro-Motive Division SD9 diesel is back on HO scale rails thanks to Wm. K. Walther's Inc. Part of the Walther'sProto series, the model is accurately detailed and decorated for several road names. We reviewed an earlier release of the model in the December 2012 issue. This upgraded release is available with a factory-installed dual-mode ESU LokSound Select (V.4.17) decoder that provides realistic sound on Digital Command Control (DCC) and direct-current (DC) layouts.

The prototype. General Motors' Electro-Motive Division (EMD) produced 471 SD9 locomotives for North American railroads. The SD9 featured a 16-cylinder 567C diesel engine and six-axle Flexicoil trucks. Rated at 1,750 hp,

the SD9 was a more powerful version of its 1,500 hp predecessor, the SD7.

The locomotive's C-C configuration meant three traction motors on each truck. This gave the SD9 75,000 pounds of continuous tractive effort.

The Milwaukee Road purchased 14 SD9s (numbered 2224 to 2237) in early 1954. They were renumbered 530 to 543 in 1959, and once more, using nonconsecutive 500-series numbers, in 1975. Serving for nearly three decades, the locomotives hauled freight throughout the Milwaukee Road system, including out west in Washington State.

Although most Class 1 railroads stopped using SD9s by the 1980s, some still labor on today.

The model. The HO diesel's major dimensions closely match prototype

drawings in the *1956 Locomotive Cyclopedia of American Practice* (Simmons-Boardman Publishing Corp.). Well-defined molded detail, including louvers and engine-access doors, match the prototype.

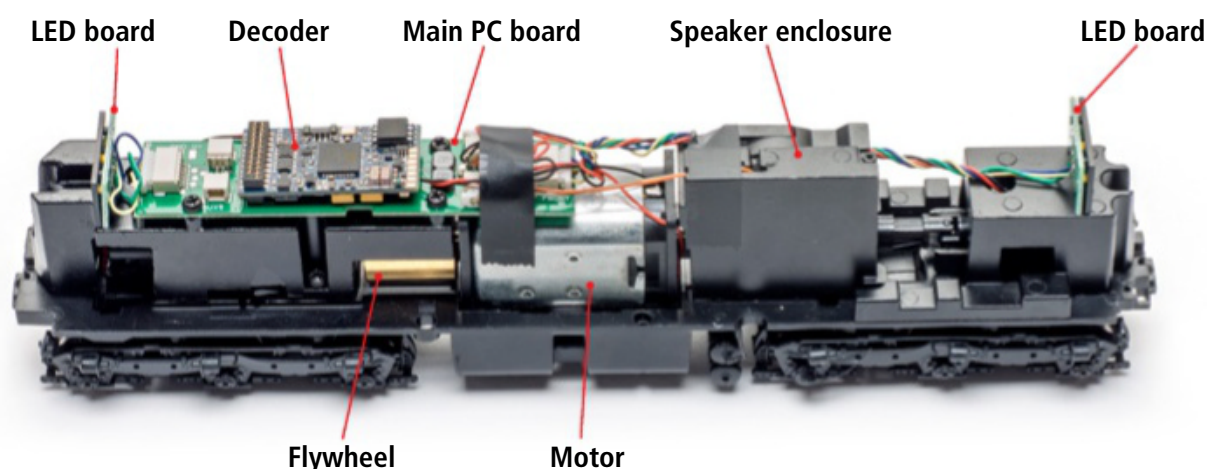
Decorated and detailed for Milwaukee Road no. 530, our review sample represents its prototype as it appeared in the 1960s and early 1970s. Prototype-specific details include all-weather cab windows, dual sealed-beam headlights, spark arrestors over the exhaust stacks, and winterization hatch.

The plastic end ladders and wire grab irons are separately applied. The handrails are flexible plastic with the correct bolted stanchion details.

The paint is smoothly applied with sharp separation between the black and orange stripes. The placement of the road numbers, heralds, and builder's plates match prototype photos.

The mechanism. After removing the couplers and two screws just behind the fuel tank on the underframe, I carefully lifted off the plastic body shell. The motor and brass flywheel are mounted in the center of the die-cast metal chassis. There are additional die-cast metal weights at each end. Universal shafts run from the motor to truck-mounted gearboxes, powering all six axles.

The main printed-circuit (PC) board is attached to the rear weight. On our



The model features a die-cast metal frame and weights. All-wheel drive and helical gears contribute to its smooth performance.

DCC-equipped sample, the decoder is plugged into a 21-pin socket on the main PC board. There are light boards at each end with separate surface-mount light-emitting diodes (LEDs) to illuminate the headlights and number boxes. The well-enclosed vertically mounted speaker is located just in front of the motor.

Pulling power. The model's all-wheel drive mechanism and nearly 1 pound weight helped it achieve a drawbar pull equivalent to 47 free-rolling HO scale freight cars on straight and level track. During a hill climb test, the SD9 pulled an 11 car train up a 3 percent grade without slipping or stalling.

The gearboxes also feature 14:1 helical gears that have teeth cut on an angle rather than straight across. This provides exceptionally smooth performance, especially at low speed. Even at a crawl there was no discernible jerking or stalling.

I also appreciated that the Proto-Max couplers are metal and sturdy enough to handle repeated switching duty during an operating session. The couplers reliably couple and uncouple to other Kadee-compatible couplers.

DCC operation. As shown in the performance charts above, the model started moving steadily at less than 1 scale mph in speed step 1 and accelerated to a top speed of 68 scale mph, close to one of the gearings available on the prototype.

The decoder accurately captures the prototype's sounds, including the rumble

PERFORMANCE CHARTS	
DRAWBAR PULL	3.4 ounces 47 HO scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
8 (start)	2
9	11
10	24
12	55
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	<1
7	13
14	34
21	64
28	68

of the EMD 567C diesel engine and the distinctive bleat of the dual single-chime air horns.

Other user-triggered sound effects include the bell, coupler, compressor, and a realistic engine start-up sequence. Pressing function 9 triggered DRIVE/HOLD, which kept the locomotive speed steady so I could use the throttle knob to manually notch the engine rpm up or down. Function 10 applies or releases the independent brake.

Virtually every aspect of the ESU LokSound decoder can be adjusted using configuration variables (CVs). An ESU LokProgrammer (sold separately) makes this task much easier. For example, I remapped the headlights for prototypical non-directional control. It's also easy to adjust volume levels, momentum, and other features. Even if you don't purchase the computer interface, the free LokProgrammer software is an invaluable programming aid for LokSound

Facts & features

Price: \$299.98 (DCC sound), \$199.98 (DC, no sound)

Manufacturer

Wm. K. Walther Inc.

5601 W. Florist Ave.

Milwaukee, WI 53218

walthers.com

Era: 1954 to 1980s (as detailed)

Road names (multiple road numbers):

Milwaukee Road; Chicago, Burlington & Quincy; Elgin, Joliet & Eastern; Nickel Plate Road; Southern Pacific ("black widow" and gray/scarlet schemes)

Features

- All-wheel drive and electrical pickup
- Die-cast metal frame
- ESU LokSound Select dual-mode decoder
- Five-pole, skew-wound motor with brass flywheel
- Light-emitting diode headlights
- Proto-Max metal knuckle couplers at correct height
- Weight: 15.3 ounces

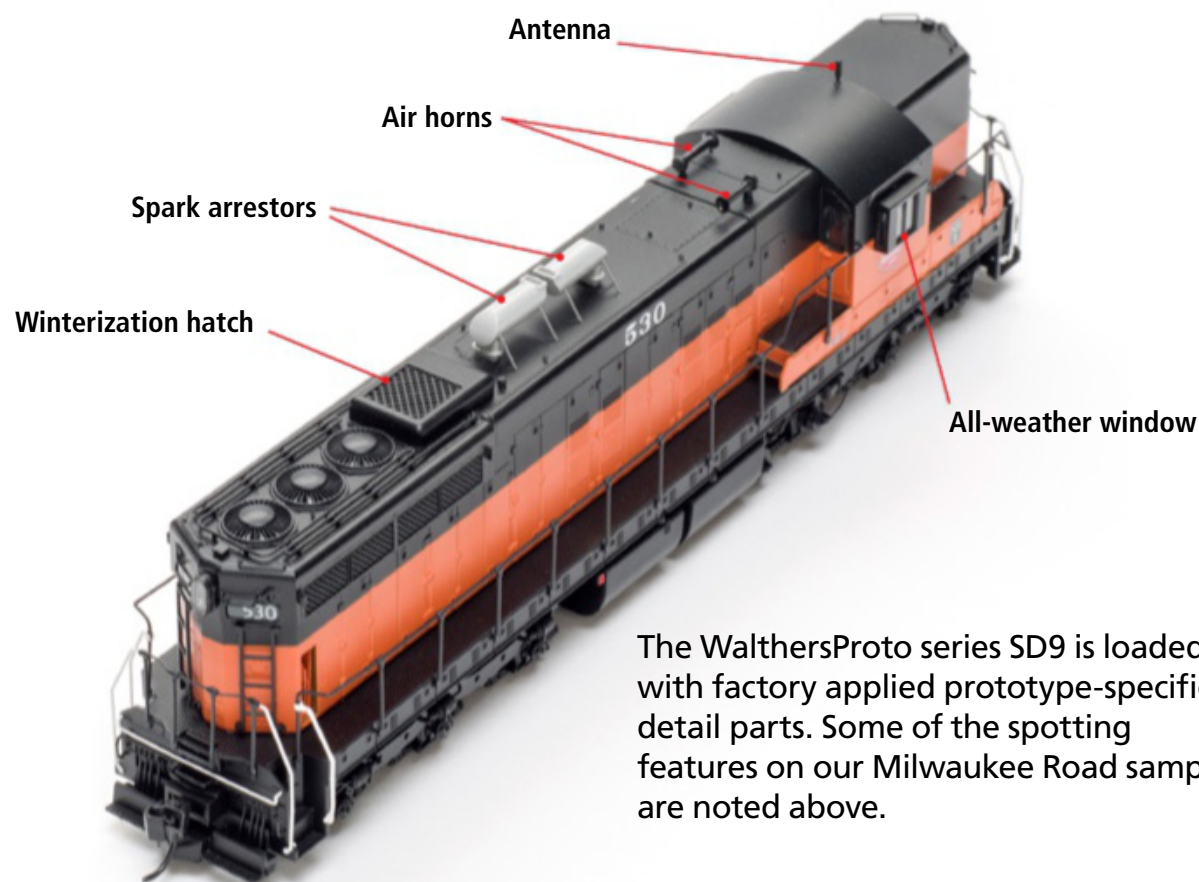
decoders. You can download it, as well as a user manual, at loksound.com.

DC operation. The model also performed smoothly on our DC test track. Sounds and lights started at 6.5V. The SD9 began creeping along at 2 scale mph when I advanced the throttle to 8V and accelerated smoothly to 55 scale mph at 12V.

The ESU decoder provides some realistic momentum in DC mode, making for realistic stops and starts. I especially enjoyed how the engine rpm increases before the locomotive starts moving, just like the prototype.

In DC mode, sound and light effects are limited to the directional headlight, engine rpm, and the compressor and other random sounds. As on the prototype, the number boxes are illuminated on both ends regardless of the locomotive's direction. Squealing brakes sounded when I quickly reduced the throttle.

Prototypical sounds and detailing make the WaltherProto SD9 a standout model of this first-generation diesel workhorse. – Dana Kawala, senior editor



The WaltherProto series SD9 is loaded with factory applied prototype-specific detail parts. Some of the spotting features on our Milwaukee Road sample are noted above.



Atlas N scale NJ Transit commuter train

N Scale fans of modern mass transit can now add NJ Transit's (NJT) current Bombardier dual-mode locomotives and multilevel passenger cars to their layouts, thanks to Atlas. The company also accommodates modelers of the Montreal area with locomotives and rolling stock decorated for *Agence Métropolitaine de Transport* (AMT), now known as Exo.

The prototype. The multilevel passenger cars came from Bombardier in several batches and were delivered starting in 2005. In total, 643 coaches have been delivered. There are three types of cars: cab cars, cars with bathrooms, and cars without toilets.

NJ Transit runs trains in electrified and non-electrified zones. This meant riders crossing between zones either had to switch trains or wait for diesels to be switched to electric locomotives or vice-versa. But in 2011, Bombardier began delivery of 26 dual-power (straight electric and diesel-electric) ALP-45DP locomotives. Now it was only a two-minute wait to convert the locomotive from onboard diesel-electric power to overhead catenary, or the reverse. NJ Transit calls this a one-seat ride.

The locomotives are equipped with two Caterpillar 12-cylinder diesel engines rated at 2,100 hp each to generate power for the traction motors and provide head-end power (HEP). When collecting power from the 12,500 volt, 25 hertz and 25,000 volt, 60 hertz overhead, the locomotive generates 6,700 hp.

The models offer much of the same fine detail and decoration of Atlas' HO scale versions reviewed in the July 2017 issue of *Model Railroader*.

The locomotives have black roofs and silver sides featuring NJT's trademark blue/magenta/orange fade striping. Detail painting includes the orange handrails on the sides of the cab doors and myriad warning labels prototypically placed around the locomotive. All lettering is crisp and color separations are sharp. All of the decoration matches prototype photos available online.

A non-operating pantograph can be posed up or down. Other separately applied detail parts include the modified Nathan K5LA horn and high-voltage wiring on the roof. The knuckle couplers are body-mounted.

The silver-painted passenger cars match the standard set by the locomotive.



The cab car has operating headlight, ditch lights, and marker lights.

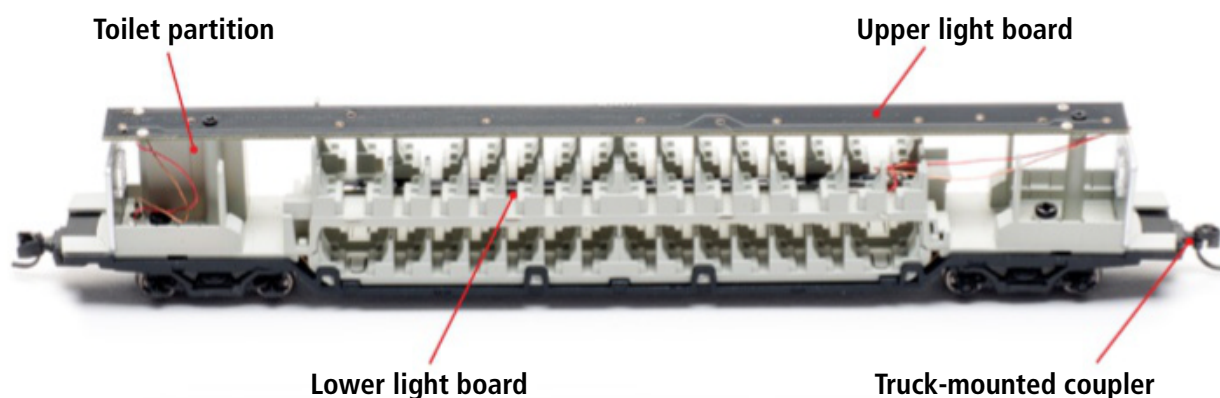
On the cab car, end details enhanced with paint include the subway-style barriers that swing out to protect passengers from falling between the cars on station platforms. Flush-mounted, tinted window inserts include painted rubber gaskets.

The cab car's illuminated headlights, ditch lights, and marker lights are directional in direct current (DC). In Digital Command Control (DCC), the lights are always on unless you install a decoder.

There are connections to add a decoder and speaker. Some ingenuity would be required to fit a speaker and provide sound holes for it. Electronic Solutions Ulm offers a sound file that can be downloaded to an ESU LokSound Micro Next18 sound decoder no. 58828 to provide the correct sounds.

Separately applied detail parts include tubular rubber diaphragms and modified Nathan K5LA air horns. Dimensions on all models are within scale inches of measurements shown in an online spec sheet included in a Bombardier proposal.

DCC and DC performance. I started testing the Atlas ALP-45DP on DCC. The engine started moving at 2 scale



The trailer cars feature full interiors, with toilet and cab details where appropriate. Couplers are truck-mounted except at the cab end of the cab car.



mph in speed step 1. Top speed was just over the prototype's 125 mph maximum under catenary at 129 scale mph.

Atlas includes a detailed list of the programmed functions. In addition to the traditional horn and bell sounds, the operator can trigger an electric mode with function 4. All of these sounds match prototype videos.

Although Atlas doesn't recommend operating the locomotive on DC power, the model behaved similarly to other DCC locomotives running on DC.

Sound started at 7.5V with an engine start-up sequence, and the locomotive began moving at 7.6V and 5 scale mph. Top speed was 117 scale mph at 12V, our standard maximum voltage for DC testing. Sounds were automatic, and the lighting was directional.

Testing on our N scale project layouts revealed the multi-level passenger cars are particular about clearances. On both the Red Oak and Canadian Canyons layouts, bridges and tunnel portals on curves presented challenges.

Atlas's well-detailed models offer N scale hobbyists the latest in commuter transportation. If you're looking to add this sort of operation to your model railroad, this is the place to start. – *Eric White, associate editor*

PERFORMANCE CHARTS	
DRAWBAR PULL	.96 ounce 12 N scale passenger cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
7.6 (start)	5
9	44
10	76
12	117
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	2
7	29
14	75
21	127
28	129

Facts & features

Price:

Locomotive: \$259.95 (DCC sound), \$149.95 (DC, no sound)

Cab car: \$69.95

Trailer: \$54.95

Trailer with slogan: \$59.95

Three-pack (includes cab car, trailer with toilet, trailer without toilet): \$179.85

Three-pack (includes locomotive [DC], trailer, and cab car): \$274.85

Manufacturer

Atlas Model Railroad Co. Inc.

378 Florence Ave.

Hillside, N.J. 07205

atlasrr.com

Era: 2012 to present

Road names: NJ Transit (multiple road numbers), *Agence métropolitaine de transport* (AMT) (multiple road numbers), Bombardier demonstrator (one road number)

Locomotive features:

- Dual-mode ESU LokSound V.4 decoder, operates on DCC and DC layouts (DCC version)
- Factory-applied railings, air horn, and antenna details
- Five-pole skew-wound motor with dual brass flywheels
- Illuminated directional LED headlight/ditchlights and red marker lights
- Knuckle couplers body-mounted at correct height
- Pantograph (non-functioning) can be positioned up or down
- Weight: 3.9 ounces

Trailer features:

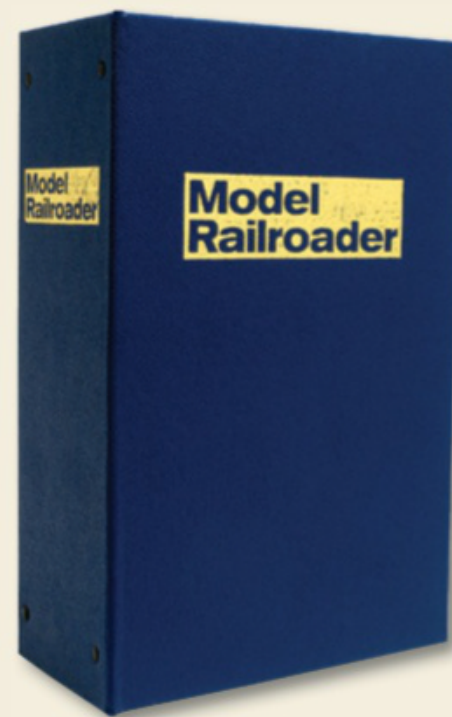
- Interior includes seat details and LED illumination
- Truck-mounted knuckle couplers mounted at correct height (cab end of cab car has body-mounted coupler)
- Metal wheels, in gauge
- Separately applied lift lugs, end barriers, and plastic diaphragms
- Weight: 1.2 ounces, .2 ounce less than NMRA RP-20.1

Additional cab car features:

- Directional LED headlight/ditch lights and red marker lights
- 21-pin plug for optional sound decoder, sound file available from ESU
- Weight: 1.3 ounces, .1 ounce less than NMRA RP-20.1

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Tangent Scale Models HO PS-3 hopper

Tangent Scale Models has released its HO scale Pullman-Standard PS-3 2,750-cubic-foot-capacity three-bay hopper in seven new paint schemes. The injection-molded plastic HO scale car features prototype-specific unloading door mechanisms, handbrake variations, and trucks; factory-installed and painted wire grab irons and uncoupling levers; and a removable plastic coal load.

Our sample is decorated as Great Northern no. 70160, part of the railroad's 70000 through 70299 series built by Pullman-Standard in 1957. Pullman-Standard built a second batch of 2750s for the GN in 1960, numbered 70300 through 70399. In addition, GN leased 150 ex-Boston & Maine 2750s from United States Railway Equipment in 1965. The three-bay hoppers were primarily used to haul coal, but also transported coke, sugar beets, and aggregates.

This run of GN hoppers are decorated in the 1966 Vermillion Red repaint

scheme, without the GREAT NORTHERN lettering across the car side. Our sample has 1970s era reweigh data, with brown patches under the new load limit and light weight. The BM 8-71 stencil indicates the reweigh was done at Mandan, N.D., in August 1971.

The Tangent car is well designed, with a one-piece body and separate sill. Steel weights are concealed between the car's exterior and plastic slope sheets inside the car. Additional smaller weights, painted to match the body color, are located inboard of the bolster on each end. The unloading door mechanisms, brake appliances, and related piping are separate, factory-applied parts.

The model closely follows prototype drawings published in the Great Northern Railway Historical Society Reference Sheet no. 257: *Great Northern Open Hopper Cars Numbers 70000-70949*. The model is equipped with Barber S-2-A roller-bearing trucks; as-built the GN cars rode on National C-1 trucks. Interior rivet detail was omitted, but this makes it easier to insert and remove the coal load.

A feature not included, perhaps because of molding limitations, are the vertical indentures in the side sheets between the exterior posts. Pullman-Standard sales literature indicates these were added to "minimize flutter under shake-out machine use and increase service life of sides."

The Kadee scale-head couplers are mounted at the correct height. The CNC-machined 33" wheelsets are properly gauged (semi-scale 33" wheels are available separately from the manufacturer). Without the load, the three-bay hopper weighs 4.0 ounces, correct per

Facts & features

Price: \$38.95

Manufacturer

Tangent Scale Models

P.O. Box 6514

Asheville, NC 28816

tangentscalemodels.com

Era: 1971 to 1999 (as decorated)

Road names: Great Northern (1970s reweigh [three month/year combinations] and 6-1965 Vermillion Red repaint in six road numbers), Boston & Maine (1972 repaint), Burlington Northern (7-1976 repaint), Louisville & Nashville (1959 "Dixie Line" scheme in 12 numbers and 9-1973 SLS repaint in six numbers), and Southern Ry. (1-1958 original red in six numbers). Three numbers per scheme unless noted; also available ready-to-run in gray primer and as undecorated kit.



This close-up view of the "B" end shows the many fine details applied to Tangent's 2750 three-bay hopper.

National Model Railroad Association Recommended Practice 20.1. With the load, the car weighs 4.3 ounces.

I ran the hopper in a train on our staff's Wisconsin & Southern layout. The car performed without incident while being pushed and pulled through no. 5 turnouts and 30" radius curves.

The Pullman-Standard PS-3 2,750-cubic-foot-capacity three-bay hopper was a workhorse car for many railroads. A solid train of Tangent Scale Models hoppers, or even a cut in a manifest freight, would look good on any HO layout set between 1957 and the 1990s. – *Cody Grivno, Group Technical Editor*

Rapido Trains HO Gunderson Husky-Stack

Rapido Trains has released an HO scale Gunderson 53-foot Husky-Stack well car, with etched-metal running boards, new trucks, and factory-installed grab irons. The die-cast metal cars are accurately finished and include two individually numbered 53-foot containers.

In the late 1980s and early 1990s, three- or five-unit drawbar-connected well cars were common ways to ship intermodal containers. But shippers who didn't have that many containers going to a single destination asked car-leasing company TTX to come up with a single-unit alternative. The result was the Well Runner, later renamed the Husky-Stack, which was designed to carry 48-foot containers in its lower well. When 53-foot containers came along, TTX and car builder Gunderson in 2004 began producing the extended version modeled by Rapido.

Paint, specs.

Our review sample was painted for the Canadian Pacific, in a slightly sun-faded red not quite orange enough to be Oxide Red nor bright enough to be Action Red. The paint was evenly applied, inside and out. The printing on the sides was crisp and straight; most of the type was legible under magnification, though a few of the smallest labels weren't.

The body is a single solid piece of die-cast metal, which maximizes the car's weight. Unloaded, the car weighs 4.5 ounces, which is 1.5 ounces under the guidelines of National Model Railroad Association Recommended Practice 20.1. This is to be expected for a car like this, which has no place to hide extra weights. But adding the two plastic cargo



containers bring the car up to 7.5 ounces, well over RP-20.1.

The car's length and appearance matched a specifications sheet I downloaded from the Greenbrier website (Greenbrier is Gunderson's parent company). The model's width, at a scale 10'-8½", was nearly a scale foot wider than the official extreme width of 9'-10¾". This was to be expected, as the car's walls have to be made proportionally thicker than the prototype's to increase the car's weight and durability.

Despite its length, the car had no difficulty navigating the 18" radius curves and no. 4 turnouts on our Beer Line project layout, even when coupled between cars of similar length. It would look better on broader curves, though.



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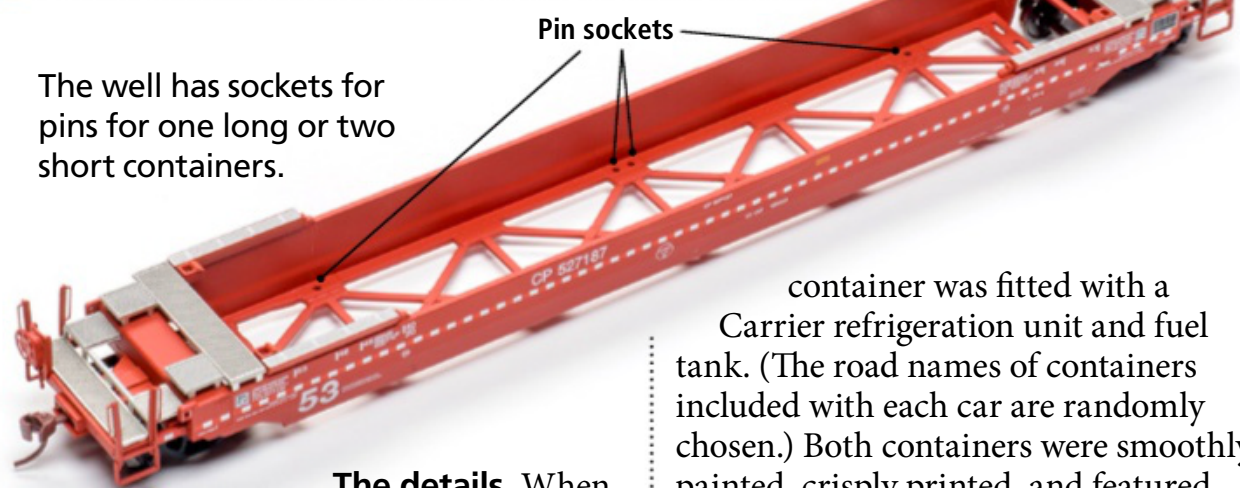
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Product Reviews



The well has sockets for pins for one long or two short containers.

The details. When the Husky Stack was announced, the model was to have molded plastic running boards. Since the original announcement, Rapido decided to include etched-metal footboards on molded plastic bases instead.

The car also comes with a packet of what appear to be user-applied platform railings, though I could find no drawings or photos of the prototype showing them in place, and Rapido's exploded view diagram doesn't show where to install them.

Our sample model came with two containers: a Canadian National smooth-side hi-cube and a Canadian Pacific insulated container. The CP

container was fitted with a Carrier refrigeration unit and fuel tank. (The road names of containers included with each car are randomly chosen.) Both containers were smoothly painted, crisply printed, and featured impressively fine rivet detail. The alignment pins on the bottom of the containers engaged with sockets in the car well and on the top of the containers to keep them in place during car movement. The sockets in the well floor will also secure two 20-foot containers or one 40- or 48-footer.

The model of modern intermodal. In North America, modern railroading means double-stack traffic. Rapido's upgraded Husky-Stack well cars would look great in a unit train heading for an intermodal yard on any HO scale layout set in the last 15 years. – *Steven Otte, associate editor*

Facts & features

Price: \$49.95

Manufacturer

Rapido Trains
500 Alden Rd., Unit 21
Markham, ON L3R5H5, Canada
rapidotrains.com

Road names: Canadian Pacific (six road numbers), Trailer Train (DTTX reporting marks; as-delivered paint scheme in six numbers, "Forward Thinking" herald in six numbers, pink "On Track for a Cure" scheme in one number), and undecorated.

Era: 2004 to present

Features

- Blackened metal wheels, in gauge
- Die-cast metal body
- Etched-metal and plastic walkways
- Macdonald-Cartier metal knuckle couplers, mounted at correct height
- Two 53-foot hi-cube containers
- Weight: 4.5 ounces empty (1.5 ounces below NMRA RP-20.1)

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"Make him come get me"

Model Railroader contributing editor Tony Koester and I often toss one another ideas for columns. Recently, he gave me one that made me laugh out loud. An anonymous Burlington Northern Santa Fe conductor delivered a delicious dose of reality to an operating session on James McNab's former Iowa Interstate Grimes Line layout. Referring to his engineer, the conductor quipped: "He has wheels and rails. Make him come get me."

Railroading is hard work. Sill steps, grab irons, and ladders tire legs. Try hanging on the side of a car during a shove, one hand gripping a grab and the other keying a radio mike. Lift a 40-pound end-of-train device into place or carry an 80-pound knuckle a quarter mile. Safety and regulations may demand certain specific steps to be followed, but railroaders are like any other workers. They'll find ways to save wear and tear on one another.

Conductors inconsiderate enough to make old brakemen out of young brakemen aren't well liked. Picture a hot, humid summer day with air thick enough to paddle. A seasoned conductor barks orders to his crew, positioning them to operate switches, couple and uncouple cars, and apply hand brakes. This leaves a brakeman a couple hundred yards away. Sending the engine to him gives the guy a break, saving a walk over uneven ground, stepping over rails, ballast grinding into shoe soles.

This reminds me of a railfan trip I made with three friends in the early 1980s. We caught up with a Delaware & Hudson freight stopped in northeastern Pennsylvania on a raw, gloomy December day. A crewman facing a half-mile walk back to the head end jumped into our car before we finished asking "Need a ride?" He returned the favor with "Why don't you all come to Binghamton with us?" and three of us climbed aboard without a second thought. Our driver wound up on the short end of the stick. We waved to him at every grade crossing he reached.

As modelers, setting out a single car uses little more than a minute. A flick of an uncoupling pick lets the power pull the car away from the train. Lining a switch sends the shove back into an industry track. Another uncoupling flick starts the engine hustling back to the rest of its train. Moments later, the train departs.

There's much more required of the prototype. A brakeman will get off the engine a car-length before it stops, saving steps and putting him close to the place where he'll uncouple the car. He closes the angle cock behind the car. Signaling to the engine ahead, the brakeman uncouples and rides the car. He dismounts at the switch, unlocks it, and guides the shove into an industry track. Next, he'll wind up the hand brake to secure the car, close the angle cock behind the engine,



Jerry's favorite conductor, Ron Communale, delivers unmistakable "come get me" body language to his engineer.

Jerry Dziedzic photo

uncouple, and wait for the engineer to pull clear of the switch. He'll line and lock the switch for the main track, step up on the engine, and ride back to the train.

After coupling onto the train, the engineer will "stretch" the joint, testing a successful coupling. "Lacing 'em up," or joining the air hoses and opening the angle cock to restore air to the train, comes next. Finally, the engineer will make a "set and release" to ensure the train's brakes apply before leaving.

I enjoy thinking through switching situations during operating sessions, simulating the way a conductor might position members of his crew. I'll bring an engine to a stop at a switch, estimate how many steps a brakeman must

walk, and count them. I allow the time it would take to fight to open the lock chain and turn the switch key before throwing the switch. This slows moves to a realistic pace, no matter how tempting it may be to rush as if a brakeman could jump from switch to switch like a grasshopper.

My son, Mark, and I worked a job at a local operating session long years ago when he was a teen. He was engineer; I was conductor. Placing a car required a long runaround move. Mark heard about it when he left me behind, perhaps eight real feet away, as he started the engine back to the train. I'll not forget his astonishment, wondering what kind of father could scale himself down to HO size to make him come get me. **MR**



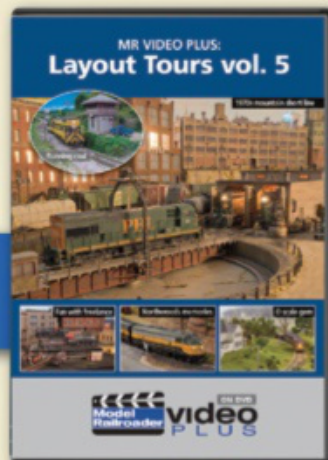
I ENJOY THINKING THROUGH SWITCHING SITUATIONS, SIMULATING THE WAY A CONDUCTOR MIGHT POSITION MEMBERS OF HIS CREW.
— JERRY

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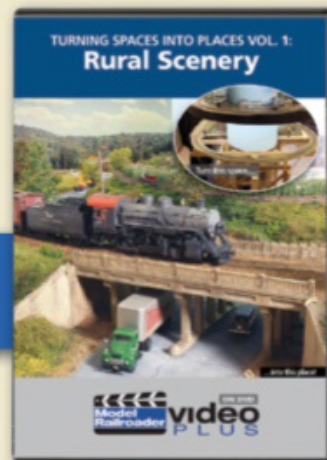
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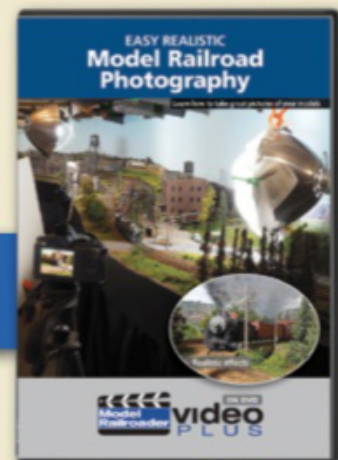
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Conducted by Steven Otte

Nickel Plate Road train No. 43, a westbound fast freight from Toledo, eases into the siding as "Rocket" FT-98 behind 2-8-2 Mikado no. 597 holds the main on Warner Clark's O scale Proto:48 layout. The Mikado is an Overland brass import; the Geeps are Red Caboose kits with P&D Hobbies drives. Rich Bourgerie photo

MORE ON THE WEB

Rich Bourgerie's photo of Warner Clark's Proto:48 layout is this month's wallpaper. Get it at ModelRailroader.com



Norfolk & Western no. 1633, a high-short-hood Electro-Motive Division SD40-2, emerges from Alan Tunnel, pulling a coal load from the Hini Mining Co. and heading for the marshalling yard at Rod, W.Va. The scene is an 18" x 24" HO scale diorama built and photographed by Roderick Preston of Knoxville, Tenn. The locomotive is an InterMountain Ry. model; the railroad maintenance storage building was built from a wood kit by RailroadKits.com.

Send us your photos

Trackside Photos is a showcase for the work of *Model Railroader* readers. Send your photos (digital images 5 megapixels or larger) to: *Model Railroader*, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612; or upload them to <http://fileupload.kalmbach.com/contribute>. For our photo submission guidelines, contact associate editor Steven Otte at sotte@mrmag.com.

It's a dual Alco meet when New York Central no. 8313, an RS-3, takes vacationers north while a freight led by an FA-1 passes southbound. Michael Decker of Altamont, N.Y., staged the meet on his HO scale New York Central Adirondack Division layout. The RS-3 is an Athearn product and the FA-1 was made by Wm. K. Walthers, Inc.





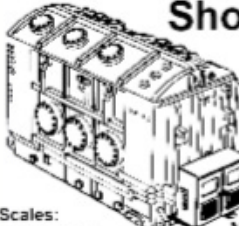
Canadian Pacific diesel switcher no. 8117, a General Motors Diesel Division SW1200RS, picks its way along a dark spur after delivering a pair of loaded tank cars to the oil distributor farther down the line. Jerry Clement of Calgary, Alta., photographed the scene on his freelanced HO scale switching layout. He kitbashed the central industry from a Walthers kit. The locomotive is from Rapido Trains.

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CLOSING DATES: Feb 2020 closes Nov. 21, Mar closes Dec. 17, Apr closes Jan. 20, May closes Feb. 24, June closes Mar. 23, July closes Apr. 20, Aug closes May 22, Sept closes June 19, Oct closes July 20, Nov closes Aug. 20, Dec closes Sept. 21.

Schedule of Events

AL, MOBILE: Model Train Show sponsored by South West Alabama Railroad Modelers (SWARM). Via Health, Fitness and Enrichment Center, 1717 Dauphin Street. March 14-15, 2020, Saturday 9:00am-5:00pm; Sunday 11:00am-4:00pm. Admission \$5.00, family \$10.00, under 10 free. Operating layouts, demonstrations and dealers. Contact Charlie Boyer, 251-454-0572, email charlieboyer66@att.net

AR, BENTONVILLE: Sugar Creek Model Railroad Historical Society, 17th Annual Show. Benton County Fair Grounds, Highway #12, Saturday, February 29, 2020, 9:00am-4:00pm. Adults \$8.00, under 12 free. Keith Johnson, 479-871-2802, E-mail: train072@cox.net, NWA Train Show, PO Box 1283, Farmington, AR 72730. www.sugarcreekrailroadclub.com

CO, DENVER: Rocky Mountain Train Show March 7-8, 2020. Denver Merchandise Mart, 451 East 58th Avenue, 80216. Saturday, 10:00am-5:00pm, Sunday 10:00am-4:00pm. 2-1/2 acres of model trains of all scales, 30 layouts, 700 sales tables, clinics and more. Admission \$10.00 under 12 Free, Free Parking. 303-364-0274 www.RockyMountainTrainShow.com information@RockyMountainTrainShow.com

CT, WALLINGFORD: Classic Shows, LLC will hold a Train and Toy Show on Sunday, February 9, 2020 from 9:00am-1:00pm at Zandri's Stillwood Inn, 1074 South Colony Road, (U.S. Route 5), exit 13 on Interstate 91. Admission \$6.00, children 15 and under free with an adult. For information, 203-926-1327 or www.ClassicShowsLLC.com

FL, FORT MYERS: Scale Rails Annual Train Show. Araba Temple, 2010 Hanson Street. February 15-16, 2020. Sat 10am-4pm & Sun 10am-3pm. Dealers and Collectors: 100+ tables; new and used equipment for all scales. Admission Adults: \$7.00, Teens: \$2.00, Children under 12: Free. Contact Jim Morse, 239-471-2960

FL, FT. PIERCE: TCA Toy Train Show, The Fenn Center, 2000 Virginia Avenue. January 25, 2020. Open 9am-2pm. Admission: \$5, Children under 13 Free. Operating Layouts, Trains for Sale, Door Prizes, Kid's Play Area & Scavenger Hunt. Contact: Al Galli at 772-219-7653 or algalli@embarqmail.com

FL, JACKSONVILLE (REGENCY-BEACHES): The First Coast Model Railroad Society Meet-and-Greet, 3rd Sunday of every month. 750 sqft double level freelance HO layout 50% complete. On30 modular layout. Gated location, contact Stu Shef stushef@yahoo.com 571-215-5475 24-48 hours in advance. Check out www.FCMRS.club; youtube.com search "FCMRS"

FL, JACKSONVILLE: 42nd JACKSONVILLE RAIL FAIR. Prime Osborn Convention Center, 1000 Water Street. Saturday, February 8, 2020, 9am-5pm. Adults: \$9, under 12 free. Over 350 tables. Large operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954. Email: rrshows@aol.com

FL, KISSIMMEE: Regal Railways Presents Toy Train Collectible & Hobby Show, 2000 Neptune Road. Saturday, February 15, 2020, 9:00am-2:00pm. Admission: \$5.00 adults. Vendors, operating layout, videos playing. Lunch items for sale. Contact Joe: 727-244-1341 or visit: www.regalrailways.com for more information.

FL, SARASOTA/BRADENTON: 43rd RealRail Train Show. March 21-22, 2020, Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Bradenton Area Convention Center, 1 Haben Blvd, Palmetto, FL. Door prizes, interactive Lionel layout, Florida LEGO user group layout, kids' HO layout, 150 vendors. Adult admission \$8, Children under 13 free. Contact David Fontaine for more information: 941-685-2221 or david_f_34205@yahoo.com

GA, SAVANNAH: Coastal Rail Buffs 31st Annual Model RR Train-Show. National Guard Armory, 1248 Eisenhower Drive, Zip: 31406. January 25-26, 2020, Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Adults 2 day \$7.00; Students/Seniors \$5.00, Active Duty Military/under 12 FREE. Dealer tables, operating layouts in O, HO, N. See www.coastalrailbuffs.org

IA, MONTICELLO: M.R.R.C. Annual Train Show and Swap Meet. Berndes Center, Jones County Fairgrounds, 766 N. Maple St. Sunday, January 26, 2020, 9:00am-3:30pm. Admission \$5.00, children under 12 free. Tables \$20.00. Vendor set-up on Saturday available. Contact: Ron Ackermann, 319-480-5671 or rack611@gmail.com

IA, SOUTH SIOUX CITY: Sioux City Cosmopolitan Train Show. Delta Hotel Center, 485 E. 5th Street, South Sioux City, Nebraska. March 7th 9am-4pm & March 8th 10am-4pm. Adults \$7, children 12 and under FREE. 10+ layouts, 130+ vendor tables, 2 seminars Saturday. All scales. Books, Videos, New & Used, Collectibles, Food. Info: 712-898-6935 Johnkoskovich@aol.com

IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the State Fairgrounds. Sunday, March 15, 2020, 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! For info call Ray at 217-544-4295 or visit www.springfieldtrainfair.com

IN, MICHIGAN CITY: Duneland Model RR Club Train Show and Swap Meet. IBEW Building, 301 East 8th St. Sunday, March 1, 2020, 9:30am-2:00pm (Chicago time). Adults \$4.00, youths 6-13 \$1.00, 5 and under free. Contact: Dave Novak at trains86@frontier.com or 219-778-1186.

IN, MIDDLEBURY: Essenhaus Train Show. Saturday, February 22, 2020, 9:00am-2:30pm. On the Das Dutchman Essenhaus campus, 240 US 20. All gauge, operating layouts, repairs, parts dealers, selling and trading. Display tables \$20.00 each. Admission cost \$3.00/person or \$12.00/family. (Children under 3 FREE w/adult). Essenhaus.com or call 800-455-9471 (x443).

IN, NOBLESVILLE: Central Indiana Division/NMRA Train Show. Hamilton County 4H Fairgrounds, 2003 Pleasant Street, Noblesville, IN. Sunday January 26, 2020, 10:00am-3:00pm. Admission \$3.00, Family \$5.00. Dealers, Portable Train Layouts, Clinics, Door prizes. Dealer tables \$12.00. Contact Jim Shellhaas at 317-750-4834 or jshellha@butler.edu

KS, LAWRENCE: Lawrence Model Railroad Club 19th Annual Train Show and Swap Meet. Crown Toyota, 3400 S. Iowa St. February 8-9, 2020, Saturday 9am-5pm; Sunday 9am-3pm. Admission: Adults \$6.00 donation, children 12 & under free with paid adult. Contact: Jim Turner, 785-842-5174 or more information at: www.lawrencemodelrailroadclub.org

MA, AUBURN: Worcester Model Railroaders Annual Show at Auburn Elks Club, 754 Southbridge St. Sunday, February 23, 2020, 10:00am-3:30pm. Admission: \$5.00, children under 12 free. Two floors of dealers, exhibits, modular layouts. Contact: Ralph Kimball, 508-868-5189, ralphkimball@charter.net or www.wmrr.org

ME, AUGUSTA: Whitefield Lions Club 34th Annual Model Railroad & Miniature Dollhouse Show, National Guard Armory, Western Avenue. February 15, 2020, Open 10:00am-3:30pm. Adults \$5.00, under 12-free, family-\$10.00. Operating layouts, miniature displays. Refreshments will be available. Contact: Steven Laundrie, 50 Fairview Ave., Randolph, ME 04346. 207-582-1410, slaundrie@roadrunner.com, Website: www.whitefieldlionsclub.com/modelrailroaddollhouseshow

MN, WOODBURY: Newport Model RR Club Flea Market & Train Show. Woodbury High School, 2665 Woodlane Drive, Zip: 55125. January 18, 2020, 9:00am-2:00pm. Admission \$5.00. April 25, 2020 is the next show. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Ed, 651-233-3310 or Mark, 651-207-7747

NC, ASHEVILLE: Asheville Train Show. Western North Carolina Agricultural Center. February 28-29, 2020. Friday 12:00pm-7:00pm and Saturday 9:00am-5:00pm. Admission \$6.00, under 10 free. All scales, all gauges, collectibles, artifacts. Operating layouts, Thomas The Tank Engine, hundreds of vendor tables. More: www.Asheville-Trainshow.com

NC, NEW BERN: 25th Annual Train Show, New Bern High School, 4200 Academic Dr. March 7-8, 2020, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Admission \$7.00, under 12 free w/adult. Operating layouts, 90 vendor tables, food concession, door prizes. Carolina Coastal Railroaders, George Creathorne, 201-213-6907

NY, BUFFALO/HAMBURG: WNYRHS Train & Toy Show. February 15-16, 2020. Fair Grounds Event Center. 5820 South Park Ave. Hamburg, NY 14075. Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. 400 tables. Adults: \$8.00, Children 12 and under FREE. Bring the family! Stroller friendly! Layouts, demo's, children's area. Contact: Art Toale 716-837-1791, E-mail: wnytrainshow@hotmail.com

NY, SYRACUSE: Syracuse Model Railroad Club Open House. Eastwood American Legion, James Street at Nichols Ave. Sunday, February 23, 2020, 10:00am-4:00pm. \$4.00 Adults, \$2.00 12 and under, \$10.00 family maximum. Large HO layout, FreeMo, vendors.

OH, KIRTLAND: Lakeland Community College (AFC), 7700 Clocktower Dr., Kirtland, OH 44094. Railfest - NMRA MCR Div. 5. March 14-15, 2020, 10:00am-4:00pm. All Gauge Train Show with over 400 tables. For Information: 440-357-8890 or www.Railfest.org

OH, MT. HOPE: CJ Trains Spring Train and Toy Show. Mt. Hope Event Center, 8076 St. Rt. 241, Zip 44660. Saturday, February 29, 2020, 10:00am-4:00pm. Admission: \$5.00, under 12/FREE. \$25.00/dealer table, 600+ tables. Contact: Jon Ulbright, 330-262-7488, cathijon@sssnet.com, www.cjtrains.com (GPS info: Millersburg, OH 44654)

OH, TOLEDO: Greater Toledo Train & Toy Show. Owens Community College (SHAC), 30335 Oregon Rd., Perrysburg, OH 43551. Sunday, March 8, 2020, 11:00am-3:00pm. Early Birds: 9:00am-3:00pm. Adults \$6.00/Early Birds \$10.00, 12 and under FREE w/ paid adult. Contact: Randy Ramsey, 1566 South Ave., Toledo, OH 43609, 419-215-4181, email: toledotoymasters@gmail.com, website: toymasters.org

SC, EASLEY: CRMHA MODEL TRAIN EXPO 2020. Friday, February 7th, 1:00pm-7:00pm. Saturday, February 8th, 10:00am-4:00pm. Impact Center at Rock Springs Church, 207 Rock Springs Road, Easley, SC 29642. \$8.00 Adults, Children FREE. www.CRMHA.org 513-325-8850 or trainshow@crmha.org

TX, HOUSTON: Greater Houston Train Show, Stafford Centre, Cash/Murphy Rd., Stafford, TX. Saturday, February 15, 2020, 10:00am-4:30pm. Clinics, vendors, layouts, contest. \$6 adults, \$1 children, \$12 family. Free parking. Steve.sandifier@sbcglobal.net

TX, PLANO: Dallas Area Train Show. Plano Event Center, 2000 E. Spring Creek Parkway. January 18-19, 2020, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Adults \$10.00, 12 and under free w/adult. All scales. 80,000 sq. ft. of layouts and vendors. Information: Chris Atkins, chris@railroadmodeler.com 469-438-0741. Visit www.dfwtrainsshow.com

WA, CHEHALIS: Lewis County Model Railroad Club, Annual Spring Train Show and Swap Meet. Southwest Washington Fair Grounds, Blue Pavilion Building, 2555 N. National Ave., Zip: 98532. April 4-5, 2020, Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Admission \$5.00. Free parking. Contact information: Ted, 360-985-7788 or tedstrains@lewiscounty.com

WA, SPOKANE: River City Modelers Spring Train Show, Spokane Fairgrounds, 404 N. Havana. Sunday, March 8, 2020 from 9:30am-3:30pm. Admission \$6 for adults, 12 & under free. 200+ tables of Railroad-related items for sale, operating layouts, Free-MO, Operation Lifesaver & more. Free parking. For info on table rental or general info, contact: Shirley Sample, 509-991-2317 or email: shirley@busnws.com

WI, MADISON: Mad City Model Railroad Show and Sale. February 15-16, 2020, Alliant Energy Center. Saturday 9am-5pm, Sunday 9am-4pm. 90,000 sq.ft. of layouts, clinics, exhibits, and vendors. Adults \$12, Seniors \$11, Children (5-15) \$6, under 5 Free. 2-day pass \$16. Ticket deals: nmra-scwd.org

WI, STEVENS POINT: CWMR 23rd Annual Model Railroad Show. Holiday Inn Convention Center Hotel. 1001 Amber Avenue. February 1-2, 2020. Saturday 9:00am-5:00pm. Sunday 10:00am-3:00pm. Adults \$4.00, \$2.00 kids 12-17. Many layouts, swap/sales tables, vendors. Contact Jim Miller, 715-340-0265; email: jimbro67@gmail.com

WV, CHARLESTON: KVRA Model Railroad Show. Arena Events Center, St. Albans, WV. February 22-23, 2020. Saturday, 10am-5pm, Sunday, 10am-3pm. Admission \$5.00, under 12 free. Free parking. Refreshments available. Vendor tables \$25.00. Clinics, operating layouts, new and used equipment for sale. www.kvrailroad.org Contact Joe: 304-539-6721 or kvrailroad@gmail.com

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These are the 'good new days'

I sat in on an online exchange between a pair of model railroaders, Dave Burman and Barry Karlberg. Both model modern railroads, and Barry is a retired professional railroader. We non-pros do our best to consider how the full-size railroads do and did things, but I'm almost certain we come up short regarding how the professionals view their jobs. Our conception of the good ol' days may not, in fact, be rooted in reality, and the modern era has more appeal than many of us realize.

Dave Burman: "I grew up as a late baby boomer, and if modeling what you grew up with was what you should do, I should be all over Paducah & Louisville Geep rebuilds, Chicago Great Western/Chicago & North Western F units, and the Technicolor Rock Island. I lived a block from the Waterloo RR, a very 'modelable' short line with a lot of interesting things going on. But it was a lot of the same thing, and the railroads were often on life support back then. I still like to see that, but I prefer modeling something different. Then-new 54-foot covered hoppers were exciting, even though I saw 40-foot boxcars, as well.

"Today, I see those same covered hoppers, often with a patina of rust, on trains being loaded on grain sidings, or diverted into fertilizer and potash service. I live along the modern Burlington Northern Santa Fe by choice. I see many heavy manifests along with the container, tank, sand, grain, and unit trains. They run a local each day out of La Crosse, Wis., in each direction, along with a town job. Across the river, CP Rail and the occasional Union Pacific local in



Joe Atkinson models the Iowa Interstate in 2005, which provides the opportunity to model IAIS locomotives built in the 1950s to 1970s juxtaposed against modern power from connecting railroads – here, the Union Pacific at Council Bluffs, Iowa. Joe Atkinson photo

Winona, Minn., also do switching, along with the freight action.

"I model the Twin Cities strictly for the wide variety of interesting things that get switched and who does it when. I don't lack for neat cars and engines to model; I can even find a lost 40-foot boxcar or two and a couple of older tank cars in company service, not to mention Alcos, Montreal Locomotive Works power, strange rebuilds, and the odd General Electric. Good times, to be sure!

"The manufacturers keep helping us with better models that need less detailing, as they come from the factory very close to the prototype.

"Modern-era prototypes and modeling go together well. Joe Atkinson's Iowa Interstate is just one railroad where I can cite that happening based on the models at the annual St. Louis Railroad Prototype Modelers Meet. I'm still relatively young, and I see plenty of guys and gals younger than I am."

Barry Karlberg: "These are the 'good new days.' Growing

up as a baby boomer and working for several years as a railroader, I lived through the tail end of the transition era. While I did ride a steam-powered branchline passenger train in the '50s and watch fast, colorful passenger trains on the main lines, the future wasn't pretty. Railroads weren't making much money, trucks were taking freight, and the public had deserted the passenger train.

"Later, it was common when working with 'old heads' to find they didn't like their jobs much, and all they could see was disappointment, sadness, and anger.

Former railroaders (and modelers) like Chet French and Bob Drenth – who, like me, lived through those challenging times and are willing to share memories of the past – are rare. It's worth your while to listen to their stories to glean accurate prototype information. Most

retired railroaders don't want to remember those days.

"Not until the '80s and the rebirth of regional/short lines, along with monster money-making road freights, did things start to turn around, making the period from 2000 on one of the brightest times to model. Add in the growth of operating museum railroads with beautifully restored equipment and we have, in effect, the best of times without all the hassle.

"It's becoming more and more evident at Railroad Prototype Modelers meets that modern railroading is

being modeled – albeit, with a lot of rust and graffiti."

So there you have it, from two modern-era modelers who lived through the popular (among modelers) transition era yet prefer to model today's railroading. Your mileage may vary, of course. **MR**



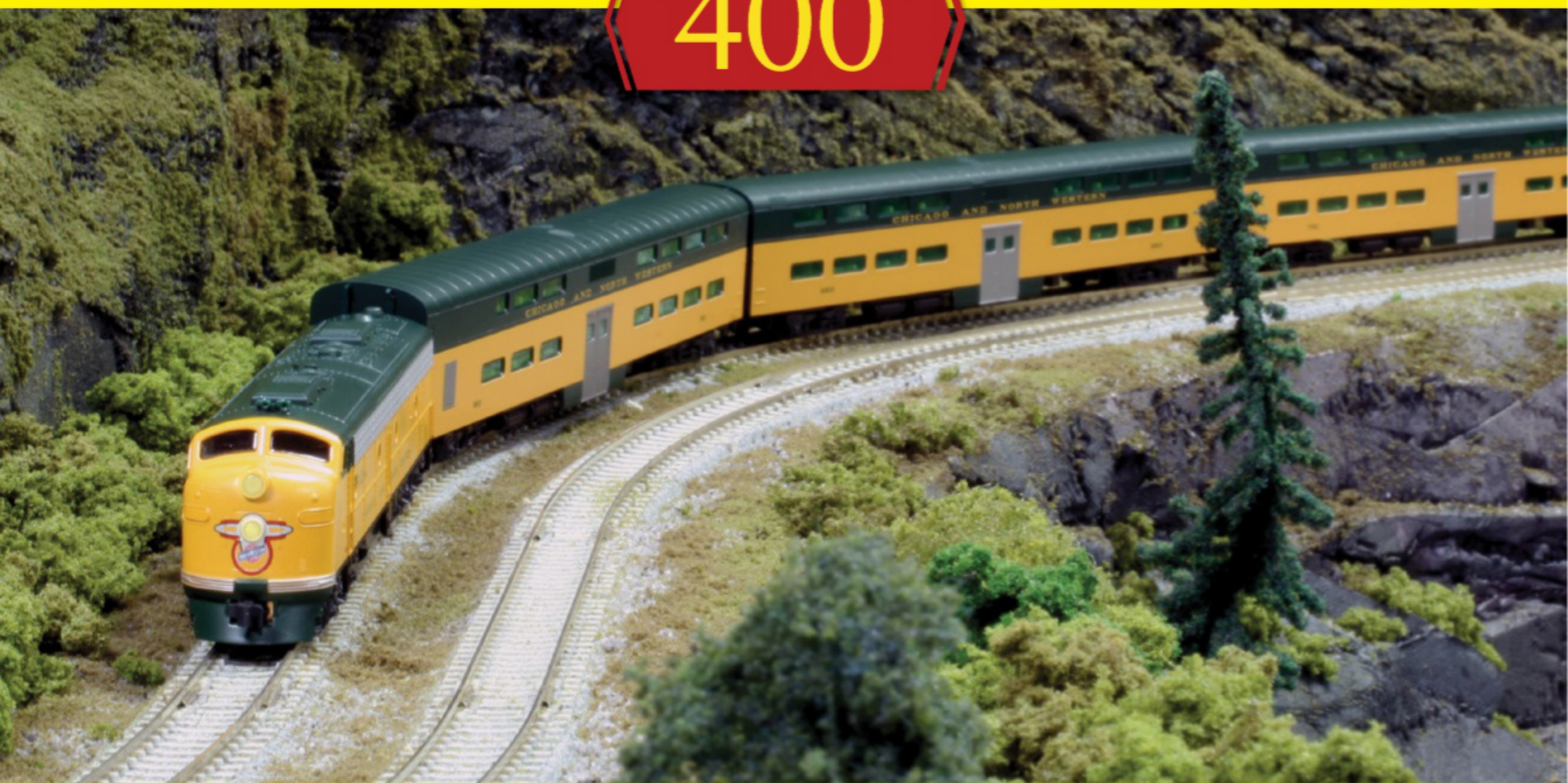
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