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diesel tested** p.56

October 2022 • Trains.com

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NORTHEASTERN CABOOSE

**HO
SCALE**

ONE STYLE DOES NOT FIT ALL!

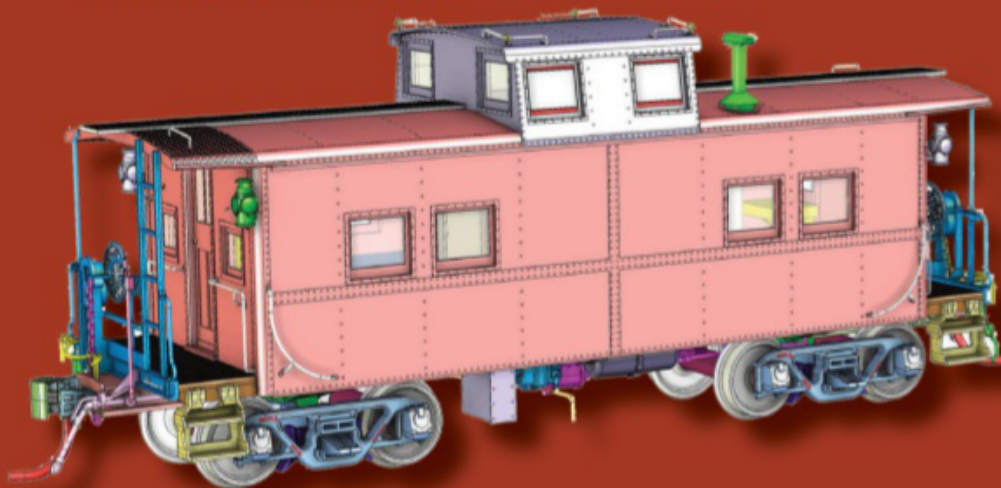
READING



Three styles of truck: Andrews, Birdsboro and Taylor
Two different cupola roofs
Two different end railings
Three different cut levers
Two-tread or three-tread steps
Three different sides
Three different ends walls



Two running board styles
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Bob Phelps, senior product designer for Peco, built the HO scale Green River, Wyoming, layout to run big American trains in England

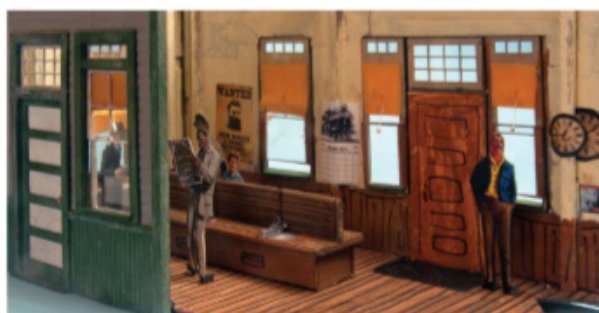
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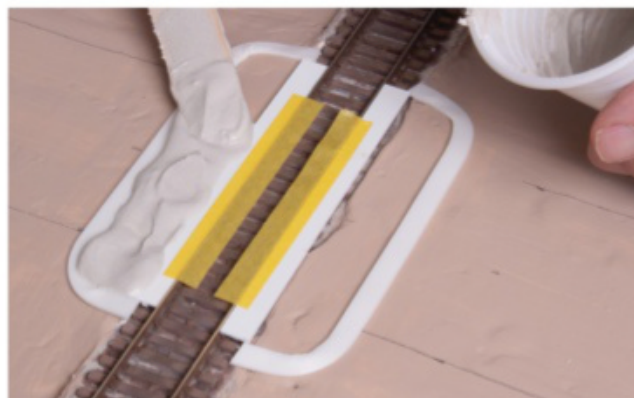
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On the cover: The UP's Challenger snakes through the Wasatch Range on Bob Phelps' HO scale Green River, Wyo., layout. Steve Flint photo



Next issue

In November, visit an HO layout that switches from the '50s to the '80s. Plus, get scratchbuilding tips, model a MOW gondola, see a five-railroad parade ground in N, and more!

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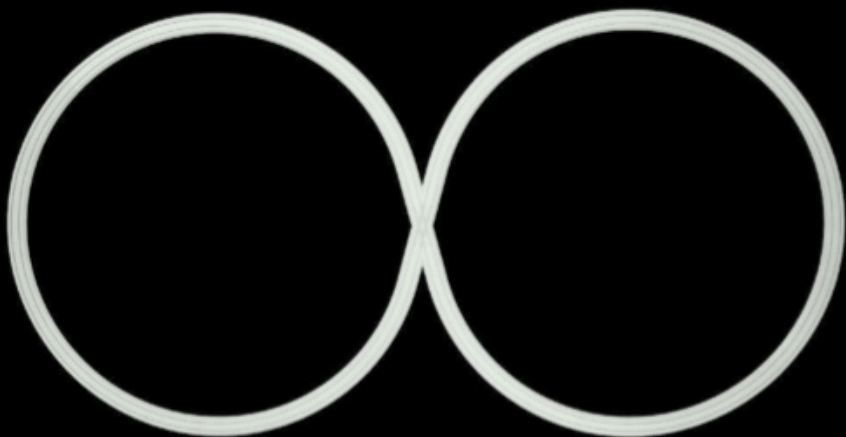
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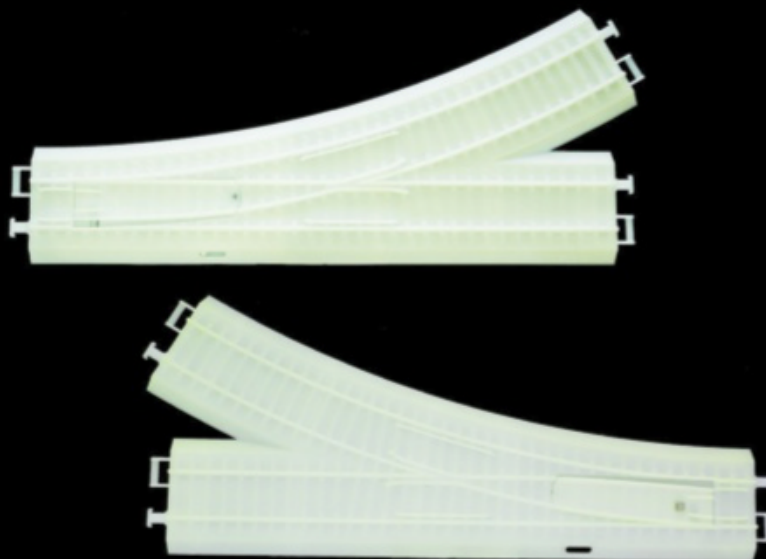
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For more information on the rest of our Trainkids Glow in the Dark & Original product lines, visit your local hobby shop or shop.atlasrr.com!





It's My Railroad

Need to stay on track with "regular-guy" techniques?

Trains.com members get exclusive access to host Steve Brown's video series, "It's My Railroad." Steve has more than 30 episodes showing off his enthusiastic approach to building an N scale (1:160) layout. In episode 31, this regular-guy modeler finishes his construction of Star Industries – a rail-served business. Watch as he adds scenery and details to the structure and right-of-way, including a proper perimeter fence. So check it out, and as Steve says, "Get started right now!"



State Line Route

Another project is coming to an end. The State Line Route is just about finished. This N scale stand-alone model railroad inspired by the legendary HO scale Milwaukee, Racine & Troy started back in July 2021. The video series covers the construction process from initial overview and planning to building benchwork, scenery, and more. Not a Trains.com member? You can also read about its debut in the January 2022 issue of *Model Railroader* written by Editor Eric White.



New Products

What's on your layout? Trains.com Assistant Digital Editor Nastassia Putz and *Model Railroader* Senior Editor Cody Grivno team up to bring you new product releases daily under News & Reviews on Trains.com. From locomotives to boxcars, from track to a kid's train set, we post a variety of items. Looking for a specific scale? *Model Railroader* product news include HO, N, O, S, and Z scales.

Note: Product release dates and prices are not always available. So reach out to the manufacturer or your local hobby store. If you're a manufacturer with news or new product releases, email Cody at cgrivno@kalmbach.com for more information.



MR&T diesel paint schemes

Blast from the past. *Model Railroader* Senior Editor Cody Grivno presents several photo galleries on Trains.com (just click the Video & Photos tab) displaying paint schemes and how they've changed on the Milwaukee, Racine & Troy layout. Just like with full-size railroads, this freelanced layout evolved over time. So take a little R&R and enjoy scrolling through the photos that depict 45 years of transformation on the MR&T.



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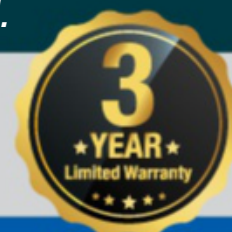
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An addition, a loss, and a bit of change

We've been making changes at *Model Railroader*, including adding to our staff. The newest addition is associate editor Bryson Sleppy.

Bryson moved to the Waukesha area last year to take a position at Wm. K. Walther's Inc. after graduating from Anderson University in Indiana. He joined us here at *Model Railroader* in July.

In addition to the product experience Bryson gained at Walther's, he brings experience with Digital Command Control (we have him working on a WiFi-based DCC installation right now), and he's building a compact N scale layout in his apartment.

Bryson is a rail-fan and aircraft

enthusiast, taking advantage of living in Wisconsin to visit the Experimental Aircraft Association's AirVenture in Oshkosh recently.

We're looking forward to getting Bryson involved in some more projects here at *Model Railroader*, and readers will get a chance to meet him at Trainfest here in Wisconsin on November 12th and 13th.

But while we're welcoming Bryson, we're also marking the passing of Peco product designer Bob Phelps in March.



Bryson Sleppy joined the *Model Railroader* staff in July. Jennifer Berry photo

Bob is the guy we need to thank for Peco's excellent code 83 line of North American style track components. It shouldn't be a surprise that Bob was a U.S. prototype modeler.

The folks at *Continental Modeller*, one of Peco's two model railroading magazines, shared a story about Bob's Union Pacific Green River HO scale layout, along with highlights of Bob's career.

Bob was no stranger to change, as his model railroad was built, then rebuilt, then rebuilt some more, and finally moved from the U.K. to France over its lifetime. That's Bob's layout on the cover, and the story starts on page 30.

Of course, change is something we all deal with, including with technology, and another story shows how modeler Colin Clews designed and built a touch-screen panel connected to an Arduino microcontroller to operate the switch motors on his compact N scale layout.

This slick installation simplifies the complex wiring of double-pole double-throw



switches and fragile light-emitting diode leads. The story is on page 51.

For more excellent N scale modeling, check out Ron Papiercavich's Lehigh Valley layout on page 36. Ron's layout was featured in *Model Railroad Planning 2019*, and Ron's been making changes since then. Change is all around us!

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

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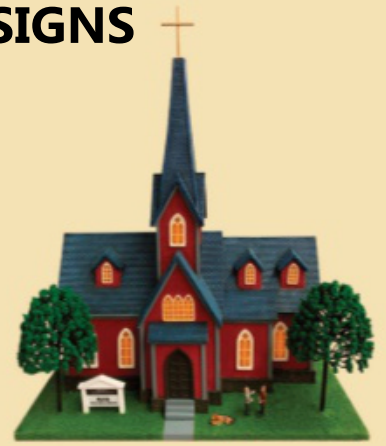
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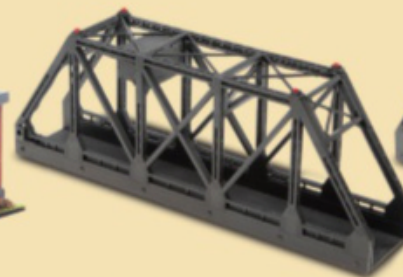
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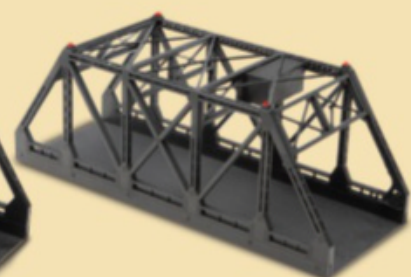
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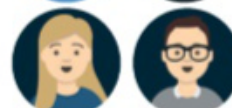
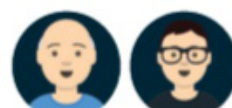
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HO scale



Electro-Motive Division SD50 diesel locomotive.

This Walther's Mainline HO scale model is decorated for Chessie System (yellow, vermillion, and blue with Chesapeake & Ohio reporting marks). Other schemes include Chicago & North Western (yellow and green); Conrail (blue with "can opener" herald); CSX (yellow, blue, and gray); Denver & Rio Grande Western (black and orange with "Flying Grande" lettering); Kansas City Southern (gray and yellow); Norfolk

Southern (black and white); and Reading, Blue Mountain & Northern (green, gray, and yellow). The road unit is offered in four road numbers per paint scheme (two in direct current and two in Digital Command Control) and features upgraded power trucks with HT-C sideframes and see-through steps. Direct-current models are priced at **\$149.98**. Versions with a dual-mode ESU Digital Command Control sound decoder are **\$209.98**. Wm. K. Walther's Inc., 414-527-0770, walther's.com

ScaleTrains acquires Fox Valley Models

ScaleTrains acquired the HO and N scale locomotive and freight car lines from Fox Valley Models. Fox Valley Models owner Matt Gaudynski joined ScaleTrains.com as a full-time senior product developer around a year ago.

"In his short time with ScaleTrains, Matt has played a key role in helping bring the ex-MTH HO and S scale tooling back to market as well as expanding the ScaleTrains N scale offerings with several all-new locomotives and freight cars," the press release stated.

"We're thankful to have Matt on the ScaleTrains Product Development team," said Shane Wilson, president of ScaleTrains. "Matt brings several decades of experience with a wide range of skills from retail to distribution to manufacturing. He's also a passionate N and S scale modeler which is important because we really see tremendous growth for our company in these areas."

The first Fox Valley Models items produced by ScaleTrains will be the N scale General Electric ES44 diesel

locomotive and Trinity RD-4 hopper. Wilson added that the company will be offering the ES44 with Digital Command Control and an ESU LokSound5 decoder, and the detail parts will be factory installed. Production will take place at the current Fox Valley Models factories to bring the diesel and freight car to market as quickly as possible.

To learn more about the Fox Valley Models products being offered by ScaleTrains, visit scaletrains.com.

Peco launches TT scale product line

British manufacturer Peco (Pritchard Patent Product Co. Ltd) recently announced a new line of track and accessories for TT scale (1:120 proportion). A press release from the manufacturer stated, "Peco's launch of this once-loved scale has come through a surge in demand from collectors as well as a personal passion of its Managing Director, Ben Arnold, who comments, 'I've always wanted us to offer a true 1:120/2.54mm scale 12mm gauge track and accessories, to fill this gap in the market and bring back the true-to-scale format. As we

have our own U.K.-based manufacturing operation, we are able to do this to the highest standards that we require and within a relatively short space of time."

Initial offerings in Peco's TT scale line include a signal box kit, flextrack, medium-radius turnouts, Great Western Ry.-prototype country station and freight house kits, platform kits, and buffer stops. Future releases are scheduled to include additional lineside components, accessories, and rolling stock.

For the latest updates on Peco's TT scale releases, visit peco-uk.com.



Peco will be releasing a line of TT scale (1:120 proportion) products. Among the items in the initial release will be a signal box kit.

HO scale locomotives



- **General Electric C30-7 diesel locomotive.** Atchison, Topeka & Santa Fe (blue-and-yellow warbonnet); Burlington Northern (Cascade Green and black); Conrail (blue with “can opener” herald); CSX (yellow, blue, and gray [YN2] scheme); National Railways of Mexico (orange, green, and yellow); Norfolk & Western (black); Norfolk Southern (black); and Union Pacific (Armour Yellow and Harbor Mist Gray with road name/number on long hood). Four road numbers per scheme. Adirondack or Rockwell trucks as appropriate, die-cast metal weight, new traction motor casing details, underbody piping and conduits, and separate grab irons and handrails. Direct-current model, \$239.95; with dual-mode ESU LokSound V5 sound decoder, \$349.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com



- **Canadian National GP9RM diesels and slug units.** GP9RM: Canadian

Rapido open house at Illinois Railway Museum

Rapido Trains Inc. will be hosting public and dealer open houses Oct. 2-3, 2022, at the Illinois Railway Museum in Union, Ill. The event will run from 10 a.m. to 4 p.m. both days.

The public open house will be held Sunday, Oct. 2. There will be a meet and greet with the Rapido staff, new samples on display, and operating train rides. The museum will be open as usual.

The dealer open house is scheduled for Monday, Oct. 3. In addition to meeting the Rapido team and seeing samples, there will be new product announcements; operating trolley rides; and a hot, kosher lunch. Rapido will have exclusive use of the museum for the day.

The Illinois Railway Museum is located at 7000 Olson Rd., Union, IL 60180. For more information on the open houses, visit rapidotrains.com.

National (stripes and large “wet noodle” herald). GP9RM/slug sets: Canadian National (early and late). Single unit and sets offered in multiple road numbers. Blomberg trucks with and without outside brake shoes, die-cast metal under-frame with piping and traction cable detail, metal side handrails, and traction motor details on gearbox. GP9RM (direct-current model with 21-pin connector, \$239.95; with dual-mode ESU LokSound sound decoder, \$349.95). GP9RM/slug sets (direct-current models with 21-pin connectors, \$439.95; with dual-mode ESU LokSound sound decoder, \$669.95). Rapido Trains Inc., 905-474-3314, rapidotrains.com

HO scale freight cars



- **Assorted freight car kits.** Southern Pacific 40-foot six-panel single-sheathed boxcar (black “Overnights” scheme): single car, \$19.98; three-pack, \$58.98. Burlington Northern American Car & Foundry 4,600-cubic-foot capacity three-bay Center Flow covered hoppers (1990s Cascade Green scheme): single car, \$20.98; three-pack, \$61.98. Great Northern/Western Fruit Express 40-foot double-sheathed refrigerator cars (yellow and brown with 1967 herald): single car, \$20.98; three-pack, \$61.98. Data only American Car & Foundry two-bay Center Flow covered hopper (gray), \$20.98. Canadian National two-bay hoppers (Oxide Red): single car, \$18.98; three-pack, \$55.98. Injection-molded plastic kits with plastic wheelsets, plastic trucks, and Accumate couplers. Accurail, 630-365-1173, accurail.com



- **Baltimore & Ohio class I-18 steel bay-window caboose.** New paint schemes: Chessie System with Baltimore & Ohio reporting marks (1974+ gold Chessie safety in one road number, 1979+ red Chessie safety in one number, 1973+ repaint version 2 in four numbers, and 1979+ in three numbers); Baltimore & Ohio (original blue with 1965 screens in four numbers and 1969+ blue

N scale



ScaleTrains Electro-Motive Division SD40-2. This Rivet Counter-series model will be available in winter 2023. Paint schemes on the N scale model include CSX (dark blue and yellow with NRE-built replacement short hood, cab, and sub-base), Burlington Northern (Cascade Green, as delivered), Chessie System (B&O reporting marks), Norfolk Southern (Thoroughbred scheme with Admiral cab), Southern Ry. (high short hood, black with gold or Dulux lettering), and Union Pacific (“Fast Forty” scheme). Each road name is offered in three to six road numbers. Features on the six-axle road locomotive include all-wheel drive and electrical pickup and factory-applied wire grab irons. Direct-current models with an E24 connector are priced at **\$149.99**. Versions with a dual-mode ESU LokSound 5 decoder with Full Throttle and one cube-type speaker are **\$249.99**. ScaleTrains, 844-987-2467, scaletrains.com

HO scale



Electro-Motive Division SD24 diesel locomotive. Atlas offers this model in new paint schemes (low short hood unless otherwise noted), including Burlington Northern (Chicago, Burlington & Quincy patchout with high short hood), Southern Pacific (scarlet and gray), and Union Pacific (Armour Yellow and Harbor Mist Gray with early shield). New road numbers are offered on models decorated for Atchison, Topeka & Santa Fe (pinstripe scheme); Chicago, Burlington & Quincy (Chinese Red and gray with high short hood); Southern Ry. (black and white with high short hood [one number with herald on short hood, two numbers without]); and Union Pacific (Armour Yellow and Harbor Mist Gray with “We Can Handle It” slogan on cab). Direct-current models with a factory-installed speaker are priced between **\$189.95 to \$199.95** (undecorated, **\$179.95**). Models with a dual-mode ESU LokSound sound decoder sell for **\$299.95 to \$309.95** (undecorated, **\$289.95**). Atlas Model Railroad Co., Inc., 908-687-0880, shop.atlasrr.com

simplified repaint in one number); and New York, Susquehanna & Western (1986+ repaint in one number). Reruns: Chessie System with B&O marks (1980+ Raceland repaint in one number, 1981+ Raceland repaint in one number, and 1982+ in two numbers). Also available as an undecorated kit (Pyle and box marker lights). See-through Apex running boards, etched-metal end platforms, and steps; full underbody details; and Kadee scale couplers. \$106.95. Tangent Scale Models, 828-412-3886, tangentscalemodels.com

HO scale structures



• **St. Gilles Croix de Vie station.** Laser cut cardboard and wood kit with downloadable instructions. Measures 12.99" x 4.72" x 7.48". \$181.62 (price based on exchange rate). Minifer, minifer.fr/en/

HO scale details and accessories



- **Chevrolet vehicles.** Caprice: Sedan (dark blue, dark red, and green) and Estate Wagon (baby blue, brown, and yellow with faux wood paneling). Impala: Sedan (taxi), emergency vehicles (sedans with “dog dish” hubcaps: Metro Police with Federal AeroDync lightbar, blue police with multiple lightbars, and black-and-white police with multiple lightbars), station wagon (fire chief wagon with Code 3 lightbar and “dog dish” hubcaps), and railroad sedans (Amtrak Police, CN Police, and CN maintenance). Assorted front grill designs; multiple rim designs; and chrome finish on bumpers, rims, and more. \$24.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com
- **Garage detail kit no. 2.** Two lifts, jack stands, ramps, and tool carts; portable lift table; wheel balancing machine; tire changer; upright air compressor; portable air compressor; engine hoist; dynamometer and readout; waste oil drain tank; low profile drain pan; under

hoist support; and floor jack. \$29.98. SceneMaster line. Wm. K. Walther Inc., 414-527-0770, walters.com

N scale locomotives



- **General Electric ES44 GEVO diesel locomotive.** Florida East Coast (*Champion* scheme in six road numbers), BNSF (25th anniversary scheme in five numbers and Heritage III scheme with “Natural Gas Dual Fuel” slogan in one number), CSX (armed forces, first responders, and law enforcement schemes in one number each; dark blue and yellow with “boxcar” herald in three numbers; and Safety Train/Spirit of West Springfield in one number), GE demonstrator (blue with Next Fuel logo in one number), and Iowa Interstate (30th anniversary scheme in one number). Factory-installed wire grab irons, uncoupling levers, and windshield wipers; light-emitting-diode headlights and ditch lights; all-wheel drive and electrical pickup; and prototype-specific details. Direct-current model, \$119.99; with dual-mode ESU Digital Command Control sound decoder, \$219.99. Fox Valley Models line. ScaleTrains, 844-987-2467, scaletrains.com

In Memoriam

Gilbert (Gil) A. Freitag, 1936-2022

Gil Freitag, 86, died May 22 in Houston, Texas. Gil's HO scale Stoney Creek & Western layout was featured in several issues of *Model Railroader*, as well as *Great Model Railroads 1994*.

Gil became National Model Railroad Association Master Model Railroader no. 91 in 1981. He received modeling awards at the regional and national levels. His wife, Virginia, died April 19, 2022.



Doug Jackson photo

Coming Soon

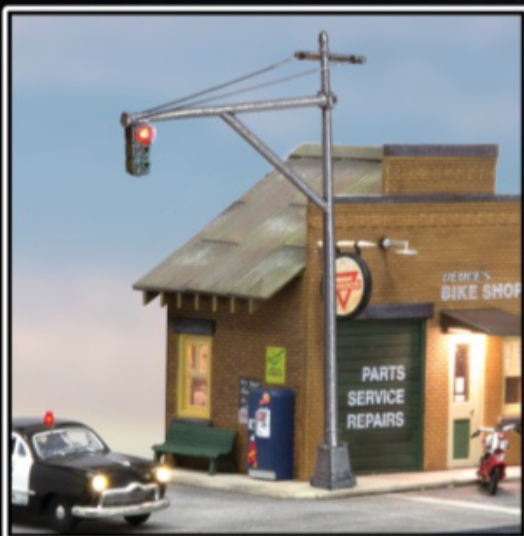
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N scale



Pullman-Standard 8-duplex-roomette, 6-roomette, 3-bedroom, 1-compartment lightweight sleeper. RailSmith Models sent in pre-production samples of its next N scale passenger car, scheduled for release this fall. The model, based on PS plan 4119, will be decorated for Northern Pacific in the 1953 *North Coast Limited* Loewy two-tone green (two-pack, \$94) and 1947 *North Coast Limited* Pine Tree schemes (single car, \$48; three-pack, \$134) and Great Northern in the Big Sky Blue scheme (single car, \$47; three-pack, \$139). Features on the sleeper include a plastic interior, metal wheels, and era-specific skirting. RailSmith Models, lowellsmith.net

N scale passenger equipment



- **Amtrak Rohr Turboliner.** Phase 3 (early and late) and phase 5 (models in

phase 5 scheme have an RTL-I body style). All-wheel electrical pickup (including coaches); illuminated and detailed interior; separate, factory-installed grab irons; tinted window glazing; working headlights, marker lights, and cab-mounted strobe lights; and

trucks with third-rail shoes. Five-car set: direct-current model, \$449.95; with dual-mode ESU sound decoder, \$679.95. Single car: \$64.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com

N scale details and accessories



- **New Look Bus.** New York City (two schemes); GO Transit; Boston; Montreal; Toronto (two schemes); Santa Monica, Calif.; and painted but unlettered (four colors and all silver). Left-side emergency exit door; interior with driver controls, passenger seats, and grooved flooring; and three bumper styles. \$34.95 (GO Transit, \$39.95). Rapido Trains Inc., 905-474-3314, rapidotrains.com MR

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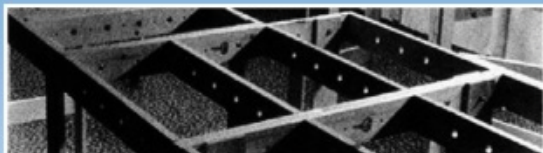
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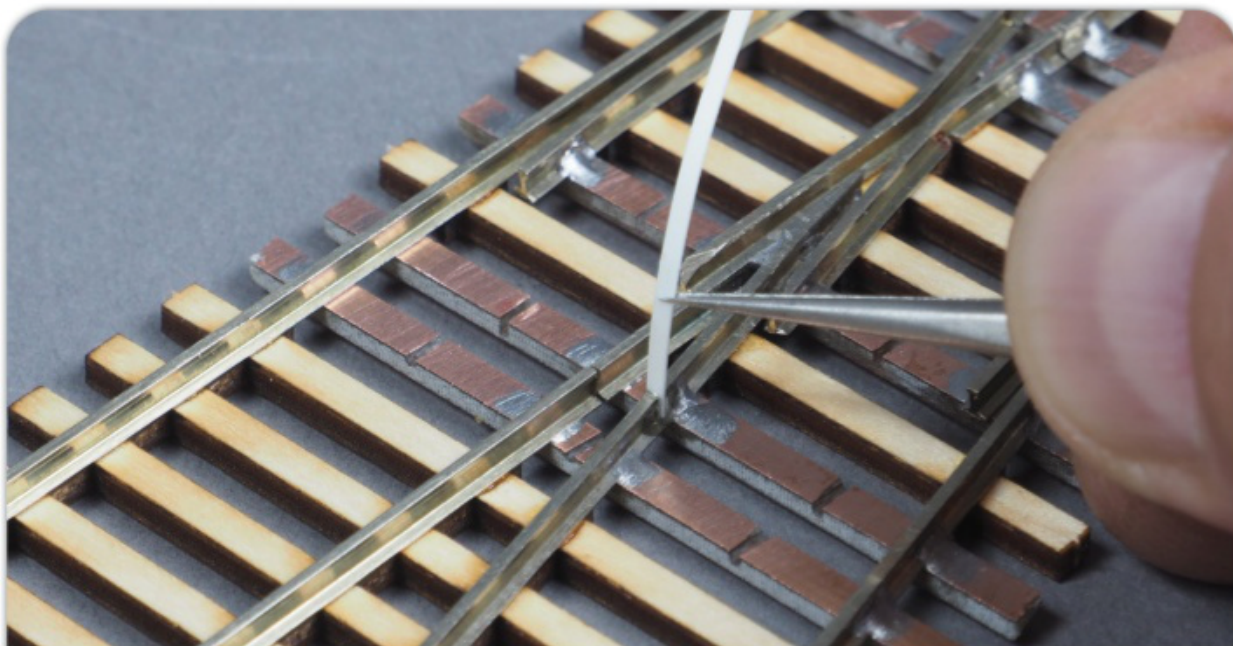
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Styrene strip is a good way to fill in rail gaps when adjacent sections of rail must remain insulated from each other. Some rail gaps are good, though.

Gerry Leone photo

How do I fill rail gaps on my N scale layout?

Q After carefully measuring and cutting rail, too often there is still a gap between the rail ends that some of my N scale cars don't like. I've been trying some different fillers, but it's a challenge for N gauge. Any suggestions for a gap filler?

Steven Simmerman

A Some rail gaps are good – not just to electrically isolate wiring districts, but to allow for future rail expansion and benchwork contraction. If all your rails fit perfectly from the start, in a few years you might find rails being shoved out of gauge as your benchwork lumber dries and shrinks. It's a small effect, but it does happen, and considering how small the gaps in an N scale rail should be, it doesn't take much benchwork contraction to cause trouble. Check out Jim Kelly's N Scale Insight column "Sidewinders, squeezers, and crushers" in our January 2012 issue.

But as finicky as some N scale cars are, those gaps don't have to be very big to cause problems of their own, as you've discovered. There are two ways to deal with rail gaps, depending on whether you need to keep the two sections of rail electrically separate or not.

If not, the answer is simple. Use a pencil-tipped, low-wattage soldering iron to gently heat the rails on both sides of the gap and flow a small amount of solder into the gap. This should work for gaps up to $\frac{1}{16}$ " wide; any larger, and you should think about re-cutting a new piece of track to better fit the space.

Be careful to not keep the soldering iron on the rails too long, as you don't want to melt the plastic ties or their tiny spike heads that hold the rails in place. As soon as the solder flows into the gap, remove the heat and let it solidify. A good joint should be shiny silver, not dull gray. Then use some fine jeweler's files and sanding sticks to remove any excess solder and shape the remainder to match the rail profile.

If you want the gap to remain electrically insulated, slip the end of a styrene strip into the gap. Pick a thickness that fits the gap fairly snugly, then apply a drop of cyanoacrylate adhesive (CA or "super glue") to fix it in place. Let the glue cure, snip off the excess with a sprue nipper, then use the files and sanding sticks again to shape it to match the rail profile.

Just don't forget to leave a small gap in your rails every 6 feet or so to allow for that benchwork contraction I mentioned earlier.

Q I'm planning a reversing loop on my layout. Must isolated sidings inside a reversing loop be part of the reversing section, or can they be part of the main power bus?

R. John Kohlbrand

A There are three potential ways to wire up separate sidings and spurs that connect to a reversing section like a loop or a wye: as part of the reversing section; as a separate non-reversing power district; or as their own reversing section, with a separate auto-reversing circuit. Let's look at each.

The best solution, I believe, is to wire these spurs as a part of the reversing section. That way, there will never be an issue with the polarity of track current as trains enter and exit these spurs. The reversing section only needs to flip polarity when trains enter and exit the section to and from the main layout.

It's possible to wire these spurs separately from the reversing section, making them their own non-reversing power district, powered directly from the main DCC bus. The reversing section might have to flip polarity when a train enters or exits these spurs. This would work most of the time, but you would encounter problems if one train was entering a spur while another was entering the reversing section from the main. The auto-reversing circuit wouldn't be able to resolve both polarity conflicts simultaneously.

You might think a good solution to that problem is to put the spurs on their own auto-reversing circuit. But the problem with that is when a train passes from one such reversing district to another, both auto-reversing circuits detect the polarity mismatch, and both try to resolve it simultaneously. The result is an endless politeness fight, like those cartoon chipmunks stuck at a door saying, "After you." "No, after YOU." "No, I insist, after YOU."

In general, you want to keep the number of places where a train can enter and leave a reversing section as low as possible to minimize the possibility of two locomotives entering or exiting the section simultaneously. Just wire everything inside the loop as a single reversing section to save you (and your auto-reversers) the headache.

Send questions to Senior Associate Editor Steven Otte at AskTrains@Trains.com.

Q I would like to add a speaker to a decoder in my locomotive. But I plan to run it on a DC analog system. Can I still put the speaker on or can I not?

Zachary Chevalier

A There are such things as motor-only and function-only DCC decoders, so to know if yours is in fact a sound decoder, you'll have to check the outputs. If your decoder is wired, check the color of the wires. The wiring color standard for DCC does not cover speaker wires, so different manufacturers use different colors. Most use brown and brown-and-white striped wires for speakers, or purple and purple-and-white.

Other manufacturers might use purple for auxiliary lighting outputs or other uses, so if you see brown or purple wires that aren't attached to anything, check the documentation your decoder came with before you hook up a speaker to what could be a lighting output.

If your decoder has soldering pads rather than a wiring harness, look for tiny stamped-on labels that say what the



Can you add a speaker to a decoder if you plan to run the locomotive on a DC layout? As long as it's a sound decoder, like those seen here, yes, you can.

Larry Puckett photo

outputs are. If your decoder's soldering pads aren't labeled, look to the decoder's documentation, which can be found on the manufacturer's website.

Now, with all that being said, the short answer is yes. If your decoder has speaker outputs, it's a sound decoder, and you can hook up a speaker to it. If your decoder was manufactured in the

last 15 years or so, it's likely a dual-mode decoder that should work on a direct-current layout. You won't get much more than the motor sounds out of it, but it should work.

Q Years ago, I used Liquitex Gloss Medium to create the water in two rivers on my layout. Now, I've noticed that they're not as glossy as they once were. I periodically use a Woodland Scenics Dust Dabber and a wide, soft paintbrush to remove dust from the surface. How would you recommend that I clean the surface? Do you have any other suggestions on what I could do to restore my water's wet look?

Bart Helbling, Flower Mound, Texas

A Dust is the eternal enemy when it comes to keeping our scenery looking realistic. Kathy Millatt, our scenery expert from across the pond, coincidentally wrote about sprucing up dusty and faded scenery for our February 2022 issue. As she suggests, finishing your train room – covering bare cement floors

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and closing in the ceiling – should go a long way to cutting down environmental dust. Covering the layout with a removable lid, plastic sheeting, a drop cloth, or the like can help, too. But nothing can completely protect a layout from dust.

Part of the problem is that if your basement is always on the cool side, like mine, popular water-modeling materials like resin or gloss medium might never fully cure, leaving a slightly soft surface that dust will sink into if left too long. So we have to be vigilant in removing it when we see it, not just before open houses or annual family holiday visits.

In her article, Kathy uses a vacuum nozzle, a soft paintbrush, and a cotton swab to dust the surface of her water. She also spritzes it with a spray bottle and wipes the surface with a paper towel, though she warns that can scratch softer surfaces. Paper towels can also leave fibers behind, so a lint-free dust cloth might work better.

I wouldn't use commercial cleaning products like window cleaner, because they might leave a residue or soften the



Kathy Millatt uses a paper towel to remove dust from the river on her diorama. Be vigilant about removing dust before it sticks to your water bodies permanently. Kathy Millatt photo

surface. Use distilled water with just a few drops of dish detergent per full spray bottle to break the surface tension. Gently swab with a soft paintbrush to get into the corners around the banks, then dab with a lint-free cloth to soak up the excess and let it air dry. Gloss medium might turn white when it gets wet, but it will turn clear again as it re-hardens.

If your water has permanently lost its luster, after a thorough cleaning you might brush on another thin layer of gloss medium to restore that wet look.

Q I have a speeder that stops on turnouts due to its small wheelbase. My turnouts have insulated frogs, but I don't want to have to replace them. I don't think there's room in the speeder for a capacitor. Any ideas?

Ted Zieger

A I'm sorry, but a capacitor is about the only way to get something with that short a wheelbase over an insulated frog. Though in theory the speeder should be picking up power from both axles, if one axle is on the insulated frog it takes only a tiny dip or hump in the track under the other axle to interrupt the power. Next time it stalls out on a turnout, see if wobbling the speeder on the track makes it go. If you can, that's your problem. Try to re-lay the turnout so it's flatter, replace your turnouts with powered frogs, or retire the speeder. **MR**

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How is August's cover photo so sharp?

When I looked at the cover of the August 2022 issue of MR, I remembered the first time this scene on Eric Brooman's Utah Belt Line had been featured and thought, "Same S-curve, but look at how the equipment has changed."

I was halfway through the issue when I remembered something I had failed to appreciate earlier – the photo's depth of field. Turning back to the cover, I counted three locomotives and six or seven tank cars back to a red signal in the distance. All were in sharp focus. As an old-school film photographer, I found this very impressive.

I could not help but wonder what technique or software Mr. Brooman used. I hope he will share his technique with us, so we can all enjoy the same high-quality photos we see on the cover and within the article itself. The technology is there, but how do I apply it to achieve the high photographic quality I see in August's cover photo?

Ray Huber, Perrysburg, Ohio

Eric Brooman replies: I used my low-end Canon PowerShot camera on a tripod to shoot three photos focused at different depths. I then used a program that came with my computer called Photo-Fuse to merge the sharpest parts of each.



In praise of micro-layouts

Keith E. Gatling's missive [Railway Post Office, Aug. 2022] is revealing of the challenges – or should I just say the missed opportunities – of the model railroad hobby.

Here we have a motivated reader who's willing to chase down a track plan from 1967, and yet ends his letter by saying he's unlikely to ever build this layout of his dreams. Why? Clearly, he feels the layout is beyond his abilities.

This is where micro-layouts come in. They widen the tent for layout owners. Even a compact layout may be beyond the means (money, skill, time) that we possess. Micro-layouts or even modest exhibition layouts may be just the solution to getting wannabe modelers out of their armchairs.

Nicholas Kalis, McLean, Va.

Graffiti synchronicity

In his review of Atlas' N scale 64-foot refrigerated boxcar on page 58 of the June 2022 issue, senior associate editor Steven Otte suggests "the expansive white sides of these cars offer an irresistible canvas to graffiti artists." Then in Trackside Photos on page 66 of the same issue, Rick Sutton's Visalia Electric photo

shows an HO scale model of the same car with graffiti painted on it. Great interaction. Keep up the good work.

Bob Pyznar, Burlington, Pa.

Whither ground goop?

I really enjoyed the two-part "how to" article on building "A Mill Pond for the Sandy River & Rangeley Lakes" by Lou and Cheryl Sassi in the July and August issues. In the caption of photo 6 of part two, you stated that "Lou's recipe for Ground Goop was printed with Part 1 in July's issue." I can't for the life of me find the recipe! Did it get edited out or am I missing it?

Russ Stewart

You didn't miss it; we got the issue wrong. The recipe actually ran a month earlier, in June, with Lou's article "Revisiting South Strong."

Here it is again:

- 1 part CelluClay
- 1 part vermiculite
- 1 part earth-tone latex paint (Lou uses Pittsburgh Paints Tobacco Brown)
- ¾ part white glue
- dash of Lysol concentrate

Mix the above in a resealable plastic tub with enough water to make a mix the consistency of peanut butter. – Ed.

Getting flushed about train room

I read with interest Tony Koester's August Trains of Thought, especially noting the recommendation for getting the layout room ready (such as lighting).

The biggest improvement I made to my basement railroad room was the addition of a bathroom. This was made possible by the development of upflush toilets and sinks, such as the Saniflow, which does not require boring a big hole in the basement floor.

Tom Piccirillo

A step toward clarity

I'm glad to see Athearn Trains is clarifying its product line offerings [News & Products, July 2022]. Now all we need is for everyone else to do the same. With most manufacturers going to the "order now, get it later" model of supply, it would be nice to know up front what level of detail to expect.

I would suggest the NMRA might take this on as a new "standard" that all manufacturers could use. This could be a simple alpha-numeric code, such as the Europeans use to denote the era when a piece of rolling stock was in use.

Raymond Page, Port Moody, B.C.
Canada



Union Pacific Electro-Motive Diesel SD70ACe no. 8334 approaches a grade crossing on Pelle Søbørg's HO scale Danefield modules. He explains how he modeled the passive grade crossing scene in this month's Step by Step. Photos by the author

Model a rural grade crossing scene

On my previous model railroads, I installed active grade crossing scenes consisting of crossbucks, flashing lights, and gates. You can read about those crossings in the April 2017 and June 2012 issues of *Model Railroader* magazine. On my new HO scale Danefield modules, I installed a passive grade crossing for a scene at the edge of town.

When I started work on my Danefield layout, featured in the February 2021 MR, the original plan was to have the

three 48"-wide x 28" deep modules be part of a larger layout. Due to unexpected life changes, I lost my house and train room, forcing me to downsize.

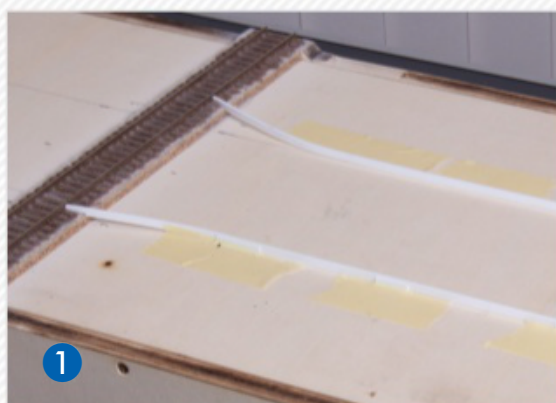
The two modules didn't quite fill the space I had available, so I made a short fill module measuring 11" x 28" from parts of the third. Since every inch counts when you don't have much space, I decided to model a rural passive grade crossing scene. The module had sufficient room for a crossing, dirt road, a lit-

tle vegetation, and a fragment of a cornfield.

Since I had plenty of scenery materials leftover from my Midwest-themed layout (May 2017 MR), I was able to start right away. The project went from concept to completion in just two weekends.

Though a passive grade crossing lacks the lights and animation of an active version, the overall scene is rich in detail. Better yet, I was able to gain another 11" of layout space.

STEP 1 SUBROADS AND SHOULDERS



After assembling the laser-cut plywood module frame, attaching the HO scale cork roadbed, and handlaying the Central Valley Model Works track, I began work on the roads.

First, I taped forms made from styrene strip and angle to the top of the plywood ①. The road is lower than the



rail but gains elevation toward the crossing. The subroad is at the same height as the tie tops.

Next, I used a wood craft stick to fill the styrene form with Easy Filler, which I purchased at a local paint supply store. Woodland Scenics Foam Putty is a similar product. I smoothed the filler with styrene dipped in water ②.



PRESS RELEASE



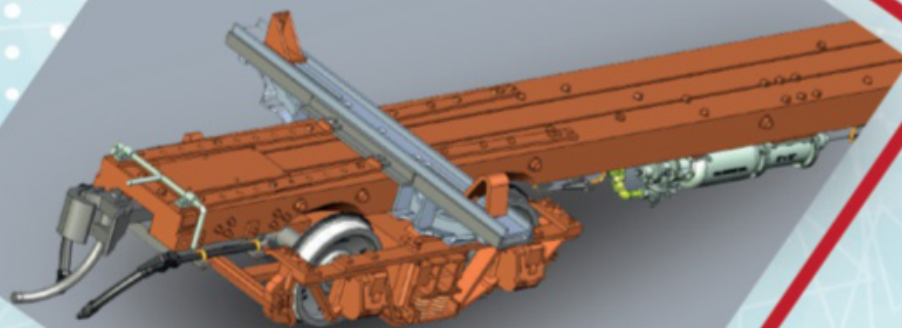
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STEP 1 SUBROADS AND SHOULDERS (CONT'D)



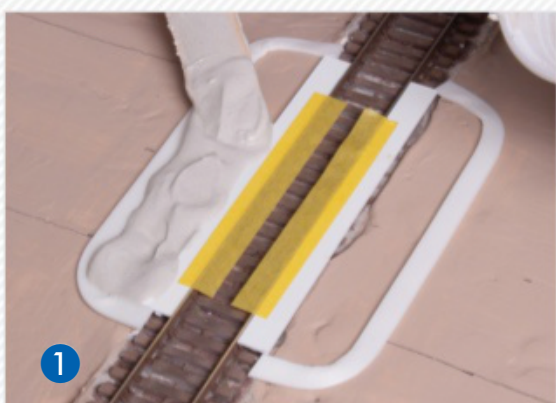
I used a hobby knife to break the joint between the filler and forms. Then I peeled off the styrene strips ③ (previous page).

I formed the shoulders of the road using more Easy Filler, applied and smoothed as before ④. Before

proceeding, I let the Easy Filler dry thoroughly. I then smoothed the surface with fine-grit sandpaper ⑤. Use a vacuum and tack cloth to remove any dust.

Finally, I applied a basecoat of earth-toned latex paint to the top of the module ⑥.

STEP 2 PAVED APPROACHES



On gravel roads you often see paved approaches at grade crossings. I re-created that look with a multi-step process.

For this project I used Atlas Model Railroad Co. concrete grade crossing panels (no. BLMA4105). I cut two strips of styrene to the same width as the field panels and taped them to the rails. Then I applied Woodland Scenics Paving Tape along the outline of the paved area. I filled in the area with Woodland Scenics Smooth-It ①.

I used a piece of styrene dipped in water to level the Smooth-It ②. You may need to apply one more thin top layer. If you do, apply it as soon as the plaster has set but not dried. Remove the tape once the Smooth-It has dried.

Next, I used Paving Tape to outline the road leading up to the crossing. Before applying the Smooth-It, I brushed the dry subroad with water. If you skip this step, the dry plaster will absorb the moisture from the wet plaster, leaving you little time to smooth it out.

I filled the area inside the Paving Tape with Smooth-It and leveled the material with a styrene screed ③. Once dry, I sanded the surface with fine-grit sandpaper ④.

To ensure the Atlas panels would fit, I cut along a styrene spacer with a scalpel and removed excess material ⑤.

I finished this step by carving cracks in the paved surface with a dental pick ⑥. I vacuumed the surface thoroughly before proceeding.

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STEP 3 PAINTING, WEATHERING, AND SCENICKING



I airbrushed the paved area and the grade crossing concrete slabs with warm white base color mixed from Model Master White a few drops of Sand ①.

After a light sanding, I applied a wash (Vallejo Black and airbrush thinner) to the paved surfaces ②. I also used the wash on the crossing panels.

Then I brushed the module with white glue thinned with water. With the glue still wet, I applied a mix of Low Desert Soil and Industrial Dirt from Arizona Rock & Mineral. I followed that up with ballast, a mix of three Arizona Rock & Mineral colors: CSX/Southern Pacific/

Wabash (no. 1382), Northern Pacific (no. 1302), and Union Pacific Gray Blend (no. 1352) ③.

With the dirt and ballast in place, I drizzled the area with wet water (water with a little rubbing alcohol added). I secured the dirt and ballast with diluted white glue applied with a pipette ④.

I let the glue dry for a few days. Then I rubbed the dirt road with a stiff brush to create tire marks ⑤.

I secured the grade crossing panels with Formula 560 canopy glue ⑥. The glue, designed for remote-control airplane canopies, adheres well to almost any surface.

STEP 4 FIELD, GRASS, AND SIGNS



To give the grade crossing scene a rural feel, I added a portion of a cornfield in one corner. I installed Busch cornstalks that I had left over from my Midwest-themed layout with canopy glue ①.

Once I had the cornstalks in place, I sprinkled fine dirt between the rows and along the edge of the field ②. I fashioned the applicator out of a food jar with holes

drilled in the lid. After applying wet water to the dirt, I used a pipette to dispense thinned white glue ③.

On the opposite side of the road from the corn field I planted wild bushes from Polák, a scenery manufacturer based in the Czech Republic [You can see the company's full product range at polakmodel.com. – Ed.] I used summer (no. 5902) and autumn (no. 5903) bushes. I attached

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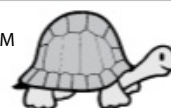


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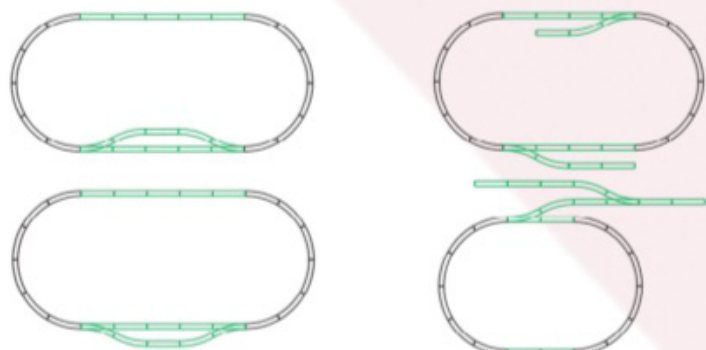
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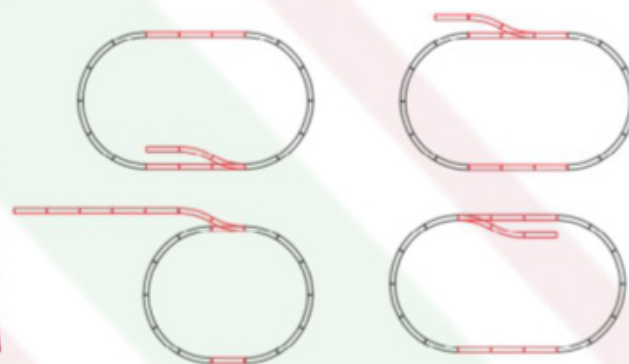
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STEP 4 FIELD, GRASS, AND SIGNS (CONT'D)



the bushes with white glue and used T-pins to hold them in place until the glue had dried ④.

I applied static grass fibers along both sides of the road. I started by brushing white glue thinned with a little water to the area. Then I randomly filled static grass applicator sieve with different colors and lengths of fibers. After I placed the grounding clip in the wet glue, I started shaking the applicator until the area was covered with static grass ⑤.

Finally, I installed the grade crossing signs ⑥. The posts are Midwest Products HO scale 4 x 4 stripwood. I made the



signs on self-adhesive paper and attached them to .005" styrene sheet. The 2"-wide reflective stripe is white self-adhesive paper. The distance from the middle of the cross-buck to the ground is 9 scale feet.

My grade crossing signs are for a single-track line. If your scene has more than one track, appropriate signs will need to be applied above the yield (or stop) sign.

With that, my add-on module is ready to join the other two sections. Passive grade crossings can be found throughout the United States. Accurately re-creating a scene like this will enhance any modern-day layout. **MIR**

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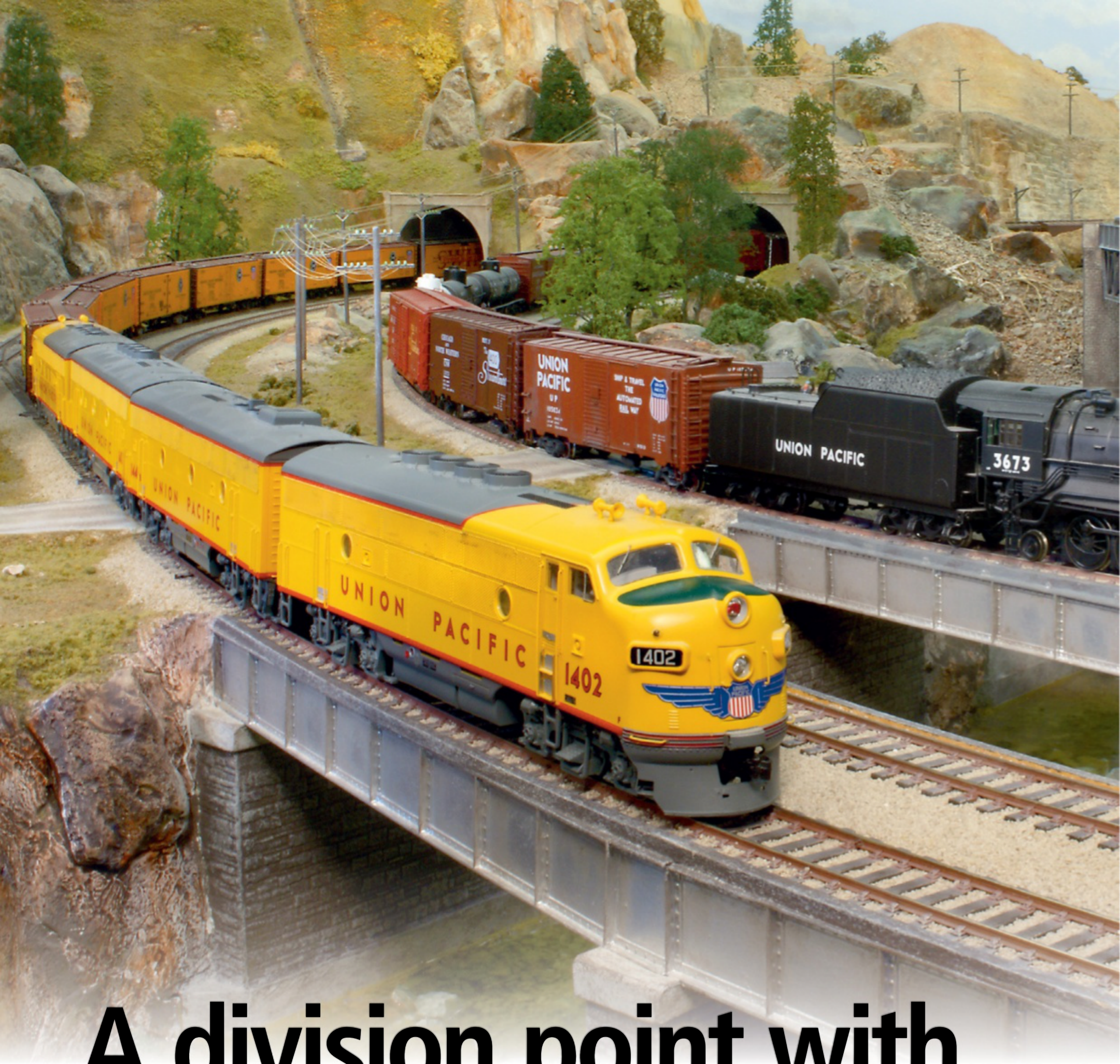
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A division point with **SCOPE FOR OPERATION**



An EMD F7 ABBA set hauling a unit train of Pacific Freight Express reefers passes 2-8-8-2 no. 3673 with its manifest freight consist. On the upper level, Alco FAs lead a passenger train. Bob Phelps' HO scale Green River, Wyo., layout allowed for sweeping, large radius curves while track at different levels increased the impression of space, as well as being necessary to create the maximum length of run. Bob passed away in March 2022.

Bob Phelps, senior product designer for Peco, built the HO scale Green River, Wyo., layout to run big American trains in England

By the Continental Modeller staff

Photos by Steve Flint

Bob Phelps retired from Peco in the UK in 2016. In March of 2022, the team at Peco shared the sad news that Bob has passed away. A skilled modeler as well a product designer, we wanted to share a bit more about Bob in the pages of Model Railroader, and with the help of the people at Peco publication Continental Modeller, we offer this look back at Bob's accomplishments. – Ed.

Colleagues at Peco and *Continental Modeller* were shocked and saddened to learn of the sudden and unexpected passing of their friend and former colleague Bob Phelps, the long-serving Peco senior product designer.

During the course of his career, Bob designed hundreds of Peco products. In fact, until a few years ago, almost every item in the Peco catalog was his work. Bob particularly enjoyed designing pointwork, or turnouts, but the item of which he was most proud was – perhaps surprisingly – the humble PL-26 two-way passing contact switch.

The design for a completely new switch to operate the solenoid point motors was tendered to a number of specialist companies, but none was able to deliver what was wanted. Peco spent two years developing it in house and eventually cracked it, which Bob found hugely satisfying.

A career in model railroading

Born in Kenton, Middlesex, England, Bob grew up near the West Coast Main Line out of London. He recalled spending many happy hours trainspotting at Kenton Recreation ground. Aided in no small part by the Ian Allan ABCs [guidebooks about transport, originally centered on railroads – *Ed.*] that were bought for him by his railway enthusiast father, Ernest, an accomplished model engineer, he frequented other London terminals on occasions. These exploits planted the seed of what was to become a lifelong interest in railroading.

After leaving Hendon Technical College at 15, Bob commenced a five-year engineering apprenticeship with De Havilland, working in the engine division. He subsequently went on to work in the contract design office. However, after a couple of years, he was yearning to do something else. He always dreamed of working in a field related to model railroads, so he started taking on commission work for building locomotives and track formations.



Castle Rock made a dramatic backdrop to the coaling plant in the Green River locomotive depot. The small 0-6-0 Union Pacific switcher no. 4474 is quite a contrast with class FEF-1 4-8-4 no. 803.

The layout at a glance

Name: Green River, Wyoming

Scale: HO (1:87.1)

Size: 25'-6" x 38'-0"

Theme: Union Pacific division point yard

Locale: Green River, Wyo.

Era: 1950s

Style: around-the-walls

Mainline run: 1,200 feet

Minimum radius: 48"

Minimum turnout: Peco medium radius

Maximum grade: 1.42 percent

Benchwork: open grid on L-girder

Height: approximately 36"

Roadbed: cork

Track: Peco codes 75 and 83

Scenery: plaster gauze and hard shell

Backdrop: hand-painted

Control: NCE Digital Command Control

He supplemented income from these commissions by working for H.A. Blunt & Son, a model shop in Mill Hill, a suburb of London. The shop's owner knew Sydney Pritchard, founder of Pritchard Patent Product Co. Ltd., parent company of Peco, and had heard Pritchard was looking for a product designer. An interview in 1963 was initially unsuccessful, but Bob obviously made an impression, because the following year he was offered the job, beginning a relationship with the company that was destined to last for more than half a century.

In April 1979, Bob married Liz. She had a tremendous talent for painting and over the years was persuaded to do the backdrops on his layouts.

Bob had a number of layouts over the years, starting with a small P4 scale (1:76.2) layout of Aller Junction.

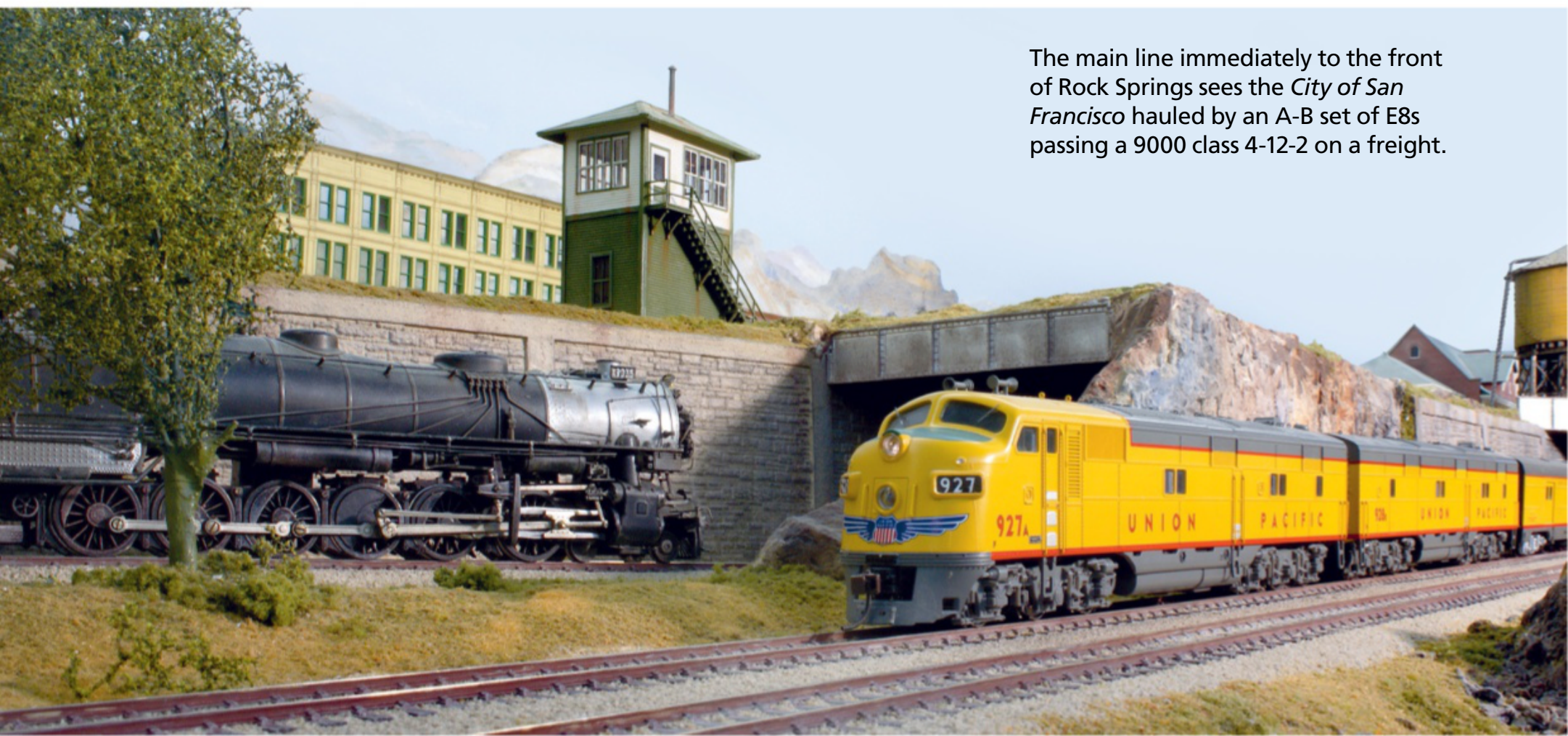
A huge EM gauge project [EM references 18mm, closer to the correct width for standard gauge rolling stock in 1:76 OO gauge model trains. – *Ed.*] based on Exeter St. Davids followed during the 1970s. Much of the handlaid trackwork was operational, but it was never scenically complete. The finished layout would have been 40 feet long.

But his enduring passion was American-profile HO scale models, following his father and his elder brother. This interest developed in the 1980s after a skiing holiday in the Colorado Rockies. While on this trip, Bob visited legendary

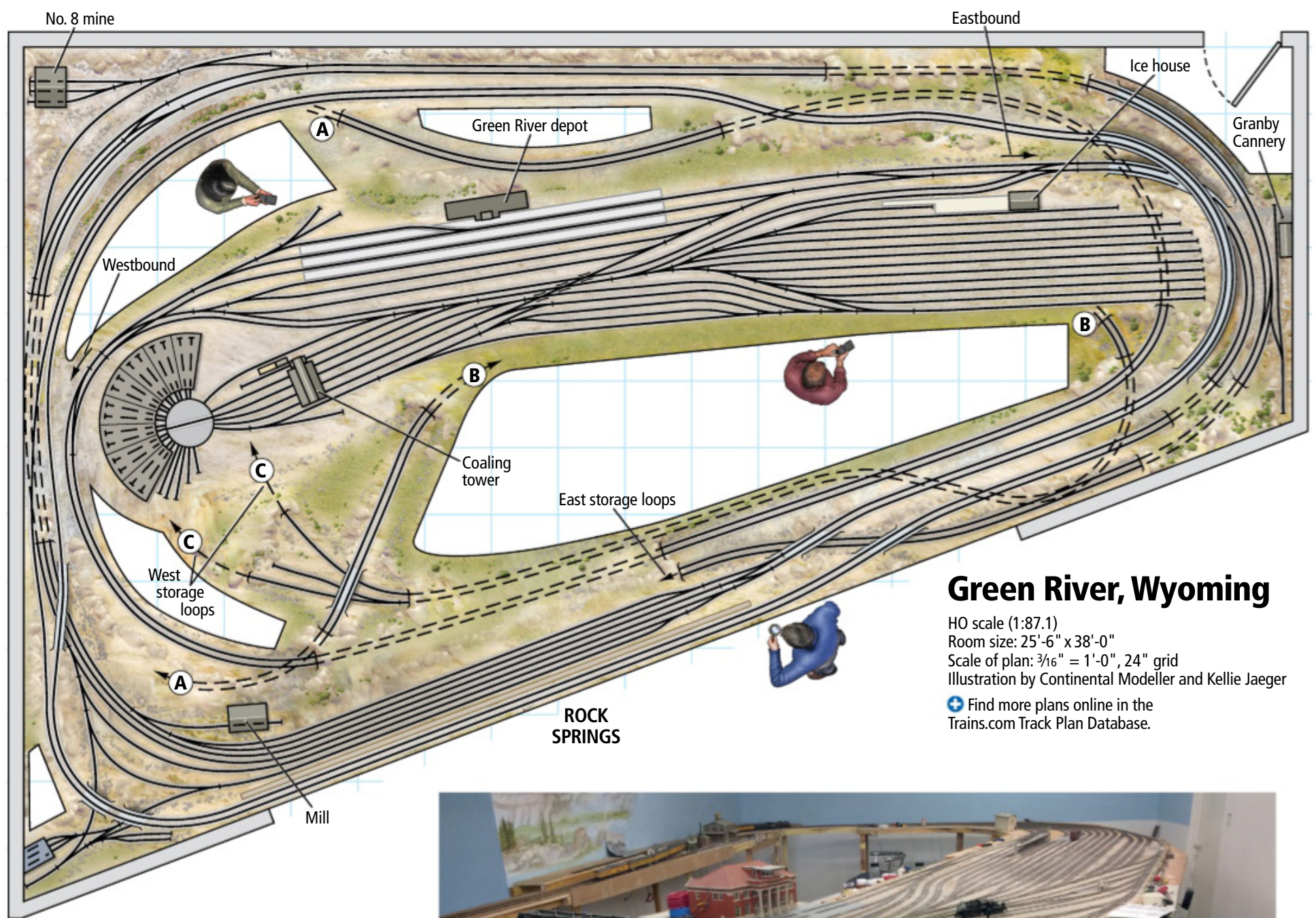
Caboose Hobbies in Denver, Colo., and was struck by the quality of the brass models available.

He dabbled with different HO railroad schemes during the years that followed, but a magazine article describing Green River, Wyo., during the steam-to-diesel transition era fired his imagination. The following year he went to Wyoming and took scores of photos to assist with the building of his master plan. (It's no surprise that Bob encouraged the development of the Peco Code 83 range of American HO track.)

In 1990, the then-editor of *Model Railroader* magazine, Russ Larson, visited Bob's layout and in collaboration with Sydney Pritchard drove in the



The main line immediately to the front of Rock Springs sees the *City of San Francisco* hauled by an A-B set of E8s passing a 9000 class 4-12-2 on a freight.



Green River, Wyoming

HO scale (1:87.1)
Room size: 25'-6" x 38'-0"
Scale of plan: $\frac{3}{16}$ " = 1'-0", 24" grid
Illustration by Continental Modeller and Kellie Jaeger
Find more plans online in the
Trains.com Track Plan Database.

This track plan shows one of the later iterations of Bob's layout in England. He was notorious for telling his operating crew that he just had a marvelous idea, and would be making changes to the layout. It was a living piece of art.

"golden spike." Not that Bob regarded any model railroad as finished; the closer to completion it came, the more the crew of regular operators learned to dread the words "Guys, I've been thinking..." which would foreshadow a major modification.

Green River, Wyoming

Bob created a large layout, based on part of the Union Pacific in the 1950s, with the emphasis on the trouble-free running of long trains at scale speeds.

American railroads are huge in every sense. Such was the sheer size, power, and vastness of them that Bob was wooed from his first love – Britain's Great Western Ry. – more than 40 years ago. Bob chose the UP depot at Green River, Wyo., principally because it was a division point on the route.

A division point is where trains have their locomotives changed and serviced



This is just a small part of Bob's Green River layout in France. The completed Green River station is at the back of the yard, just above the bridge.

in preparation for the next section of their respective journeys. This meant that huge train yards and locomotive servicing facilities were required at Green River, as well as the passenger station. It had everything Bob wanted to model, all set amid attractive scenery and overlooked by a massive geological feature called Castle Rock.

The layout filled the entire area of a two-car garage, which was trapezoidal in shape rather than a conventional rectangle. Bob was fortunate to have this space available, which allowed him to create a layout which is truly American in style

and approach – and size – as well as in outline.

A place for big trains

Although Bob faithfully reproduced Green River and Rock Springs stations, albeit with some compromise in length – the prototype Green River Yard is 2 miles long! – the rest of the layout was designed as a series of interweaved tracks that provide a 1,200-foot continuous run. This equates to over about 20 scale miles of running, which took a slow freight about 35 minutes to complete.



The Green River roundhouse was built from a Walthers kit; it was to be replaced by an accurate scratchbuilt model of the real thing. Rolling onto the turntable is the ultimate expression of Union Pacific steam power, a Big Boy 4-8-8-4 articulated.

products, he insists they were not made just for his layout.

Scenery and structures

Bob was ably assisted with the landscaping by his wife, Liz, who also painted all the panoramic backdrops around the room. He considered himself very lucky that she had an exceptional talent when it comes to painting scenery. They had visited the real place together on several occasions and she captured the atmosphere and spectacle of Wyoming perfectly.

Although most of the scenery was complete, there were still many structures to finish by 2014, when a story on the layout was published in *Continental Modeller*, most notably the main station building at Green River itself, which was being completely scratchbuilt from styrene. In comparison to many British station buildings, it's huge – the model when complete would be over 4 feet long.

The structure at the top of the building that looks like an aircraft control tower is in fact the control center for the entire Green River railroad site. The other major building at Green River was



A spotless EMD E7 A-B set hauls the UP *City of San Francisco* past the Granby cannery. Watching the proceedings closely is the proud driver of a new Ford Thunderbird. Could the driver be Bob?

Bob wanted a layout on which full-length trains could be properly represented. American mainline trains are very long, so he needed plenty of track on which they could show their paces. In practice, the longest trains he routinely operated were about 50 freight cars, although he ran occasional specials with more than 100. The big issue was haulage capacity; even though most models of American rolling stock are very free running, the rising gradients are limited to a maximum of 1.42 percent. Most of the locomotives can cope with that; traction tires are definitely out.

Benchwork and track

Benchwork construction followed the tried and tested joist and riser design, using dimensional lumber longitudinally assembled in L-girder style to give an extremely strong foundation. With benchwork up to 6 feet wide in places, Bob needed to ensure that everything was perfectly flat and warp free.

Tracklaying commenced using Peco code 75, but later stages used items from the code 83 range. Although Bob was closely involved with the design of these

the locomotive roundhouse with, at its center, a digitally controlled turntable (by New York Rail Supply). The roundhouse building was a temporary one, made from a Walthers kit, and due for replacement with an accurate scratchbuilt model of the prototype roundhouse. Adjacent to the roundhouse was the coal dock, which was a fully scratchbuilt model based on the prototype in Wyoming.

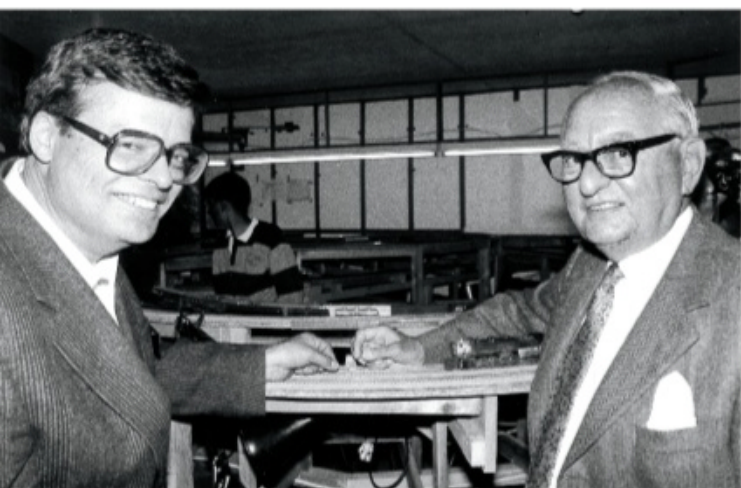
On the leading edge

Bob was a stalwart supporter of Digital Command Control (DCC) for all of his locomotives. Bob adopted digital command control during the mid-1990s, using what he believed was the first installation of a North Coast Engineering (now NCE) DCC system in the UK, so when he started this layout, the track, turnouts, sidings, and return loops were all wired for DCC.

However, the turnouts are operated conventionally. With more than 100 turnouts on the layout, it was the most practical way to do it. Bob originally fitted slow-action turnout motors wired through two-way switches set in conventional control panels, but later replaced the slow-action motors with modified servos.

The decoders came from various manufacturers; many of the locomotives, including diesels, were fitted with sound.

It was possible to run up to eight trains on the main line at once. The most interesting operating sessions were when a group of friends came around. Keeping an eye on the train you're running as it circles the layout, disappearing in and out of the various tunnels, and across the complex trackwork, required a lot of



Russ Larson, left, then-editor of *Model Railroader*, and Sydney Pritchard, founder of Peco, drive in the golden spike on Green River. The layout would go through several more permutations after this.



Alco FAs head *The Challenger* through the Wasatch Range in the neighboring state of Utah. This section of the layout runs behind the town of Rock Springs, which acts as a scenic divider.

concentration to ensure you didn't have an unexpected and unwelcome meeting with one of the others.

Various industries were situated around the layout to provide sources of and destinations for freight traffic, although an operating system had not been developed. The emphasis was simply on running long and impressive trains at scale speeds.

A second chapter

Upon turning 65, Bob changed to working just three days a week, but he was not ready to retire completely. However, in 2016, he and Liz decided to move to France, and so in July of that year 52 years of service to Peco came to a close.

In July 2019, Bob's significant contributions to the worldwide hobby of model railroading were recognized with the surprise presentation of a prestigious Distinguished Service Award by the National Model Railroad Association (NMRA) at the National Train Show in Salt Lake City, Utah.

In October 2021, the British Region followed suit with its own award. Bob had regularly attended its annual conventions and other meets, both as an enthusiast and a representative of Peco. He was touched by such recognition.

Clearly Green River was Bob's dream layout, the sort to which many modelers aspire.

The move to France certainly didn't diminish Bob's appetite for model railroading. He salvaged as much of the Green River layout as possible (it was built into his home as a permanent fixture with no thought of moving) and he created a revised and expanded version in the spacious basement of the house in France. It was to keep him busy for years to come. He achieved a remarkable amount with the new layout and was actively modeling to the last.

Beyond railway modeling, Bob was an accomplished jazz guitarist and played with various bands to popular acclaim. We count ourselves privileged to have known him and seen his modeling first hand. 



Meet Bob Phelps

Bob single-handedly ran the Peco design department until 1975, when the company moved to Beer, England. He died in March 2022.

Anthracite railroading in N scale



This 16 x 22-foot layout models the last days of hard-coal roads in Pennsylvania

By Ron Papiercavich • Photos by the author

When I began construction on my layout in 2010, I knew my railroad of choice would be the Lehigh Valley RR (LV). Along with my interest in the history of the railroad, I already had a large collection of LV locomotives from a previous N scale layout. Some of these locomotives I had custom painted due to the manufacturers not having certain paint schemes available at the time.

My layout was featured in *Model Railroad Planning 2019*. As I reflect on that article, I can confirm that much of the vision I had for the layout at that point stayed intact. However, as scenery progressed to the unfinished areas, I suddenly had an idea for a small town. The idea became reality, and the town of Glen Hollow came into existence. Also, some new location names were born out of the need to explain where a train was during operations. It's been a fun

journey since then, with many things learned along the way.

Inspiration and influences

I grew up near the Lehigh Valley's former Coxtown Yards, located between Wilkes-Barre and Scranton, Pa. This area, known as the Wyoming Valley, is rich in history and was home to numerous railroad operations due to anthracite coal. All the railroads wanted a piece of



① A westbound crosses the Lehigh River surrounded by the mountains of the Lehigh Gorge on Ron Papiercavich's N scale Lehigh Valley layout. Ron modeled the water using Mod Podge gloss medium.

the anthracite business, and most of these railroads existed to haul it.

In addition to the Lehigh Valley, there was the Jersey Central; Delaware & Hudson; Erie; Delaware, Lackawanna & Western; New York, Ontario & Western; Pennsylvania RR; and an interurban known as the Laurel Line that serviced the Wyoming Valley. This made the region a maze of branch lines reaching for the numerous mining operations. The Wyoming Valley was filled with coal breakers and collieries.



② A reminder of the reason for the anthracite railroads' origins, the Heidelberg Breaker looms above a D&H run-through train as it passes Fells Junction. Ron kitbashed the massive industry from two Walthers mine kits.

After a long decline in the anthracite industry, the Knox mine disaster occurred in 1959. The Susquehanna River broke through the roof of the Knox Mine, flooding all the surrounding underground mines with connecting tunnels. This was the final blow to the already declining anthracite mining industry in the Wyoming Valley, and underground mining ceased.

Though a few surface or strip mining operations hung on, the railroads after this point were mostly left with hauling a mine waste product called culm, which had some industrial uses. It was reclaimed from the huge culm banks of overburden that remained from when the coal industry was king. These large black mountains dotted the Wyoming Valley, and to someone who grew up there, it seemed a normal part of the landscape.

In the early 1980s, when I was old enough to become curious about the local railroads and how they operated, almost all the previously mentioned railroads had been absorbed into Conrail. The exception was the D&H, which was spared to be a competitor to the new Conrail system.

Conrail now had the task of making profitable what was left of all the remaining lines that crisscrossed the Wyoming Valley. With the anthracite industry gone and all the railroads consolidated, many lines became unprofitable and, in some cases, redundant. This led to many disused routes falling into disrepair.

I believe this is what sparked my interest in railroad history and the fallen flags that had gone before my time. I wanted to know why there were so many

lines everywhere, what they were used for, and what railroad operated each. I was also curious about what rail customers were still served in present times.

With this growing interest, it seems only natural that I would end up working for a railroad. In 2000 I hired out on the Reading & Northern as a conductor and became an engineer in 2009. Conrail had sold a few of the local lines to the Reading & Northern, and now I work on some of the very rail lines whose history I research.

During my career I've been lucky enough to work and become friends with some former LV employees. Their stories and firsthand knowledge of railroading operations really brought the railroad to life for me. Through their tales, the LV wasn't just pictures and text in books anymore, but a working railroad with spirit and purpose.

Choosing an era

I decided on modeling the Lehigh Valley between 1968 and 1976. One of the reasons I wanted to set the scenery in this time frame is the foreign railroads that traversed parts of the Lehigh Valley RR under trackage rights or run-through arrangements. I wanted to include a few of these running on my model railroad.

In 1965, the Jersey Central and Lehigh Valley consolidated sections of their main lines that paralleled each other to help cut maintenance costs. As a result, the CNJ and LV shared the same right of way through my areas of modeling interest. This gave me a reason to run a Jersey Central road freight. The Delaware & Hudson run-through



The layout at a glance

Name: Lehigh Valley
Scale: N (1:160)
Size: 16'-0" x 22'-6"
Prototype: Lehigh Valley
Locale: eastern Pennsylvania
Era: 1968 to 1976
Style: walk-in
Mainline run: 90 feet
Minimum radius: 13¾" (industrial track), 19" (main)
Minimum turnout: no. 5 (yards), no. 7 (main)
Maximum grade: 2 percent
Benchwork: open grid
Height: 49" to 52"
Roadbed: cork on Homasote
Track: Atlas code 55
Scenery: plaster cloth over cardboard lattice covered with Structo-Lite
Backdrop: tempered hardboard
Control: DC cab control

3 Entering the town of Glen Hollow, a train is seen running on the opposite main. This is common practice when running between Fells Junction and Mink. Ron decided to add this town after construction of the layout was already well along.

agreement with the LV during this time to bridge New England traffic, so I could have one D&H road train, as well.

The layout was designed with five long staging tracks for road freights, so I had three tracks left open. Two would be set aside for LV symbol freights, an eastbound and its westbound counterpart. The last track would hold the Lehigh Valley's pride during this time period, the hotshot piggyback train *Apollo*, which made an important connection with the Norfolk & Western at Buffalo, N.Y. This train, which occasionally used run-through N&W power and cabooses, would give an excuse for one more paint scheme to get in the mix.

The second reason I choose this era was the colorful array of diesel paint schemes the LV ran during this period. The railroad's Sayre shops were very creative when it came to paint schemes. In these years you could find the Snowbird and Yellow Jacket schemes, as well as the Tuscan and late Cornell Red all traveling the main line at any given time. Together with D&H and CNJ paint schemes, this would all make for interesting railfanning along my modeled route.

The final reason I picked this time to model is the stories I mentioned earlier from the former Lehigh Valley employees who I had the pleasure to work with. Mike Bednar especially brings this period of railroading to life when we talk. Mike experienced it firsthand during these years and has a wealth of information he's always willing to share about

how the LV and connecting railroads operated back then. Our conversations gave me many ideas of how I wanted to operate trains on my layout in this era.

Scenery

Creating scenes and making them work together in harmony on the layout is one of my favorite aspects of the hobby. When it came to scenery, I decided against modeling scenes from the prototype. Instead, I tried to capture the feel of the Lehigh Valley as it was between Lehighton and Coxtown, Pa. This would give me the creative freedom to include elements of the route that I found appealing. It would also give the ability to set things up well for operations with the space I had available. Otherwise, I would be forced to try to fit all the scenes that made up the actual prototype into my basement.

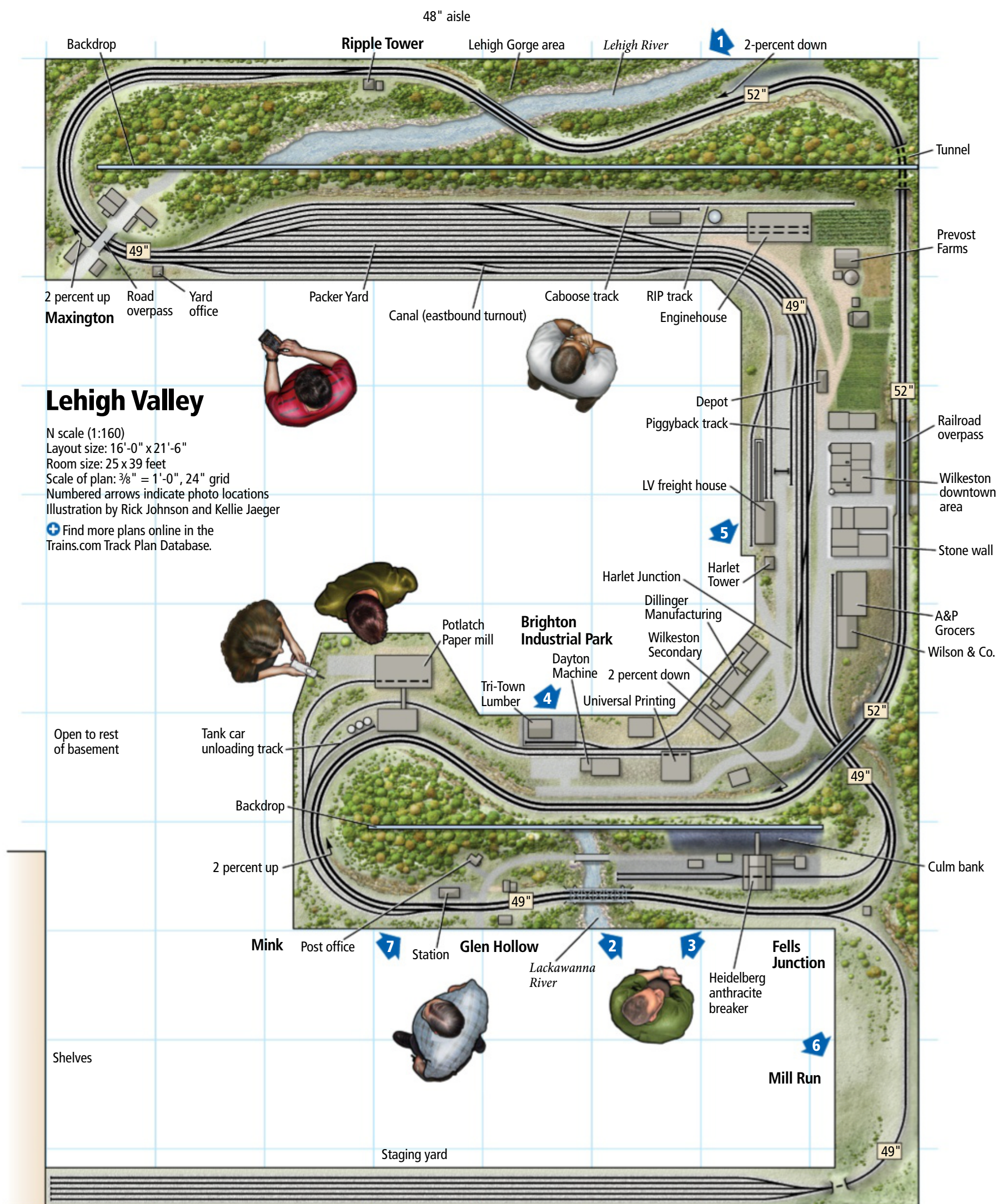
Some key elements I decided on would include a large section representing the Lehigh Gorge, a classification yard, a scene representing anthracite mining, an industrial park, a city scene, and a few small towns along the way.

The Lehigh Gorge area would require a scene with large mountains that dwarf the train as it snakes through them. I wanted physical mountains on the layout, not backdrop photos that represent them. The room to create these larger-than-life scenes is one of the best attributes of N scale. The drama of mountain railroading, with its large trains,

three-unit consists, and occasional helpers battling the grades, was a must if I was to capture the feel of the LV through the Lehigh Gorge and over the mountains into the Wyoming Valley.

The layout's mountains are constructed from cardboard strips topped with plaster cloth, then a layer of Structo-Lite. I used a few different methods to make the rock formations. In some instances, a thicker layer of Structo-Lite was applied and then the rock formations were carved by hand using sculpting tools. Structo-Lite has a long setting time, so there's no rush in working it until you are happy with the results. Some other methods used included plaster cast in rubber molds. I used the Structo-Lite again to blend the castings together to make larger rock outcroppings. Finally, I tried rubber rocks by Cripplebush Valley Models in a few places. These products are useful due to their flexible nature in cases like a curved rock cut.

The mountains of Northeast Pennsylvania are covered with dense forests in which individual trees cannot be discerned. To create these vast forest canopies, I went with the puffball method. This uses ground foam that is glued to stretched pieces of poly fiber. I did a few things differently from the way I see this method commonly done. First, I didn't form the poly fiber into balls as the method's name suggests. Instead, I stretched it out into random shapes so it didn't give the appearance of



Lehigh Valley

N scale (1:160)

Layout size: 16'-0" x 21'-6"

Room size: 25 x 39 feet

Scale of plan: $\frac{3}{8}$ " = 1'-0", 24" grid

Numbered arrows indicate photo locations

Illustration by Rick Johnson and Kellie Jaeger

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

a hill covered in balls. The other thing was to use three colors of ground foam. Individual trees were each made with a different color and placed randomly. This created a nice color texture to the forests and showed up well in photography. Foreground trees were made from Woodland Scenics Fine-Leaf Foliage, along with various with JTT Scenery Pro-Elite and Woods Edge trees.

Of course, the Lehigh Gorge needed a river running through it. For the rivers on the layout I choose to use Mod Podge gloss medium. First, I would seal the base of the river area with DAP Patch-N-Paint. When that dried, the base of the river was painted with Model Master Railroad Tie Brown. After some experimentation this color appeared to match the color of the local rivers nicely.

The next step was to build up the river with thin layers of Mod Podge. The trick is to stipple it on with a brush to get the appearance of moving water. I used thin layers to avoid air bubbles as much as possible. You will still get some, but they can be popped with a pin as soon as they become visible before the Mod Podge begins to dry. In some cases, if the Mod Podge begins to level out as it dries,



you can blow on the surface through a drinking straw to push it around and make ripples before it sets.

When the river is built up to the desired level, the final step was to apply Minwax Polycrylic. This was applied with a soft brush. This step is necessary because in a cool environment like a basement train room, Mod Podge will dry with a tacky surface that will collect dust and debris. Polycrylic will leave a high-gloss surface that's easy to clean when dust falls on it.

The large classification yard is named Packer Yard. The names I chose for locations on the layout are fictional, but sometimes hint at real locations. This is because I didn't want viewers to nitpick scenes about what was at that location on the prototype and what wasn't. Packer Yard is strategically placed in the middle of a mainline run to and from staging. The yard features a two-track engine terminal with a locomotive shop. The shop is kitbashed from two Walthers Union Crane & Shovel kits along with some styrene parts. The yard also has caboose and RIP tracks along with 10 classification tracks. There are drill tracks on both ends of the yard to

prevent the main line operations from being interrupted as the yard job goes about its business.

The track is Atlas code 55. Number 5 turnouts were used for the yard and industry, and no. 7 are in place on the mainline junctions and crossovers. I chose to superelevate all the main track curves. This has a dramatic effect on photos and when watching trains run in person. Following prototype practices, cinder ballast is used on yard and industrial track with stone on the main.

My preferred method for wild grass and ground cover on the layout was Silflor grass mats. I would tear off random pieces of different ground cover mats and blend them together, creating unique textures of field grass.

I also mixed in pieces of Woodland Scenics Foliage Clusters, as well as various grass tufts and wild flowers.

When I planned the scenery for the Heidelberg Anthracite Breaker area, it had to fit the time frame correctly. By the time I model, the coal breakers were only running a few days a week or as needed to process culm and what coal was left from the strippings. The colliery

When modeling mining scenes, the ground cover includes some genuine rock and fines from actual abandoned mining sites.

4 The Wilkeston Secondary passes through the center of Brighton Industrial Park. The industrial branch line disguises a reversing loop. Here, an LV eastbound runs between Tri-Town Lumber and Dayton Machine Co.

properties accumulated a lot of junk, scrap, and old equipment from the years gone by when business was better. After adding the large culm banks and junk to the colliery property, I put removable doors on the rail entrances to the breaker. These would be used to indicate which days the breaker was operating. They have clips made of styrene and can easily be removed.

When making the scenes that featured mining property, the ground cover includes some genuine rock and fines collected from actual abandoned mining sites. There are still plenty of mine dumps that remain today in the Wyoming Valley that I salvaged the materials from. I mixed these with Woodland Scenics soil ground foam and mine run coal for a final product.

Structures

My approach to choosing structures on the layout was to use it if it works. In the end, what looks right for the scene is the most important factor to me. This meant that sometimes a factory-



5 A westbound Jersey Central through train comes off the Wilkeston Secondary at Harlet Junction. This tower is one of the few still manned on the route, as Centralized Traffic Control has been replacing tower operators.

assembled structure fit the bill. Other times, much more effort was required to get satisfactory results. An example of this is the laser-cut wood kit of a standard Lehigh Valley tower that I chose to stand guard at Harlet Junction.

One of my favorite scenes on the layout is the small town of Glen Hollow. The coal region had many small towns like this that popped up in the shadow of a nearby breaker. This is an example of the use-it-if-it-works philosophy. Glen Hollow station is a laser-cut wood kit that I painted traditional Lehigh Valley colors, while some of the other town buildings are built-up models that I felt captured the small town vibe nicely.

I had plenty of buildings left over from my previous layout. Many of these ended up being cut up and kitbashed with other new kits I acquired. The Brighton Industrial Park required some larger complexes in order to be a believable candidate for rail service in the era I chose. My answer to this in some cases was to combine multiple buildings from different kits to represent a large complex. Plenty of trial and error was used

moving the different buildings and walls around until the desired look was achieved. In other instances, such as the Potlatch Paper Mill, the out-of-the-box kit worked fine with some details added.

There were no kits available that looked like the anthracite coal breakers where I grew up. The Walthers New River Mine kit, which was based on a Virginia bituminous coal mine operation, wasn't tall enough. Anthracite breakers were taller structures because hard coal required more processing than bituminous coal.

Another prominent feature of the local breakers was the loading track going under the main structure through wooden doors instead of off to the side. The materials that made up the Walthers kit looked usable, though, so my answer was to acquire two of these kits and start cutting. Using historical pictures of local breakers, I cobbled together a finished product that I really feel represents a breaker structure typical of the region.

Operations

All road trains originate in the five-track staging yard. A road train averages about 13 feet long and usually has a three-locomotive consist. I say usually, because once in a while a road train is intentionally underpowered. This adds

another aspect of operation, as it requires a helper engine to be called out of Packer Yard for assistance when the overloaded train stalls on one of the 2 percent grades.

When a road freight leaves staging, its routing at Mink Interlocking determines its direction. If the train takes the Wilkeston Secondary it becomes a westbound and will eventually return to staging by rejoining the main line at Harlet Junction. On the other hand, if the train holds the main line at Mink and uses the crossovers to orient to the correct main track for direction of travel, it's eastbound. Eastbound trains will eventually return to staging via the Wilkeston Secondary at Harlet Junction. This is because the Wilkeston Secondary acts as a reversing loop.

The D&H, CNJ, and LV *Apollo* are all run-through freights that don't make any setouts or pickups when traveling to and from staging. Naturally, the *Apollo* takes priority if a meet occurs. The dispatcher's orders are always to run the *Apollo* first.

The other two Lehigh Valley symbol freights make setouts and pickups at Packer Yard as traffic warrants for local business. When all five road trains return to staging, that completes the cycle for the road trains during that operating session.



There are two engineers assigned to road freights. They have wireless throttles enabling them to walk with their train as it goes. This is necessary because scenic dividers created by the mountain ranges allow only one section of the layout to be viewed at a time.

Three more engineers are on duty at Packer Yard. Two local trains originate and terminate there. There's also a yard job on duty at Packer Yard to make up the local freights from the road train set-outs. The local and yard power is kept and serviced at Packer, along with potential pusher engines.

The Brighton Industrial Park on the Wilkeston Secondary generates a lot of revenue and keeps one local busy. Dillinger Manufacturing, Universal Printing, Dayton Machine, Tri-Town Lumber, and the large Potlatch Paper mill all need service. A second local goes out to service the freight house, piggy-back ramp, A&P grocers, and Wilson & Co. that are all located in Wilkeston.

The second local also completes any work at the Heidelberg anthracite breaker. At the beginning of an operating session, loads that have been dropped through the breaker by gravity as was practiced in the region are ready to be picked up on the lead. When the loads are retrieved, fresh empties are then shoved up behind the breaker by the local for eventual loading, thus completing the shift.

The person assigned Dispatcher orchestrates all the moves. It was decided a form D system would be used to control movements though the different blocks. This was because many of the operators are fellow railroad coworkers, and we're all familiar with the system. You'll see signals in place on the layout, but they're not operational. They instead act as markers for block limits when operating.

As on the prototype, the Dispatcher remotely controls the interlocking switches. This is done using Tortoise by

6 A freight emerges from the staging yard into Mill Run to begin its trip over the model railroad. The ability to build tall mountain scenes like this in a small space influenced Ron's decision to go with N scale.

Circuitron switch motors controlled from the Dispatcher's board. All other switches are hand-operated by crews working in the field.

Finally, I should mention that the option for continuous running exists. This is for two reasons. First, because my job is to shift real trains all day, there are times when I want to go in the basement and just watch trains run and relax. Second, not all visitors are operators, and it's nice to be able to have trains running for friends and family that just want to visit the layout.

Equipment

When deciding on rolling stock for the layout I check the build dates and



review my collection of books and DVDs on the Lehigh Valley and other anthracite region railroads. I like to have some visual evidence that a particular car ran on the LV during my chosen era between 1968 and 1976.

Having a good collection of historical information also helps greatly when choosing how to weather each car or locomotive. Having a picture of a freight car can help decide things like if you should remove running boards on a particular boxcar. By regulation, new cars were built without them by this time, but for existing cars, it was a slow process for the railroad getting around to removing them. Because of the era I model, Automatic Car Identification (ACI) labels are often added to freight cars, as most cars in North America had them at this time.

Weathering rolling stock and locomotives is the one thing I had some outside help with on the layout. When I was busy trying to finish the layout, I felt like



7 Yellow Jackets rumble through Glen Hollow, a charming small town typical of the anthracite region. Ron forested his mountains with a tree canopy made from stretched poly fiber covered with ground foam.

stopping to sit at my workbench and weather would really throw off the pace I had going. Luckily I met Bob Frey when he was going for a cab ride with a crew on the Reading & Northern. Bob is a big LV fan and runs a business called Centerpiece Rolling Stock that does custom weathering. When he offered to weather some of my equipment, I talked with him about his passion for the LV and its history and decided it would be the right fit.

Since I've completed the layout I've really become involved with mastering my own rolling-stock-weathering skills. This part of the hobby takes up much of my time now. I enjoy hand-weathering my locomotives and cars, working with oil paints, pigments, and powders. I seal the different layers of weathering with a spray of Testor's Dullcote. This is because cars and locomotives are handled for staging purposes, and protecting the time and work put in weathering each car is important.

Looking ahead

As the saying goes, a model railroad is never complete. I still find plenty of enjoyment going down the basement. At times it's an escape from the everyday pressures of life. Photographing the layout from a railfan's perspective or adding details such as a block line phone box, a new tree, or a shrub keeps me busy. As I write this, I'm working on changing out a building flat for a more three-dimensional building that I believe will look much better in photographs.

Photographing the layout is also a good way to discover flaws in your scenery. It may bring light to issues such as paint on a rail that needs touching up or a bare spot in scenery that wasn't noticed earlier. Also, with the number of freight cars on the layout, it seems that weathering and detailing them all will be a job that continues long into the future.

I'm also learning to enjoy the layout more with others. When friends come over to operate the railroad, it really brings all my modeling efforts to life. I plan on getting a good car card system together soon to make operating the locals and spotting individual cars at customers more organized.

Model railroading is such a multifaceted hobby that there's always some skill you can take the time to improve. With all the years I've put into building this layout, I feel there are many more to come that will keep myself and others entertained. **MR**

Meet Ron Papiercavich

Ron Papiercavich is a locomotive engineer for the Reading & Northern. He and his fiancée, Emi, reside in Waverly, Pa. Ron enjoys studying the history of Northeastern anthracite railroads. He modeled in HO during his adolescent years; this is his third N scale layout.



Paper people for any pay grade



Make your structures pop with inexpensive figures that fool viewers

By Mike Tylick • Photos by the author

I'm always disappointed when I look into the windows of a structure and see nothing inside. I don't expect to see an expensive and time-consuming interior in every model, but a few shapes and colors go a long way toward fooling the viewer that something is going on in there (see my article "Quick and easy interiors" from the August 2009 issue of *Model Railroader*). Even more satisfying is picking out tiny people who appear to live and work inside; occasionally I catch a face peering out the window.

As scales grow larger, the nicer figure sets can be expensive, especially if you don't want to spend time painting them. Some inexpensive figure sets suitable for interior detail are available in smaller scales, and there are a few bargain basement sets in O scale. But when I started looking for patrons for my large scale Chester Depot (1:20.3), I quickly discovered that the least expensive cost more than lunch at a nice restaurant. It would

only take a few of them to quickly quadruple the cost of my structure. After a few days of pondering, I realized that if I could use photographs for interior walls and details, I could probably use them for people, as well. Since there is only one viewpoint, it's difficult to tell they're not three dimensional.

To my delight, the photo flats looked great in place. As objects get farther away, it may be possible to use paper people (and other details) for the exterior of distant scenes, possibly gluing them to the side of a structure. For those uncomfortable with photo manipulation, paper people make excellent photo props, as well. **MR**

Mike Tylick needs no introduction to longtime Model Railroader readers. The Massachusetts resident has been writing articles for the magazine for more than 35 years. Mike models the Marshfield & Old Colony in On30.

The paper people in the Chester Depot on Mike Tylick's large scale layout are busy tricking viewers.



1 Small wood blocks are painted black and glued to the feet to help support the paper figures in this wing of Mike's large scale Chester Depot (1:20.3). People are easily seen through the window with this technique. Other quick interior detailing includes: wainscoting drawn with paint and felt-tip pens; photos of clocks and calendars; and "wanted" posters. The bench is made from a few blocks of wood.



2 These photographs of models are a better match for three-dimensional model scenes rather than photos of real people. The images here were taken from various manufacturers' online catalogs, resized to fit large scale, and printed. Where else could you find nice, clear images with neutral backgrounds? The figures to the left have been cut out and glued to a manila file folder.



3 Mike initially planned to paint the back of each figure black. However, a viewer may see the figures from both sides, so he details the back, too. Since no one sees both sides of a figure at the same time, Mike uses "double-fronted" people. A mirror image of each figure is printed, cut out, and glued to the back. Figures are then coated with clear finish to prevent warping prior to placement in a structure.



4 Here, some paper people are seen gazing out the window of the waiting room looking for the next train. Since this structure is going on a different model railroad, Mike resized the same figures used for his large scale depot. The rear of this station is seen from an obscured, distant viewpoint, so he painted the figures' backs black. If seen at all inside the model, they will show up as silhouettes.



5 In Birdie's Tavern, an O scale structure from Design Preservation Models, Mike placed paper figures and signs in the window before placing the interior photo because of how shallow it is. This background photo of a diner was found on Google Images. It creates an attractive look to further interest viewers. Mike says you don't always need to see the person's face to convey the idea of people doing something.



6 A photo shot farther away from the structure (Design Preservation Models' Schultz's Garage) gives the viewer an idea of how these figures might look on an HO scale layout. Mike placed one person in each of the three windows. Here, the viewer can imagine what the paper people are looking at. Perhaps a fancy new car, a traffic accident outside, a train, or maybe even a parade.

Scratchbuild a bulk material barge



Bulk cargo barges are a common sight along industrial waterfronts across the country. Follow James Ferguson as he describes how to scratchbuild these river-going workhorses.

Learn how to model this common watercraft with styrene and a few detail parts

By James A. Ferguson • Photos by the author

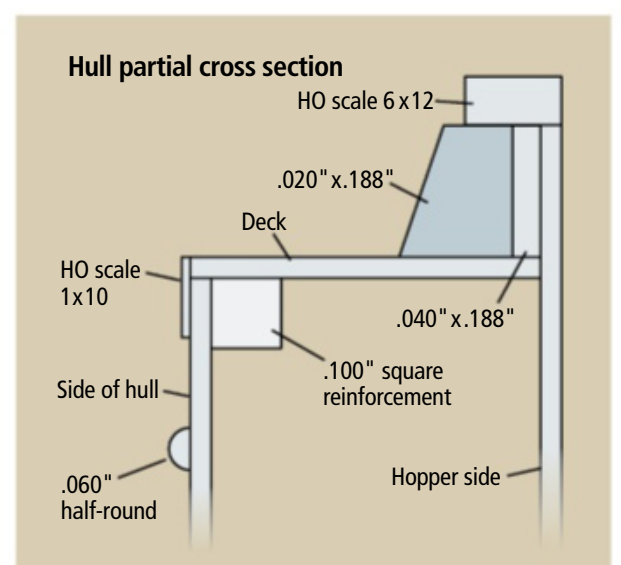
A bustling riverfront loosely based on the Pittsburgh area provides the theme for a 2 x 10-foot addition to my freelanced HO scale Lebanon Valley RR. One of the most prominent industries in the scene is a limestone unloading facility. However, I found that I needed some bulk material barges to bring the crushed stone to the large bridge crane unloader.

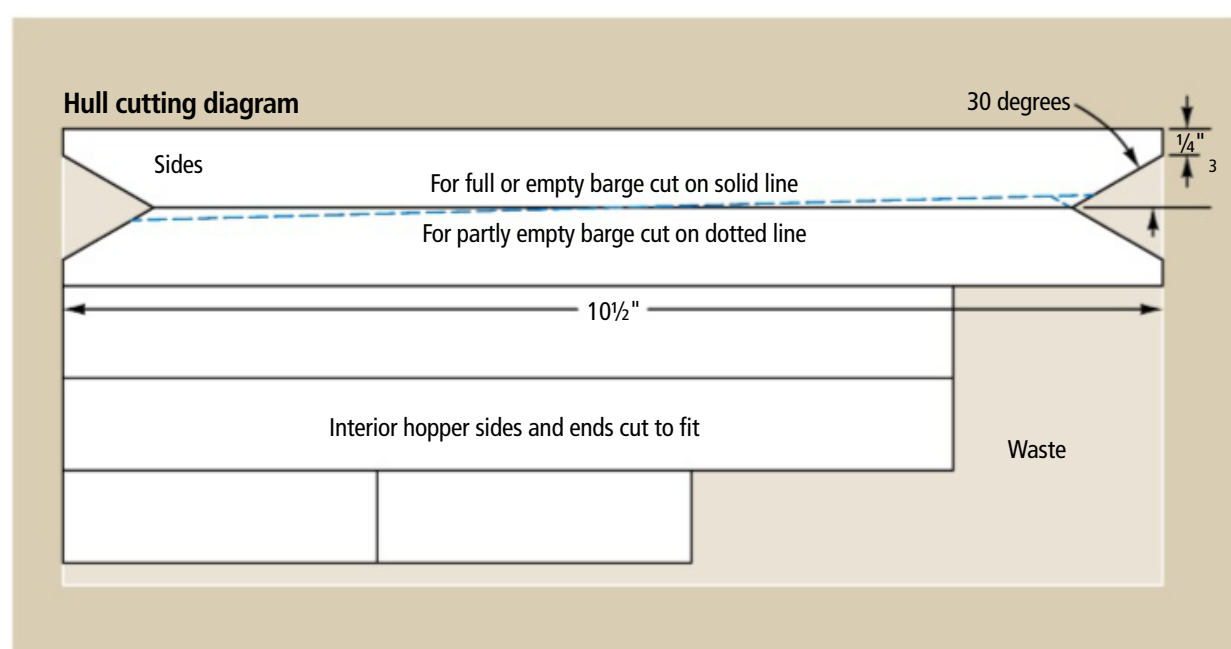
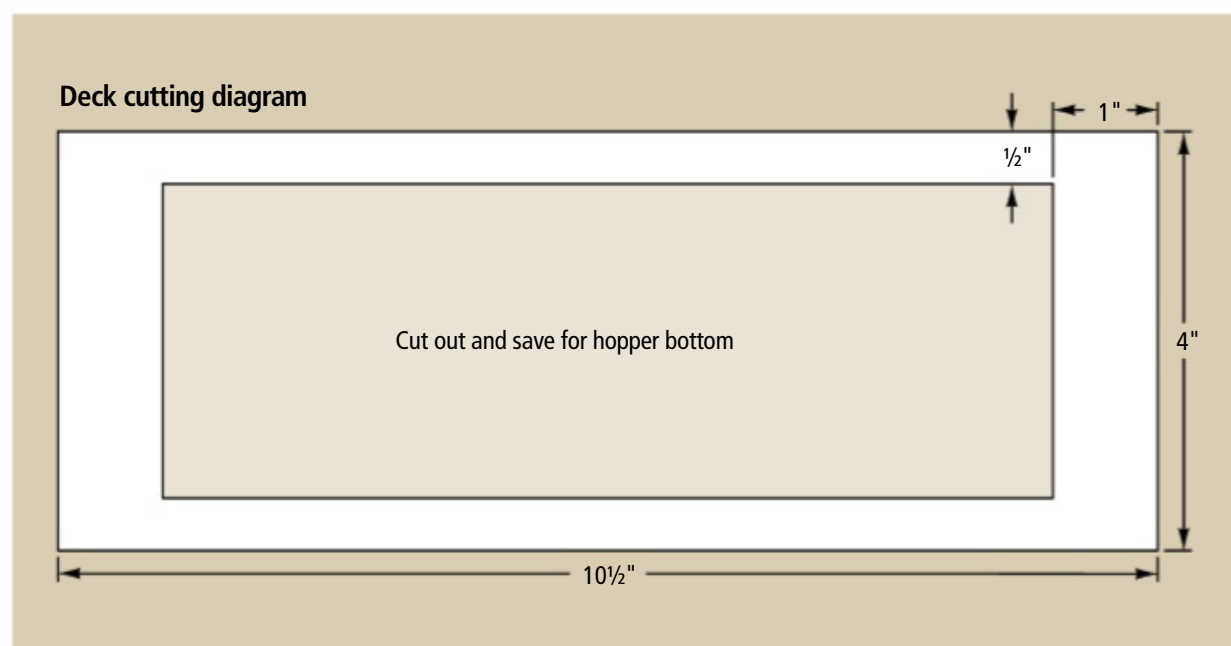
At the time I couldn't find any kits of bulk material barges appropriately sized for my waterfront. The models were

either too large or too small, and the kit I liked the best was available only in N scale.

I turned my Internet searches to prototype barges. Flat-bottomed barges haul all sorts of cargo on rivers, canals, and harbors across the country. These watercraft, also called dry bulk material barges, are either pushed or pulled by small tugs or workboats.

A bulk material barge is designed to carry coal, sand, gravel, stone, or other similar material. As on a rail car, the hopper where the material is stored can





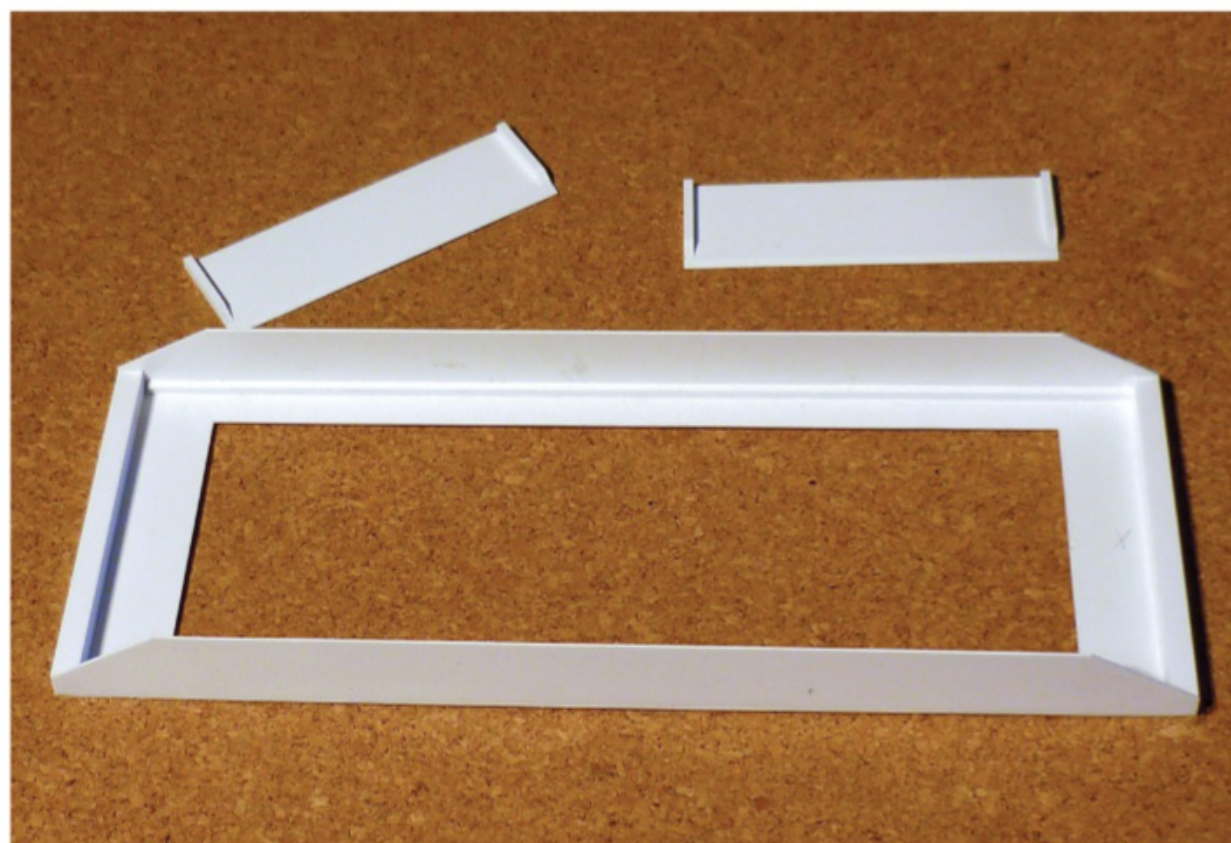
be either open or closed. I was interested in the open-hopper type.

I studied the general shape and proportions of the barges as well as the cleats and other details that would be needed. Rather than building or modifying a kit, I would scratchbuild my barges from styrene.

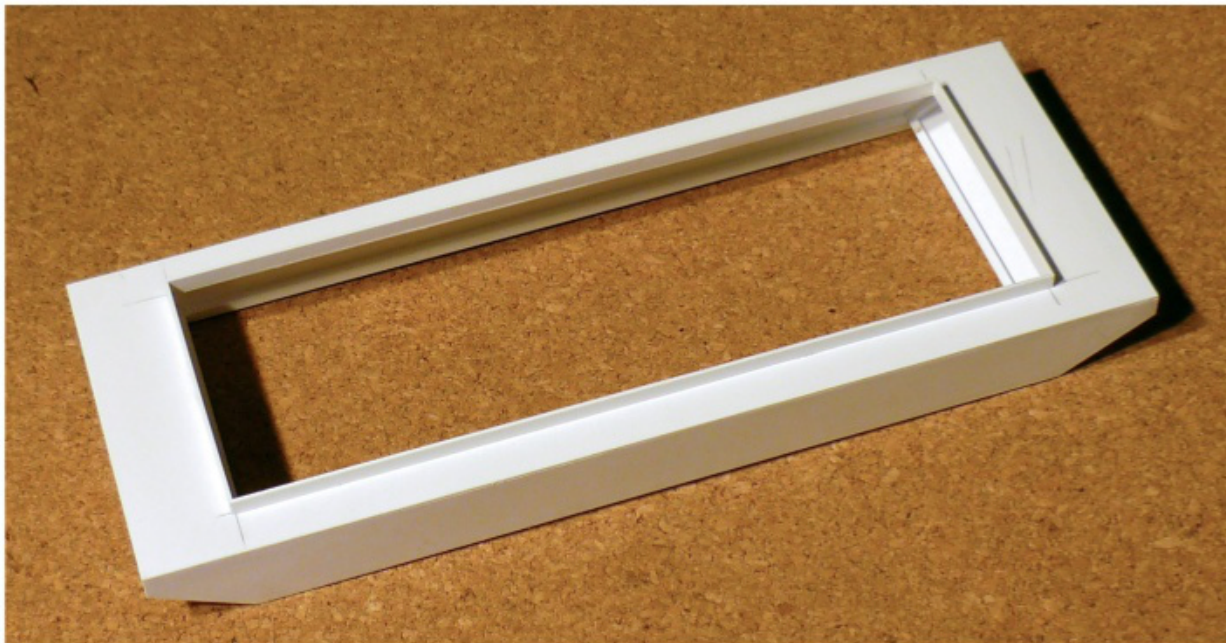
Cutting the pieces

One 8" x 21" sheet of .030" styrene provided most of the material for the two barges I built. First, I scribed the sheet lengthwise and crosswise to make four 4" x 10 1/2" pieces. These dimensions equal 29 x 76 HO scale feet, just enough selective compression to fit on my layout. Prototype barges are usually 35 feet wide and 185 to 200 feet long.

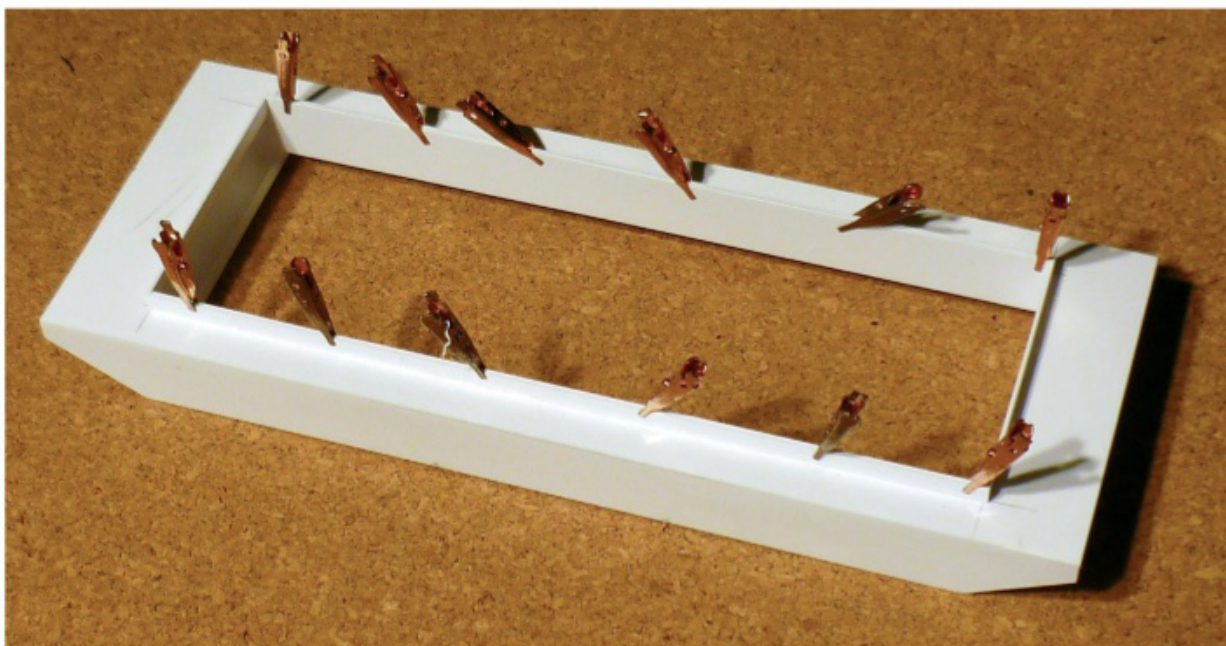
My cutting diagrams for the deck and hull are shown above. First I laid out the deck on one of the 4" x 10 1/2" sections of the .030" sheet. I used a pencil and a straightedge to draw lines 1" from each



1 After attaching the hull sides to the bottom of the deck, James reinforced the seams with .100" square styrene strip and .250" square strip at each end. The ends of the hull are made from .040" sheet and .010" strip. One end of each hull end piece is beveled to make a tight joint when installed against the .250" square strip.



2 James built the coaming, or raised area around the hopper, from .040" x .188" styrene strip. He cemented the strips on edge around the hopper opening using methyl ethyl ketone (MEK).



3 Smooth-jaw micro alligator clips held the hopper side in place while the cement cured. James installed the interior ends of the hopper in the same manner.



4 A cap along its perimeter and gussets along its sides finish off the coaming, while edging made of HO scale 1 x 10 finishes off the hull. James then added deck details, including an access hatch, cleats, and bollards. The hopper bottom, a rectangle of .030" styrene sheet, has also been installed.

end and 1/2" from each long side. Next I made several light passes along the lines with my hobby knife, again using a straightedge to guide the blade. Then I snapped the pieces free. The center will be the hopper bottom and the remainder is the deck.

Again using a pencil and straight-edge, I laid out the hull and hopper sides on another 4" x 10 1/2" section. Note that the shape of the hull sides is different for a full or empty barge versus a partially unloaded barge. The partial load will make the heavy end of the hull sit slightly lower in the water than the empty end. I modeled both a full and a partially unloaded barge on my layout, as shown in the photo on page 46.

I cut out the hull sides following the same score-and-snap technique that I used with the deck and hopper bottom. The hull sides are 3/4" tall, which left me enough material to cut three more 3/4" wide strips to use for the hopper sides and ends.

Assembling the hull

I used mainly methyl ethyl ketone (MEK) as the adhesive for this project. I can purchase a quart can of MEK for just under \$12 at my local hardware store. [Be sure to work in a well-ventilated area when using MEK. – *Ed.*].

Like plastic cement, MEK is brushed on a joint and works by melting the plastic parts together. Since MEK cures fast, I still use plastic cement when I need some extra working time to ensure that parts fit.

I modified the applicator brush attached to the cap on the MEK container by trimming off all but about six to eight bristles. This allows me greater control over the amount of MEK applied.

For the assembly process, refer to the cross-section illustration on page 46. First I attached the sides to the bottom of the deck. Be careful not to glue the sides to the edge of the deck. I used .100" square strips to reinforce the joints and help keep the parts square.

Next I cut two .250" square strips to fit between the sides under each end of the deck. Then I formed the sloped ends of the hull from .040" styrene sheet cut to fit between the hull sides. The thicker material made it easier to bevel one edge to fit snugly against the .250" strip under the deck. I also used additional .100" square strips to reinforce the joints between the ends and the hull sides. The hull components are shown during assembly in **1** on the previous page.

Assembling the hopper

With the hull complete I began building the coaming, which is the short wall that runs around the perimeter of the hopper opening. Using the hopper opening as a guide, I cut four lengths of .040" x .188" strip styrene to fit. Then I attached the strips on edge around the opening, as shown in 2.

Next I made the hopper sides from the 3/4" tall strips I cut earlier from the .030" sheet. These strips should fit inside the hopper opening and must be flush with the tops of the coaming. To help hold these parts in position while I applied MEK, I used smooth-jaw micro alligator clips, as shown in 3. [Note: the RadioShack clips shown (part no. 270-373) have been discontinued. However, similar clips can be purchased from other electronics suppliers, such as Mouser Electronics, at www.mouser.com. – Ed.]

With the hopper sides in place, I installed the hopper bottom. Next, I made the cap around the coaming from HO scale 6 x 12 styrene strip cut to fit, as shown in 4. The inside edges of these strips should be flush with the inside of the hopper.

I finished off the hopper by modeling the gussets around the coaming that fit underneath the lip formed by the cap. Using a NorthWest Short Line chopper, I cut the gussets into 5/32" lengths from .020" x .188" styrene strip. Starting at the center of the sides and ends, I cemented the gussets in place. I spaced the gussets 4 scale feet apart and added two extra gussets to reinforce each corner. Then I used a sharp hobby knife blade to taper each gusset, as shown in the cross-section diagram.

At this point I decided to cut a bottom for the hull and cut a piece to fit the opening from .030" styrene sheet. Before gluing the bottom in place, I added .125" square styrene strips around the opening for added support.

Deck and hull detailing

First I modeled a band of steel reinforcement that runs along the top edges of the hull. Made from HO scale 1 x 10 styrene strip, this detail looks prototypical and conceals the seam between the deck and hull. Starting on one side, I cemented a strip in place, keeping it flush with the deck and carefully bending it around the corner, as shown in photo 4. The next strip began on one of the ends, butted tightly against the first



5 To make it look more like a prototype barge, James added a rub rail along the edge of the hull made of half-round styrene rod. He then airbrushed the entire model a grimy black color.



6 James carved the base for the load out of balsa wood. After applying a coat of shellac and letting it dry, he brushed a thick coat of white glue on the wood. He also added a clear packing tape fence along the base's perimeter to contain the crushed stone used in the next step.

Materials list

Evergreen Scale Models

Styrene
128 .020" x .188" strip
148 .040" x .188" strip
175 .100" x .100" strip
186 .125" x .125" strip
199 .250" x .250" strip
222 .062" rod
241 .060" half-round rod
8110 HO scale 1 x 10
8212 HO scale 2 x 12

8612 HO scale 6 x 12
9040 6" x 12" .040" sheet
9104 8" x 21" .030" sheet

Detail Associates (available from Wm. K. Walthers)

229-6212 covered hopper car square hatch

Frenchman River Model Works

www.frenchmanriver.com
1131 small cleats



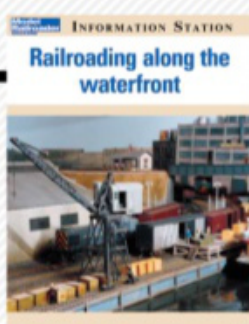
7 James sprinkled crushed stone over the surface and added matte medium. The packing tape will be removed after the adhesive sets.



8 James also modeled a partially unloaded barge. The hull is identical except that the end with the partial load sits $\frac{1}{4}$ " lower in the water than the empty end.

More ideas

Check out "Railroading along the waterfront" at KalmbachHobbyStore.com.



strip. After installing the second strip, I found a short gap on the other end that needed to be filled with another short segment.

Next I added a rub rail to the hull sides made from .060" half-round styrene rod. The rub rails should be positioned $\frac{3}{16}$ " from the bottom of the 1 x 10 banding along the top of the hull. I beveled the ends of the rub rails before

cementing them to the hull sides. The finished rub rails and banding are shown in **5** on the previous page.

Barges commonly have deck hatches for inspection and maintenance. I modeled these parts with Detail Associates HO scale covered hopper hatches. I had to sand off the ridges on the underside of the hatches prior to gluing so they sat flush on the deck.

All the cleats shown in **4** and **5** came from Frenchman River Model Works. I attached these metal parts to the styrene deck with cyanoacrylate adhesive (CA). The bollards are scratch-built from .062"-diameter styrene rod and strip.

With the deck details in place, I air-brushed my barge with Scalecoat II Locomotive Grime, a color I had on hand. Any grimy black color would look prototypical. [Note: Scalecoat paints are available from Minuteman Scale Models at minutemanscalemodels.com. – Ed.]

Making the load

For my two barges, I made bases for both full and partial loads. While a chunk of extruded-foam insulation board would work as well, I used part of a $\frac{1}{2}$ " x 3" x 36" scrap of balsa wood I had left over from a previous project for the two loads.

To make the bases for the loads, I cut pieces of balsa to fit the length of the hopper for the full load and about $\frac{3}{4}$ the length for the partial load. Then I laminated the pieces together, carved them to shape, and applied two coats of shellac.

The base for the full load is shown in photos **6** and **7**. I brushed a heavy coat of white glue on the bases and sprinkled limestone track ballast over that. I wrapped packing tape around the bases to help contain the loose ballast while the glue set. I dribbled diluted matte medium over each limestone load and let them sit overnight.

After filling in any bare spots and letting them dry, I used a sanding block around the edges of the base to ensure a smooth fit into the barges' hoppers. The finished partially unloaded barge is shown in photo **8**.

These barges were a fun scratchbuilding project and make interesting and prototypical additions to my waterfront scene. **MR**

James A. Ferguson lives in Pittsburgh, Pa. He wrote "Repowering a Westside PRR D16sb with tender drive" in the March 1987 Model Railroader.



Colin Clews controls the turnouts on his under-construction 2 x 6-foot N scale Norsuth Junction layout with a touchscreen display. The blue dots on the screen indicate turnout locations.

TOUCHSCREEN turnout control

Use modern technology to route trains on your model railroad

By **Colin Clews** • Photos by the author

Retirement and downsizing meant I had to get rid of my 10 x 10-foot N scale model railroad. Not wanting to give up the hobby completely, I found space to build a 2 x 6-foot layout. Norsuth Junction, loosely based on The Closet Switching District plan in Iain Rice's *Shelf Layouts for Model Railroads* (Kalmbach Books, 2009), provides ample opportunity for small-town switching. [Iain's book is available for ordering from the Kalmbach Hobby Store. Visit KalmbachHobbyStore.com and search for item no. 12419. – Ed.]

I built the model railroad with Atlas code 100 track and Peco Electrofrog turnouts. Though the layout is compact, I used Tortoise by Circuitron switch machines to operate the turnouts. Their slow operation and ability to

control signal lights was just what I was looking for.

With the switch machines selected and installed, I needed to find a way to operate them successfully. That process took a few revisions.

Take one

I initially wired double-pole double-throw (DPDT) toggle switches to the switch machines to control the turnouts. I used red and green light-emitting diodes (LEDs) on the control panel to indicate each turnout's position, as shown in ① on the next page.

Though the setup looked good from the top, underneath it was a tangle of wires that were prone to shorting every time they were touched ②. In addition, the LED leads proved fragile, with

several breaking off. I was determined to find a better solution.

An "a-ha" moment

One day I came across an article describing the use of microcontrollers in radio-controlled vehicles. I began to wonder if this was the answer to my turnout control struggles.

Microcontrollers have been described as distant cousins of today's computers. They consist of a small motherboard with a microprocessor chip and a number of input/output (I/O) pins to connect to the world.

Microcontrollers are used extensively in the hobby industry. Examples include using gyro sensors connected to the I/O pins to control the motion of robots and remote-controlled (R/C) vehicles.

Motion can be controlled using servos and motors.

Microcontrollers are also used commercially. The same positioning features used in the hobby industry are used for positioning of print and cutting heads on CNC machines and 3-D printers. They're also used to control the compressors in refrigerators, turning them on when the freezer gets too warm.

To add perspective, most smartphones have more computing power than these small boards.

About microcontrollers

Arduinos, shown in **3**, are available in several models, including Nano, Uno, and Mega. The number of pins, memory, and cost increase accordingly.

Arduino's position and reputation have enabled the community to grow so it's possible to find resources for almost any application.

Breakout boards add functionality to microcontrollers. For Arduino, they are called "shields." These stack onto the pins of the main board. The LCD screen and relay board I use in this article are both types of shields.

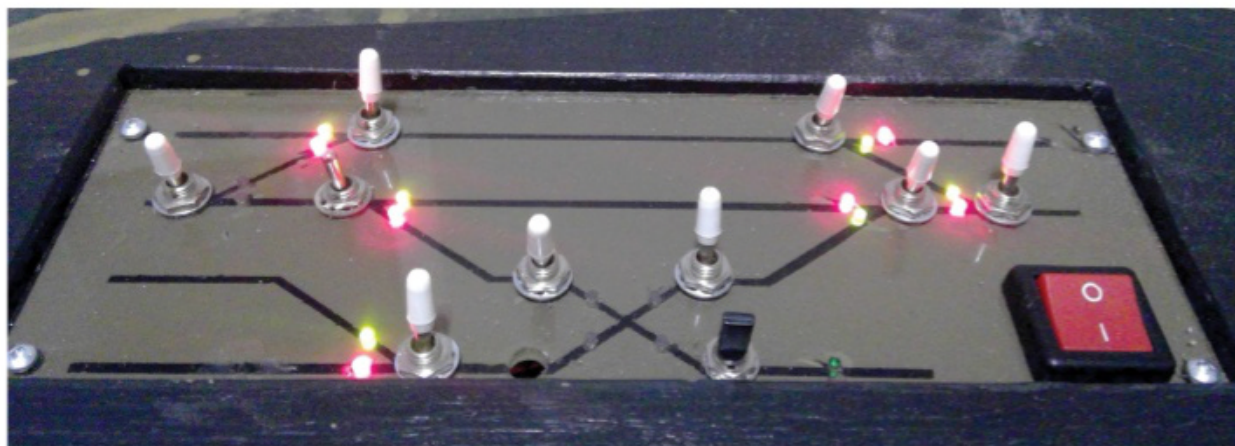
One difference among the types of microcontrollers is speed, as shown in **4** on the next page. The Arduino operates with a 16MHz clock. If we assume that a simple action such as turning on a light takes about 16 clock ticks, the light will come on in one microsecond.

By comparison, a 3 GHz home computer could do this in about five nanoseconds, or 200 times faster. Our eyes can't perceive this difference, thus making microcontrollers suitable for virtually every application for model trains.

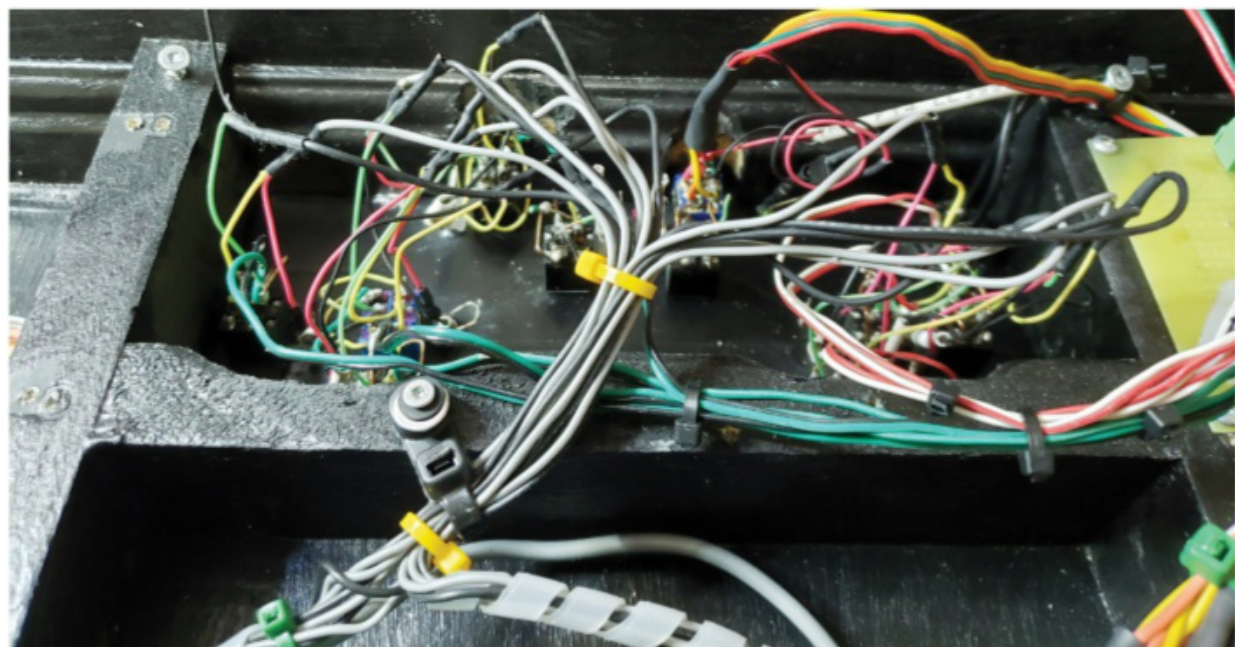
Most of the microcontrollers that are currently available require programming in the C++ language. Having previous experience in a couple of other computer languages, I found this transition to be not too difficult.

Use of the Arduino board requires connection to external devices. This is accomplished by using DuPont, or jumper wire, cables from the device to the digital or analog input/output pins. Add the necessary code and you end up with a working prototype. There's a little more to it, but this isn't intended to be an article that bogs down on computer details or programming.

The Arduino project board is scalable. You can control up to 111 slave devices using serial communication. This means that it's possible to control more than 1,000 Tortoise by Circuitron switch



1 Take one. Colin originally used double-pole double-throw toggle switches to line the turnouts on his layout. The light-emitting diodes indicate if the turnout is lined for the main or diverging routes.



2 The problem. The original turnout control panel looked good from above, but underneath it was a mess of wires prone to short circuits. Colin also found the leads on the LEDs to be fragile.

machines with the appropriate programming from a single Arduino board.

With the Arduino, I now had the means to eliminate the tangle of wires from the DPDT switches, but I was still left with the problem of how to tell the microcontroller when to line a turnout.

Touchscreen LCDs

Liquid-crystal display (LCD) panels are commercially available, and many of them are capable of mounting piggy-back directly to microcontrollers as a shield. This arrangement avoids the need for wiring to make the display work.

I selected an LCD panel with 480 x 320 resolution, which I found satisfactory for my layout. It measures 3½" diagonally, capable of handling the schematic for the seven turnouts on my layout.

Liquid-crystal display panels have an option to be supplied with a touchscreen. Sensors detect where the screen was touched and relay that information to the microcontroller. The microcontroller uses this information to calculate which



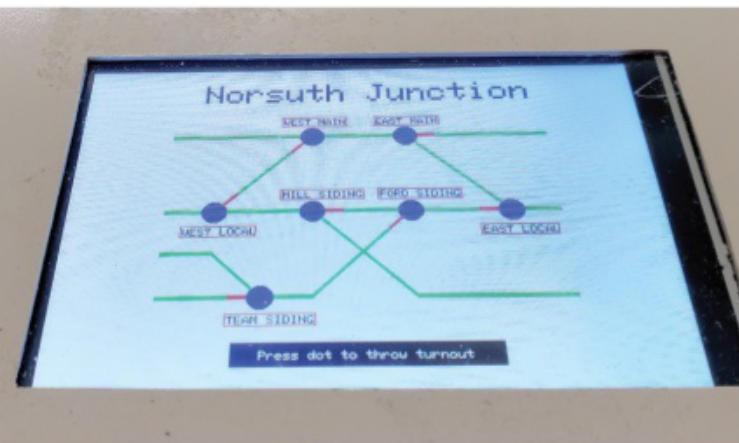
3 A winning combination. Colin paired up an Arduino microcontroller (bottom) with a liquid-crystal display touchscreen. A stylus is shown to the right.

switch machine you're attempting to activate, and then causes that event to happen.

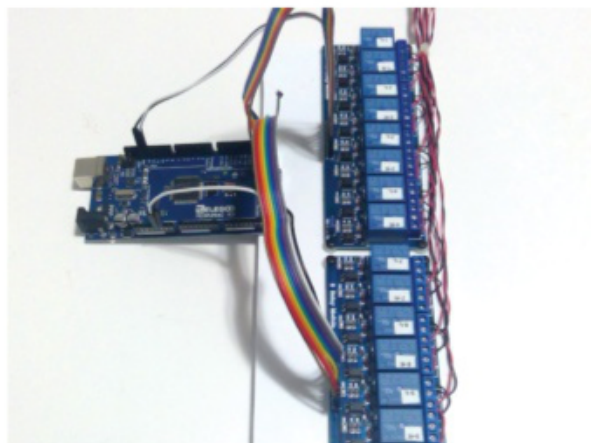
This project turned out to be more graphical in nature. Programming code is required to draw the track schematic with minimal computations required. For my application, most of the programming consisted of telling the

	MICROCONTROLLER	COMPUTER
Memory	32-256KB	4GB and up
I/O ports	15-50	Varies
Speed	16MHz	~3GHz
Size	0.5 x 2 x 3 inches	Much larger, depending on model
Cost	<\$40	Hundreds of dollars

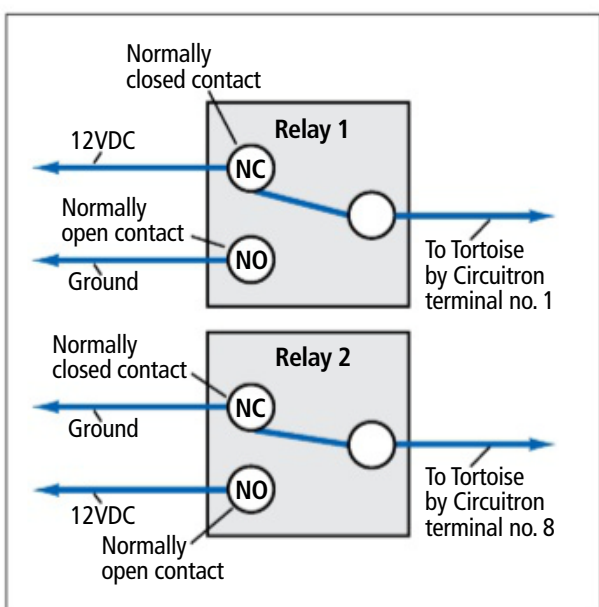
4 Microcontrollers vs. computers. This chart provides a comparison between microcontrollers and computers.



5 An up-close look. Here's what the Norsuth Junction track and turnout schematic looks like on the 3½" LCD touchscreen. Pressing the blue dots lines the turnouts. The closed route is indicated in red.



6 A clean look. The wiring between the Arduino and relay boards is much neater. The ribbon cables control the relay solenoids. The wires on the right are the power feeds switched by the relays.



7 Running wires. This illustration shows the wiring configuration required for the Tortoise by Circuitron relay. Two wires go to the Tortoise switch machine. Kellie Jaeger illustration

microcontroller which pixels to turn black on the LCD to best simulate my track schematic. I also marked the location of the machines to be controlled. The blue dots, **5**, represent the machines and are the touch locations.

Operation consists of touching the screen at one of the dots. The green leg indicates the open route through the turnout; the red leg is closed. Each successive touch of the screen reverses the colors on the screen and causes the machine to activate.

The voltage output that can be achieved directly from the

microcontroller (5VDC) is too low to operate the Tortoise by Circuitron switch machines. Since I didn't want to burn it out, I used the controller outputs to activate relays that would send the appropriate power to the switch machines. I power my layout with a Model Rectifier Corp. Prodigy Advance² Digital Command Control (DCC) system. I rectify the track power to provide DC power to the controller and the relays. The wiring between the controller and the relays is shown in **6**.

Relay wiring and logic

I wanted to keep the wiring as simple as possible. This presented a problem for the Tortoise, as it doesn't have a common ground. When you have a common ground, such as on twin-coil switch machines, the operation consists of simply supplying the DC power to one of the two positive terminals, a task that can easily be handled by a single relay.

The Tortoise stall-motor switch machine has two terminals, which requires establishing the polarity of both. In order to control both machine directions through only two contacts, two relays would be required.

With conventional wiring, the positive voltage could be applied to the common of one relay, which would direct the DC voltage to either of the Tortoise terminals. However, a second relay is

Arduino support

The **Arduino community** offers a lot of support for applications and code programming. Here are a few websites that I used. – *Colin Clews*

Arduino Official site (arduino.cc). Great for product information and programming language reference.

Toptechboy.com. This website offers a series of how-to videos for coding and specific projects. It also offers the code for download.

Udemy.com. A website that offers low-cost training courses. Search for "Arduino."

YouTube. The well-known video sharing website. Search for "program an Arduino."

required to direct the ground to the opposite terminal. This results in four wires to each Tortoise.

I overcame the need for the extra wires by simply reversing the relay wiring **7**. I used one relay for each Tortoise power terminal and controlled what it was connected to, either 12VDC or ground. If one relay was providing the positive connection to terminal no. 1 on the Tortoise, the second relay would provide a negative connection to terminal no. 8. A delay was included in my programming to ensure that the ground was established ahead of applying power to the other terminal.

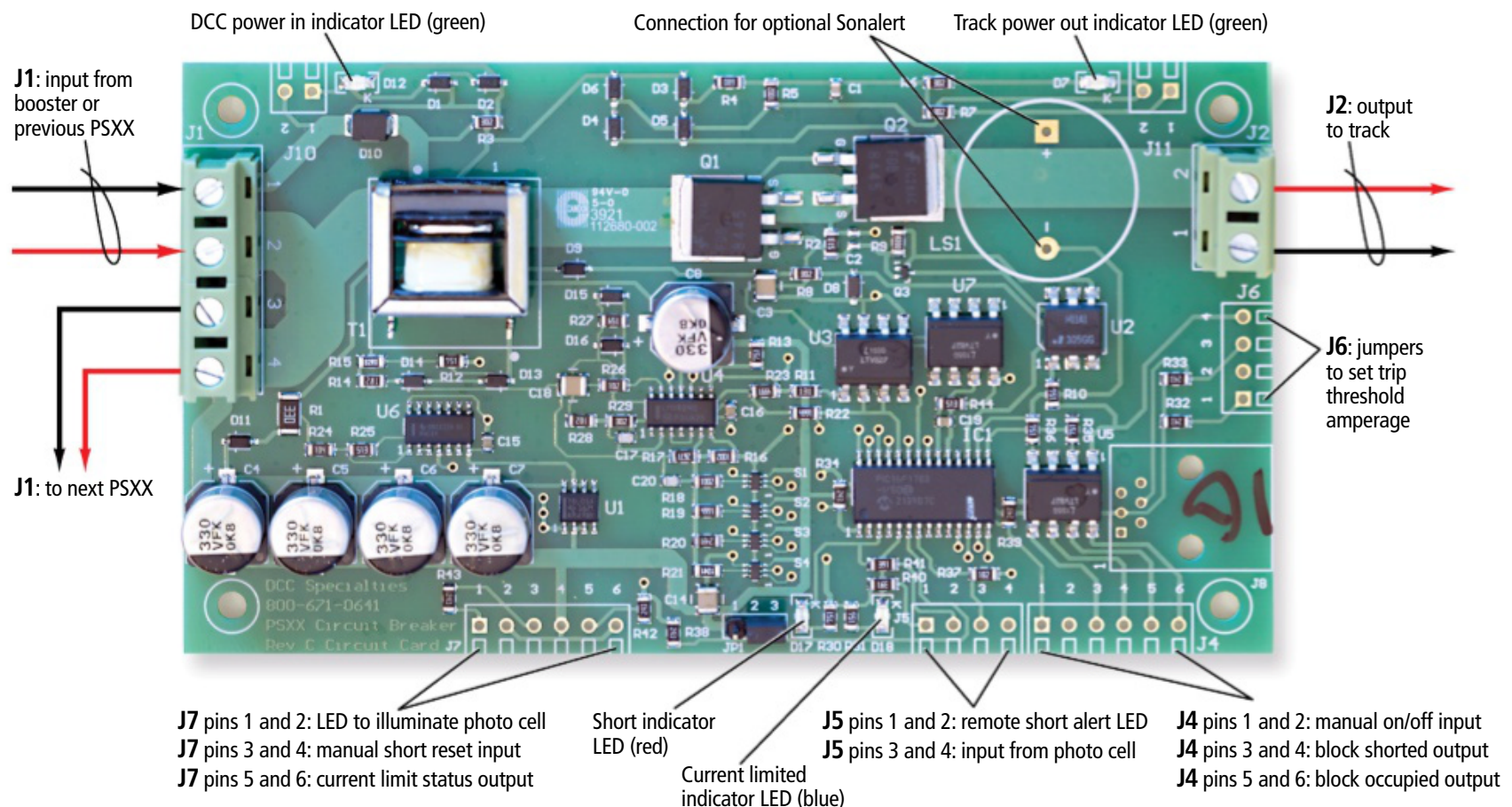
A winning solution

I'm pleased with the results of this project. The new setup has eliminated short circuits. The LCD display screen looks nice and gives my layout a cool factor. I'm also happy that I only have to wait a millisecond for the switch machines to be activated.

The components used in this project (3½" touchscreen display, Arduino microcontroller, and relay board for the Arduino) are all readily available online from the original manufacturers as well as eBay and Amazon. **MR**

Colin Clews lives in Barrie, Ont., Canada. This is his first byline in Model Railroader magazine.

Useful features of DCC Specialties' new ECB



DCC Specialties' PSX

Electronic Circuit Breakers (ECB) ① have been very popular over the years. If you haven't looked at them before, you're missing out on a host of features that make them a good investment. This year, the product was improved and became the PSXX.

While many boosters have a built-in circuit breaker, it trips at the setting for the maximum booster output current. This doesn't protect your locomotive. A short may not be so severe to prevent your booster from continuously providing power. This can cause plastic parts to melt. I've seen that happen. So, one or more ECBs set to lower trip points appropriate for your scale of locomotive is recommended.

If all you're after is an ECB, the PSXX has a few features that set it apart from other ECBs. The most notable is the new capability it has to limit current during a short. Some ECBs have a slight delay between the onset of a short

and when the ECB opens the circuit. During this brief time, all trains powered by the booster may "hiccup" briefly. Worse, your booster could also shut down.

The PSXX, before opening the circuit for a short, limits the current to the protected section of track. Other trains won't see the short and your booster won't shut down. Everyone else at your operating session will remain smiling. If you have a real short, the PSXX will open the circuit to the track. But if all you have is a sound and/or stay-alive-equipped locomotive, the PSXX will allow it to charge up. For more on the technical aspects of the PSXX ECB improvements, go to the Tony's Trains Exchange website and see Tony's Tips at tonystrains.com/news/search/psxx/ and click on "New PSXX Current Limit Performance."

The trip level can be set with jumpers from 1 to 4 amps or can be set using CV 49 from 1 to 10 amps. This makes it suitable for just

about any system, including starter systems that don't have a built-in protection. If you are using large scale and wish to set your PSXX trip point at or near 10A, you'll need the optional heat sinks. You can install them yourself or have Tony's install them before shipping your new PSXX to you.

The PSXX can be used with DCC Specialties' PSX-AR automatic reversing section controller. It's easy to do; just be sure that the PSX-AR is set to trip at a lower level than the PSXX.

Like most ECBs, the PSXX has a light-emitting diode (LED) that indicates if your track is shorted. The thing I like is that it's the only red LED on the PSXX. If you see the red LED come on, you instantly know you have a problem. You can add an external LED on your control panel; no resistor is required. The PSXX also has a blue LED to indicate that it is current limiting. It may light briefly if there is a short before the red LED lights.

① DCC Specialties' new PSXX electronic circuit breaker. Allan recommends the optional Sonalert sounder that will immediately notify you if there is a short on your layout. It is soldered into the large circle at top right.

The PSXX can be used with Digitrax LocoNet, NCE Cab Bus, ESU ECoS, and Lenz XpressNet interfaces. The key word there is interface. The PSXX doesn't communicate with any of these buses directly. You need an interface for your favorite bus that accepts a switch input. For example, the Digitrax DS74 or DS78V turnout controller ② can be used, as well as the NCE Mini-Panel or Auxiliary Input Unit (AIU) ③. The very flexible "optically isolated open collector output" of the PSXX can be used for pretty much any system and as you see, they're very easy to hook up. Optically isolated outputs also avoid undesirable electrical interactions between electronic modules.

When there's a short, I want to know about it right away. The PSXX provides for an audible alarm. An optional Sonalert can be soldered onto the designated location on the PSXX board. An audible alarm is particularly useful for clubs or during operating sessions. Not all operators will react to a short, thinking their train just stopped. The audible alarm alerts the owner or club electrical expert that there's a short that needs to be addressed. You can probably attach a Sonalert to other ECBs, but it might not be as simple as soldering the two terminals of the Sonalert to the PSXX. Just note the polarity on the Sonalert and the PSXX.

Taking full advantage of the multiple uses of the internal circuitry, DCC Specialties always packs a lot of capability into their products. For example, utilizing the PSXX's ability to turn off track power, you can use your throttle to turn track power on or off for that portion of your railroad connected to the PSXX output. You use an accessory (turnout) command on your throttle to do this. The PSXX has as a default address for this or you can change it.

This same portion of the PSXX can also be used to power down a hidden storage track triggered by a low-cost and easy to hook up photo cell. The PSXX has everything it needs to detect the train and cut the power; no additional modules, power supplies, or relays are needed. The PSXX has a default address for this, as well. If you have multiple hidden tracks that you want to control, you will want to make each of them unique.

If the hidden storage track has little or no light, you can use an LED to illuminate the photo cell. Just attach it to J7 contacts 1 and 2. A white

LED is preferred, with a 1,000 ohm resistor in series with the LED.

The photocell is placed between your rails where you want the front of the train to stop. The PSXX only stops a train when armed by your DCC throttle or your dispatcher using their computer. Once armed, it will only stop on the first occurrence of the photo cell being blocked from the light. This is so that as each car passes over sensor the train doesn't keep stopping. Clever!

The photo cell (no. CTITB002PC) is a special order item from Tony's Trains Exchange. All Electronics (allelectronics.com) also sells photo cells. You may want to try them out. Photo cells can be very sensitive to light. So which one works for you may depend on existing light or you adding an LED.

By default, the PSXX tries to reset from a short every two seconds. Optionally, it can be configured to stay tripped until manually reset with a normally-closed push button or a single-pole single-throw (SPST) switch. (A normally-closed switch disconnects the circuit when pushed. This is the opposite of the typical normally-open switch.)

There are pros and cons to both automatic and manual short resetting. Manual resetting is appealing when you have operators who may not know what to do when they encounter a short and you want someone knowledgeable to resolve the issue. On the other hand, if shorts happen too often, you may drive yourself crazy with having to deal with resetting after shorts are resolved. Use whichever approach you like better. It isn't a big deal to change if you change your mind. If you want to use manual reset, just connect the switch across J7 contacts 3



2 Digitrax/Active High Inputs. With just two wires, it's easy to hook up the PSXX to a layout interface like LocoNet or NCE Cab Bus. When the PSXX transistor turns on, the SENS input is connected to +5V. A signal is then sent out over the network. All active high inputs work like this, whether you use Digitrax or another DCC manufacturer's product. Kellie Jaeger illustrations



3 NCE/Active Low Inputs. Under this mode, when the PSXX transistor turns on, Input 1 is connected to Ground. A signal is then sent out. All active low inputs work like this, whether you use NCE or another DCC manufacturer's product.

and 4. You can get a normally-closed pushbutton from Tony's. A normally-closed push button or SPST switch can also be purchased from All Electronics.

To perform its circuit breaker function, the PSXX measures current to your protected track. This same circuitry allows the PSXX to operate as a block detector and can report this status to your signaling system.

It gets better. Should you have something that constantly draws a little bit of current, like a Frog Juicer or an RC filter across your track bus, you can configure the PSXX to ignore this current draw when functioning as a block detector. Just keep in mind that if you use this feature, you may not be able to detect a lighted caboose or a car with a resistor across its wheels. But it should definitely detect a locomotive, probably multiple lighted passenger cars, and maybe a long string of cars with many resistor-equipped axles. This feature of the PSXX may be just what you need. To

determine what current is being drawn when a train isn't in the block, use CV53 to auto-calibrate it.

The PSXX comes with screw terminals for the DCC track power in and out only. If you plan to use any of the other terminals, you will need to either solder connections to the board or add their optional screw terminals (part no. [screwtermkitpsxx1](http://www.tonystrains.com)). The kit comes with several solderable screw terminals. Nothing says you have to solder all of them on a PSXX.

The PSXX doesn't come with a full manual. You can download that from Tony's Train Exchange. Just find the PSXX on its website and underneath "Details," you will find the full manual. If you intend to use the PSXX for its basic purpose of an ECB at other than the 2A trip point, I suggest you check it out. If using any of the special features, be sure to read the appropriate section and the section on CVs in case you need to set any of them. Enjoy your layout without losing sleep over shorts! 

WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal,
providing you various content:
brand new books, trending movies,
fresh magazines, hot games,
recent software, latest music releases.

Unlimited satisfaction one low price

Cheap constant access to piping hot media

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Rapido Trains HO scale GMD F59PH diesel

Commuter operations can add a fun twist to a model railroad, and with Rapido Trains' new F59PH, that becomes easier to do. Rapido offers models for five transit operators, including GO Transit, in either direct-current or dual-mode sound decoder-equipped versions.

The F59PH was built by General Motors Diesel in London, Ont., for GO Transit to replace the agency's fleet of aging F40s. General Motors Diesel was the Canadian subsidiary of GM's Electro-Motive Division. Based in London, Ont., it was formed in 1950 to take advantage of Canadian tax laws. When EMD closed its La Grange, Ill., plant, the GMD plant became the company's only production facility.

The F59PH was a 3,000hp diesel-electric locomotive driven by a model 12-710G3B 12-cylinder, two-cycle diesel engine, and riding on two-axle Blomberg-style trucks. A separate 600hp, 8-cylinder diesel engine drove the head-end power (HEP) unit to provide energy for lighting, heat, and air conditioning to the passenger cars.

GO Transit ordered 49 F59s from GMD. The locomotives were delivered starting in May 1988. The diesels were successful, and when the Los Angeles Metrolink service started in 1992, the agency ordered 17 F59PHs, then six more as service and routes expanded.

In 1994, a new version of the locomotive, the F59PHI, was introduced for the California market. Mechanically this

engine was the same as the earlier PH version, but sported a streamlined nose and a sleek carbody that blended with the bi-level cars the locomotives pulled.

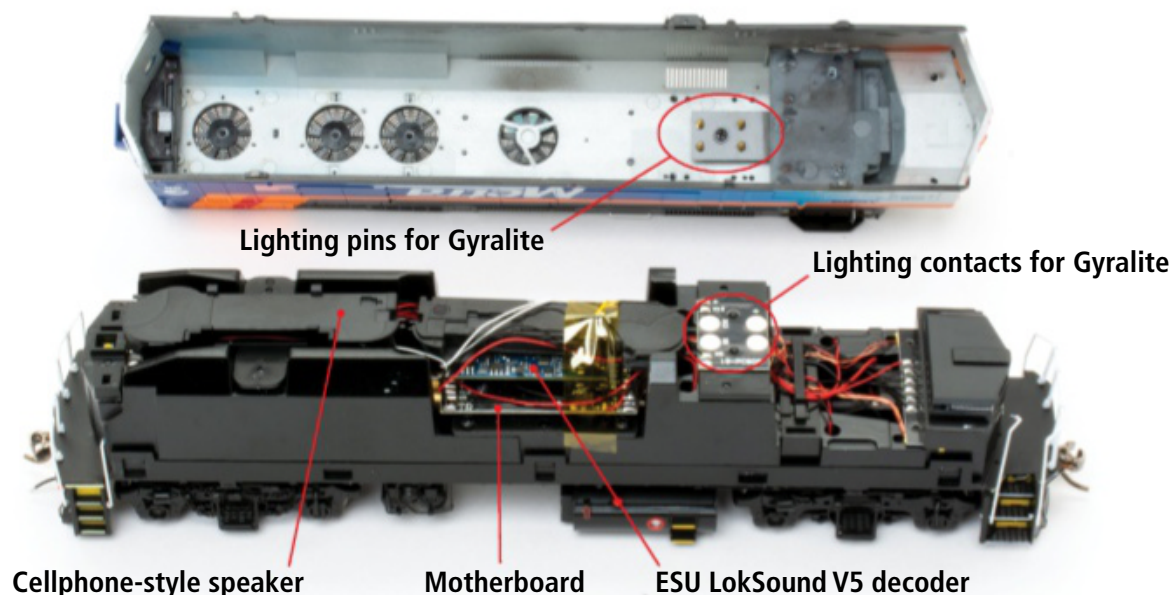
Most of GO Transit's F59PHs have been retired, replaced with MotivePower Industries (MPI) MP40PH-3C and Tier 4-compliant MP54AC MPXpress locomotives. Though GO Transit began retiring its units in 2007, it has retained some to supplement its MPI locomotives.

Chicago transit service Metra purchased three units for suburban service, New Jersey DOT purchased 11 for use on its Piedmont service, and Trinity Railway Express acquired seven.

The Rapido models we received are festooned with the typical over-the-top level of detail we've come to expect from this manufacturer. Photo-etched metal grills cover the intakes on the radiator for the HEP and main "prime mover" diesel engines, as well as the intakes for the engine air inertial filters just behind the cab.

All railings and grab irons are metal, with the end railings having finely molded plastic stanchions. The fan grills on the roof show the fan blades inside. Separately applied lift rings, cab-roof air conditioners, a blade antenna, and five-chime horn round out the roof details.

The pilots have separately applied m.u. hoses, with hose boxes on the rear pilot and a plow on the front of our Metra sample. There are also working ditch lights and step lights, the latter illuminating the perforated steps.



Rapido Trains' new GMD F59PH features a die-cast metal frame with plastic details, including the pilots and framing details, attached from below.

PERFORMANCE CHARTS	
DRAWBAR PULL	3.36 ounces 16 passenger cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
10 (start)	2
11	10
12	25
13.5 (max)	50
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	.9
7	8
14	21
21	57
28	73

The trucks have separately applied snubbers, spring hangers, and brake cylinders. The conductor's (left) side front truck has a speed recorder, and on the engineer's side of the rear truck is a chain for the hand brake.

Underbody detail includes a plethora of pipes, a pair of air tanks, a fuel tank with filler nozzle and sight gauges on each side, and ladder rungs on the engineer's side. Ground lights shine discreetly from under the cab.

Speaking of which, the cab has a control stand, seats for the engineer and conductor, and an equipment panel on the back wall. There are no figures inside, but outside, there are sunshades, wind deflectors, and windshield wipers.

Prototype information is scarce on these locomotives. I could find only an overall length, which the model matches within scale inches. It proportionally matches photos I could find online. Other dimensions matched typical figures. The Blomberg trucks have a 9'-0" wheelbase; the carbody is 10'-0" wide.

Under the shell is a die-cast metal frame. Underbody detail parts depicting the prototype's frame snap on from below. In the middle of the frame is a flywheel-equipped motor that drives all eight wheels.

Above the motor is a motherboard, which picks up current from all eight wheels. Our dual-mode sound-equipped model had an Electronic Solutions Ulm (ESU) LokSound V5 decoder plugged into the motherboard. Mounted above the decoder and rear truck were a pair of cellphone-style speakers.

Printed-circuit (PC) boards at the ends of the locomotive carried surface-mount light-emitting diodes (LEDs) for the headlight, backup light, number

boxes, and marker lights on our Metra sample. A pad mounted behind the cab supplies power for the Gyalite that's mounted above the cab windows.

Removing the body shell is simple. I first released the corner handrails between the step wells and the body. Then I spread the body shell, allowing the frame to drop out from underneath.

On the test track, I started with DCC using our NCE PowerCab. In speed step 1, the model started moving at .9 scale mph. Top speed was 73 scale mph at speed step 28. Attaching our pull test meter, I measured 3.36 ounces of drawbar pull, equivalent to 47 freight cars or 16 passenger cars.

These locomotives are packed with LEDs, which light the headlight, step wells, ditch lights, reverse light, ground lights, and, on the Metra model, a Gyalite above the windshields on the cab and red marker lights on the nose for when the locomotive is pushing its train back into Chicago. The ground lights and step lights come on when the model is placed on powered track, as do the lighted number boxes, but there are also controls on various function keys, as well.

An interesting feature is the HEP startup and sound. Press function (F) 14 to hear that. You'll find the usual sounds in their expected locations: F1 is the bell, F2 is the horn, diesel engine startup is F8. Function 5 gets you a doppler grade-crossing sequence, and the ditch lights (F6) flash when the horn is sounded.

I next tested the model on direct current. Initially, I had a bit of a problem with the grade-crossing sequence sounding constantly. I contacted Rapido, and learned that some locomotives had an incorrect value in configuration variable (CV) 13. I changed the value to 160, and the horn stopped sounding. Of course, you'll need access to a DCC system to make this change.

Once everything was sorted, I noted sounds came on at 8.5V, and the locomotive started to move at 10V at 2 scale mph. Our filtered DC power pack maxed out at 13.5V, at which point the locomotive was moving at 50 scale mph. The instruction manual says the locomotive is designed to handle up to 16V, so if your power pack is more substantial than ours, you'll likely get a bit more speed. Check the instruction manual for more information about appropriate DC power packs.

Facts & features

Price: \$335 (DCC, sound)

\$225 (DC, no sound)

Manufacturer

Rapido Trains Inc.

500 Alden Rd, Unit 21

Markham, ON

L3R 5H5

Canada

rapidotrains.com

Era: 1988 to present (2015 to present as decorated)

Road names: Metra, AMT, GO Transit (as delivered), GO Transit (special logo), Ex-GO Lease (unnumbered), Metrolink (as delivered), Metrolink (teal stripe), Metrolink (ribbon scheme), and TRE Lone Star. Multiple numbers unless noted.

Features

- Classification lights or marker lights as appropriate
- DCC/Sound units equipped with ESU LokSound V5 decoder
- Die-cast metal chassis with dual flywheels and all-wheel drive
- Etched-metal grills
- Full cab interior
- Metal end handrails with plastic stanchions
- Metal knuckle couplers (front at correct height, rear .020" low)
- Operating headlights, rear light, and ditch lights
- Underframe details including traction motor cables and other piping
- Sounds recorded from a GM 12-710G3A diesel engine
- Turned metal wheels, in gauge
- Weight: 1 pound, 1.9 ounces

In the real world of HO scale layouts, I found the Rapido F59PH to be an excellent performer. I took it to our Milwaukee, Racine & Troy staff layout, where the model pulled 15 50-foot box-cars up the 3 percent curving grade to the top of Winter Hill. A typical locomotive can pull 13.

It's a great time to be a commuter modeler, and Rapido is leading the charge. From classics like the New Haven EP-5 and FL9 to this contemporary F59PH, if you want to get in on the action, check out these models! – *Eric White, editor*

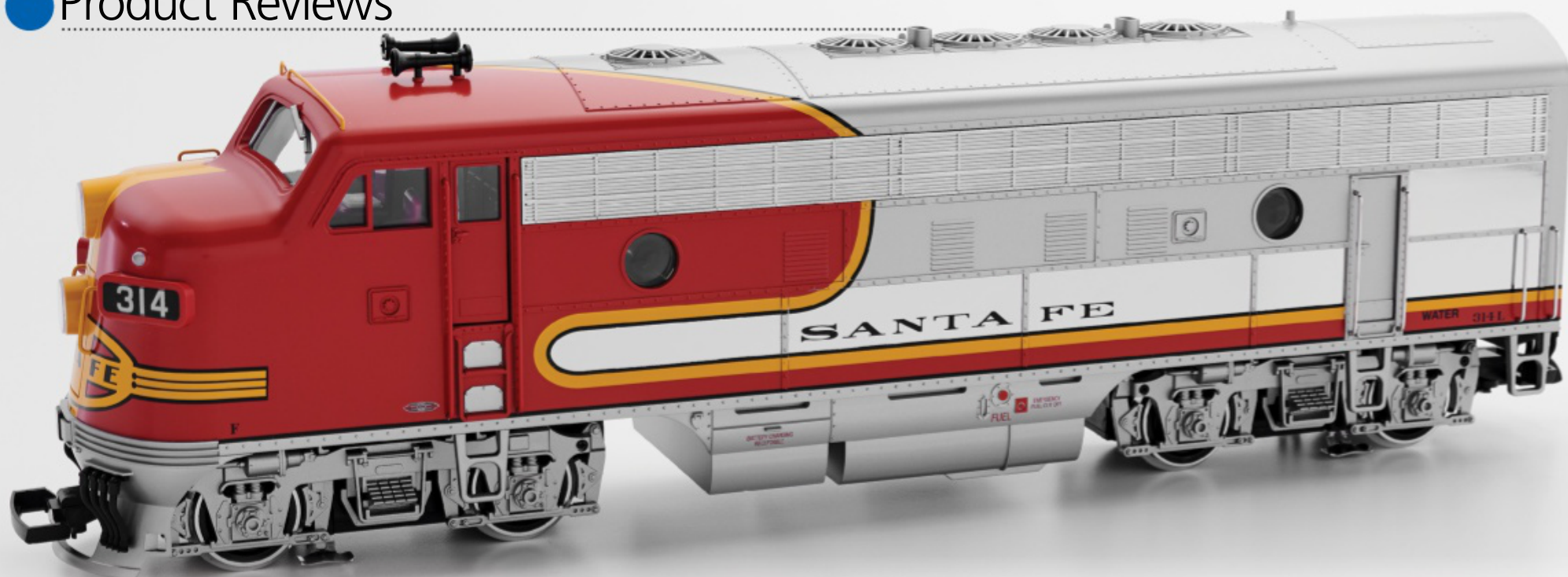


Photo by Connor Bruesewitz/Saturn Lounge

LGB 1:22.5 Electro-Motive Division F7 diesels

A **limited run** of Atchison, Topeka & Santa Fe Electro-Motive Division F7A and F7B diesel locomotives is available from large scale manufacturer LGB (Märklin Inc.). The company offers powered A units in two road numbers and an unpowered B unit in one number.

Electro-Motive Division produced the F7A and F7B from February 1949 through December 1953. The locomotive manufacturer produced 2,366 A units and 1,483 B units for railroads in the United States, Canada, and Mexico.

The LGB F7 A and B units have injection-molded plastic shells. The A unit has an illuminated plastic interior with separate seats. A factory-painted engineer figure is attached to the right seat with double-sided foam tape. The back wall of the cab has molded door and cabinet detail.

Common features on the A and B units include factory-applied steps, diaphragms, wire grab irons, m.u. hoses, and clear window glazing. The fuel tank on both models is a separate, screw-mounted casting with slats in the bottom for the speaker. Additional freestanding parts on the A unit include two single-chime air horns and windshield wipers.

PERFORMANCE CHARTS

DRAWBAR PULL 31 ounces

SCALE SPEED (DC)

VOLTS	SCALE MPH
8	1
12	9
16	22
20	40
24	50

The shell on both units is secured with screws attached to the bottom and ends. Lift the shell off both models carefully. Wires from the motherboard are attached to the shell on the A unit. Wires from a PC board connect to the speaker in the fuel tank on the B unit.

On the A unit, a metal weight is secured to the center of the chassis. The motherboard is attached to the top of the weight with three screws. Both trucks have Bühler motors.

A printed-circuit (PC) board is located in front of the cab interior on the F7A. Light-emitting diodes (LEDs) for the upper headlight, class lights, and number boxes are attached directly to the board. Light-emitting diodes with wires and male JST plugs for the lower headlight and cab interior light connect to sockets in the PC board.

The Santa Fe models are painted in the passenger warbonnet scheme with plated side panels that simulate the stainless steel found on the full-size locomotives. "LGB used a galvanic chrome plating process that was done by hand and involved nearly 40 steps," said an LGB representative. "It is the same process used in the automotive industry."

The model is nominally 1:22.5 proportion. Some dimensions have been compressed slightly.

The F7A is equipped with a multi-protocol decoder that's compatible with direct current, Digital Command Control (DCC), and mfx.

I tested the F7A in DC mode using an LGB Jumbo. The class lights, lower

Facts & features

Price: F7A (two road numbers), \$1,790 each; F7B (unpowered with speaker, one number), \$859.

Manufacturer

LGB (Märklin Inc.)
1406 Creek Trail Dr.
Jefferson City, MO 65109
lgb.com

Era: As decorated: June 1951 to Nov. 1952 (F7A), May 1950 to Nov. 1952 (F7B)

Road name: Atchison, Topeka & Santa Fe

Features

- Hook-and-loop couplers
- Sprung cab doors (A unit)
- Weight: 9.1 pounds (A unit), 4.6 pounds (B unit)

headlight, and diesel rumble started at 7V. The cab unit moved at 1 scale mph at 8V and achieved a top speed of 50 scale mph at 24V. Full-size F7As with a 62:15 gear ratio had a top speed of 65 mph.

Running the locomotive with DCC or mfx will let you enjoy the full complement of light and sound effects. A cable included with the B unit allows sounds from the A unit to be played through the cabless unit's speaker.

The lines of EMD F units have captivated railfans and modelers for generations. Thanks to LGB (Märklin Inc.), you can bring the streamlined units in Santa Fe's warbonnet paint scheme – complete with plated side panels – to your garden railway. – *Cody Grivno, senior editor*



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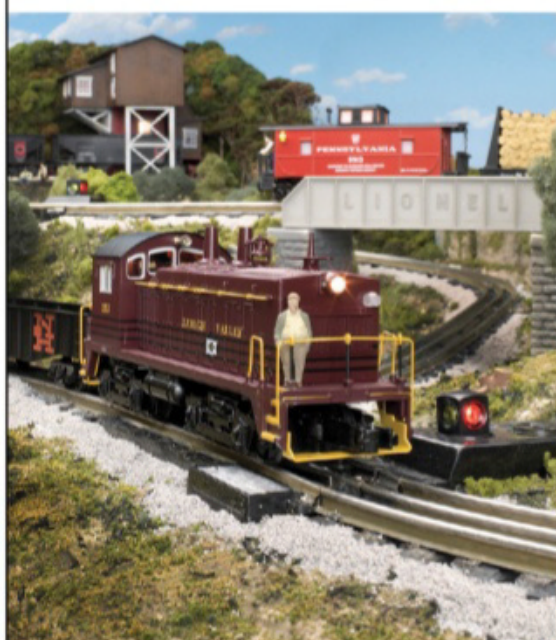
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P40519



Atlas O 40-foot Airslide covered hopper

Atlas O has re-issued its 40-foot Airslide covered hopper in eight new road names and two new road numbers. The cars feature sprung, die-cast metal trucks with rotating bearing caps; wire grab irons and brake lines; opening roof hatches; and metal knuckle couplers. We thought it was time we revisited this model, first issued in 2000.

Airslide covered hoppers were developed in 1955 by General American Transportation Corp. to carry fine particulate lading like sugar, flour, salt, carbon black, and cement. The hopper is lined with a material that's permeable to air. During unloading, air is pumped through the liner, which aerates the lading and facilitates its flow through the hopper outlets.

Our sample model is decorated as Chicago, Rock Island & Pacific 508513. Though Atlas' model info says 40-foot Airslides were built between 1953 and 1969, this car is lettered "New 275." That could be a rebuilt date. It shows up in the *Official Railway Equipment Register* (National Railway Publishing Co.) in 1977's edition, one of 223 cars numbered 508500-508723.

The blue "Route Rock" paint scheme with the large R herald was adopted around the same time and lasted until the demise of the road itself in 1980.

As of the publication date on *Model Railroader's* January 1961 issue, an article stated that General American had built 2,500 Airslide covered hoppers for various railroads and 2,500 more for its own lease fleet. Back then, a prototype car cost \$12,500.

The body is a single injection-molded plastic casting, with plastic details like the hopper gates, hopper troughs, and brake hardware separately applied. It is finely molded, with tons of well defined rivet detail. The corner ladders have wire rungs, and the brake reservoir and valve are connected by wire piping. The roof is a separate plastic casting, with free-standing see-through running boards and hinged round hatch covers.

The paint job and printing were well done. The distinctive Rock blue paint was smooth and evenly applied. The lettering was crisp and straight, including where it crossed the car's exterior posts. Since the car is O scale, none of the lettering was challengingly tiny, but the smallest lettering was sharp and legible.

Though I couldn't locate photos of prototype cars from the Rock Island 508500-508723 series, the model resembled photos of other 40-foot Airslides that I found online. All the dimensions I checked matched those printed on a diagram published in the January 1961 *Model Railroader*. The die-cast metal couplers were mounted at the correct height, and the blackened metal wheels were in gauge.

Airslide 40-foot covered hoppers were ubiquitous from the mid-'50s to mid-'90s, carrying lading to and from a huge variety of industries all across the country. If you model this period in O scale, your railroad could probably use a few. Atlas O has produced a well made, nicely detailed, and well decorated model that's worth a spot on your roster.
— Steven Otte, senior associate editor

Facts & features

Price: \$79.95 (undecorated, \$74.95)

Manufacturer

Atlas O
378 Florence Ave.
Hillside, NJ 07205
shop.atlasrr.com

Era: 1955-mid '90s (all cars); 1975-1980 (Rock Island version as decorated)

Road names: New paint schemes: Chicago, Rock Island & Pacific (blue "Route Rock" scheme); Brach's Candies (red); Chicago & North Western (yellow); Con Agra (gray); Conrail (Deepwater Green); Revere Sugar (black); St. Louis Southwestern (Cotton Belt, gray); and Union Pacific (silver). New road numbers: Burlington Northern (green) and Delaware & Hudson (red). One road number each; also available undecorated.

Features

- Blackened metal wheelsets with insulated metal axles, in gauge
- Detailed brake equipment with wire air lines
- Metal knuckle couplers, at correct height
- Minimum radius: 24"
- See-through running boards and brake wheel platform
- Separate, factory-applied opening hatch covers
- Sprung, die-cast metal 70-ton solid-bearing or roller-bearing trucks
- Weight: 1 lb., 0.8 ounces (1.8 ounces over National Model Railroad Association RP-20.1)
- Wire grab irons

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P40475

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P40359

Limits of yard limits

"Yards are where you maximize your fun" is a quote attributed to legendary layout designer John Armstrong. Fun comes in assorted flavors, for yard jobs and train crews alike. A yard job can be one of the most demanding of an operating session's positions, but navigating a yard can also be demanding for crews of road jobs.

Classifying cars is a yardmaster's ultimate responsibility, arranged in blocks for through trains or in station order for locals. The job also supervises movements of yard engines and trains in the yard. Car storage, especially empties available for loading, is another function. These duties are little changed from the timetable and train order (TTTO) era to the present.

A busy yard has Rubik's Cube appeal: constant decision-making about handling arriving traffic, preparing outbounds, and switching nearby industries. Much has been written about such yard operation. *A Compendium of Model Railroad Operations* from NMRA's Operations Special Interest Group is a useful source.

Yardmasters have limits, however. Internet chat groups I enjoy often bat around their authority over main track movements. In fact, a yardmaster controls only yard engines. A dispatcher controls all other movements on main track.

The term "Yard Limit" misleads because it applies strictly to the main track. Today's General Code of

Operating Rules (GCOR) definition includes, just as it did when it first appeared in the Standard Code, "a portion of main track designated by yard limit signs and timetable special instructions." GCOR defines yard as "a system of tracks, *other than main tracks and sidings*, used for making up trains, storing cars, and other purposes" (emphasis mine).

Note the important qualifier. Yard limits and yards, you see, are two different things. A yardmaster controls yard engine and train movements within a yard, but not on the main track through the yard.

Yard limit rules in non-sig-naled territory typical of many layouts allow yard moves and other trains to use the main track without flagging. In the TTTO era, Rule 93 further required clearing or protecting against first-class trains. Except for this, the rules require all main track movements to operate at restricted speed, prepared to stop within half the distance seen to be clear. Unless slowed to restricted speed, a train may not be able to avoid colliding with a yard engine that ducks out on the main.

Yard limits can exist with-

out a yard, and the existence of a yard doesn't require yard limits on a main track there. Signs and timetable special instructions designate yard limits. An employee timetable can make the full length of a branch or smaller portions of main track near the junction of the



The Winnipeg, No. 405, slows to restricted speed as required by yard limits at St. Cloud on Rich Remiarz' Great Northern Willmar Division layout. Rich Remiarz photo

branch as yard limits. Both situations call for restricted speed.

The photo shows No. 405, a second-class freight known as *The Winnipeg*, slowing to enter yard limits outside St. Cloud on Rich Remiarz' layout, set in 1956. Seen in the photo's background is the Barr Packing Spur, an example of yard limits without a yard. True to his prototype, Rich's yard limits extend well east of the St. Cloud yard to switch Barr Packing and other nearby industries easily.

I often see a road crew stop at a yard limit sign to ask a yardmaster for permission "through the yard," when restricted speed is the only real limit. On the other hand, a yardmaster controls any movements a train working a yard makes. For example, "Pull in on the ladder and set out on Track 2. Your pickup is on Track 1."

Prototype instructions like this come over the radio today. Before radio, a stop was made for the crew to contact the yardmaster on a way-side phone. Instead, a tower or office near the yard might display a sheet metal panel painted with a number designating the arrival track. A cardstock sign could easily model this, though I've not seen it done.

Restricted speed in Rule 93 and its contemporary versions enables safe, efficient yard operation. An engineer may get time off should his train collide with any other where these rules apply. Remember, then: movements on the main track in yard limits require restricted speed.

The On Operation column from July 2017, "Put Rule 93 to work," has additional information on yard limit rules. **MR**



YARD LIMITS CAN EXIST WITHOUT A YARD, AND THE EXISTENCE OF A YARD DOESN'T REQUIRE YARD LIMITS. — JERRY



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Long Island Rail Road Alco S-2 no. 420 uses a reach car to pull cars from the car float docked at the Eastport float bridge. John Ciesla photographed the scene on his HO scale Eastport Branch modular layout, which was featured in the November 2021 *Model Railroader*. The float bridge was scratchbuilt from scavenged spare parts from old structure kits and styrene Micro Engineering girders. The barge is made from a length of 1 x 4 lumber. The locomotive is an older Atlas model.

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The *Rangeley Express* crosses Main Street in Rangeley, Maine, on its way to the Rangeley Lake House resort on a busy day in the summer of 1915. Dan Welch, from Georgetown, Texas, shot the busy scene on his HO_n30 Sandy River & Rangeley Lakes. Forney locomotive no. 7 is a vintage brass import by The Car Works, and parlor car *Rangeley* is a vintage brass import from Sango. The structures are a mix of kits, kitbashes, and scratchbuilt.



The crew plays checkers in the baggage compartment while Atchison, Topeka & Santa Fe combine no. 2028 awaits pickup by the Cadiz mixed train in 1945. John Walker of Little Orleans, Md., kitbashed the HO scale baggage-coach-caboose from a Bachmann Pennsylvania RR 77-foot combine. John added window screens, opened the baggage compartment door, detailed the interior, and modified the roof. He painted it with Trucolor paints and added decals from Microscale and Champ. He photographed the car on the layout of the Northern Virginia Model Railroad Club in Vienna, Va.





D&B Lumber Co. Climax no. 6 switches the logging camp on the branch line, retrieving pulpwood cars that will be taken down the hill to fuel the boiler that powers the sawmill. Larry Burk of Holly, Mich., built and photographed the scene on his On30 Laurium, Mohawk & Brockway, which was featured in the November 2020 *Model Railroader*. The Climax locomotive and the pulpwood cars are from Bachmann. All trackage, including turnouts, is handlaid.

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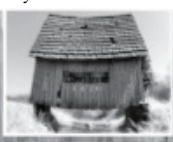
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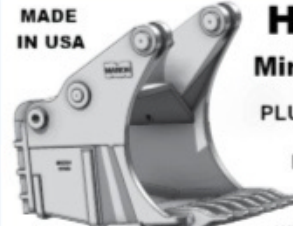
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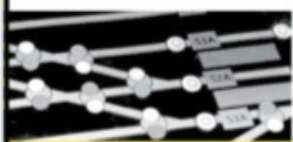
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Schedule of Events

CA, SACRAMENTO: TTOS-Sacramento Valley Division River City Toy Train Show. Scottish Rite Masonic Center, 6151 H Street, Sacramento, CA 95819. Saturday, October 1, 2022, 10am-3pm. Admission \$5.00, children 12 and under FREE w/paid adult. Buy/Sell/Trade, operating layouts, free parking, food. Drawing for kids w/paid adult (must be present to win). Contact: Bryan Stanton at brsta@comcast.net

CA, TULARE: TRAIN, TOY, & MODEL KIT SHOW at the International Agri-Center, 4500 S. Laspina St., Tulare, CA 93274 (on Route 99). November 12-13, 2022. Both days, 10am-4pm. Admission: \$10 per person; \$15 per family with FREE parking. Up to 300 selling tables plus operating train layouts. Questions: send email to TulareTTMShow@gmail.com

CO, LOVELAND: Rocky Mountain Train Show, November 26 & 27, 2022. The Ranch Complex, 5280 Arena Circle, Loveland, CO 80538. Saturday, 10am-5pm, Sunday 9am-3pm. 200+ sales tables, 50+ vendors, operating layouts, model trains of all scales. Admission \$10.00, 12 and under free. Free parking. 303-364-0274 www.RockyMountainTrainShow.com Information@RockyMountainTrainShow.com

CO, PUEBLO: Rail Fair at the State Fairgrounds Model Train Show, sponsored by Pueblo Model Railroad Association and TECO. October 15-16, 2022, Saturday 9am-4:30pm & Sunday 10am-4pm. Livestock Pavilion - Colorado State Fairgrounds, 1001 Beulah Ave., Zip: 81004. Admission: \$10. All scales, operating model railroad layouts, vendor tables, instructional clinics. Free parking. Info: publomodelrailroadassoc@gmail.com or https://tecoshow.org

CT, ANSONIA: Classic Shows, LLC will hold a Train and Toy Show on Sunday, October 2, 2022, from 9:00am-2:00pm at Warsaw Park, 119 Pulaski Hwy (Route 243), Ansonia, CT 06401. Admission \$7.00, children 15 and under are free with an adult. For information, please call 203-926-1327 or go to: www.ClassicShowsLLC.com

CT, WINSTED: Whiting Mills Annual Train Show, 100 Whiting Street, Winsted, CT 06098. Sunday, October 16, 2022. 9am-3pm. Free admission & parking. Donations to help The Winsted Area Soup Kitchen for families in need would be appreciated. Enjoy train layouts, photos, artists, and more! Handicap accessible. Info & tables, contact Roger Moreau at 860-379-3383, email: salesrrhobbysupply@gmail.com

FL, PINELLAS PARK: HR Trains & Toys, Inc., presents the 74th (Original) Train Show. October 22 & 23, 2022. Both days, 10am-5pm. 7900 49th St. N., Zip: 33781. Free parking in adjoining Pinellas Park Performing Arts Center lot. All scale sizes. Vintage trains, trains for kids, and toys! Competition ribbons/prizes awarded for best layouts! 727-526-4682, www.HRTrains.com

FL, PINELLAS PARK: Suncoast Model Railroad Club Train Show/Open House. Saturday, October 1, 2022. SHOW- New venue! Pinellas Performing Arts Center, 4951 78th Avenue N., Zip: 33781. 9am-3pm. Admission: \$7.00, Children \$2.00, under 11-free. Free parking. Food/snacks. Tables: Hugo Sacco: saccohugo459@gmail.com OPEN CLUBHOUSE- 12355 62nd Street North, Suite A, Largo, FL 33773. Admission: FREE. Visit: www.suncoastmrrc.com

GA, ATLANTA: Scott Antique Markets (featuring Anton's Antique Toy & Train Show), November 10 - 13, 2022. Atlanta Exposition Center, 3650 & 3850 Jonesboro Rd., Atlanta, GA 30354. Thursday: 10:45am-6pm, Friday & Saturday: 9am-6pm, Sunday: 10am-4pm. Admission \$5, good all weekend. Contact: Anton 937-397-3499, or email: tweissmann6@gmail.com

IA, DAVENPORT: Model Train Show. November 18-20, 2022. Friday 12pm-6pm, Saturday 10am-4pm, Sunday 10am-2pm. N, HO, O27 & O...NEW & USED. Buying trains, pay in cash. FREE admission & parking! Food and drinks available. Cash and credit cards only. American Legion, 702 West 35th Street, Davenport, IA 52806. Questions, call John at 563-349-0134 or email: JohnTrainsHobby@aol.com

IL, ST. CHARLES: 31st Annual Chicago Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd., Zip: 60174. Sunday, October 16, 2022, 10:00am-3:00pm. Admission: \$6.00 (includes tax). Children under 12 FREE. Tables \$65.00. Please visit our website for latest Covid updates. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

IN, DANVILLE: Central Indiana Division-NMRA annual Danville Train Show (Indianapolis area) at Hendricks County Fair Grounds, 1900 E. Main St., Danville, IN 46122. Saturday, November 19, 2022. 10:00am-3:00pm. Admission \$3.00 adult, \$5.00 family. Operating Layouts, Vendors, Clinics, Food. Dealer Tables 8 feet at \$16.00. Info: johnporay@gmail.com or 317-627-1660. More info at: http://cidnmra.org

KS, TOPEKA: TMRR Club Show and Swap Meet. October 1-2, 2022. 9am-5pm both days. Admission: \$5, children under 4 free. Operational layouts in a historic railroad station. Free parking, food on site for purchase. Contact info: philskow@yahoo.com or 785-221-2174

MN, WOODBURY: Newport Model RR Club Flea Market & Train Show. All scales, model railroad equipment, collectibles, antique toys, books/magazines, and much more! Woodbury High School, 2665 Woodlane Drive, Woodbury, MN 55125. Saturday, October 8, 2022, 9:00am-2:00pm. Admission \$5.00. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Don, 763-257-5443

NJ, TOMS RIVER: ECTP and Collectibles LLC presents the Toms River Toy & Train Show. Elks Lodge, 600 Washington St., Toms River, NJ 08753. Sunday, October 2, 2022, 9:00am-2:00pm. Admission: \$7.00; under 12 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on Toms River Show.

NJ, WAYNE: ECTP and Collectibles LLC presents The Wayne Train Show. P.A.L. Hall, 1 Pal Drive, Wayne, NJ 07470. Sunday, October 9, 2022, 9:00am-2:00pm. Admission: \$7.00; under 12 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on The Wayne Show.

OH, DAYTON: Dayton Train Show, The New Montgomery County Fairgrounds, 645 Infirmary Road, Dayton, OH 45417. November 5-6, 2022. Saturday 11am-5pm and Sunday 11am-4pm. Admission: \$8.00 per adult, children 12 and under free with paid adult. Gail Yarnall, PO Box 341233, Beavercreek, OH 45434, 937-424-6413. Email: NMRA.Div.3@gmail.com or visit: www.DaytonTrainShow.com for updates.

OH, MT. HOPE: CJ Trains Fall Train and Toy Show. Mt. Hope Event Center, 8076 St. Rt. 241, Zip 44660. Saturday, November 5, 2022, 10:00am-4:00pm. Admission: \$5.00, under 12/FREE. \$25/dealer table, 600+ 8' dealer tables. Contact: Jon Ulbright, PO Box 446, Wooster, OH 44691. 330-262-7488, cathijon@ssnet.com www.cjtrains.com (GPS info: 8076 St. Rt. 241, Millersburg, OH 44654)

OK, BIXBY: Greater Tulsa Area Train Show. Saturday, October 8, 2022, 9am-3pm. Bixby Community Center, 211 N. Cabaniss Avenue, Bixby, OK 74008. BUY/SELL/TRADE. Table sales, operating train layouts of all scales, door prizes. Admission: \$5.00 adults, kids under 18 free. For information: Ron 918-869-7228 or www.ttos-soonerdiv.org

PA, HAWLEY: Model Train Show & Sale. Hawley Fire Department, 17 Columbus Ave., Hawley, PA 18428. Sunday, October 2, 2022, 9:00am-3:00pm. Admission \$3.00, under 12 free with adult. Only 88 tables available. Bill Delling, 618 Fern St., Hawley, PA 18428, 570-226-3206

PA, YORK: All Gauge Train Show. October 17-19, 2022. Monday 8am-5pm, Tuesday 8am-5pm, Wednesday 8am-2pm. Wyndham Garden Hotel, 2000 Loucks Rd., York, PA 17408. 175 indoor tables, with an additional 150 outdoor vendor spaces available. Free admission (rain or shine). Vendor info, contact: Chuck Janiga, 716-390-8216, chuckstrainroom@live.com

TX, PLANO: Dallas Area Fall Train Show. Plano Event Center, 2000 E. Spring Creek Parkway. October 1-2, 2022, Saturday 10am-5pm; Sunday 10am-4pm. Adults \$10.00, 12 and under free w/adult. 80,000 sq.ft. of model railroading with numerous operating layouts, layout tours, vendors, and door prizes. Information: Chris Atkins, chris@railroadmodelers.com 469-438-0741. Visit: www.dfwtrainsshow.com

TX, TEMPLE: 40th Annual Temple Model Train Show by Centra Mod Inc. Central Texas Area Model Railroaders, Frank W. Mayborn Convention Center, 3303 North 3rd St., Temple, TX 76501. September 17-18, 2022, Saturday 10am-5pm and Sunday 10am-4pm. Admission: \$8.00, Seniors & Military w/ ID \$7.00, 12 and under free w/adult. FREE Parking! Contact: Craig Caddell, 254-760-3761

WA, CHEHALIS: Lewis County Model Railroad Club, Annual Fall Train Show and Swap Meet. Southwest Washington Fair Grounds, Blue Pavilion Building, 2555 N. National Ave., Chehalis, WA 98532. October 8-9, 2022. Saturday 10:00am-4:00pm and Sunday 10:00am-2:00pm. Admission \$5.00. Free parking. Contact information: Ted, 360-985-7788 or TedsTrains@LewisCounty.com

WA, SPOKANE: River City Modelers Fall Model Train Show, Spokane Fairgrounds, 404 N. Havana. Sunday, October 9, 2022, 9:30am-3:30pm. Admission: adults \$6, 12 & under free. 200+ tables of Railroad related items for sale, operating layouts, Free-MO, Operation Lifesaver & more. Free Parking. For table rental or general info, contact: Shirley Sample, 509-991-2317 or shirley@busnws.com

WI, MONROE: Green County Model Railroaders 44th Annual Model Train Show & Swap Meet. The Stateline Ice and Community Expo, 1632 4th Avenue West, Monroe, WI 53566. September 24-25, 2022. Saturday & Sunday, 10am-4pm. For information contact Kevin Johnson, 608-558-9332, or visit www.gcmrrinc.org

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

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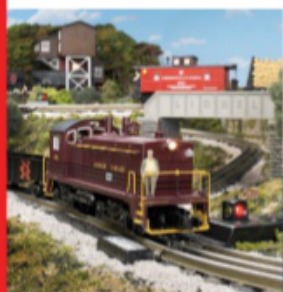
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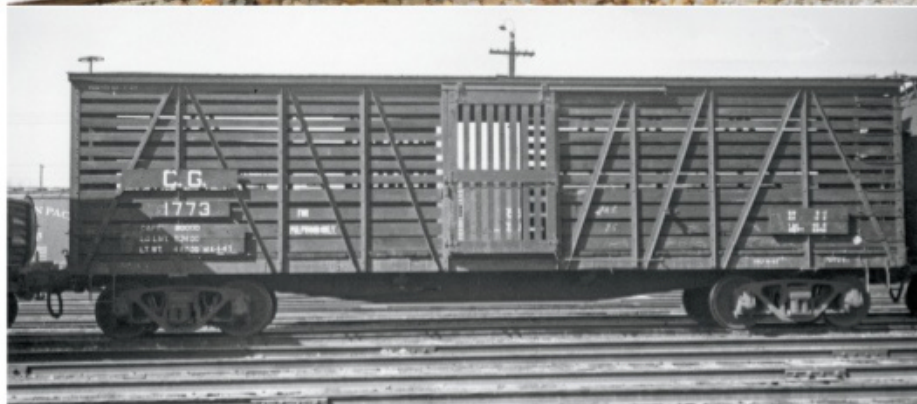
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More alternative uses of freight cars



These two photos show more alternative uses for freight cars. The model photo above shows a narrow gauge SP stock car during its short-lived career as a coke car, and the C of G stock car is labeled FOR PULPWOOD ONLY. Model photo: Steve Bradley; C of G: Tom Holley

In the October 2020 “Trains of Thought,” I wrote about alternative uses of freight cars. Some examples were bricks carried in stock cars and ventilated boxcars; grain, flour, and coke in stock cars that were lined with plywood; and beet pulp, cement, lumber, clay, and railroad ties in ventilated boxcars.

The Summer 2020 issue of *Nickel Plate Road Magazine*, the quarterly publication of the NKP Historical & Technical Society (nkphts.org), carried an article that featured photos from the Bloomington, Ill., *Pantagraph*. They showed the NKP’s short 32-foot covered hoppers, normally used for cement loading, being topped off with grain during our frantic post-World War II efforts to help feed a starving Europe. Even tarp-covered open hoppers were employed in grain-carrying duty. In normal times, grain was shipped in 40-foot boxcars until the 1960s.

The column also generated a lot of other examples of alternative car usages. Tom Holley noted that “the ‘Y’all’ roads had large fleets of ventilated boxes and, in the off season, used them as regular boxcars. When the paper mill/pulpwood boom took off after WWII, some roads (Southern and Central of Georgia come to mind) rebuilt ventilated boxes into pulpwood racks. On some of the Central’s old rebuilt cars, the spaces where the vents had been were still visible on the wood-rack ends.

“Also during the pulpwood boom,” Tom added, “railroads loaded pulpwood into anything they could haul it in. I’m including a photo of a CofG stock car stenciled FOR PULPWOOD ONLY. Pulpwood was also loaded in boxcars; CofG and Savannah & Atlanta employee timetables both listed weights for pulpwood in boxcars and pulpwood on wood racks to aid the conductor in scaling

his train. Labor was cheaper then – and can you imagine loading or unloading pulpwood from a boxcar in August in, say, Glenwood, Alabama?”

“I personally saw light-bulbs loaded in empty reefers heading back to California from Ohio,” Larry DeYoung recalls. “Clean lading going into clean-lading cars. That was not much of a test for the suspensions on those cars!”

Ken Bolt recalls reading about reefers being used to haul cement during the off-season. The article included a photo of a string of reefers lined up for loading at a cement plant.

Well-known *Model Railroader* author Mont Switzer remembers seeing a Monon open hopper in Indianapolis heaped

with shelled corn. “Upon closer investigation, I found it had a plastic liner. This was around 1969, and there was a boxcar shortage during the harvest.”

Even the narrow gauge railroads got into the act. “Your ‘Trains of Thought’ comments made me think about the Southern Pacific, and more specifically the SP Narrow Gauge,” Steve Bradley told me. “It seems this railroad (and probably all railroads) were always looking to save money wherever they could, reusing their car inventory as needed. Many cars started out as flatcars and became something quite different for most of their lives. I am thinking of the open-top stock cars of the narrow gauge line that became coke cars, with awning-type side doors and sloped floors for ease of unloading. However, this appears not to have lasted long, as the floors were flattened, and the cars were used for most of their lives as livestock transport (sheep) in seasonal moves.

“This was true of many other SP type cars as well,” Steve added. “Flatcars became gondolas, which became side-discharge gondolas, boxcars became cabooses – whatever it took to get the job done!”



Creativity has always been a key part of any industrial endeavor, railroading included. We might as well borrow some of that creativity and apply it to our miniature railroads. **MR**



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