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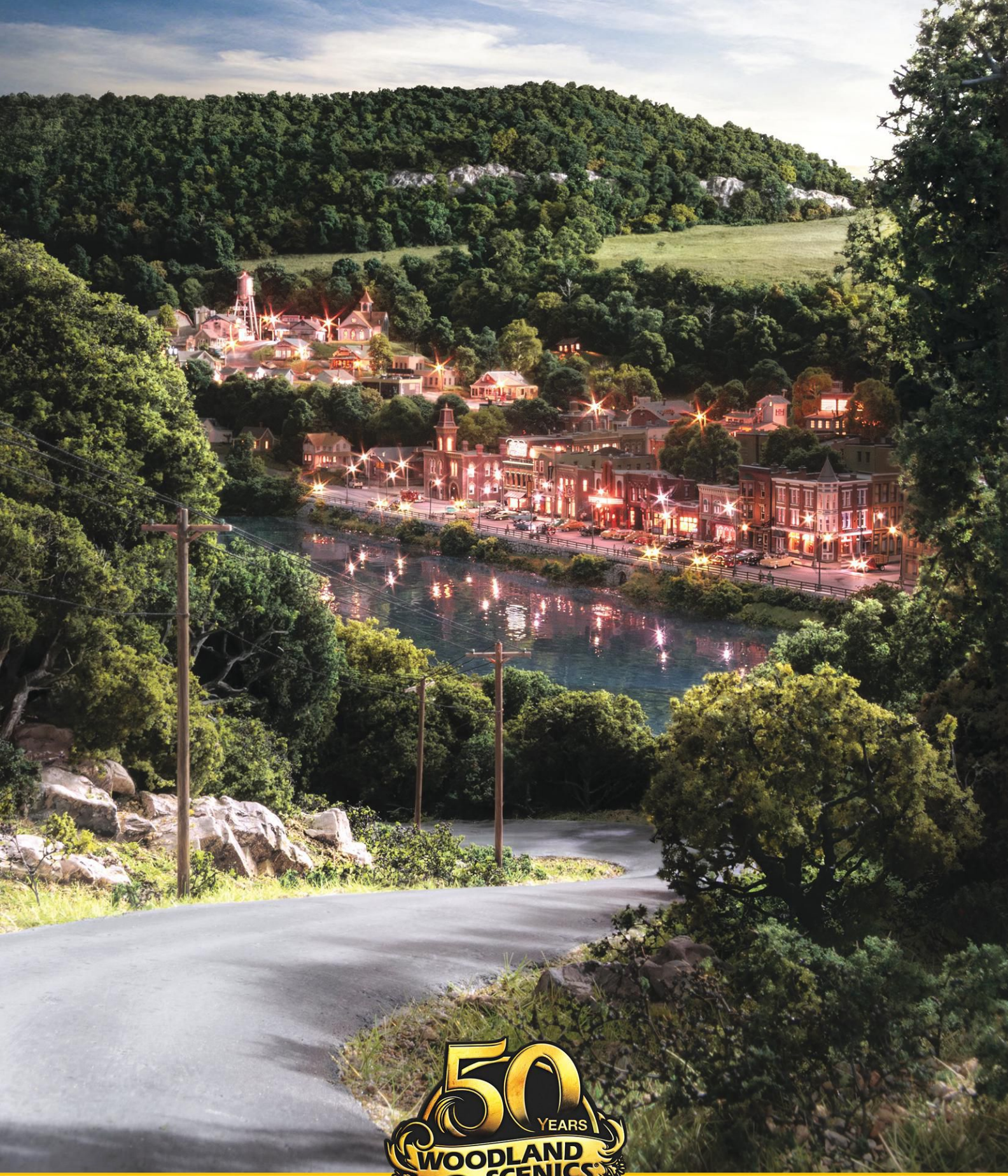
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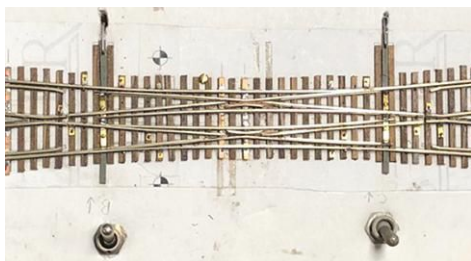


Actual HO scale model photograph.

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Features



26 Wiring a double-slip switch

It may not be as difficult as you think
by Ken Belovarac

30 Merging modeling techniques

Scratchbuilding and photo-laminating took this HO scale building from concept to reality
by Thomas Oxnard

34 The Northbrook layout

A three-rail tribute to the Pennsylvania RR
by Norm Charbonneau



42 The colorful Buffalo & Pittsburgh

This double-deck N scale layout is set in the late 1980s
by Jon Percy

50 Household products for model railroading

These items may not have been designed for the hobby, but they sure do come in handy
by Cody Grivno

51 Kitbash a modern switcher in HO

An Athearn SD40-2 served as the starting point for this project
by Gary Bothe

In every issue

6 On Trains.com

The latest features on our website

8 From the Editor

This is a hobby for making things



10 News & Reviews

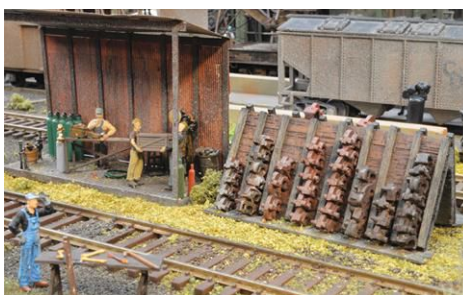
Hobby industry news

16 Railway Post Office

Letters from our readers

18 Ask MR

Loads for a fertilizer blend plant



22 Step by Step

Model a coupler knuckle rack

60 Prototype to Model

62 On Operation

Standard time

64 Trackside Photos

73 Index of Advertisers and Cartoon

74 Trains of Thought

A railroad ballet



On the cover: A Pennsylvania RR shifter spots a hopper on Norm Charbonneau's three-rail layout.
Craig Wilson photo



Next issue

In July, Lou Sassi builds a flagpole, we visit Doug Tagsold's 1:72 scale Colorado & Southern, Dave Abeles shares his batch-weathering techniques, and more!

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East Troy Industrial Park, Ep. 2 — Building a Frame

Join hosts **David Popp** and **Bryson Sleppy** as they construct the East Troy Industrial Park (ETIP) model railroad. The all-new ETIP promises to be built in the same tradition as prior project layouts — starting with the benchwork. In this episode David and Bryson walk viewers through the steps for shaping the wood frames that, quite literally, get the train off the ground.

Even more, you'll want to explore the simple, yet extraordinarily helpful insights the crew shares in *Model Railroader Tips & Tricks* posted on Trains.com Video. Scan the QR code with your smartphone to watch the East Troy Industrial Park series, only on Trains.com.



Creating a rail-marine track plan

If you're a fan of boats and trains, building a model railroad involving both can be a rewarding experience. A rail-marine layout allows you to practice and utilize a variety of modeling techniques and skills, including making water and building car floats, cranes, large warehouses, and more.

Contrary to what you may think, rail-marine layouts don't have to take up a lot of space. In fact, the four track plans featured in this article, compiled by *Model Railroader* Associate Editor Bryson Sleppy, are designed to fit on a shelf or in a small bedroom.



Remembering the original Milwaukee, Racine & Troy

Over the 14 years it was located at 1027 North 7th Street in downtown Milwaukee, the MR&T went from concept to the star of Kalmbach's headquarters. The layout became the subject of articles for *Model Railroader* magazine, served as a test bed for projects, and hosted nearly 150 operating sessions. A who's who of model railroaders helped build the MR&T, and the list of operators featured many well-known names, too.

Take a look back at this historic layout in a retrospective photo gallery on Trains.com.



Built by Others: Adam Palmer's San Juan Central Version 2

Malcolm Furlow's HOn3 *San Juan Central* layout appeared in a multi-part series in the pages of *Model Railroader* between 1983 and 1984. Adam Palmer's San Juan Central Version 2, inspired by the well-known model railroad, was constructed to modern layout building standards and practices.

Let's Go Run Some Trains!



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This is a hobby for making things

An article was recently shared across the Firecrown offices about hobbies and magazines, two things most of us here are passionate about.

To me, the interesting idea was that hobbies such as model railroading are about doing. I had just came back from a weekend of operating trains in the Chicagoland area, and on a few occasions it was remarked that there were so many wasted basements in the neighboring homes.

What were people doing down there? Probably just storing old stuff in many of those basements.

When people are asked about their hobbies, many will say they like watching movies or sports, or listening to music. Now, don't get me wrong, I'll watch movies and sports (Go Birds!), and I've always loved listening to music, but those things are passive.

Building a model railroad is an active hobby. Whether I'm making models that will run on the layout, or constructing the layout itself, I'm moving and thinking.

This is a hobby that tends to be practiced by older people who have the time, space, and money to devote to it. As we get older, it's important that we keep moving and thinking. At the operations weekend, there were several guys who have taken more than a few trips around the sun. None looked like they were slowing down.

We'd like to help with the doing. That's why in these pages, we've always tried to present information that can inspire you, or help you to build things.

The point of the layout visit stories we print is to inspire readers. The stories show what can be done, or how others have solved

layout-building challenges. The stories might even offer something you've never considered before, like a railroad you didn't know existed, or an approach to modeling that's outside what people commonly do.

Of course, the how-to articles show you how things are made. Maybe you need or want that exact thing. That's great, because now you have the instructions on how to do it. Maybe instead, the how-to stories will share a technique to help you get that long-stalled project going again. I love that feeling of reading a story I didn't think would apply to me, then learning something I never would've thought to do.

Whether you're building a layout, or the models to go onto a future one, I encourage you to go out and do. It's easy to get stuck when a project starts to go sideways. Maybe



it's time to box it up and move on to something else.

If you need a place to work, a TV tray might offer enough space to assemble a kit. In some applications, craft paints and brushes from a department store can yield satisfying models. If you're already building, send us a photo — we'd love to see what you're up to!

Model Railroader

Model railroading is fun!

Founder A.C. Kalmbach 1910-1981
 Editor Eric White
 Senior Editor Cody Grivno
 Senior Production Editor Rene Schweitzer
 Associate Editor Bryson Sleppy
 Assistant Digital Editor Mitch Horner
 Contributing Editors Tony Koester, Pelle Søeborg, Larry Puckett, Lou Sassi

Email editor@modelrailroader.com
 Address 18650 W. Corporate Dr., Suite 103
 Brookfield, WI 53045

Model Railroader Art Team

Design Director Thomas G. Danneman
 Assistant Design Director Scott Krall
 Illustrators Kellie Jaeger, Roen Kelly
 Production Director Kelly Kramer Weekley
 Operations Specialist Melissa Valuch
 Production Specialist Jodi Jeranek

Contributing to Model Railroader

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Director A. David Popp
 Executive Producer Kent Johnson
 Producer Ben Lake
 Assistant Editors Jenny Freeland, Sean Kirby
 Staff Writer Lucas Iverson

Advertising Department

Martha Stanczak
 martha.stanczak@firecrown.com
 414-246-7081

Retail Orders & Inquiries

Selling Model Railroader magazine or products in your store:
 Email terri.meunier@firecrown.com

Customer Sales and Service

Phone 877-246-4879
 Outside U.S. and Canada 847-313-3921
 Customer Service
ModelRailroader@Omeda.com

Firecrown

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Aug 9-10 Edison, NJ - New Jersey Expo Center
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HO scale



Norfolk & Western Class J 4-8-4. The first steam locomotive produced by ScaleTrains is in stores now. The HO scale Norfolk & Western Class J 4-8-4 is offered in three versions: Post-2015 *Spirit of Roanoke* (one road number), early as-built, and late as-built. The model, available in two numbers per scheme unless noted, is part of the Fox Valley Models product range and features a die-cast metal locomotive and tender body, light-emitting-diode lighting, and a synchronized puffing

smoke unit. The 4-8-4 will operate on codes 70, 83, and 100 rail. The steam locomotive has a minimum radius of 18" and a recommended radius of 22". Direct-current models with a 21-pin connector are priced at **\$424.99**. Versions with a dual-mode ESU LokSound V5 sound decoder, speakers in the boiler and tender, and an ESU-designed PowerPack with two super capacitors sell for **\$524.99**. ScaleTrains, 844-987-2467, scaletrains.com

HO scale locomotives



• Baldwin Locomotive Works 2-8-0 Consolidation steam locomotive.

Denver & Rio Grande Western; Atchison, Topeka & Santa Fe; Baltimore & Ohio; Chicago, Burlington & Quincy; Northern Pacific; and Union Pacific. Two road numbers per scheme. Also available painted black and graphite but unlettered. Factory-applied handrails, grab irons, ladders, brass bell, markers, and more. Die-cast metal boiler, tender body, and chassis. Direct-current model, \$399.99; with DCC and sound, \$499.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com



• **Electro-Motive Division GP9 diesel locomotive.** Western Maryland, Chesapeake & Ohio, Chicago & North Western, Penn Central, and Southern Pacific. Four road numbers per scheme. Also available undecorated (includes long hood with and without dynamic brake detail, standard short hood, WM chop-nose cab and short hood, and simplified and modified skirt sill units). New

chopped short hood tooling on Western Maryland units. Upgraded lighting on Chicago & North Western and Southern Pacific units. Factory-installed 28mm speaker in direct-current and DCC versions. Light-emitting diode headlights, number box lights, and beacon as applicable. Factory-applied wire grab irons and photo-etched lift rings. Direct-current model, \$219.98; with ESU DCC and sound, \$319.98. Walther's Proto line. Wm. K. Walther's Inc, 414-527-0770, walther's.com



• **Electro-Motive Division GP39-2 diesel locomotive.** Larry's Truck & Electric, Cleveland Commercial RR, and Missouri-Kansas-Texas. Also available in Denver & Rio Grande Western fantasy scheme. One to three road numbers per scheme. New light-emitting diode light package including operating number box lights, class lights, headlights, ditch lights, beacons, and signal lights as applicable. Factory-applied uncoupling levers, lift rings, train line and m.u. hoses, windshield wipers, wire grab irons, and sanding lines. Blomberg-B or -M trucks as appropriate. Etched metal fan grills. Direct-current model, \$239.99; with DCC and sound, \$349.99. Genesis line. Athearn Trains, 800-338-4639, athearn.com



• Montreal Locomotive Works FPA-4, FPA-2u, and FPB-4 diesel locomotives.

VIA Rail Canada and Canadian National. Multiple road numbers per scheme. Canadian-cast Dofasco Type B trucks. Light-emitting diode headlights, class lights, and back-up lights. Separate, factory-applied grab irons and handrails. Underbody piping and conduit. Detailed, multi-color cab interior. Factory-installed ESU LokSound V5 sound decoder. FPA-4 and FPB-4 set, \$649.95; single FPA-2u or FPA-4, \$339.95. Rapido Trains, 905-474-3314, rapidotrains.com

HO scale rolling stock



• **American Car & Foundry 50-foot Plate B boxcar with exterior posts.** Conrail, Burlington Northern, Canadian Pacific, Chicago & North Western, Grand Trunk Western, and Norfolk Southern. Four road numbers per scheme. Dreadnaught ends and Stanray diagonal-panel roof. \$34.98. Walther's Mainline. Wm. K. Walther's Inc, 414-527-0770, walther's.com

Club offerings



- **Three-bay covered hoppers.**

Atlas HO scale Master Line cars produced for the Eastern Maine Model Railroad Club. W.H. Shurtleff Co. Salt and Maine Marine Products Inc. in four road numbers each; Agway in six numbers. Single car, \$37. Add \$13 for shipping. \$5 off each car when ordering seven or more. Eastern Maine Model Railroad Club, P.O. Box 745, Blue Hill, ME 04614; easternmainemodelrailroadclub.org



- **Evans 100-ton coil car.** CSX; Burlington Northern Santa Fe; Chessie System; Chicago & North Western; Conrail; Detroit, Toledo & Ironton; Illinois Central; and Reading Co. Six road numbers per scheme. Two metal steel coil weights per car (additional packages of four weights available separately, \$13.95). Etched-metal walkways, metal couplers, and metal wheelsets. \$49.95. InterMountain Railway Co., 303-772-1901, intermountain-railway.com



- **Southern Ry. Gantt Manufacturing Co. bay-window caboose.** Southern Ry. and Norfolk Southern. Multiple paint schemes and road numbers. Undecorated kit also available. Road- and era-specific details including multiple body, roof, underframe, and truck combinations. Stanray "terminating" diagonal-panel roof with huck bolts. Detailed and painted interior with angled-back notched bay-window seating, conductor desk and stationery equipment locker, and more. \$134.95 (undecorated, \$99.95). Tangent Scale Models, 828-412-3886, tangentscalemodels.com

HO scale

Sooty's Mine Shaft No. 12.

Menards has added to its lineup of HO scale buildings with this factory-assembled structure. Sooty's Mine Shaft No. 12, which measures 3½" x 4¾" x 5¼", features four miner figures; Jack the German shepherd; and a scenicked base with static grass, coal piles, and oil drums. The model (\$39.99) also has a rotating sheave wheel and factory-installed lighting that require a 4.5 volt power supply, sold separately. You can find Sooty's Mine Shaft No. 12 at your local Menards store or purchase it online. Menards, menards.com/trains



- **Greenbrier Transverse coil car.**

Norfolk Southern, Arkansas & Oklahoma, Chicago Heights Terminal Transfer, South Shore Freight, Union Pacific, and Warwick Ry. Also available in Railroad of Lies fantasy scheme. Six road numbers per scheme. Metal underframe, etched-metal walkways, and factory-applied metal grab irons and uncoupling levers. Single car, \$59.95; six-pack, \$359.70. Rapido Trains, 905-474-3314, rapidotrains.com

HO scale structures



- **Plastic pellet plant.** Injection-molded plastic kit based on prototypes found

from the 1970 to the present day. Main building features brick and metal construction, truck-loading doors, front office doors and windows, and rooftop air conditioners. Four tall vertical storage silos. Loading rack with piping for two railcars. Overhead walkways. Waterslide decal signs. Main building measures 15¾" x 10½" x 4½", silos measure 27¾" x 2¾" x 8¼". \$99.98. Walther's Cornerstone line. Wm. K. Walther's Inc, 414-527-0770, walther's.com

N scale locomotives

- **General Electric ES44 diesel locomotive.** CPKC (red, yellow, and black) and BNSF Ry. (Heritage III). Two road names per scheme. Multiple, prototype-specific body styles. Directional light-emitting-diode headlights, ditch lights, and number boxes. Factory-printed numberboards. Kato magnetic knuckle couplers. Five-pole motor with dual brass flywheels. Compatible with Digitrax DN163K1C, ESU 58741 LokSound 5 micro, and Train Control Systems K1D4 drop-in Digital Command Control (DCC) decoders. Direct-current model, \$125; with motor-only DCC decoder, \$225; with DCC and sound, \$325. Kato USA, 847-781-9500, katousa.com

Rapido HO General Electric C30-7



The C30-7 is the latest addition to the lineup of General Electric diesel locomotives from Rapido Trains. The HO scale model, offered in eight paint schemes, has a five-pole motor with dual flywheels; a heavy, die-cast metal weight; and prototype-specific details.

General Electric produced the C30-7 from September 1976 to May 1985. During that time 1,078 units were built. The six-axle road locomotive, rated at 3,000 horsepower, was equipped with a 7FDL16 diesel engine, a GTA-11 alternator, and 752 traction motors.

The sample we received is decorated as Union Pacific 2415, part of the railroad's 2400 through 2539 series built between July 1977 and October 1980. The 2415 was renumbered 415 on May 16, 1997. Union Pacific retired the C30-7 on Sept. 30, 1999.

The Rapido C30-7 features a multi-piece injection-molded plastic body consisting of the short hood, cab, long hood, and sill unit. The cab sub-base doors are separate pieces that fit into the sill on both sides.

Rapido offers the C30-7 with Adirondack or Rockwell trucks as appropriate; the UP model has the former with high-mount brake cylinders, formed wire truck air lines, and sand lines. Both sides of the front truck have a speed recorder cable picked in red. The engineer's side front truck also has a brake chain.

To separate the shell from the chassis, I first removed the front and rear draft-gear boxes. Then I took out four screws (two each between the truck and air tank at both ends of the fuel tank). With no wires or details tethered to the chassis, the shell lifted right off.

The motor and flywheels are centered in the chassis. Much of the interior is filled with weights. A printed-circuit (PC) board, attached with screws, spans the top of the weight. The ESU LokSound sound decoder and capacitors for the MoPower temporary energy storage system are on top of the PC board.

Our sample is neatly decorated in UP's as-delivered Armour Yellow and Harbor Mist Gray paint scheme. The printed trust plates, identification and warning labels, and General Electric name on the builder's plates are legible under magnification.

Drawings of the C30-7 were published in the September 1999 issue of *Model Railroader*. The Rapido model matches printed dimensions.

The C30-7 we received has an ESU LokSound V5 sound decoder. I first tested the unit at the workbench with an NCE Power Cab. At step 1 the model moved at 0.7 scale mph. The locomotive achieved a top speed of 64 scale mph at step 28. The top speed on the prototypes ranged from 70 to 93 mph depending on gear ratio. For real-world testing, I took the six-axle unit over to

our Winston-Salem Southbound. Though not designed as a road switcher, the Rapido model successfully worked industries on the Tar Branch, navigating a No. 4 turnout and 30-degree crossing without issue.

The full-size C30-7 was the best-selling unit from GE's Dash 7 lineup. Rapido has faithfully captured the lines on the six-axle unit, from the rounded corners on the short hood to the stepped radiator section near the back of the long hood.

— Cody Grivno, senior editor

Facts & features

Price: Direct-current model, \$239.95; with ESU LokSound V5 sound decoder, \$349.95

Manufacturer

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

Era: June 1978 to late 1980s (as decorated)

Road names: Union Pacific; Atchison, Topeka & Santa Fe; Burlington Northern; Conrail; CSX; National Railways of Mexico; Norfolk & Western; and Norfolk Southern. Four road numbers per scheme.

Features

- Body-mounted metal couplers, at correct height
- Metal wheel stubs mounted on plastic drive axle gears, correctly gauged
- Weight: 1 pound, 3 ounces



Trains.com members can see the Rapido HO scale C30-7 in action with this QR code.

RailSmith Models N scale Budd dome coach



A newly tooled Budd dome coach is now available in N scale from RailSmith Models. The injection-molded plastic lightweight car features tinted dome window glazing, metal wheel stubs mounted on plastic axles, and truck-mounted Accumate knuckle couplers.

The RailSmith model is based on a dome coach built by the Budd Co. in 1955 under job number 9646-155. The full-size car had 46 seats in the coach and 24 in the dome.

The sample we received is decorated as Chicago, Burlington & Quincy 1335, part of the 1320 through 1335 series. The cars were owned by Great Northern (1320 through 1331); Spokane, Portland & Seattle (1332); and CB&Q (1333 through 1335).

In *Burlington Northern Passenger Cars* by Charles A. Rudisel, it notes that the Budd dome coaches were assigned to the *Empire Builder* upon delivery, bumping 48-seat coaches from the train. In the summer, three dome coaches were assigned to each *Empire Builder* set. In the winter there were two per set. The dome coaches sometimes appeared on the *Western Star* during off-peak times.

Chicago, Burlington & Quincy 1335 was slated to become Burlington Northern 4615 after the March 1970 merger that created the new railroad, but it was never renumbered. The dome coach joined the Amtrak fleet in 1971, becoming the 9475. After the car was upgraded with head-end power in February 1984, it was renumbered 9411. The lightweight car was damaged in a wreck at Batavia, N.Y., in August 1994 and retired two months later.

The sides and ends of the RailSmith dome coach are cast as a single unit. The

roof and dome are a separate, one-piece casting. Eight tabs on the bottom of the roof lock into corresponding slots concealed inside the carbody.

Both ends of the car are fitted with a diaphragm molded in black plastic. The stirrup steps and grab irons are molded. Similar to other RailSmith offerings, the side grab irons are painted to look like stainless steel.

Inside, the car has a two-piece plastic interior. Details on the bottom portion include two coach sections, an electrical locker, boiler room, linen and table locker, and staircase up to the dome section. The details and layout of the men's and women's restrooms match drawings in Rudisel's book. The upper portion of the interior, inside the dome, has seating for 24 passengers.

The model has a one-piece underbody with eight tabs (four on each slide) that fit into slots that are part of the coach section window glazing. The underbody is recycled from other Rail Smith cars, so the arrangement of the molded parts isn't an exact match for the prototype.

The Budd dome coach is RailSmith's first release to feature outside-swing-hanger trucks. Brass contacts are located behind the sideframes. Two of the four wheels were tight against the National Model Railroad Association standards gauge. This was easily fixed by twisting the metal wheels on the plastic axle.

Our review sample is decorated in GN's 1967 Big Sky Blue scheme. The paint is smooth and evenly applied, and the color separation lines are crisp. I found prototype photos of both sides of CB&Q 1335 online. The graphics on the model are shifted a touch too far to the right for the 1335, but hardly what I'd call a deal breaker.

Prototype drawings of the Budd dome coach were printed in Rudisel's book. The RailSmith model closely follows published dimensions.

I took the car over to our Milwaukee, Racine & Troy State Line Route, which has No. 6 turnouts and 18" minimum radius curves, for further evaluation. The lightweight passenger car ran well while being pulled and pushed in a three-car train powered by a single four-axle cab unit. The minimum recommended radius for the 85-foot car is 14".

With crisply defined body details, sharp paint and graphics, and plenty of room to add figures, the RailSmith Budd dome coach is sure to be a standout in your passenger car fleet. I can't wait to see what cars Lowell Smith announces next! — Cody Grivno, senior editor

Facts & features

Price: Single car, \$64; two-pack, \$132.

Prices for other road names vary.

Manufacturer

RailSmith Models

P.O. Box 188

Prineville, OR 97754

lowellsmith.net/railsmith

Era: 1967 to 1971 (as decorated)

Road names: Great Northern, Alaska RR, Amtrak, Burlington Northern, Missouri Pacific, and Northern Pacific.

Features

- Metal wheel stubs on plastic axles, two out of gauge
- Truck-mounted Accumate couplers, at correct height
- Weight: 1.4 ounces, correct per National Model Railroad Association Recommended Practice 20.1

Athearn HO scale FMC 5347 boxcar



A newly tooled FMC 5,347-cubic-foot capacity 50-foot boxcar has joined the Athearn HO scale freight car lineup. The injection-molded plastic model has many separate, factory-applied details; railroad-specific doors; and body-mounted McHenry scale couplers.

FMC Corp. produced the 5347 boxcar at its plant in Portland, Ore., from the late 1970s to the early 1980s. Among the spotting features are 3/3 corrugated, non-terminating ends; seven exterior posts on each side of the door; and bolsters attached to the sills with fasteners in a U-shaped arrangement.

The sample we received is decorated as Maine Central (Pan Am Railways) 31414, part of the railroad's 31250 through 31749 series built by FMC under Lot 17660 in November and December 1976. This group of MEC boxcars is similar in appearance to the 5347, but has a capacity of 5,272 cubic feet and the bolster fasteners arranged in a diamond pattern. Examples of these cars are still in service today. [Maine Central did have 5,347-cubic-foot capacity boxcars, but they were in the 31750 through 31899 and 31900 through 32149 series. — Ed.]

The Athearn boxcar has a one-piece plastic body. Factory-applied parts include wire grab irons and crossover handrails; plastic 10-foot Youngstown doors, door handles, stirrup steps, end ladders, and placard and route boards; and see-through, etched-metal crossover platforms. The B end has a freestanding hand brake and brake wheel.

The underbody is a one-piece plastic casting with molded body bolsters, center sills, crossmembers, draft-gear boxes,

and stringers. Freestanding plastic parts include the air reservoir, brake cylinder, control valve, levers, and lever support brackets. The brake rods are metal.

The plastic draft-gear box covers, which hold the McHenry scale couplers in place, are secured with a single Phillips-head screw.

The boxcar features roller-bearing trucks with separate brake beam detail. The trucks are molded in black engineering plastic and have crisply defined spring and roller-bearing detail. The 33" machined metal wheelsets are chemically blackened.

Our review sample is decorated in Pan Am Railways' light blue and Guilford Gray scheme. The paint is smooth and evenly applied, but the color-separation line has some wavy spots. Graphic placement follows prototype images that I found online of other cars in the Pan Am scheme. I was unable to find photos showing both sides of car 31414. However, most cars in the blue-and-gray scheme have the Pan Am globe logo on both sides; PAN AM in the corporate typeface on the left side; and PAN AM RAILWAYS in a modern, sans-serif font on the right side. Our sample has PAN AM on both sides.

Prototype drawings of the FMC 5347 boxcar were published in the 1980 *Car and Locomotive Cyclopedia of American Practices* (Simmons-Boardman Publishing Corp.) Most of the dimensions match published data. Stencils on the car ends indicate the Pan Am Railways boxcar should have a Freightmaster Type ME 10 cushioning unit, but the model has an uncushioned draft sill. The

distance over the strikers is a scale 51'-3", compared to 52'-9¾" indicated in the prototype drawings.

The FMC 5347 was one of the more common cars from the boxcar boom in the late 1970s and early 1980s. The newly tooled Athearn model is offered in a variety of paint schemes, covering the peak of the Incentive Per Diem era all the way to the present day. — Cody Grivno, senior editor

Facts & features

Price: Single car, \$39.99; three-pack, \$99.99

Manufacturer

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

Era: late 1970s to present (varies depending on paint scheme)

Road names: Maine Central (Pan Am Railways and as-delivered schemes), Cadiz RR, Central Vermont, CSX, Green Mountain RR, and Railbox (two single cars and three-pack). Two single cars per scheme unless noted.

Features

- 33" machined metal wheelsets with RP-25 contours, correctly gauged
- Body-mounted McHenry scale couplers, at correct height
- Minimum radius, 18"
- Weight: 4.9 ounces, .4 ounce too heavy per National Model Railroad Association Recommended Practice 20.1

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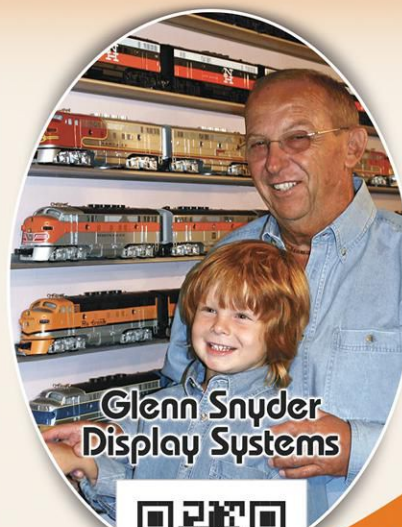
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Richard Reitz is a proponent of smaller rail sizes in N scale, using code 40 rail with good results even with wheels that have larger flanges. Richard Reitz photo

Of codes and pizza

I liked your informative response to Damien Bouchey regarding his N scale layout and which code track (55 or 80) to use. However, you seem to have discounted the use of code 55 or smaller rail. I would just like to add that I have had good performance using code 40 rail with the “pizza cutter” wheels found on older Kadet and Micro-Trains rolling stock. The trick is to handlay the rails and secure them either by soldering to printed-circuit board ties or gluing the rails with a contact cement like Pliobond. This is actually easier than it may sound if you are a bit adventurous. I have used both methods with good results for pizza cutter, fine scale, and RP-25 contour wheelsets. Attached is a photo showing examples of each on the N scale layout I am working on. So I wouldn’t rule out code 40 or code 55 if you use one of the above methods that don’t require spikes.

Richard Reitz

Telling it like it is

Peter Hall’s article was great. It is one of the few articles on rebuilding brass that tells it like it is, or at least how I usually experience rebuilding brass locomotives. It is not a straightforward process and usually involves trial and error and a few blind alleys. In most cases it ends up being well worth the effort put into the project, though.

I appreciate Mr Hall’s shout-out to Gary Schrader. Gary was an amazing rebuild of big time brass locomotives in quarter inch scale who published an account of most of his rebuilds to several email lists as the rebuild process went on. Those emails contained multiple annotated photos in addition to text about the rebuild. The information in those emails was wonderful for those of us who run brass steam. While Gary’s interests were Santa Fe and Southern Pacific steam, he was a reliable member of the Glenwood & Black Creek RR (Jim Vail)/Durlin Branch narrow gauge operating group in the San Francisco Bay Area for two decades up until the time of his death. We miss him.

I hope Mr. Hall has a few more articles on rebuilding brass steam in store for us readers of MR.

Dave Adams
D&RGW Durlin Branch in On3
San Jose, Calif.

Say no to curtains

I read Tony’s column in the March issue [Looking under the hood. — Ed.] with delight. Some additional thoughts on looking under the hood. Some modelers hang curtains under their fascia to hide the clutter. This is a no-no as it traps both dust and moisture. Organizing everything possible into bankers’ boxes helps keep down both the clutter and the dust (a hot water heating system rather than forced hot air also reduces dust). Bankers’ boxes also make it easy to retrieve stored items when they are needed. Finally, painting the supporting benchwork the same color (light gray) as the concrete floor gives the layout a floating effect that greatly enhances the magic of the scene.

Herm Botzow

Remembering Perry’s Hobbies

I was saddened to read the obit about Perry Becker in the January 2025 issue of *Model Railroader*. I am sure he and I met years ago. In the mid-1990s, when we used to visit family in northeast South Dakota at Christmas time, I made a couple of the 190 mile round trips to visit Perry’s Hobbies, in the tiny town of Morgan, Minn. At that time, the “hobby shop” was located in a back office of the town’s grocery store! It was stocked, as I remember, from floor to ceiling with HO and N scale goodies. I guess “life” interfered and I never made a return trip in the intervening 30 years.

Don Frankfort
Hot Springs, S.D.

Strathmore nostalgia

Mike Chandler’s Hotel Bellevue article took me back about 60 years (before Alan Armitage introduced MR readers to styrene techniques) to a series of MR articles by Bill Clouser, who described the use of Strathmore for building models, particularly interurban cars of the Illinois Terminal. I later saw several of his larger models at the Smithsonian Institution and learned that he was a professional model builder. One of his major points was that priming the Strathmore with what I remember as “Ditzler’s Rip-Tap” primer/sealer was advisable in order to prevent deformation of the Strathmore by humidity.

Dennis Gordan,
Longmeadow, Mass.

Comments, suggestions, and additional information on *Model Railroader* articles and departments are welcome in this column. Every comment will be read, but not all can be printed or answered. Make your statement in 300 words or less, and send it to **Railway Post Office, Model Railroader magazine, 18650 W. Corporate Dr., Ste. 103, Brookfield, WI 53045**, or email editor@modelrailroader.com. Please include your name, city, and state.

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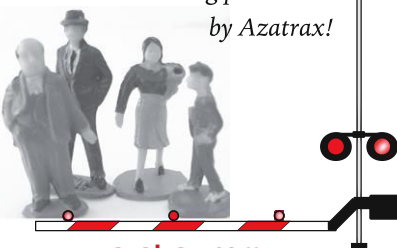


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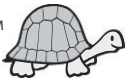
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Potash and phosphate are two common loads delivered to fertilizer blend plants. This cut of Potash Corp. covered hoppers is waiting to be unloaded at United Cooperative's South Beaver Dam (Wis.) Grain and Agronomy plant on June 29, 2014. Cody Grivno photo

Loads for a fertilizer blend plant

Q I have a question about one of the articles in your special issue *Best of Industries*. On page 16, Rich Cobb wrote about a fertilizer blend plant. Can you tell me what kind of loads a plant like this would receive?

Markus Russ

A We released that special-interest publication in 2021, so I had to go back and jog my memory. In the story, Rich wrote, "Materials came from Florida, New Mexico, and Canada, as well as a nitrogen plant Agway owned in Olean, N.Y. Covered hoppers from a variety of railroads could be seen in Auburn."

The "materials" include phosphate and potash. Phosphate has been mined in various locations throughout the United States over the years, including Florida, Idaho, Montana, North Carolina, South Carolina, Tennessee, Utah, and Wyoming. In addition to fertilizer, phosphate is used in animal feed, cosmetics, electronics, and food preservatives.

The HO scale Pullman-Standard (PS) 2929 covered hopper from Tangent Scale Models is based on a prototype used transport phosphate. Atlantic Coast Line, Seaboard Air Line, and Seaboard Coast Line had boxcars (with roof hatches) in phosphate service. Today, a variety of three-bay covered hoppers are used to haul phosphate, including the American Car & Foundry 4650 Center Flow; Evans 4780; and PS, Thrall, and Trinity 4750.

Potash is the name for various chemicals and minerals with potassium. Southeastern New Mexico is the leading potash producer in the United States; Canada is the world's largest producer and exporter of potash. Uses beyond fertilizer include animal feed, batteries, detergents, prescriptions, and soaps.

An early car used to transport potash was the PS 2,003-cubic-foot capacity two-bay covered hopper. American Potash & Chemical Corp., Duval Sulphur & Potash Co., Potash Co. of America, and Southwest Potash Corp., among others, leased the two-bay cars in the 1950s. Models of the PS 2003 are available from Athearn (HO), Atlas (N and HO), Kadee (HO), and Micro-Trains (N).

Canadian potash has been shipped in various car types over the years. Among the models available are the Atlas HO scale slab-side covered hopper, appropriate for the mid-1950s through the late 1990s; Rapido HO scale 3800 four-bay cylindrical covered hopper, correct for the 1960s through the 2010s; and North American Railcar Corporation HO and N National Steel Car 4275 and 4300 three-bay covered hoppers, accurate for contemporary layouts.

Q I recently started working again on my HO scale layout, which features a Digitrax Super Chief Starter Set and Bachmann E-Z Track. I cleaned all of the track and have been testing locomotives. One of the units, an Athearn Genesis HO scale Electro-Motive Division GP38 that has not been used in some time, will not run in reverse. When I set the throttle to reverse, it shorts out power to the entire layout. It runs forward decently. Any thoughts on what the issue might be?

Jochen Ideker

A I reached out to a couple of different people for insights. Contributing Editor Larry Puckett responded, "First, even though your other locomotives run fine, the GP38 may still require cleaner track. At a minimum clean a section a couple of feet long and see if that works."

"Also take a closer look at the wheels to make sure they're very clean. If the problem persists, check the lubrication of the axle bearings and the gears. Lube tends to dry out if a locomotive is stored an extended time, and coagulated lube may bind and cause the motor to overload the decoder. On some old engines I've had to completely disassemble the trucks, remove all the old lube, and reapply fresh grease and oil."

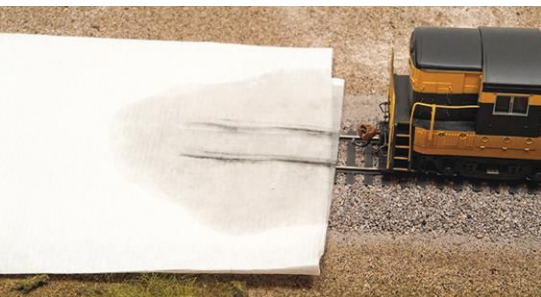
"Another possible solution is to remove the shell and check for any wires catching in the mechanism or rubbing on the frame. This can cause wear spots in the insulation and lead to shorts."

"Finally, try to reset the decoder to factory settings by programming CV8 to a value of 8. This has worked a number of times for me and others in your situation. Remember that the address will likely reset to a value of 3 and any changes you have made will be lost."

Contributing Editor Tony Koester asked for the opinion of Tom Schmieder, owner of Real Sound Solutions. Tom replied, "First off, I'm suspicious of the press-on wire clips that Athearn uses, not only for wires connected to their motherboard, but for the power pickup wires connected the same way to the trucks as well. Not that this is necessarily the problem here, but a loose wire from those connections could be."

"If I were working on this engine, I would be looking at the motor and asso-

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Dirty wheels will affect a locomotive's ability to run smoothly. A paper towel wet with 70% isopropyl alcohol is a popular technique for removing dirt and gunk from steam and diesel locomotive wheels. Cody Grivno photo

ciated wiring to find out how the motor torque in reverse causes the short. Perhaps there's a wire that's loose and is too close to one of the drive shafts. It could get snagged, pulling on the wire and causing a short in the one direction. I'd check all wiring and clearances around moving parts and watch for the problem there. I'd also replace all of those press-on wire clips to the motherboard and

trucks with soldered connections for better overall reliability. If that doesn't uncover the problem, perhaps there is a problem with the motor itself."

Q Why does Florida's Brightline use wood ties a few yards before and after crossings with concrete ties elsewhere?

George Alexander

A Michael Cegelis, Executive Vice President, Development and Construction for Brightline, said, "There have been abrasion issues with concrete ties under the grade crossings. The subgrade modulus changes when you go from roadway crossing to mainline roadbed, so the extended timber ties serve as a transition."

Q I need help identifying a specific Pennsylvania RR steam locomotive. The number on the cab was 1299. What class was this locomotive? I have a picture of me as a boy looking out the fireman's window and want to model the engine in HO scale.

John Nagle



This Brightline grade crossing in St. Lucie, Fla., illustrates the use of wood ties at grade crossings. Concrete ties can be seen in the distance. Bob Johnston photo

A There were a few different Pennsylvania RR steam locomotives assigned road number 1299. The locomotive you were in was likely a class L1s 2-8-2. Information on Jerry Britton's "The Pennsy Modeler" Steam Locomotive Roster website (pennsyrr.com/databases/steam/) indicates the third steam engine to wear number 1299 was built at Juniata in 1915 and sold for scrap in February 1955.

Jerry's website also has a steam locomotive class/model cross reference.

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What is the source of a loud noise coming from the truck on an HO scale Proto 1000 Alco RS11? One possible answer is a cracked drive axle gear, such as this one on a Proto 2000 Electro-Motive Division GP9. *Model Railroader* photo

There are several options for Pennsy class L1s 2-8-2s in HO scale, including a plastic-and-die-cast metal model from Broadway Limited Imports; a kit by Bowser; and brass imports from Oriental Limited, Pacific Fast Mail, Railworks, and Sunset.

Q I have a pair of Northern Pacific HO scale Proto 1000 Alco RS11 locomotives that were stored new many years ago. I got them out the other day, and as I

expected, the bearings on both sides of the worm gears were frozen. I oiled them and got them spinning again, then lubed everything. Unfortunately, a loud, intermittent whine/grinding noise started coming from one truck after I replaced the worm gear cover. I took the cover off again, checked everything, put it back on, and the noise was still there. I don't understand how replacing the cover could cause this. Can you shed any light on this?

Tim Ward

A Since the noise is coming from the truck, I would start by checking the drive axle gears. Some pre-2005 Proto 1000 and Proto 2000 diesel locomotive models had issues with the gears cracking over time. One of my HO scale Proto 2000 Electro-Motive GP9 diesels had this problem.

If you discover that the gears are cracked, you have a few different options for replacing them. Athearn Trains (ATH60024) and A-Line (40005) offer replacement gears that will fit on some

Proto 1000 and Proto 2000 axles. Walther's sells replacement geared driver assemblies as items 920-584408 and 920-584494. I wrote about using the Walther's assemblies on my GP9 in the July 2019 *Model Railroader*. You can watch a video demonstrating the replacement process on Trains.com.

I also found a discussion about Proto 1000 RS11s making squealing noises on the recently relaunched Trains.com forums. One forum user suggested it could be a bad axle bearing. Another recommended applying LaBelle No. 107 oil on each side of the motor shaft bushings and on the axle ends, as well LaBelle No. 106 grease on the axle gears. It was also suggested to lubricate the worm gear bushings.

Correction. In last month's column, the wrong alloy was listed for tin/lead solder in the question "Selecting the right wire size" on page 17. It should have been 63/37 (63% tin, 37% lead). We apologize for any confusion this may have caused.

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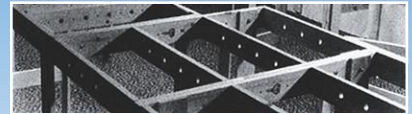
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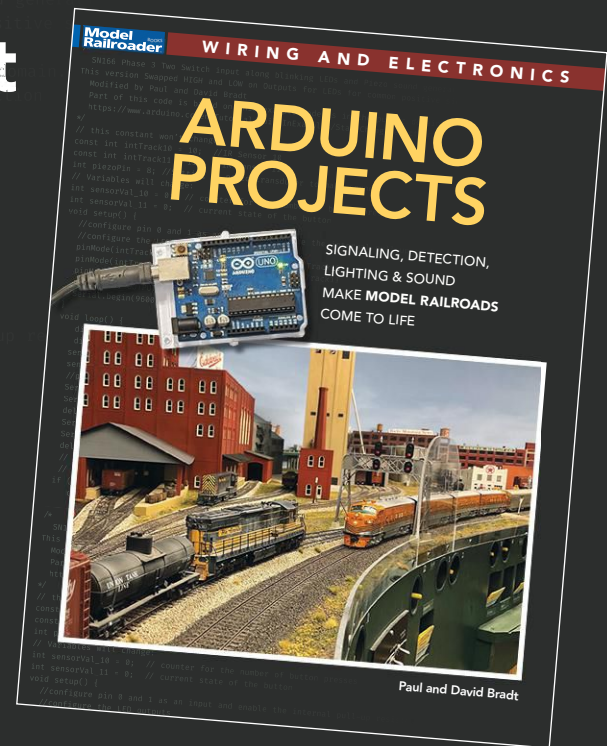
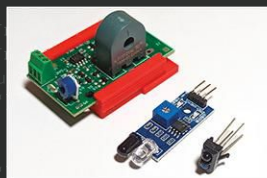
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Joe Kurilec built a coupler knuckle rack for his HO scale Erie Plate Road layout. The inspiration for the project came from the inset image, shown in a New York Central System Historical Society DVD. Model photos by the author, prototype photo courtesy New York Central System Historical Society

Model a coupler knuckle rack

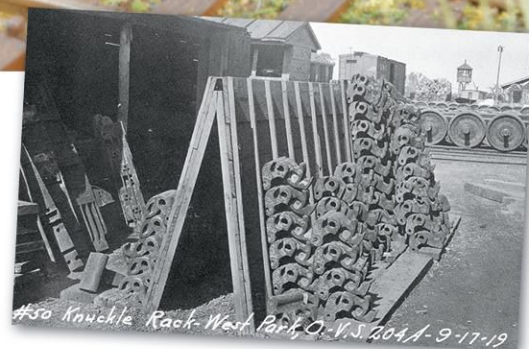
When you think of details for a repair-in-place (RIP) track, what are some things that come to mind? Yes, a workshop would be the hub of the operation. A crane, hoist, wheelsets, tool chest, and oil barrels would be nearby. But did anyone think of a coupler knuckle rack?

While looking at the 2014 New York Central System Historical Society Convention DVD (nycshs.org), I came across the inset photo shown above. The knuckle rack was located in the West Park area of Cleveland, Ohio. In the background of the image, taken on Sept. 17, 1919, are wheelsets, storage sheds, and a couple of freight cars. An elevated

tower is also visible in the upper right corner of the photo.

After seeing the prototype image, I decided to model a coupler knuckle rack for my HO scale Erie Plate Road. I studied the image to come up with a plan on how to model it. I used a wood ridge cap designed for dollhouses to re-create the A-frame shape. To that I added stripwood and stacks of plastic coupler knuckles supported on brass wire.

I wasn't too concerned with exact dimensions. My coupler rack measures 1⁵/₈" x 2¹/₂" x 1", but you can adjust that as needed. I made eight vertical storage racks per side to match the prototype.



The scene I placed the knuckle rack in has an open-air workshop complete with figures, a workbench, welding tanks, and other items. The scratchbuilt detail adds an extra splash of visual interest to the trackside location. If you're looking for a fun weekend project, consider modeling a knuckle rack. **MR**

Joe Kurilec lives in Berea, Ohio. His article "Control turnouts with slide switches" was published in the October 2023 issue of Model Railroader. He is a National Model Railroad Association Master Model Railroader.

STEP 1 BUILDING WITH WOOD



To re-create the knuckle rack's A-frame shape, I turned to an unlikely source, a wood ridge cap designed for dollhouses. I discovered the store I purchased it at when writing articles spotlighting hobby shops in the Cleveland, Ohio, area for *Flatwheel*, a newsletter published by Division Four of the National Model Railroad Association's Mid-Central Region. The store proved to be a gold mine of scratchbuilding supplies. If you have a dollhouse store in your area, check it out. You never know what you might find that can be put to use on your layout.

The length of the ridge cap isn't entirely critical. The short piece shown in 1, which I used for this project, is 2½" long. Set the wood in a miter box and cut it with a

fine-tooth saw to get a clean, square edge. Some touch-up sanding may be necessary.

Next, I used a NorthWest Short Line Chopper to cut 20 pieces of pre-stained 5/32" x 1/32" stripwood, which I also found at the dollhouse store 2. I glued the stripwood to the ridge cap, as shown at the right edge of the photo. I also attached a pair of planks to the base on both sides of the rack.

I finished up this part of the project by using the Chopper to cut 18 1¼"-long pieces of 1/16" square stripwood. After I cut the material, I stained it and let it dry. I glued the strips vertically to form the racks for the knuckles 3.

STEP 2 COSMETIC COUPLERS

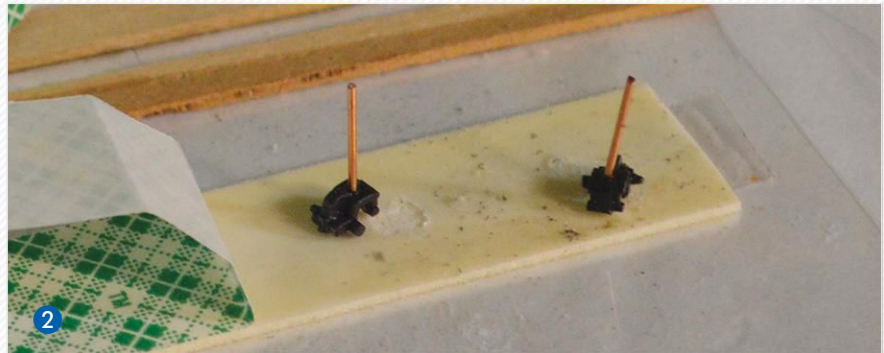
With the rack completed, I shifted my attention to the couplers. If you looked at the photos first, don't panic. I didn't cut apart working knuckle couplers for this project. Instead, I used plastic solid-knuckle (non-automatic) couplers that I found on eBay 1. The ones I purchased were sold in a 20-pack. I quickly found out that wasn't enough. I ordered several more packages so I could populate both sides of the rack with knuckles.

Some of the coupler shanks were different styles between batches, but that was OK. I cut the shank off each coupler directly behind the knuckle 2. I found Xuron 2175B track cutters worked great for making the cuts, but other tools can be used.

Once the shanks were removed, I cut the knuckle from the guard arm, as the former is the only part that's needed 3. Clean-up work with files and sanding sticks may be necessary after making the cuts.



STEP 3 DRILLING AND STACKING



With the knuckles prepared, it was time to stack them. First, I placed each knuckle in a small vise. Once secured, I used a motor tool with a small bit to drill a hole through the side of each plastic casting **1**.

Next, I placed the knuckles on a piece of double-sided foam tape. I then set a brass rod in the hole in the knuckle,

attaching it with cyanoacrylate adhesive **2**. Since the rod won't be visible, the size isn't overly critical. Any small-diameter rod is sufficient.

Using the prototype photo as a guide, I stacked the knuckles to different heights. Remove any excess brass rod with side cutters.

STEP 4 PAINTING AND WEATHERING

Before placing the knuckle stacks in the rack, I needed to paint and weather them. First, I put some double-sided tape on a scrap of wood. Then I set the knuckle stacks on the tape.

Next, I sprayed the plastic castings with Dupli-Color Cast Iron engine enamel paint with ceramic (DE1651) **1**. I've used this product as a base coat on a lot of model railroad projects. Use the spray paint in a well-ventilated area, preferably a spray booth, and follow all safety precautions printed on the label.

When the paint had dried, I used assorted weathering powders to give the knuckles a rusty-metal appearance **2**. Notice how some of the Cast Iron paint shows through the weathering powders. I feel this gives the plastic castings a realistic, cast-metal appearance.

With that, the knuckle stacks were ready to place in the rack. You can either secure the stacks with glue or leave them loose.





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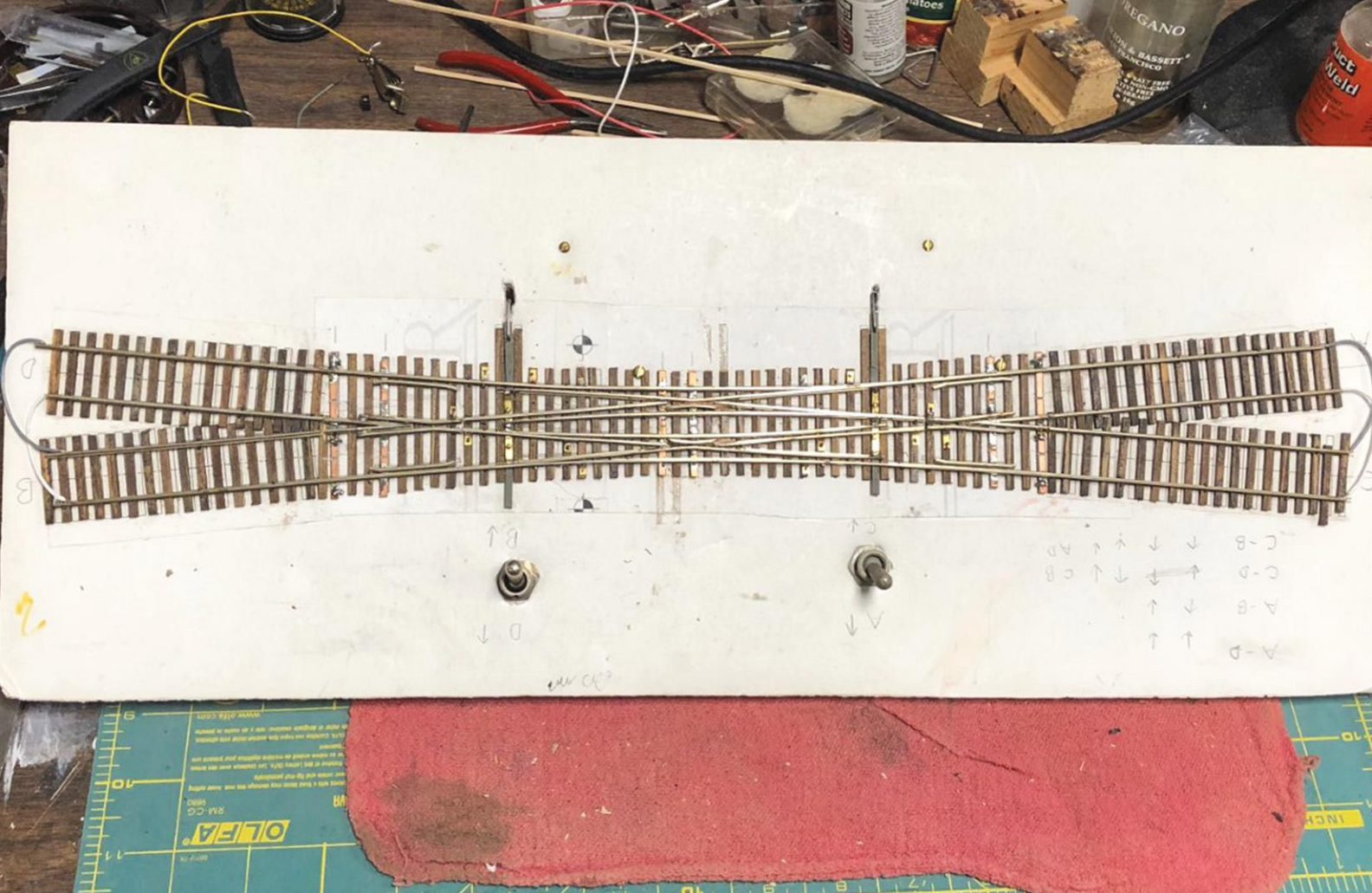
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To demonstrate his wiring techniques, Ken Belovarac used a No. 6 double-slip switch with solid internal frogs and controlled it with two Tortoise by Circuitron switch machines. Ken Belovarac photo

WIRING A DOUBLE-SLIP SWITCH

It may not be as difficult as you think

By Ken Belovarac

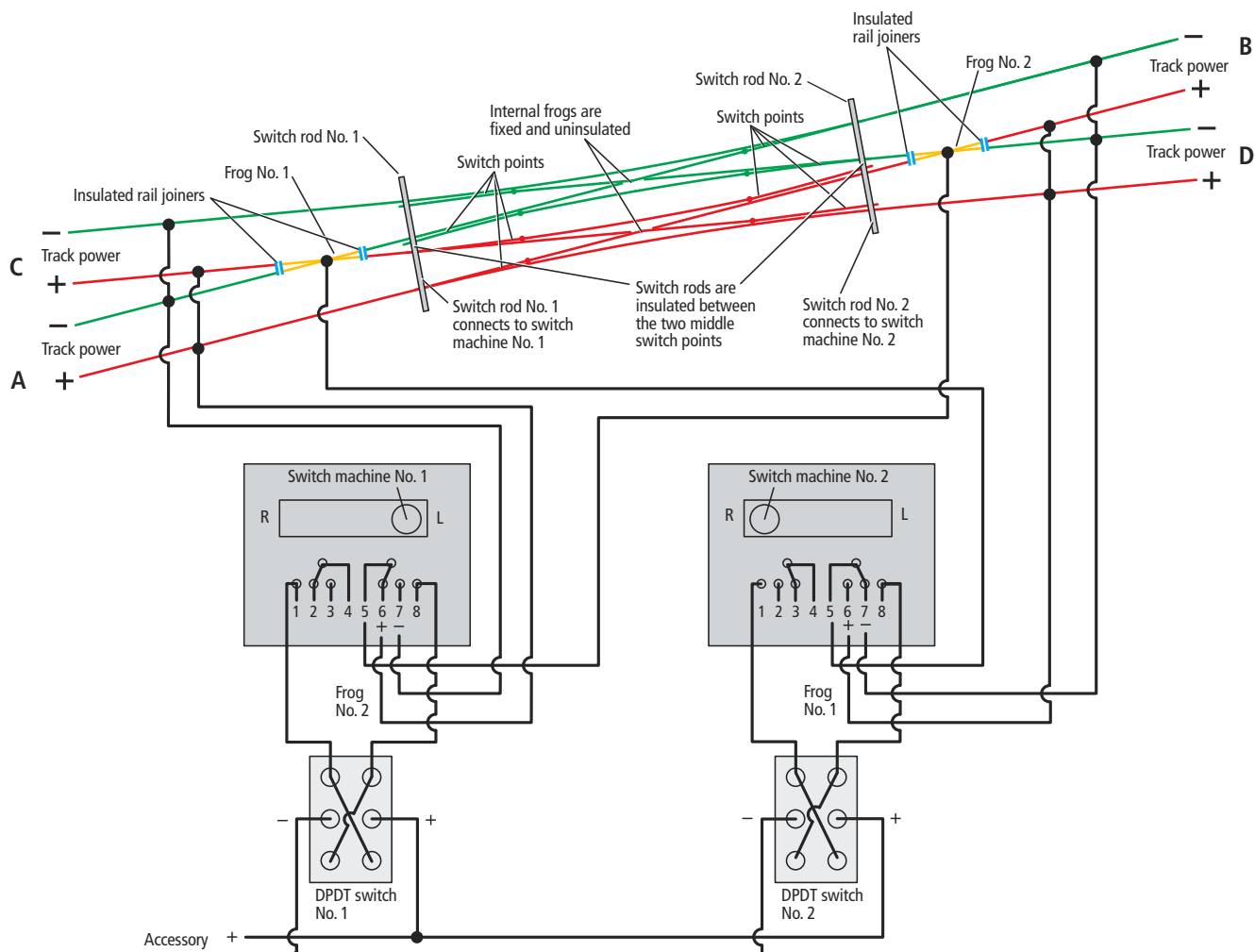
A double-slip switch is a formidable piece of trackwork, containing eight switch points and four frogs. It offers four routes through the layout. At first glance, wiring such a track arrangement may appear challenging, but it's rather straightforward and not that difficult. The wiring described here is for a hand-laid No. 6 double-slip switch with solid internal frogs. Longer double slips could have movable point frogs. The demonstration switch built for this article uses fixed internal frogs.

An easy way to understand how to wire a double-slip switch is to draw an imaginary straight line connecting the two outside frog points, shown in **1** (next page) as frog No. 1 and frog No. 2. Having done this, all the rails on top of that imaginary line would be set to one electrical pole (we'll use + for this demonstration), and all the rails under that line

would be set to the opposite pole, -. The internal frogs (fixed or movable) would assume the same polarity as the rails they are connected to. The two external frogs, No. 1 and No. 2, would have to be isolated from all the other rails because they would need to have polarity changed to match the route through the switch.

The means of controlling the polarity of the external frogs requires electrical switches connected to the movement of the switch rods. The Tortoise by Circuitron slow-motion switch machine provides a way to do this because it contains two internal single-pole double-throw (SPDT) slide switches connected to the motor movement.

With regard to the switch points, there are four points on each end of the slip switch. In the demo slip switch, each set of four points



was soldered to a common switch rod made from a printed-circuit (PC) board tie long enough to use as a switch rod. The rods on both ends were notched in the middle to separate the copper coating so the two switch points on the upper half of the rod would be electrically isolated from the two switch points on the lower half ❶. Remember, the imaginary line that divides the switch into two halves for polarity purposes passes through the mid point of the switch rods.

Once the switch rails were soldered to the switch rods and the rods were notched, the Tortoise by Circuitron machines were connected to the rods from underneath the board. They were attached in an offset position. It was preferable not to drill a spring wire hole in the middle of the switch rod because the two center switch rails on each switch rod were very close and had to remain electrically isolated from each other. A spring wire hole placed on the outside end of the switch rod would not present any electrical issue.

The first figure shows the two Tortoise machines, numbered machine No. 1, and No. 2, with the switch rails thrown for a routing from A to B ❶. Each machine was wired to a

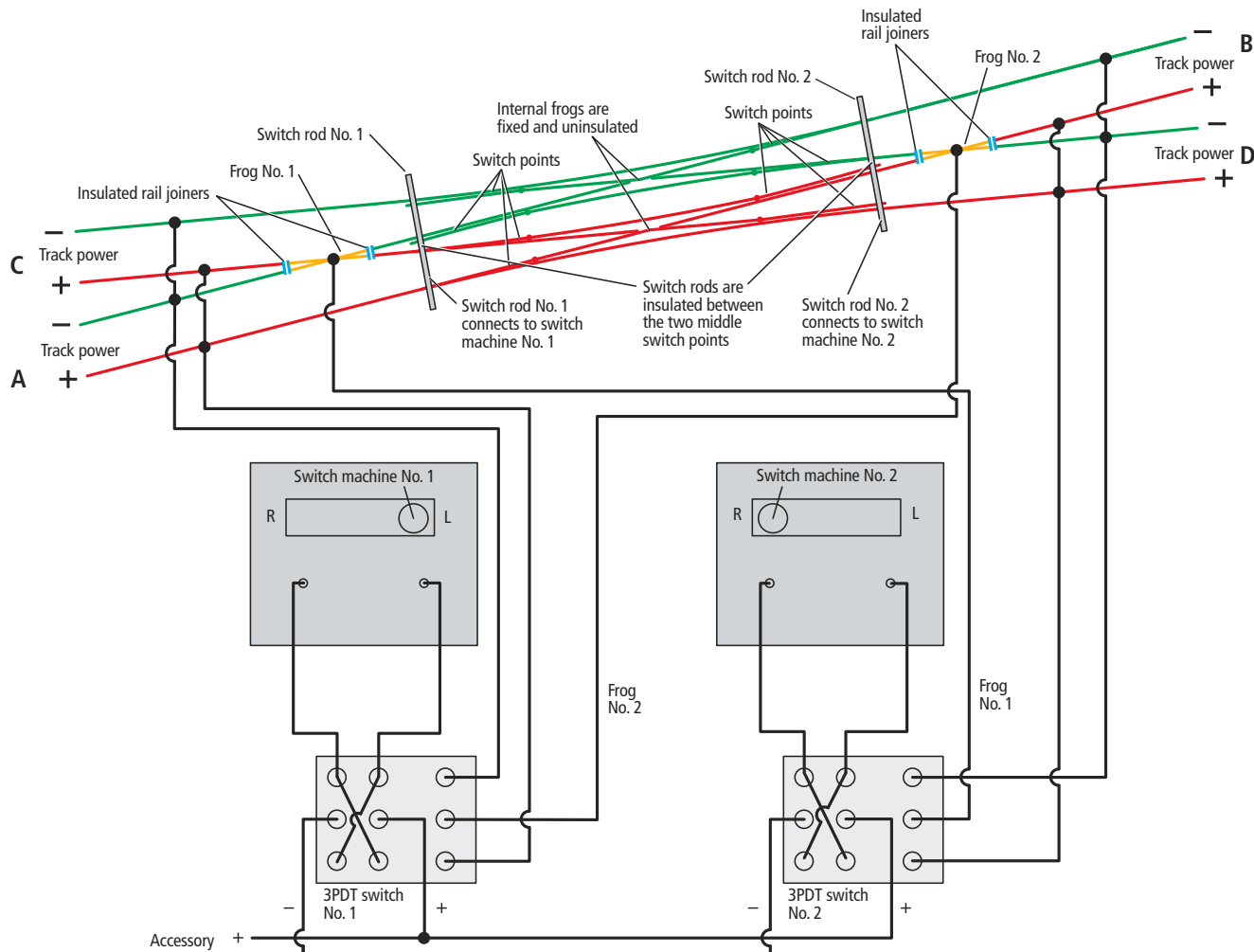
double-pole double-throw (DPDT) toggle switch for the 12VDC that would power the machines and control the movement of the switch rod throws.

Now, going back to the external frogs and how to wire them. As stated earlier, the Tortoise contains two internal SPDT slide switches to allow activation for accessories such as frog polarities and lights. The slide switches were used to switch frog polarity from a “+” or a “-.” To do this, switch machine No. 1 was used to control the polarity of frog No. 2, and machine No. 2 was used to control the polarity of frog No. 1. Do not get confused here. Notice machine No. 1 will control frog No. 2, and machine No. 2 will control frog No. 1.

For clarity, in the first figure, the terminals on each Tortoise were numbered No. 1 through No. 8 ❶. Terminals No. 1 and No. 8 are for the power supply to the machines that go to the toggle switches. Then, frog No. 1 was connected to terminal No. 5 on machine No. 2, and frog No. 2 was connected to terminal No. 5 on machine No. 1. Next, using ❶ as a guide where the “+” and “-” were arbitrarily

❶ The diagram above shows how Ken wired a double-slip switch using two double-pole double-throw switches to control Tortoise by Circuitron switch machines.

Kellie Jaeger illustrations



2 If you don't want to use Tortoises, a three-pole double-throw toggle switch can be used to activate other switch machines and control frog polarity.

assigned to the upper and lower halves of the switch, the negative rails “-” were connected to terminal No. 7 at machine No. 1 and machine No. 2. Similarly, the “+” rails were connected to terminal No. 6 at machines No. 1 and No. 2.

With all these connections in place, and the machines activated and track powered, the polarity of the frogs would be correct for any route selected through the slip switch. The four routes were A-B, A-D, C-D, and C-B **1**. It is advised that before soldering permanent connections to the Tortoise, the wires should first be temporarily mechanically connected to the machine and tested to be sure everything works correctly for each route.

If you don't want to use Tortoise machines, but prefer a switch machine like the Builders In Scale SwitchMaster that doesn't have internal switches, a three-pole double-throw toggle switch (3PDT) can be used to activate the switch machine and control the frog polarity as well **2**. A 3PDT toggle switch has a third column of three terminals that can be used to control frog polarity. The middle terminal would always be connected to the frog, and the top and bottom terminals would be con-

nected to one of the “+” or “-” rails. Again, you would have to test which wires to connect to which top or bottom terminal before soldering them in place because the orientation of the toggle switch would make a difference.

The wiring diagrams shown in **1** and **2** provide a basic wiring scheme for a double-slip switch and will work for both DC and DCC. You can use switch machines with internal switches, or pair machines that don't have internal switches with 3PDT toggle switches, to control frog polarity.

Surely there are more sophisticated electronic integrated circuits, such as Frog Juicers, that can be used to control frog polarity from a DCC throttle or computer. But what's shown here is a relatively simple, and perhaps old fashioned, way of wiring a double-slip switch using discreet and easy-to-obtain components, two switch machines and two toggle switches. **MR**

Ken is a lifelong modeler and former president of the HUB division of the NMRA. He is a civil engineer consultant on rail transit infrastructure. Ken is also a motorcar hobbyist and lives in Quincy, Mass. with his wife, Marilyn.

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Thomas Oxnard used scratchbuilding and photo-laminating techniques to model this building for his HO scale Boston & Maine layout. The structure is based on a prototype located in the Exeter (N.H.) Waterfront Historical Commercial District.

Merging modeling techniques

Scratchbuilding and photo-laminating took this HO scale building from concept to reality

By Thomas Oxnard

Photos by the author

My 18 x 28-foot HO scale Boston & Maine layout, featured in the May 2020 issue of *Model Railroader*, is set in Boston and the Seacoast Region of New Hampshire. Recently, I decided to replace a kit building in one of the cities with a scratchbuilt structure. I was looking for a brick structure with plenty of character.

Fortunately, I live in a town with great New England architecture, so I didn't have to go far to find prototype inspiration. While in downtown Exeter, N.H., I took pictures of several buildings. After studying the images, I selected the Burlingame building. I was drawn to the three-story brick structure, built in 1874, because of the arched windows, pediments, detailed cornice, and tiled storefronts with large windows.

Prototype photos

I felt the easiest and best way to model the tiled storefronts was with photo-laminates. I took photographs of the prototype building with my cellphone over several days and in different lighting conditions. It was hard to find time when there were no cars parked in front and when the sun was perfect. I also had to contend with a small tree in front of the building.

Around noon on a Sunday toward the end of March, the parking spaces were empty and the tree was dormant. I took some pictures while standing on the sidewalk directly in front of the two businesses on the first story. I also went across the street to get overall images of the structure between breaks in the traffic ❶.

I tried to take the photographs at approximately the size of the model. I find it easier to take the images slightly smaller and then crop and resize them later. Any skew can be corrected using photo-editing software.

I resized the photos on my computer. Then I printed several test images to make sure they matched the size I was aiming for (a scale 38½ feet wide). I knew going in I would have to use the storefront parts from more than one image to complete this modeling project.



❶ **Prototype photo.** Here's one of the images Thomas took of the full-size Burlingame building. Off-peak times and holidays are ideal for taking pictures with minimal obstructions.

Next, I transferred the images to a thumb drive and went to an office-supply store to have them printed. When the clerk opened the files on the store's computer, all of my work sizing the images seemed to go out the window as the dimensions changed on their machine. Fortunately, the clerk wasn't very busy. Over the next 25 minutes, we experimented with different percentages to get the photos to the correct size; I brought along my HO scale rule to confirm dimensions. I had the finished images printed on semi-gloss paper to capture the look of the glazed tiles and set them aside for later.

Modifying windows

I shifted gears to the scratchbuilding part of the project. First, I gathered the commercial parts I needed: Tichy Train Group double S corbels (8101), 4/4 round-top windows (8202), and double-hung windows (8251), along with Rail Scale Models HO scale common brick wall sheet (RSM-L1001), assorted styrene strip and sheet, and mat board.

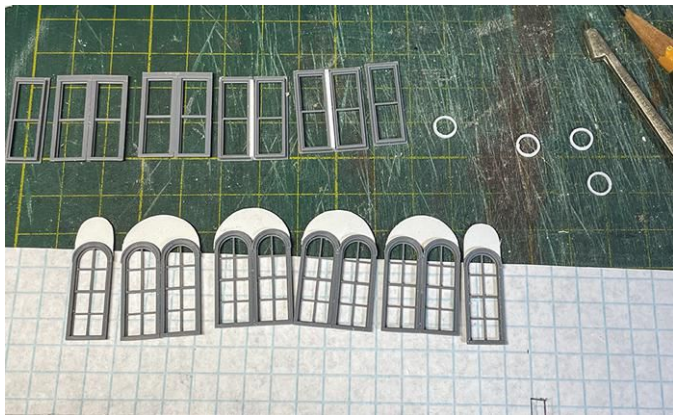
The prototype building has a mix of single- and double-unit windows on the second and third floors. To model the double-unit windows, I mulled Tichy 8202 and 8251 castings (eight each), reinforcing the joints from behind with HO scale 3 x 6 and 4 x 6 styrene strip ❷, next page.

With the window units completed and available for spacing, I sketched the front wall on graph paper. I used a compass to draw the recessed, semi-circular area above the round-top windows on the third floor ❸.

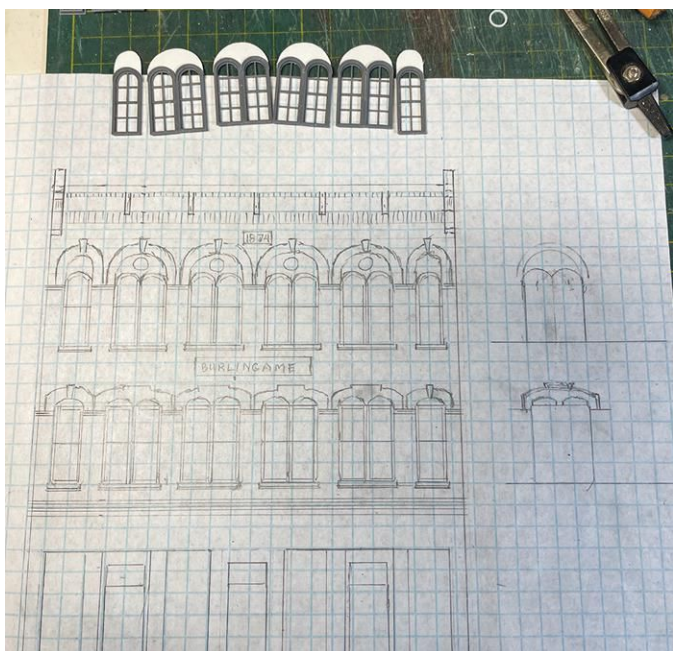
I cut the solid, recessed area above the round-topped and rectangular windows from .020" plain styrene sheet. Neither of my designs were prototypical, but they were similar and easier to construct. Then I glued the styrene to the window castings.

Walls and trim

Rail Scale Models offers its HO scale common brick sheet in cardstock and RC Board. The RC Board, available in .016"- and .022"-thick sheets, is resin-coated cardstock that has more of a



2 Working on windows. Thomas used Tichy Train Group double-hung windows (8251) and 4/4 round-top windows (8202) for the second and third stories, respectively. He glued pairs of single castings together to make the two-unit windows, reinforcing the joint from behind with styrene strip.



3 Sketching a plan. With the windows assembled, Thomas used a pencil to make a sketch of the front of the building on graph paper. The drawing served as a guide when he made the .020" plain styrene inserts placed above the rectangular and round-top windows.



4 Making progress. This photo shows the windows and pediments for the second and third stories of the front wall. Thomas attached the Rail Scale Models common wall brick sheet (left) to mat board to give it the correct thickness.

plastic-type finish. Both materials are offered with and without an adhesive backing.

I selected the .016"-thick RC Board brick sheet for this project. First, I painted it flat white. When the paint had dried, I lightly drybrushed the brick faces with the Polly Scale Zinc Chromate Primer [Out of production. — *Ed.*], though any brick color of your choice will do. I fixed any spots where the brick color got into mortar lines with diluted white paint and 70% isopropyl alcohol.

Since the brick sheet is fairly thin, I combined it with 1/16"-thick mat board to bring the walls to the correct thickness. I cut out the window openings in both materials with a No. 11 blade in a hobby knife, using a metal straightedge as a guide.

Next, I made the window pediments for the second- and third-story windows from .020" styrene. After cutting the pediments and sanding them to shape, I attached .020" x .020" styrene trim along the outside edges with glue. I added keystones as needed to match the look of the prototype **4**.

The round-top windows on the third story have a decorative circle, which I cut from 1/4" (double-unit windows) and 3/16" (single-unit windows) styrene tube with a fine-tooth saw. I'd considered making one of each pediment and casting them, but decided against it as so few were needed.

I then used medium-viscosity, gap-filling cyanoacrylate adhesive (CA) to attach the windows to the openings in the mat board, making sure they were recessed slightly **5**. After the glue had dried, I attached the brick sheet to the mat board. Though the sheet material has an adhesive backing, I further secured it with 3M Transfer Tape **6**, opposite.

There's a horizontal molding at the bottom of the pediments between the windows on the prototype building **7**. To capture that detail, I laminated (top to bottom) 2 x 8, 2 x 6, and 2 x 4 styrene strip. After cutting the molding to size and mitering the ends, I attached it to the brick with CA gel.

Then I cut the pediments to size and fit them above the molding around the top of the window on the face of the brick. I painted the inner edge of the brick that was visible white.

Crafting a cornice

I modeled the cornice using assorted styrene strip and sheet. The base is .040" styrene. Each end has a large, vertical corbel that I carved from .125" x .250" styrene using a knife and file. I also shaped and scribed the bottom extension.

After I attached the cornice header, I added five Tichy Train Group double S corbels. I cut the 9" dentils from .040" x .040" styrene strip **8**.



5 Securing the windows. Thomas used gap-filling cyanoacrylate adhesive to attach the Tichy Train Group window castings to the mat board. He painted the windows flat white prior to installing them.

Below the cornice is an 18" horizontal layer of ornamental brick, overlaid with a 12" row of vertical brick. I cut these strips from the brick sheet, using the mortar lines as a guide.

At the bottom of the brick wall section is a horizontal band of corrugated metal. I simulated this with a lightly sanded piece of narrow-spaced styrene clapboard that I painted Polly Scale Flat Aluminum.

Photo-laminate storefront

Finally, I worked on the tiled storefronts. I started with a sheet of clear acetate that I cut to the size of the full front store wall. Then I took all of the scaled photographs and cut out only the tile parts. I attached the semi-gloss images to the acetate with Gorilla Glue Clear Grip contact adhesive. This product provides a permanent bond but doesn't dissolve, fog, or warp the clear acetate.

I used parts of eight photographs to complete the tiled storefronts. This turns out better than you might think because the tile already has grout lines to follow to patch the images together like a jigsaw puzzle.

I braced the back corners of the storefront with 1/8"-square basswood, which I attached with the same glue I used for the clear acetate. I trimmed the edges of the storefront windows with .010" x .020" styrene strip.

I glued the storefront wall to a .040" styrene sheet base. I then built the entry sidewalls that lead to the recessed store doors in the same fashion, starting with the acetate. Once the side walls were in place, I added the doors, which I cut from the prototype photos.

The central door goes to offices or apartments. I framed it with HO scale 1 x 8 styrene strip, painted Flat Aluminum. Behind it I added two walls and a checkerboard floor.

Then I built a styrene base behind each storefront window. On it I rested slightly curved photos of the actual display in the prototype windows. I added a few three-dimensional objects to the displays. I cut the awning from a photo printed on plain paper ⑨.

Finishing touches

The first floor ceiling and side walls are 1/16" mat board. I placed a light-emitting diode (LED) on the ceiling at the back of each store. Then I soldered the LEDs together and to a connector. After the second floor ceiling was added, I glued the brick sheet to the side walls.

The mat board roof is covered with scale 3-foot rolled roofing, and the inside of the roof space is finished in the same brick veneer. The back wall is also brick sheet on mat board. Details include a gutter, downspout, chimneys, vent stacks, and a scratchbuilt air conditioner unit. I finished the project by adding the BURLINGAME decorative stonework and 1874 date stone to the front wall using the photo-laminate technique.

If you plan to add a prototype building to your model railroad, consider using multiple modeling techniques. Traditional scratchbuilding methods worked well for the walls, windows, cornice, and details. Photo-laminating made it much easier to model the tiled storefronts at street level. **MR**

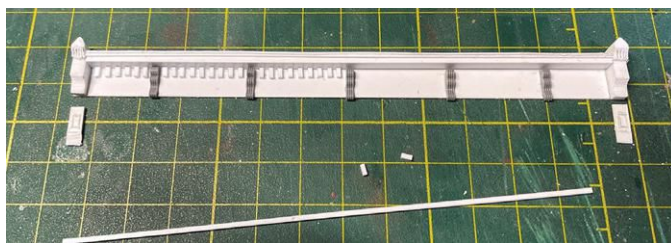
Thomas Oxnard, a National Model Railroad Association Master Model Railroader, lives in Exeter, N.H., with his wife, Sally. The retired pediatricians have four grown children. His interests outside of model railroading include skiing, woodworking, and spending time with his grandchildren.



⑥ A solid bond. Though the Rail Scale Models brick sheet has an adhesive backing, Thomas applied 3M Transfer Tape as extra insurance. He painted the sheet material flat white and drybrushed the brick faces with Zinc Chromate Primer.



⑦ Matching molding. This prototype photo shows the molding below the pediment on the front of the building. Thomas re-created it on his HO scale model by laminating (top to bottom) pieces of 2 x 8, 2 x 6, and 2 x 4 styrene strip.



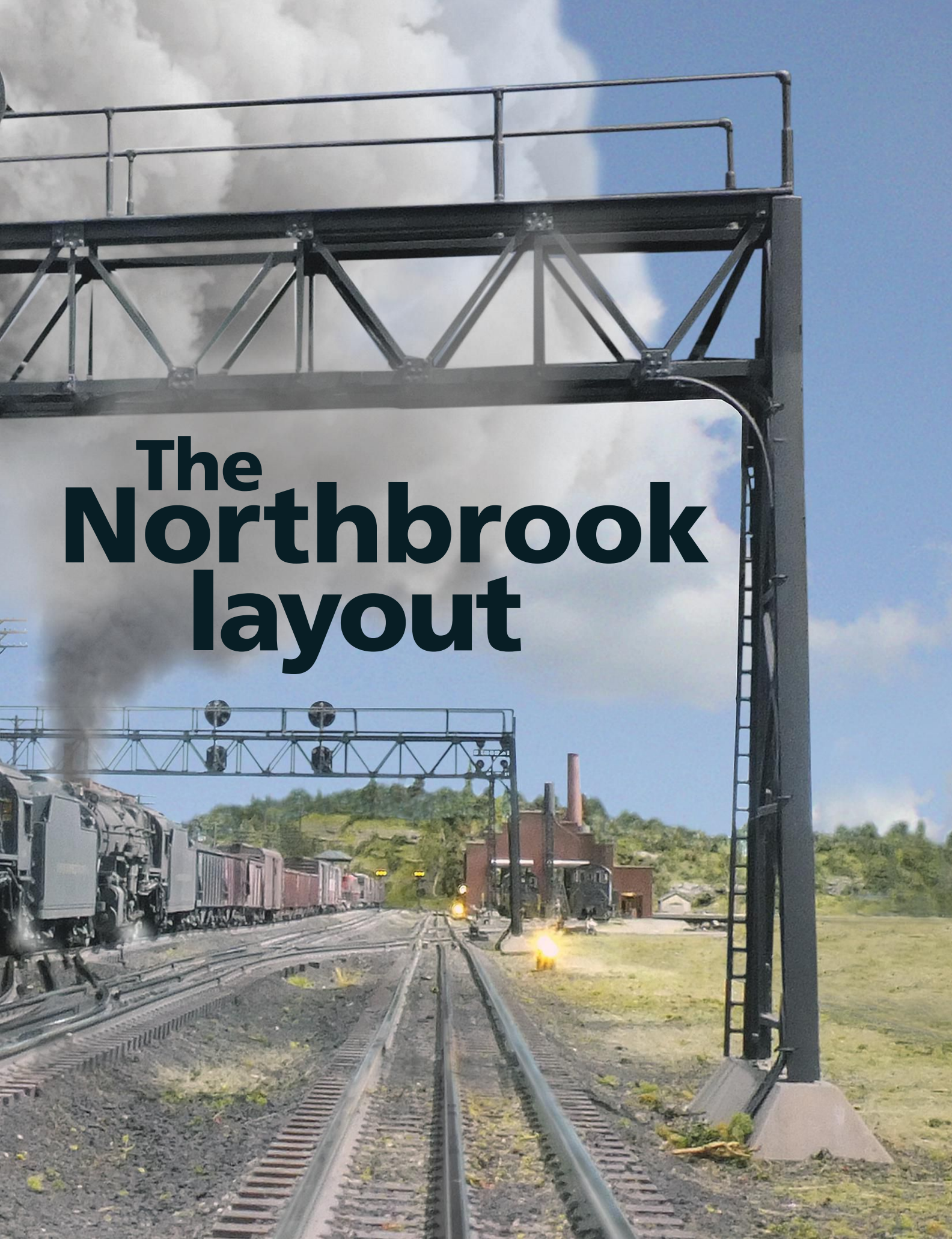
⑧ Scratchbuilt cornice. To replicate the cornice on the Burlingame building, Thomas used assorted pieces of styrene sheet and strip. The five double S corbels (gray) are Tichy Train Group part No. 8101.



⑨ A photo finish. Thomas attached photos of the tiled storefronts to clear acetate with Gorilla Glue Clear Grip contact adhesive. He used styrene strip to trim the windows and make the aluminum-framed door.



① A pair of class I1 2-10-0 Decapods rolls past Bryant tower heading into town on Norm Charbonneau's O gauge Northbrook layout. The late model Lionel Legacy locomotives have been modified and weathered.



The Northbrook layout



② An I1 Decapod rolls by the Northbrook steam heat plant on the outskirts of town. One aspect of the hobby Norm enjoys is modeling Northeastern industrial buildings.



③ A Pennsy class M1b 4-8-2, made by 3rd Rail, leads a train of Atlas O coal hoppers out of Northbrook yard under a functioning position-light signal bridge.

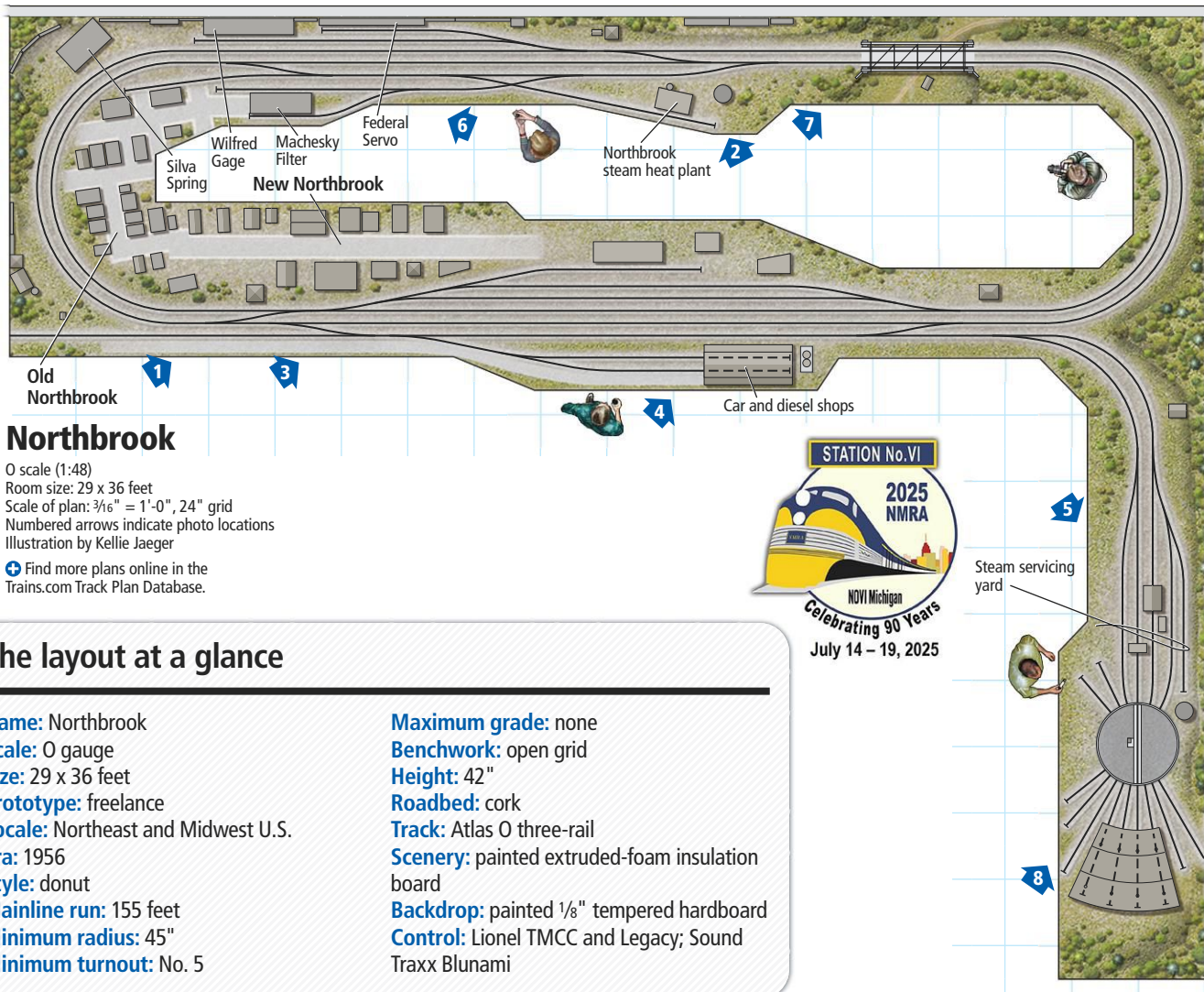
A three-rail tribute to the Pennsylvania RR

By Norm Charbonneau

Photos by Craig Wilson

Throughout the early 2000s, the three-rail side of the model railroad hobby went through some dramatic changes. By the time I was ready to build a new layout in my first house there were quite a few manufacturers producing 1:48-proportion models that could run on three-rail track. I had sold off most of my toy and semi-scale pieces by this time to concentrate on acquiring scale items. It would take a few years of this effort to settle in on a favored road, the Pennsylvania RR, which I grew to admire during my time in Pennsylvania.

Concurrently, control systems moved from transformer analog control with



electromechanical reverse to full-feature command control complete with high-fidelity sound and closed loop speed control. This allowed new locomotive models, which already looked better than their toy train predecessors, to run more like the heavy machines they represented.

My current layout came about after my wife and I moved to a ranch-style home that featured a larger basement space than I previously had. After preparing the space for the model railroad and a generous-sized workshop, I was able to get to work after being without a layout for a couple of years.

The version of Northbrook shown here is much like the model railroad in my previous home. It's a fairly simple, display-style layout with long passing sidings, some industrial spurs, and a locomotive servicing facility with a turntable and roundhouse. [Norm's prior layout was featured in the November 2008 issue of *Classic Toy Trains* — Ed.] The layout design was intentionally kept simple so I can run some larger steam



4 A trio of Pennsylvania RR Electro-Motive Division GP7s emerges from the Northbrook car and diesel shops after servicing.



5 A class B6sb 0-6-0 spots a load under the coaling dock. The Lionel model was modified to support Kadee couplers. The scratchbuilt coaling tower is based on Grand Trunk Western prototypes still standing Grand Haven and Durand, Mich.

locomotives. The plan was inspired by many of the classic designs in Linn Westcott's book *101 Track Plans*.

Scenery and construction

The scenery represents the industrial Northeast and Midwest in the mid to late 1950s. This allows me to focus on the various structures I like while adding some Eastern mountain elements. My primary prototype focus is the PRR in the late steam-to-diesel transition era. Trackage rights are granted to the B&O, C&O, N&W, and sometimes NYC and Pere Marquette.

Modeling the PRR in the late steam era allows me to run interesting locomotives, such as Santa Fe class 5011 2-10-4s. These engines were leased by the Pennsy in the last days of steam in Ohio. I also take a bit of license and run engines like the T1 and Q2, which didn't make it to the final days of steam. Most of the time I run I1 Decapods, M1 Mountains, and some early diesels like F7s and GP7s.

The benchwork is fairly simple as the layout is without grades. It consists of 1/2" plywood sheet supported by 1 x 4s on 16" centers. The main section of the layout is about 10 1/2 feet wide by 36 feet long with a single duckunder leading to a wide center aisle. The engine yard is 4 feet at the widest and about 18 feet long. The deck height is around 42". All of the

benchwork was painted flat black before the track and scenery was installed. The edges of the layout are trimmed in 1/8" tempered hardboard painted flat black. With the ceiling painted the same color, it keeps the focus on the layout.

Scenic landforms on the layout were carved out of 2"-thick extruded-foam insulation board. I use it a bit differently than most modelers as I don't tend to stack the sheets flat to achieve contours. For a lot of the background bluffs, where there might be as little as 3" between the layout and backdrop, I stood the foam vertically after ripping it to depth with a 5" circular saw. The pieces were then bonded with hot glue. When attaching one piece of foam to another, a slight shear motion can help set them tight during assembly.

On some of the more freestanding sections I built the basic contours using re-purposed cardboard boxes cut to form the spine of the hillside. This basic skeleton was put together with hot glue. I then ripped 4"- to 5"-wide pieces of foam board and cut them into crude bricks roughly 6" to 8" long. These were glued into the cardboard forms and carved. I could work very rapidly this way to get mountain shapes roughed out. It was much easier to handle the brick-sized chunks, and I ended up with less waste. A set of rasps and a keyhole saw were used for the carving and shaping.



Once I was happy with the shape of the landforms, I used commercial foam rocks where needed, complemented with hand-carved plaster. To color the rocks, I applied a base coat of Krylon Flat Khaki, followed by black and brown washes. I drybrushed the raised surfaces with light colors. I didn't cover the raw pink foam board with anything other than flat black latex paint. I applied the paint after spackling any obvious gaps.

The ground cover is Scenic Express Adirondack Blend with backyard dirt and finely ground leaves. My trees are mostly Scenic Express SuperTrees. These are spray-painted flat black in batches with the cheapest paint I can find. When ready for use, I dip them in diluted white or carpenter's glue, apply flocking, and install them on the hills.



The backdrop is $\frac{1}{8}$ " tempered over drywall, secured with an air nailer and construction adhesive. All of the seams were taped and mudded with drywall compound. I painted the sky in layers, starting with a soft gray and layering a few shades of sky blue over it, with the darker shades higher. The clouds were hand-painted with tube acrylics.

All of the corners were coved with a roughly 2-foot radius to reduce shadows. Lighting consists of three main parallel rows of track lights. I used about 54 5000K PAR20 light-emitting diode (LED) lights at a roughly 30-degree angle to illuminate the layout. A line of open bulb 5000K LED lamps runs down the center aisle of the layout just behind the HVAC ductwork to provide a valanced fill light.

Structures

Like my last layout, all of the background structures are scratchbuilt using various materials like foam core and tempered hardboard. The town buildings are a combination of scratchbuilt, kit-bashed, and kit-built structures. Many are by Downtown Deco. New builds are now getting full interiors with removable roofs and LED lighting.

Major railroad structures like the roundhouse and car/diesel shop are Altoona Model Works kits. Both buildings have many interior details and LED lighting. The 350-ton coaling dock was scratchbuilt based on two Grand Trunk Western prototypes in Michigan. The operating turntable is a Millhouse River product with PRR details.

6 Three PRR GP7s cruise past some of Northbrook's heavy manufacturing plants. The Lionel and Atlas models are modified with fixed pilots and body-mounted Kadee couplers. The structures are scratchbuilt flats.

I've taken to 3-D printing in the past few years to enhance my buildings, which has been a lot of fun. I use a CAD program to make the designs, most of which are very simple. I find that adding interior details makes the buildings much more interesting.

Track plan, trackwork, and control

The track plan focuses on running in loops and viewing trains much as a railfan would. I have two parallel loops that allow two trains to run independently,



and several passing sidings and spurs for industry. When I'm in the mood I may do pick-ups and drop-offs for local industries on the inner loop. There are two crossovers that allow trains to move from one main to the other.

The three-rail track is Atlas O nickel silver on cork roadbed. All turnouts except one are No. 5s. They're controlled by under-table switch machines. The curves are 49½" radius and 45" radius, which may be tight by HO standards but is rather generous for three-rail O. Most large three-rail steam is built to go around at least a 36" radius.

All wiring is common ground using 16AWG wire with feeders soldered to rail joiners every 6 feet. There are three

135W PowerHouse power supplies, controlled by Legacy PowerMasters, providing fixed 18VAC track power.

The track is painted and weathered with Floquil Rail Brown and acrylic Grimy Black applied with an airbrush. The ballast is mostly Woodland Scenics Fine Cinders over a layer of play sand that helps fill the space between the ties.

Train and layout control is primarily Lionel Train Master Command Control (TMCC) and Legacy. This was a groundbreaking system to me at the time as it opened up the three-rail hobby to the benefits of command control while using a very simple interface via the CAB-1 controller (and then the CAB-2 for Legacy). The PowerMasters also provide

7 To run all the big Eastern steam that Norm likes, trackage rights have been granted to several roads. Here, a Chesapeake & Ohio 2-6-6-6 Allegheny rolls across Beercan Hollow with a coal train. The Allegheny is a 3rd Rail model with many modifications and some fairly heavy weathering.

overload and overcurrent protection, along with emergency stop functionality. Command instructions are issued via a classic Base 1 (which talks with the original CAB-1s) and a Base 2. Legacy and TMCC are also used for layout structure lighting and turnout control via SC-2s.

Recently I installed a SoundTraxx Blunami sound decoder in an MTH PRR H10 as an experiment. This allowed me



to add a DCC locomotive with all of its benefits to my layout without installing any other hardware. I really like the ability to select from a library of 90 whistles to match the prototype. Currently, this isn't an available feature in three-rail.

The motor control is also exceptional and very tunable for realistic and smooth performance. At this point I have another Blunami decoder waiting to be installed into a 3rd Rail PRR M1b. I think that Blunami has much promise for cost-effective, full-featured command control installations.

My layout has fully functioning PRR position-light signals made by Custom Signals. These show correct indications for block occupation and routing using



8 A PRR J1a 2-10-4 takes a spin on the turntable. This is a vintage 3rd Rail model that Norm modified and weathered. The turntable is made by Millhouse River.

the Custom Signals electronics. Block occupation is triggered by insulated rails. Since the outer two rails are ground, insulating one allows it to be used as a ground trigger for the signal controls via locomotive and rolling stock axles.

Motive power and rolling stock

My locomotives and rolling stock are set up for 3 Rail Scale, or 3RS. All models are 1:48 proportion and equipped with Kadee couplers. Everything is weathered to represent the shopworn look of the late steam era.

For locomotives and rolling stock I tend to apply a base layer of Dullcote first, followed by various washes. I use an airbrush to add the final effects. I typically use acrylics for airbrushing. While I lament the loss of Polly Scale and Model Master acrylics, I've found some worthy substitutes lately, including Badger, AK Interactive, Vallejo, and Rail Center paints.

My go-to colors are Grimy Black, Railroad Tie Brown, and various rust and earth tones, carefully applied so as not to overdo it. I also experiment with products like AK weathering pencils for streaking effects. I use drybrush techniques with tube acrylics to make details stand out.

I keep myself very busy with all the activities that go into having a layout. I

enjoy exploring new tech that supports my modeling efforts, like 3-D printing. I've also been slowly collecting miniature machining tools to keep my engines rolling. I recently added a SherLine mini mill and a resistance soldering station to my workshop so I can pursue more advanced locomotive projects.

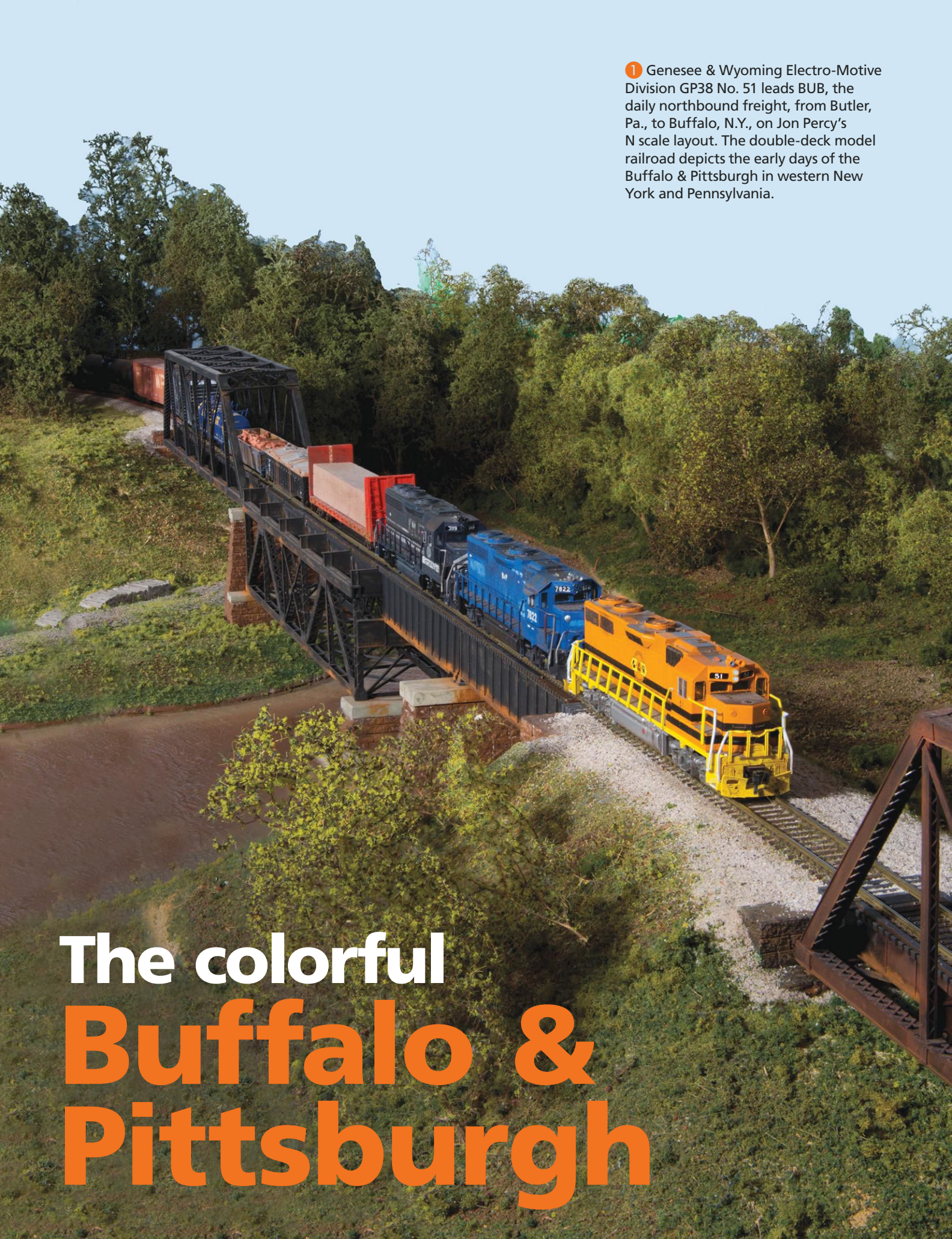
To learn more about the ongoing projects on Northbrook, visit my YouTube channel (@normstrains). [MR](#)



Meet Norm Charbonneau

Norm Charbonneau is a field service engineer in the mechanical testing industry and lives in Northville, Mich., with his wife. They enjoy riding steam excursion trips around the world. Norm got his start in model railroading at the age of 5 when he received a Marx Yardmaster set for Christmas.

① Genesee & Wyoming Electro-Motive Division GP38 No. 51 leads BUB, the daily northbound freight, from Butler, Pa., to Buffalo, N.Y., on Jon Percy's N scale layout. The double-deck model railroad depicts the early days of the Buffalo & Pittsburgh in western New York and Pennsylvania.



The colorful Buffalo & Pittsburgh

This double-deck N scale layout is set in the late 1980s

By Jon Percy • Photos by Dan Munson



2 Buffalo & Pittsburgh GP18 No. 926 and GP38 No. 7803 pass the boiler house as they switch Indspec on the Northern Subdivision. The veteran locomotives display the colors of their previous owners, Norfolk & Western and Conrail.

When I first visited the Buffalo & Pittsburgh (BPRR) yard and engine terminal in Butler, Pa., in 1990, there was a colorful gathering of diesels representing seemingly every major railroad that was around during that time. The riot of color inspired me to abandon the fictional HO scale layout I was building and start assembling a collection of N scale locomotives and freight cars that I'd need to re-create the BPRR. Along the way I've had help from railroad employees, fellow railfans, my construction crew, and a host of guest operators. The journey has been marked by luck, good friendships, and camaraderie.

Prototype history

The Buffalo & Pittsburgh was the fourth railroad formed by Genesee & Wyoming, a short line holding company that now has more than 100 railroads throughout North America in its portfolio. The BPRR, a Class II railroad, was created from the CSX (ex-Baltimore & Ohio, nee-Buffalo, Rochester & Pittsburgh) Mainline Subdivision between New Castle, Pa., and Buffalo, N.Y., as well as the Northern Subdivision running from Butler, Pa., to Petrolia, Pa.

The BPRR started operations on July 19, 1988. Though coal was the railroad's main commodity at startup, numerous chemical plants and petroleum refineries on the Mainline and

Northern Subdivisions provided valuable carloadings. In addition, there was significant bridge traffic between CSX, Canadian National, and Canadian Pacific. The BPRR also interchanged coal, steel products, and scrap metal with the Bessemer & Lake Erie.

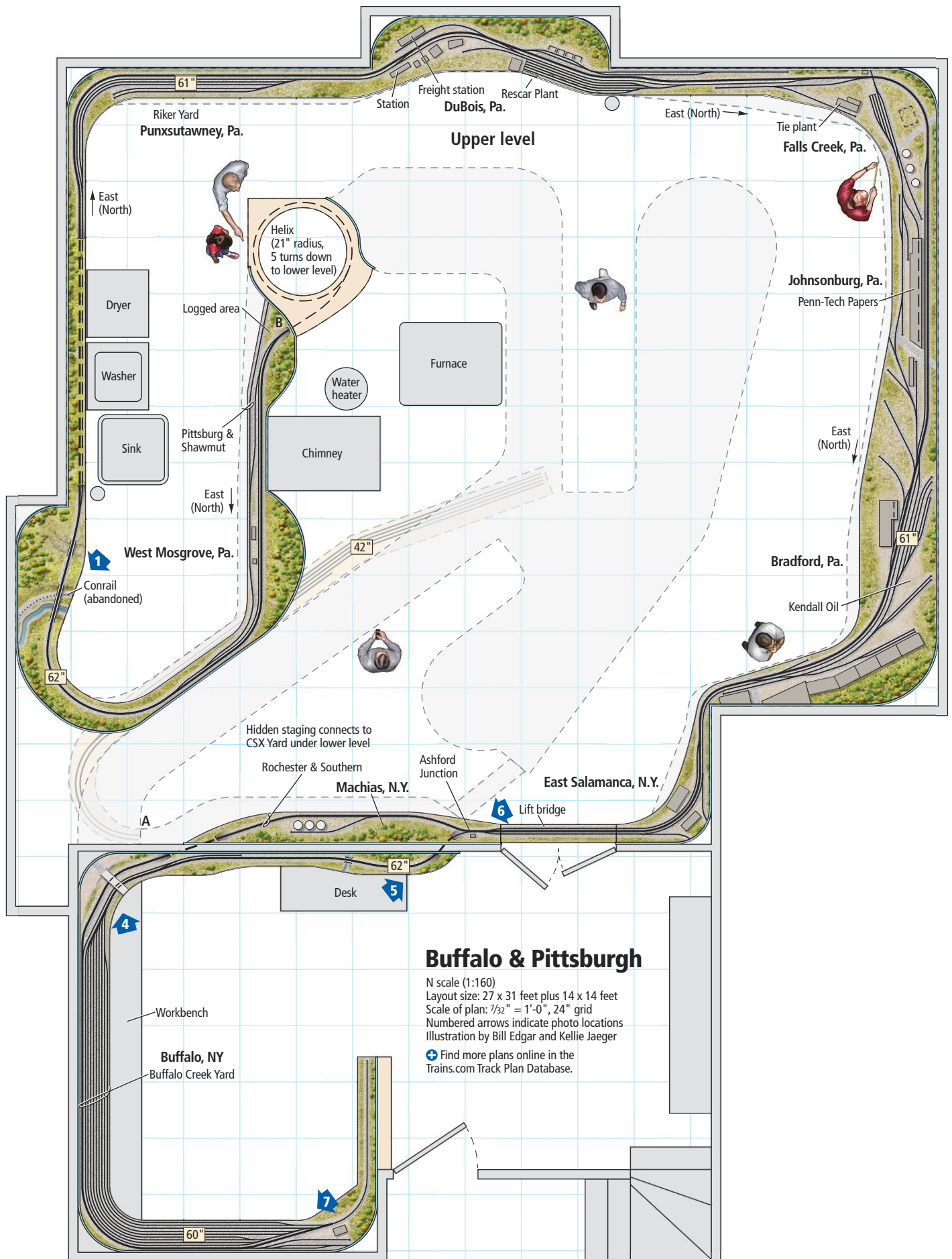
A little help from some friends

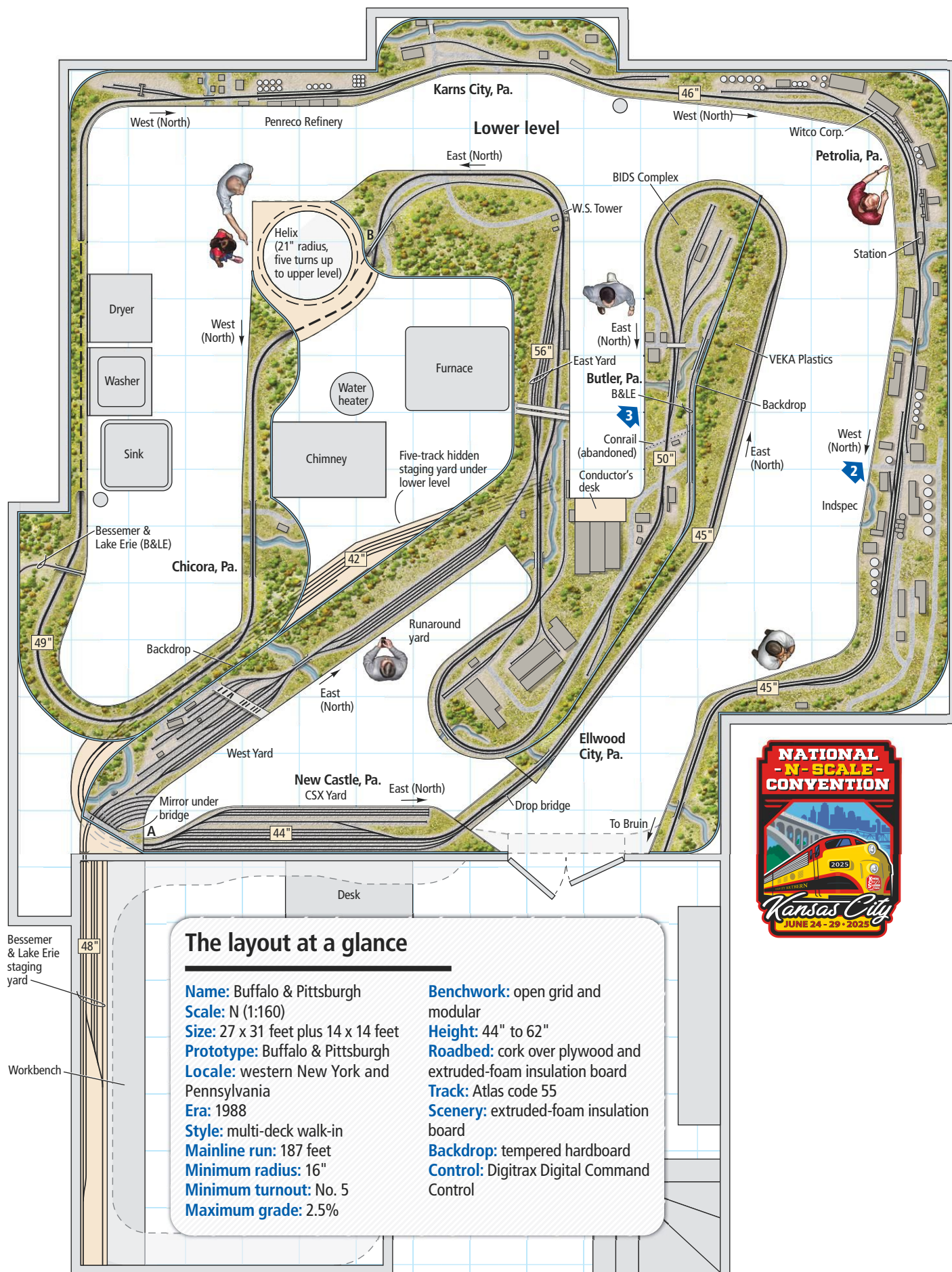
When I decided to model the BPRR, I knew I wanted to include Butler, Pa., my hometown; the Northern Subdivision; and as much of the mainline as I could fit in some unknown future space. Modeling a prototype railroad entails lots of research and help from the experts. Over the course of the next 16 years I gathered prototype information and pictures, and visited the prototype.

I had the good fortune of meeting and spending hours talking with the railroad's Superintendent of Operations, yardmasters, and switch crews. They were very generous with their time and provided me with track charts, employee timetables, and thousands of switch and track lists.

Over the years, I met virtually with Mike Zollitsch, BPRR engineer, historian, and author of several books on the Buffalo, Rochester & Pittsburgh, the BPRR's predecessor. Through his books and email exchanges, I gained insight into the scenery

Continued on page 46







3 Colorful consists were the norm in the early days of the Buffalo & Pittsburgh. In the foreground, Genesee & Wyoming EMD GP38 No. 50 (ex-Conrail) and National Railway Leasing GP9E No. 3344 (former Southern Pacific) cross Connoquenessing Creek. In the background, the Bessemer & Lake Erie local heads for Armco Steel in Butler, Pa.

Continued from page 43

and operations on the north end of the railroad. Along with the thousands of pictures I took, I had the necessary information to accurately model the BPRR.

Track planning

I used a track chart book given to me by the BPRR's Operations Superintendent when developing the track plan for my N scale layout. I supplemented that information with Google Earth, which I used to measure track lengths and see how sidings and industries were positioned. I used this two-prong approach to design Butler and the Northern Sub.

On the main line, I kept just ahead of my track laying crew with napkin and scrap paper drawings of what I wanted. Where possible, I maintained the track configuration of the prototype industries. I enjoy industrial switching, so I sacrificed space between towns to preserve those opportunities.

Constructing the layout

I knew that no matter what space I would eventually have, I wanted to faithfully re-create the Butler engine facility. When I lived in Virginia, I built an 8-foot-long module with the same track configuration as the prototype. When I moved to Kansas in 2007, this module formed the nucleus around which the rest of the layout was designed. To do justice to the Northern Subdivision, I built a double-deck model railroad.

Most of the layout is 1"-thick extruded-foam insulation board over a framework of 1 x 4 lumber. I prefer working with foam because it's easy to carve, stack, and shape. However, where tracks ascend or descend, we used traditional plywood subroadbed to more easily change elevations. The space between tracks was filled with foam.

I used Atlas code 55 track throughout the layout, as I felt it best captures the look of what's seen on railroads in the United States. The track was ballasted with real rock products.

The scenery on the layout is fairly traditional — real dirt, ground foam, and static grass. Dave Acheson installed nearly 4,000 trees using Scenic Express products. Structures on the layout are almost entirely scratchbuilt by me; my brother, Jim Percy; and Jason Stiles. To me, scratchbuilding is the most time-consuming, but satisfying, aspect of layout construction.

Modeling the motive power

For the first six months of operations, the BPRR relied on leased engines from CSX and locomotive leasing companies, as well as power from the Rochester & Southern and Genesee & Wyoming railroads. It also purchased used first- and second-generation power from Conrail, CSX, and Norfolk Southern. Most of these diesels would go on to serve the BPRR for another 25-plus years.

To accurately capture the look of the early locomotive fleet, I relied heavily on photos taken by Ross Jack, a longtime BPRR railfan and historian. He took photos of the Baltimore & Ohio,



4 Leased CSX EMD GP38 No. 2068, still in Chesapeake System paint, spots empty gondolas at Hurwitz Scrap in Buffalo, N.Y. The BPRR leased 19 CSX locomotives at startup until they had enough engines to operate the railroad.

CSX, and BPRR locomotives passing through Butler for years and unselfishly shared them with me.

Justin Sobeck used the photos to create the bulk of the fleet — every four-axle locomotive the BPRR owned or leased in 1988 and 1989. Bill Hirt and I helped renumber some of the ex-Baltimore & Ohio and Chesapeake & Ohio Electro-Motive Division GP9s repainted in the orange, black, and yellow scheme of BPRR's parent Genesee & Wyoming. Most of the engines in the fleet are from Atlas Model Railroad Co. A few of the CSX lease engines are Kato products.

Operators have often remarked on how smoothly the locomotives run. This is due largely to our maintenance program. Over the years, John Acheson has disassembled, cleaned, and lubricated every engine.

In addition, we use a product called NO-OX-ID, an electrical contact grease, on the parts carrying electrical current from the wheels to the motor. We use the same product to treat the rails. Though it doesn't keep dust from landing on the track, it ensures oxidation isn't a barrier to good electrical contact.

Operations on the BPRR

A full cycle of daily operations on the BPRR begins with the ZigZag train, a turn job that leaves Butler after midnight, picks up interchange traffic at New Castle, and returns to Butler. There, the Butler switcher breaks the train down and builds a Petrolia switcher train for the Northern Sub and a daily north-bound freight for the main line.



5 Set up to run long-hood forward, Buffalo & Pittsburgh EMD GP9 No. 200 leads train BUB north to Buffalo along the banks of Cazenovia Creek. Behind the two units in Genesee & Wyoming paint are a leased CSX (ex-Baltimore & Ohio) GP30 and an former Kyle RR unit patched out for the BPRR.



6 Buffalo & Pittsburgh GP9 No. 203 leads a loaded ballast train south through Ashford Junction, N.Y. The concrete interlocking tower is unique to BPRR predecessor Buffalo, Rochester & Pittsburgh.

Along the main line there are DuBois, Johnsonburg, and Bradford switchers. The Buffalo switcher works the yard at its namesake, building the daily southbound freight. The second shift switcher travels down to East Salamanca, N.Y., to work the industries there and switch interchange traffic with the Rochester & Southern.

In addition to the two road freights, there are daily east and westbound Sealand intermodal trains and coal trains. These trains are run as extras.

All of this activity keeps me and five two-person crews busy for about three hours during an operating session. I serve as dispatcher, issuing verbal track warrants to move trains along the line, and yardmaster or superintendent to represent management and answer questions. Using radios to accomplish this

lends some authenticity (and more often some humor) to our op sessions.

Switching systems

I originally ran trains with five GML Enterprises walk-around direct-current throttles, using selector switches to route power to the multiple blocks. Although this is usually unwieldy on a large layout, it worked well on my BPRR. I located the blocks so that every crew had the blocks they needed without having to worry about keeping track of how the switches were lined.

When it came time to run a through train, we just had to make sure the switcher was in a different electrical block than



Meet Jon Percy

Jon Percy, retired from the United States Air Force and a former apartment maintenance technician, is working on his third career as shipping manager at Midwest Model Railroad in Independence, Mo. The lifelong model railroader lives in Overland Park, Kan., with his very understanding and supportive wife, Mona.



the road freight. Usually this was on an industry siding or a track with a shutoff switch.

Eventually, the DC throttles began breaking down and I was forced to convert to Digital Command Control (DCC). I chose Digitrax because members of my operating crew and I were familiar with the company's products.

Converting the railroad to DCC was easy — I joined the bus wires that kept the DC blocks separated. I enjoy the ability to make and change multiple-unit assignments as desired. That and the sound-equipped diesels enhance the layout's realism.

Future plans

Model railroading is an enjoyable hobby because there are so many facets to it. Many of the layouts shown in the hobby press aren't finished, and so it is with the N scale Buffalo & Pittsburgh. We still have much to do, including converting engines to DCC, building hundreds of structures, and scenicking unfinished areas. It's all about enjoying the journey with the crew. [MR](#)



7 At Buffalo Creek Yard, sun-bleached Buffalo & Pittsburgh EMD GP9 No. 887 builds train BNZ, the daily southbound road freight between Buffalo, N.Y., and Butler, Pa. A few tracks over, BPRR GP9 No. 626 gathers cars for the Ford Stamping Plant. An ex-Baltimore & Ohio wagentop boxcar is used as a storage shed in the yard.

Household products for model railroading

These items may not have been designed for the hobby, but they sure do come in handy

By Cody Grivno

Though the hobby has evolved

throughout the decades, one theme has remained constant: Model railroaders are a resourceful bunch. There are many in the hobby who have a knack for looking at items not for what they are, but for what they might become. In this article, we'll take a look at household products you can use for model railroading.

Wood clothespins



1 Not just for clothes. There are many non-hobby items that have model railroad uses. Cody Grivno used a wood clothespin as a handle when working on an N scale locomotive. The loop of blue masking tape (sticky side out) holds the shell to the clothespin. Bill Zuback photo

We'll kick things off with two takes on wood clothespins. When I was working on a Kato N scale Electro-Motive Division SD40-2 for the May 2016 *Model Railroader*, I needed a paint handle to hold the shell for airbrushing. Most of my traditional tools were too big for the 1:160 model. The solution? A run-of-the-mill wood clothespin.

To ensure the model wouldn't slip off the improvised paint handle, I applied a loop of masking tape (sticky side out) near the top and pressed it against the inside of the shell **1**.

Contributing Editor Pelle Søeborg used modified wood clothespins to make a painting jig for couplers and other small parts. He first cut the ends of the clothespins at a 45-degree angle. Then



2 A homemade jig. Contributing Editor Pelle Søeborg cut the tips of six clothespins at a 45-degree angle and attached them to a wood block. He uses the jig for painting couplers and other small parts. Pelle Søeborg photo

Pelle used carpenter's glue to attach them to a wood block **2**.

Reach extender



3 Beyond the kitchen. *Model Railroad Planning* Editor Tony Koester found that a reach extender, designed for grabbing hard-to-reach items in the kitchen, is a handy tool for his HO scale Nickel Plate Road layout. Here he's grabbing a boxcar just out of reach. Tony Koester photo

Tony Koester repurposed a common kitchen gadget for use on his HO scale layout. "That spring-loaded, soft-jawed reach extender that you may keep around the kitchen to grab items on the top shelf can be a handy tool to use on the railroad as well," Tony wrote. "I've found it an easy and (usually) damage-free way to gain access to a car or locomotive that is just out of reach and needs a nudge, or that's derailed and must be

lifted or dragged gently back to within arm's length **3**.

"I've also used it to position structures way back in a deep scene," Tony added. "The reach extender can also hold a small flashlight to illuminate hidden track that's giving you problems."

Trash bags



4 That's a wrap. M.R. Snell used a white plastic trash bag to cover a contaminated dirt load in this HO scale gondola. He then added chart tape to simulate the tie-downs found on the prototype loads. M.R. Snell photo

In the September 2013 issue, M.R. Snell wrote "How to model a contaminated dirt load." First, he cut and shaped a piece of foam for the load. Next, he searched for material to simulate the tarpaulin used to cover the dirt.

"The solution was right under my nose," M.R. wrote. "A trip to the kitchen yielded a plain white plastic trash bag (the kind without reinforcing, ribbing, or weaving) **4**. The material was thin, translucent, and flexible enough to stretch over the uneven load form and also leave natural creases. I used chart tape to simulate the tie-downs."

But wait, there's more

Visit Trains.com and search for "10 household items for model railroading." There you'll learn interesting applications for bendable straws, cardboard egg cartons, pot scrubbers, and more. **MR**



KITBASH A MODERN SWITCHER IN HO

Gary Bothe used an Athearn Electro-Motive Division SD40-2 as the starting point for his HO scale Tractive Power Corp. TP56 switcher. The locomotive is powered with a modified NorthWest Shortline Stanton drive.

An Athearn SD40-2 served as the starting point for this project

By Gary Bothe • Photos by the author

Ever since I first saw a photo of Tractive Power Corp.'s TP56 switcher in the April 2016 issue of *Trains* magazine, I've wanted to construct a model of the single-truck locomotive. I was eager to get started after I found a vendor on Shapeways offering a 3-D printed shell and frame in N and HO scales. The N scale version was shown with a photo of the actual model, but the HO version was only represented by an illustration. I was reluctant to purchase it without seeing the real thing, and my attempts to contact the maker went unanswered, so I shelved the project.

Then I saw Ron Bearden's article in the June 2023 *Model Railroader* in which he described building an N scale version of the TP56 using the Shapeways shell. After another fruitless attempt to contact the shell's maker to inquire about an actual photo of the HO version, I decided that if I was going to have a model of this locomotive, the safest bet was to do it the old fashioned way — build it myself. Fortunately, Ron's article included detailed drawings of the switcher with dimensional data, which made the job much easier.

Gary Bothe is a retired professor of psychology who taught for 40 years at Pensacola State College. He is married to his extremely tolerant wife of 55 years. Together they have two adult children, both of whom work in academia.

Finding a parts source

Following Tractive Power Corp.'s lead, I started the project by looking for an Electro-Motive Division SD40-2 to cannibalize for parts. Fortunately, I found an Athearn model at a train show for \$35 ①.

After getting the model home, I put it on the test track to see if it ran, which it did. Similar to the Tractive Power Corp., I determined to use as much of the SD40-2 as I could. This included, among other things, the sills, end platforms, handrails, stanchions, hood doors, and truck sideframes ②.



Power truck

I used a NorthWest Short Line Stanton drive (No. 39260-4, 7-foot wheelbase with 40" wheels) on the TP56. Stanton drives are self-contained power units, and the newer versions are Digital Command Control-ready.

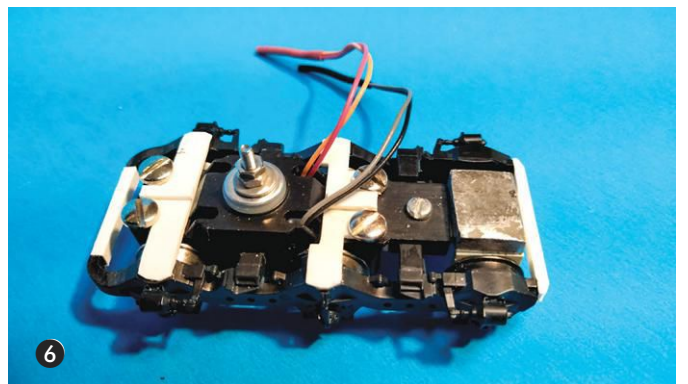
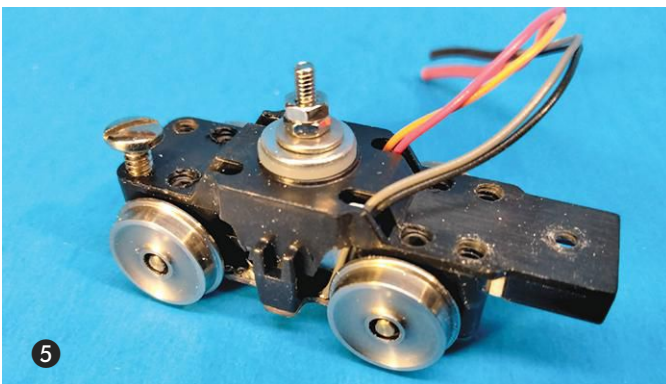
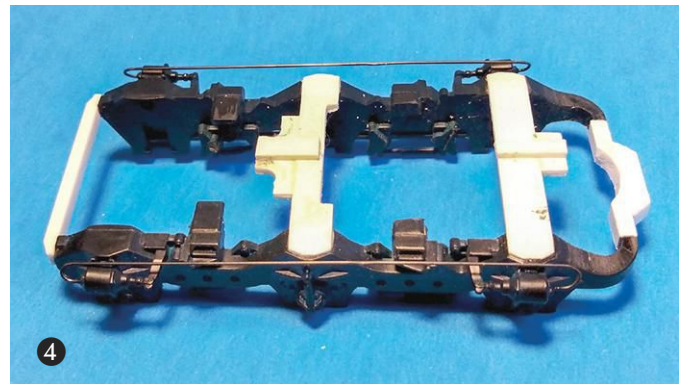
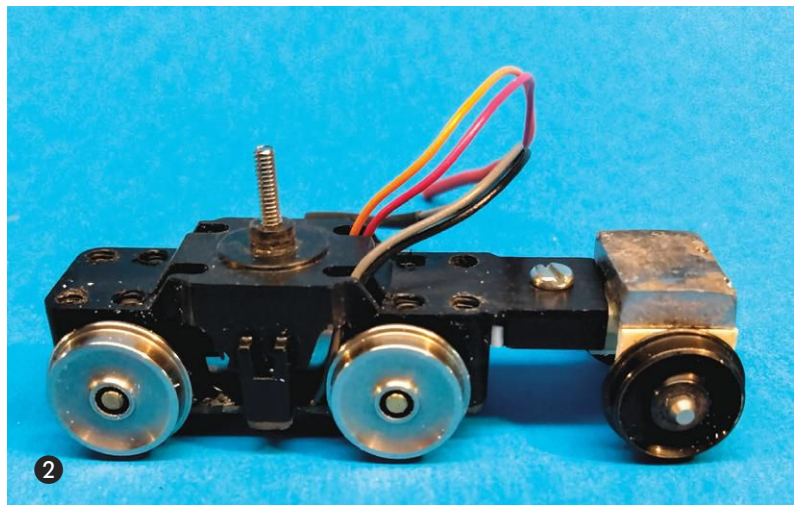
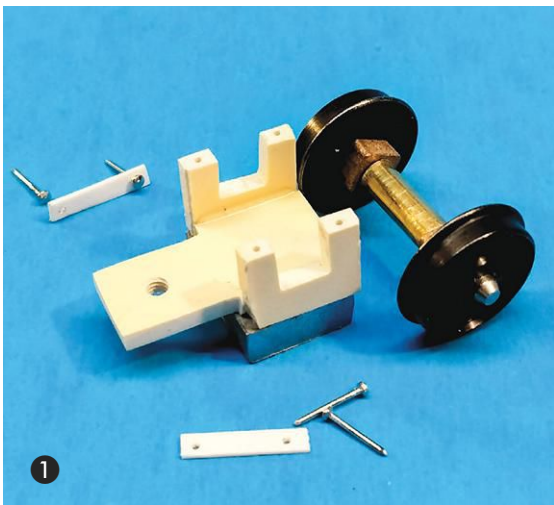
The wheelbase for the two rear axles on the full-size truck is 7 feet. Since the Stanton drives are all four-wheel units, I located a third wheelset 6½ feet in front of the now middle axle. Fortunately, the Stanton drive comes with an extension on one end for mounting a coupler, which turned out to be just what I needed to attach the front axle.

I found a correctly sized wheelset (the ones on the Athearn EMD SD40-2 didn't match those on the Stanton drive), cut the axle in half to insert two bronze bearing blocks salvaged from the Athearn truck, and then put the wheel stubs back together. I used a piece of brass tube to connect the two halves of the axle.

I fabricated a frame for the wheelset from styrene, which I designed to be attached to the coupler extension on the drive unit with a screw ①. I left the screw loose enough to allow the frame to move up and down slightly, independent of the drive unit to prevent the extra axle from taking weight off the two driving axles and reducing tractive effort. I added lead to the top of the frame to help with tracking ②.

After stripping the blue paint from the Athearn truck sideframes, I cut away the portions shown in yellow ③. Then I constructed a styrene framework to connect the sideframes to each other and the drive unit ④.

The Stanton drive has four unused holes on top that made ideal attachment points for the sideframe assembly ⑤. The holes accepted 4-40 self-tapping screws which, when put over the styrene framework, held the assembly securely in place ⑥.



Fabricating the frame

After carefully sawing the long hood off the SD40-2, I shortened the frame with end platforms and glued it back together. Unfortunately, I cut the frame too short because the drawings in the June 2023 MR were a bit smaller than HO scale. I copied and reprinted the drawings at 1:87.1 before doing any more work on the locomotive.

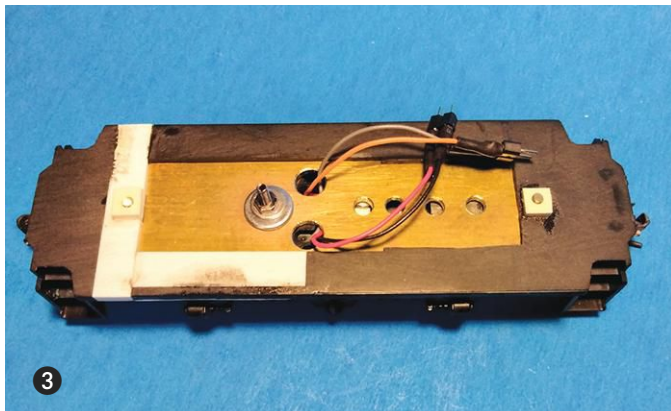
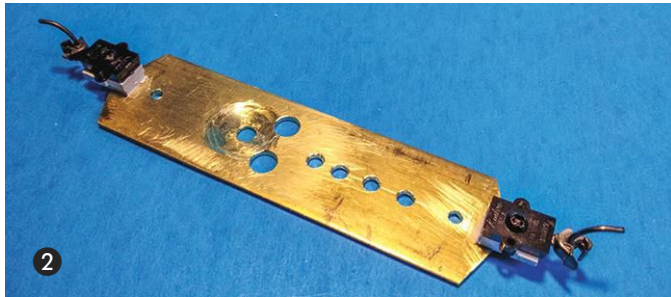
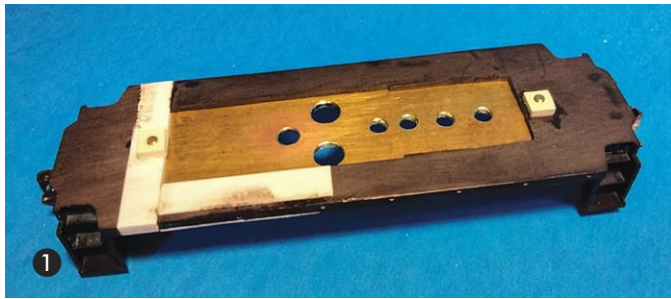
The white styrene cross pieces in ① were needed to correct the error. I added the styrene parallel to the sills to fill in a portion of the walkway that was unavoidably lost when removing the long hood.

I later added two more longitudinal styrene members under the frame to bulk up the appearance and fill in some of the gap between the drive and frame.

In order to stiffen the frame and add weight to the model, I cut a piece of $\frac{1}{16}$ " thick by 1" wide brass to fit into the underside of the plastic frame. The drive and draft-gear boxes are also secured to the brass plate ②.

The plate was drilled for the drive's mounting screw and also to run the wiring into the superstructure ③. An area around the drive's mounting hole was ground away to accommodate the raised portion of the drive surrounding the screw. This allows the brass plate to rest flat against the top of the drive.

A row of four holes was drilled where the speaker would be located to permit sound to escape effectively.



Kitbashing the hood

I was able to reasonably re-create the hood of the TP56 using parts cut from the SD40-2, as seen in ① and ②. The hinge and latch placement on some of the doors isn't correct, but I could live with that.

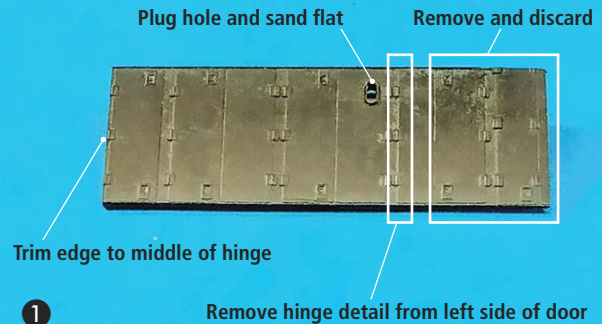
While cutting and splicing the doors, I learned that the pieces aren't the same thickness throughout. The thickest part of the wall is .080", which is the thickness I chose for the styrene panel between the doors on the right side. I also added styrene shims to the back of the SD40-2 door sections as needed to make them .080" thick.

I used .040" V-groove styrene with .125" groove spacing to get the hood to the correct width ③, next page. I shaped the front of the top and bottom pieces to match the angled profile of the hood end. I made the bottom piece shorter so I would have room to install the electronics. I reinforced the joints where the top meets the sides with square styrene.

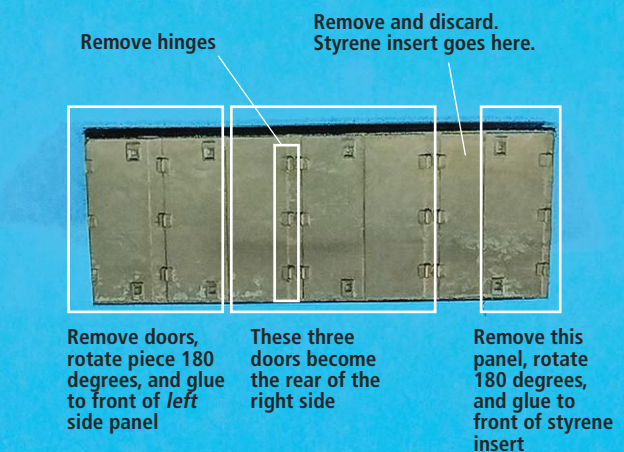
I made the hood end as a single piece from the same .040" V-groove styrene. While the piece was flat, I cut out the headlight recess; made and attached two small access doors (.010" styrene with a link of chain [not shown] in the opening for the handle); and installed the grab irons, made using steel wire brush bristles ④.

With the details added, I used a triangle jeweler's file to deepen the grooves in the back of the styrene. When bent, the front of the hood had crisp angles.

Left side door modifications



Right side door modifications

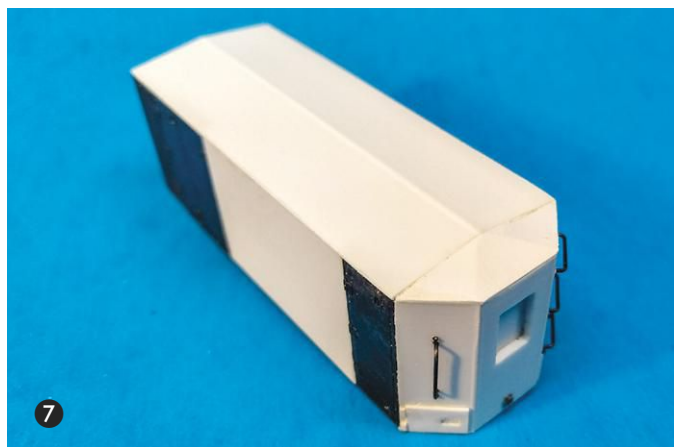
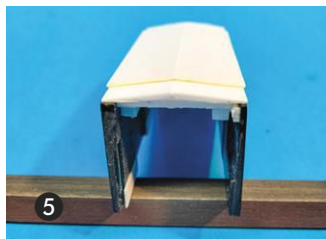


I used more .040" V-groove styrene for the top of the hood. As before, I used a triangle file to deepen the groove in the middle to permit a clean bend, creating a peaked top. I tapered the sides of the piece to a thin edge ⑤.

Next, I made the front cap that brings all of the shapes and angles together from styrene. First, I cut a blank and held it against the front of the model and scribed the panel lines. Then I used epoxy to attach the blank to a length of 1/4" square styrene, which served as a handle that I clamped in a vise. I shaped the styrene with a sanding block and files ⑥.

After I removed the handle, I glued the cap on the model. A bit of touch-up on the corners and edges yielded the desired appearance ⑦.

The top of the hood on the full-size TP56 has a second panel that covers the opening for the diesel engine and generator. I re-created the panel using .015" styrene sheet. About an inch over overhang was left on the sides ⑧.



A cab from scratch

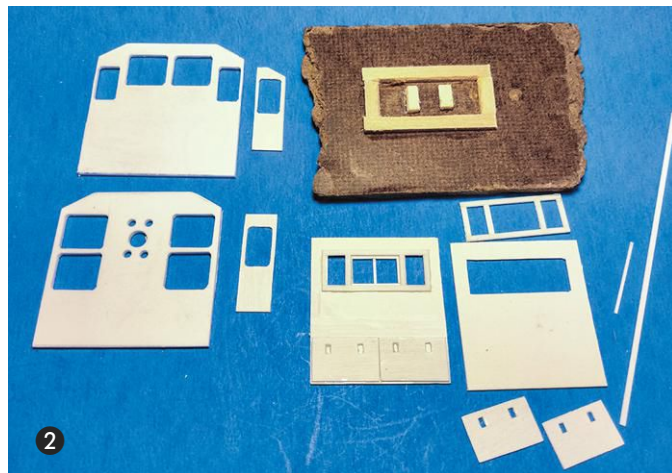
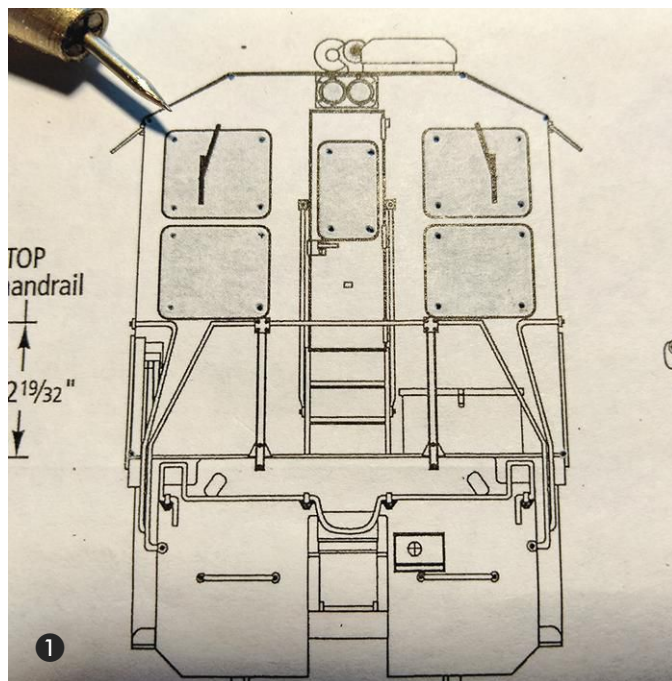
Except for a headlight, there was nothing on the Athearn SD40-2 that I could use for the cab, so I scratchbuilt it from styrene. I used .015" sheet for the side walls, which overlap the .040" sheet ends.

I started with the end walls. First, I laid out the overall dimensions and window locations on the styrene, marking the corners with the point of a scribe ①. After lifting the drawing off the styrene, I connected the dots, outlining the wall with scribed lines.

The windows have curved corners, so the points impressed on the styrene for these were located at the center of a circle that matched the radius of the window corners. I drilled holes of the proper size to make the rounded corners of the windows. Another, larger hole was drilled in the center of the window space.

I used a round jeweler's file to cut out from the center hole to the corner holes. I used flat files to finish the top, bottom, and sides of each window.

Next, I made a jig out of stripwood and tempered hardboard for the side window frames. This allowed me to make identical parts for both sides from styrene strip ②.



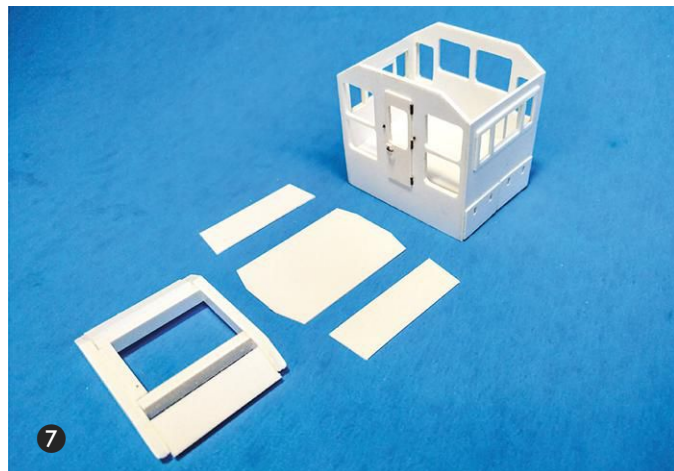
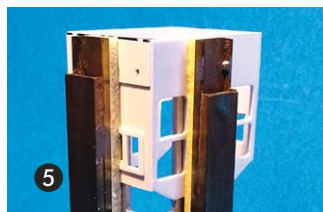
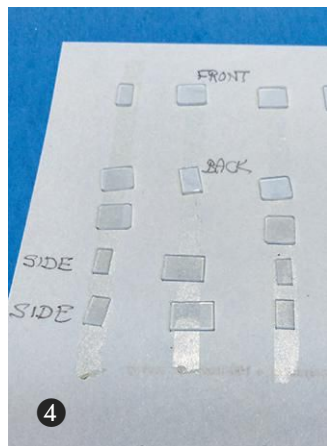
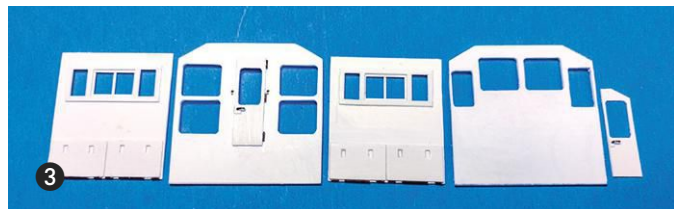
I made the cab access doors on the sides from .010" plain styrene. I added the recesses for the handles using a rectangular punch. After attaching the doors to the cab sides, I added short lengths of wire brush bristle for the hinges. The same material was used for the door hinges and handles ③.

Once I finished the cab walls, I cut and shaped the window glazing from .030" clear plastic. I taped the glazing to paper with the locations labeled for future installation ④.

Then I assembled the cab walls using a homemade right-angle clamp ⑤. I added square styrene strip at the bottom of the cab to strengthen the joints and act as a support for the floor. The cab floor also helps keep the cab square ⑥.

I made the roof removable so I could reach to the cab interior and light-emitting diode (LED) headlight. Instead of making the roof from a single piece of styrene, I made it from three individual panels ⑦.

I used assorted pieces of styrene to make a frame for the roof panels so the thin material wouldn't sag over time. I added extra styrene along the back of the cab to support the LED for the headlight. I drilled the styrene with a No. 31 bit to accept the 3mm LED.



Electrical components

I installed a SoundTraxx Tsunami2 diesel locomotive decoder (TSU-1100, No. 885002) in the TP56. I paired it with the same company's CurrentKeeper (810140) and a Rail Master Hobbies speaker (DS1240-Box).

Front headlight installation was straightforward. All I had to do was plug the LED into a socket soldered to the white and blue decoder wires (with the appropriate resistor connected in series) and place the LED into another No. 31 hole previously drilled behind the headlight.

The rear headlight proved more of a challenge because of the removable roof. To make an easy electrical connection, I used cyanoacrylate adhesive (CA) to attach the tails of two 270 ohm resistors vertically to the back wall of the cab. I bent the lower ends of the resistors forward at a right angle, below floor level, so the resistors would be out of sight.

The tails of the other end of the resistors pass through the front wall of the cab. They stick out far enough, and at the proper distance apart, to form a plug to mate with a socket on the yellow and blue decoder wires. This arrangement puts the two 270 ohm resistors in series, resulting in 540 ohms total resistance in the rear headlight circuit.

The tails of the rear headlight LED were bent so that when the roof is put in position on the cab with the LED in place, they're pressed against the resistor tails on the cab wall.

I used plug-and-socket arrangements to connect the NWSL drive to the decoder — one each for the track pickups and motor connections. I hard-wired the decoder, CurrentKeeper, and speaker without plugs and sockets.

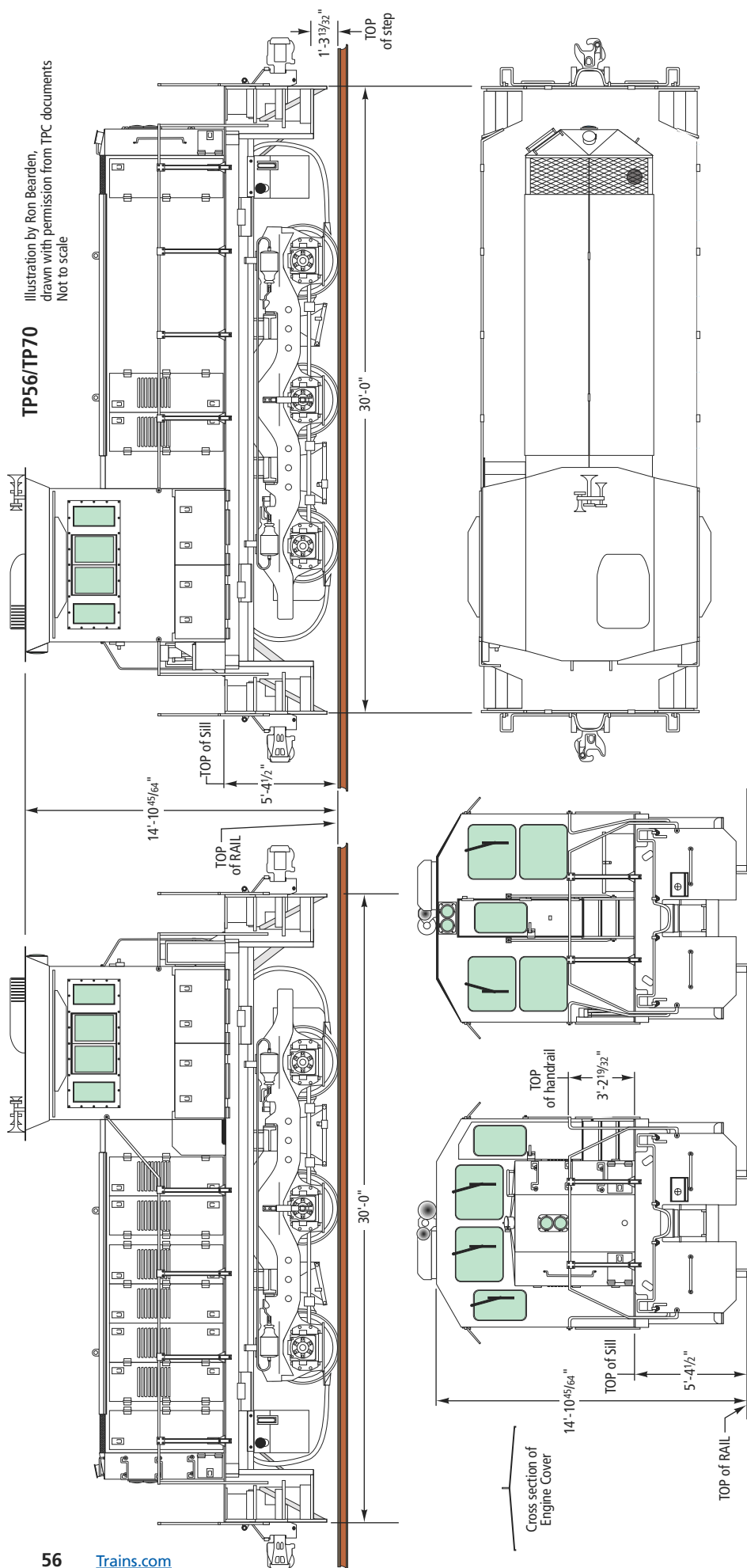
After test assembling the locomotive, I found it was seriously front-heavy. I added bits of lead to the underside of the cab roof and under the cab floor to move the center of gravity to a point more centered between the driving axles.

I then bundled the decoder, CurrentKeeper, and speaker, from top to bottom, with adhesive that's rolled onto a flat surface similar to correction tape. I folded the wires against the sides of the bundle, securing them with insulated wire.



Illustration by Ron Bearden,
drawn with permission from TPC documents
Not to scale

TP56/TP70



Sweating the details

Knowing that the locomotive operated properly, I shifted my focus to the many detail parts.

Fuel tank: I built this from assorted pieces of styrene until I got the height and width right as viewed from the side. Then, using prototype photos as a guide, I filed the angles and curves on the ends to shape.

I bonded the tank halves to a styrene bridge that's screwed to the bottom of the brass plate. The fuel fillers are turned brass; I fashioned the sight gauges from styrene bits. The storage box and brake stand, made from small bits of styrene, are also shown in ❶.

Handrails and stanchions: The handrails and stanchions came from the Athearn SD40-2. The end handrails were pretty much left unaltered, except that the four stanchions were reduced to two. The side handrails were cut down and bent to fit. I adjusted the spacing to match those on the TP56, drilling new holes in the sill and plugging old ones as needed ❷.

Deck details: I fashioned the cab steps from styrene strip and see-through plastic running board material. This fragile assembly had to be constructed in a way that was robust enough to hold together until it was attached to the model after painting. To do this, I made a jig out of wood and styrene ❸. The running board treads are engineering plastic, so I used CA to bond them to the styrene risers. I further reinforced the joints by adding small pieces of styrene below the treads.

Uncoupling levers: I puzzled over these for a while because I didn't have eyebolts to hold them to the pilots and didn't want to make a 60-mile round trip to the hobby shop. Then I remembered a Mantua Big Six locomotive kit that I detailed as a teenager (the subject of my first MR article in April 1967).

I dug it out and discovered that its handrails and flat, stamped handrail posts were ideal for making the levers. The Athearn SD40-2 end platforms had nubs where the uncoupling levers should be attached, so I drilled .035"-diameter holes beneath each one. After threading the posts onto newly shaped levers, I pressed the posts into the holes and secured them with CA.

Trucks: Earlier in the project I added crossmembers to the truck sideframes to both match the prototype and add strength to the assembly. As building progressed, I discovered the rear one made it almost impossible to reach the screw holding the brass plate to the superstructure. Moving the screw wasn't practical, so I modified the crossmember by adding another piece of styrene to the back of it and notching out the front to provide access to the screw. Then I added the air lines connecting the brake cylinders.

Sand pipes: Actually hoses on the prototype, these are a very conspicuous detail, so leaving them off wasn't an option. I had to find a way to attach them that would appear realistic but not get in the way of removing the power truck. I ended up gluing the front pipes in holes that I drilled in the front of the fuel tank. Judicious bending of the pipes makes them appear to be coming from above the frame.

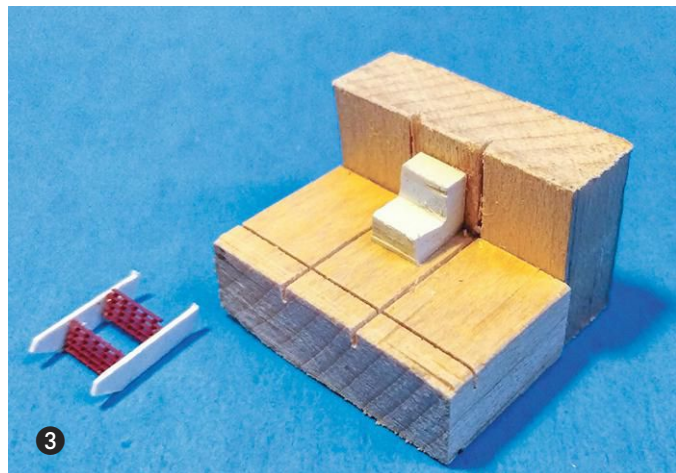
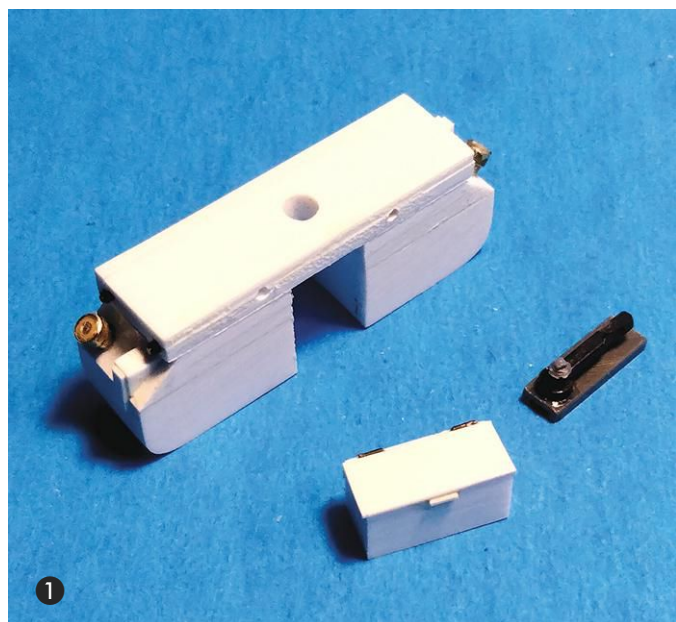
I placed the rear sand lines into holes drilled in a styrene crosspiece, just ahead of the rear cab wall, attached to the bottom of the brass plate with CA. The lines are press fit so they can be removed if necessary.

Serendipitously, I discovered this crosspiece was ideally positioned for installing two brass pins that contact either

side of the rear extension of the rear sideframe crosspiece. These pins prevent the Stanton drive from rotating under the frame, a potential problem since there is only one screw holding it to the brass plate. A pivoting truck is ideal for a conventional locomotive, but the TP56 truck needs to be rigid. The sand pipes, locating pins, and crossmember to which they are attached can be seen in 4.

Louvers and rivets: Though the short hood doors from the SD40-2 were the right size, they lacked louvers found on the TP56. I purchased a starter set of louver decals from Archer Fine Transfers and applied them as appropriate. The TP56 also has rivet detail on the window frames on the side of the cab, and Archer raised surface decals filled that need as well. Because of their delicate nature, I applied all the decals just prior to painting the model.

Cab interior: With windows on all four sides, I felt it necessary to add at least some details inside the cab. I purchased a Cannon & Co. cab interior kit (CD-1554). Then, using prototype photos as a guide, I installed two crew seats, a control stand, the front face of the electrical cabinet, and an engineer figure.



To the paint shop

Painting is one my least favorite parts of model building because, as one of the last steps in construction, it has the potential to ruin a lot of hard work. This hasn't happened to me very often. Unfortunately, it happened this time.

I used a brand of paint I wasn't familiar with and didn't thin it sufficiently for airbrushing, resulting in a globby, speckled mess. After checking to make sure that stripping wouldn't damage the rear headlight resistors, now firmly embedded under the cab floor and surrounded by lead

weights, I dunked the superstructure in a jar of brake fluid and hoped for the best. After a tense 24-hour wait, I got it out and cleaned it with soapy water and a toothbrush.

The model came out mostly intact. The Archer rivet and louver decals came off, as did the lift rings on the engine cover and a few other small bits. I was able to fix these issues without much effort.

I repainted the TP56 with colors from my hoard of Floquil paints. The model turned out much better the second time.



Finishing touches

After decaling the model with an alpha-numeric set, I added the brake stand, tool box, and cab steps. Then I applied a coat of Floquil Flat to all painted parts to seal the decals and give the locomotive a uniform finish. I let the flat coat dry thoroughly before proceeding. Since this is a new diesel, I didn't worry about weathering.

Next, I installed the window glazing, added the windshield wipers, and attached the handrails and air hoses. I used Microscale Kristal Klear, a clear parts adhesive and window forming material, to make the headlight lenses.

After placing the decoder, Current Keeper, speaker, and related wiring under the hood, I attached the shell to the chassis. Then I programmed the Tsunami2 decoder with the most appropriate diesel sounds (I chose the General Electric Cummins switcher) and best operating characteristics.

With that, the TP56 was ready to enter service. I now have a model of an interesting and uncommon switcher that prompts a lot of conversation with visitors and operators. 





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Modeling Mississippi carferry operations



The Missouri-Illinois RR, popularly known as the “Mike & Ike,” with just under 200 miles of track, served the southern Illinois coal fields and rich mineral areas of eastern Missouri. Rail traffic could cross the Mississippi River only at a bridge many miles north at St. Louis, requiring a detour over Missouri Pacific tracks (M-I’s corporate parent). Due to the delay and congestion in the St. Louis rail yards, the M-I opted for a railcar ferry crossing the river between Kellogg, Ill., to a point called Thomure just north of Ste. Genevieve, Mo.

A 286-foot-long, steel-hulled, side-wheeler river

transfer boat named the SS *Ste. Genevieve* was delivered to the M-I in 1922. It was powered by six coal-fired boilers and could carry 18 railcars on three parallel tracks.

A typical day started at 7 a.m. with the boat making about 10 round trips daily over two shifts. Each round trip lasted about 90 minutes, including loading/unloading of all three boat tracks. Peak transfer was 200 cars daily.

The SS *Ste. Genevieve* over-nighted in Thomure with crews working six days a week, taking Sundays off. As the last cars were pulled from the boat on Saturday, two loads of coal would be added, leaving one

on each outer track next to the boiler doors for unloading. A skeleton crew arrived Sunday to hand-shovel the coal into the boat’s bunkers.

Ferry operations ceased in 1961 when trains were re-routed onto MP tracks southward through Illinois, crossing the river below Cape Girardeau. The trains would then run northward to Ste. Genevieve over the St. Louis-San Francisco Ry. (Frisco) right-of-way.

Modeling the operations

This is the second layout that I’ve built based on the Missouri-Illinois RR. A move

Gregg Laiben loved the look of the prototype photo taken head-on down the incline and wanted to capture the scene on his Proto:48 model railroad. He scratchbuilt the carferry SS *Ste. Genevieve* from styrene over a plywood hull. Casters allow it to be moved so crews can work all three tracks. Prototype carferry service lasted until 1961. Gregg Laiben photo

in 2018 prompted me to model the *Ste. Genevieve* subdivision featuring the ferry boat as a focal point. Space is always at a premium when modeling in 1/4" scale, which required downsizing the transfer boat to a more

Send us your scenes

Have you modeled a scene based on a prototype photo? Send both the prototype and model photos, along with a brief description of the scene and the modeling techniques shown, to: Prototype to Model, *Model Railroader* magazine, 18650 W. Corporate Dr., Suite 103, Brookfield, WI 53045; or email to Contributing Editor Tony Koester in care of editor@modelrailroader.com.



manageable size — just over 4 feet in length and carrying 12 cars. It serves as the northern terminus of staging to move traffic on and off the layout.

I scratchbuilt the SS *Ste. Genevieve* using plywood for the hull and styrene for the superstructure. It sits on soft casters that allow operators to roll it into position to work each of the three deck tracks. During operating sessions,

the Boat Job is a favorite among crews.

The spacer, or idler, car behind the tender is used to keep the locomotive off of the incline apron. This car was also scratchbuilt from styrene based on prototype photos from the Missouri-Illinois RR river transfer operation.

Learn more about my Proto:48 M-I layout online at laiben.com/wordpress1/ 

▼ This 1950s image shows Missouri-Illinois RR Consolidation No. 104 climbing the incline ramp at Thomure, Mo., after having just dropped a loaded coal gondola next to one of SS *Ste. Genevieve*'s coal bunkers. The side-wheeler will be re-positioned for dropping a second loaded car on the port-side track. A skeleton crew will arrive tomorrow (Sunday) to unload the coal by hand. Photo from Kevin EuDaly/White River

Productions collection



Standard time

One thing that will never change is how much people hate change. Remember how breathlessly we faced doom, watching the clock hit 12 a.m. on Jan. 1, 2000? Picture the scene on Nov. 18, 1883, “the day of two noons,” when local time changed to standard time. This required stopping New York City clocks for four minutes, the time required for the sun to travel from high noon there to the 75th meridian chosen to mark Eastern Standard Time. Anxious crowds gathered at jewelers and other locations that displayed the local time by which watches were set, appointments were kept, and trains left. But the *New York Times* reported “there was a universal expression of” — substituting “disappointment” for the dismissive word which completed the quote — when time stopped and started again so easily it astonished onlookers.

Railroads drove the change. According to sources I found, railroad timetables were arranged by as many as 100 different time standards. Imagine how many travelers missed connections in Chicago because they arrived on one line’s time and confused the change necessary to adjust to a different road’s time. The *Chicago Tribune*’s front page presented a dizzying table of time changes when it carried the news that day.

The uniform time effort climaxed at the General Time Convention held that year in Chicago, which assembled railroad officials and

other delegates. Railroad dependence on safe timetable operation was long established, but long-distance travel over the nation’s expanding railroad system made uniform time a necessity. The Convention ratified the system of four time zones we now live by. Its implementation began with a telegraph signal transmitted at the exact moment. The effects of the Convention’s work continue to govern railroad operation today. It became the American Railway Association (ARA, now the American Association of Railroads) and proceeded to uniform operating rules. Today’s rulebooks rest on the original Standard Code it adopted in 1887.

The Code made time’s importance clear by making it the first rule: “Standard Time obtained from an authorized observatory will be telegraphed to all points from designated offices at [time], daily.” The next rules demanded that employees use certified watches compared with a standard clock and that conductors and engine-men compare watches with one another before beginning a trip, an enduring ritual as familiar as “All aboard!”

Watches could not vary from the standard clock by more than 30 seconds. Employee timetables listed standard clock locations and watch inspectors approved to check watch accuracy.

Such precise time is deeply embedded in the rules. Trains follow a schedule, and they may not depart any station ahead of schedule.



TRAINS FOLLOW A SCHEDULE, AND THEY MAY NOT DEPART ANY STATION AHEAD OF SCHEDULE.
— JERRY



Don’t be deceived. This undated image appears to be a classic view of an employee comparing his watch with the standard clock. However, he’s an Atchison, Topeka & Santa Fe inspector checking clock No. 29 in Topeka, Kan. Atchison, Topeka & Santa Fe Ry. photo, David P. Morgan Library collection

Schedules are in effect for 12 hours. Time orders modify train schedules. Inferior trains must clear opposing superior trains by 5 minutes. Trains in the same direction must keep at least 10 minutes apart in non-signalized (“dark”) territory. Train orders become effective only after a dispatcher states the time of completion. Modern track warrants and other directives continue to depend on time effective.

Susquehanna Standard Time (SST) governs my layout. Three-hour operating sessions beginning at 8:00 a.m. and 11:00 a.m. complete a day. An SST hour has 60 real minutes. As with fast clocks, layout time varies from standard time. The

stroke of eight SST might take place at 9:00 a.m. or 7:30 p.m. Eastern Time. Smartphones keep SST, either with an app like WiThrottle or by manual adjustment synchronized with it, so each session begins by comparing “watches.”

Ponder this. The private sector developed the Standard Time initiative, but Congress took 35 years to approve it. Its Standard Time Act of 1918 also introduced Daylight Savings Time. I bet most of us dread the recurring headache of changing clocks twice a year, and I wish they would do something about it. But, never mind; change doesn’t bother us modelers. Look how eagerly we accept “local time,” fast clock or not, when the cry “Clock’s on!” opens an operating session. **MR**

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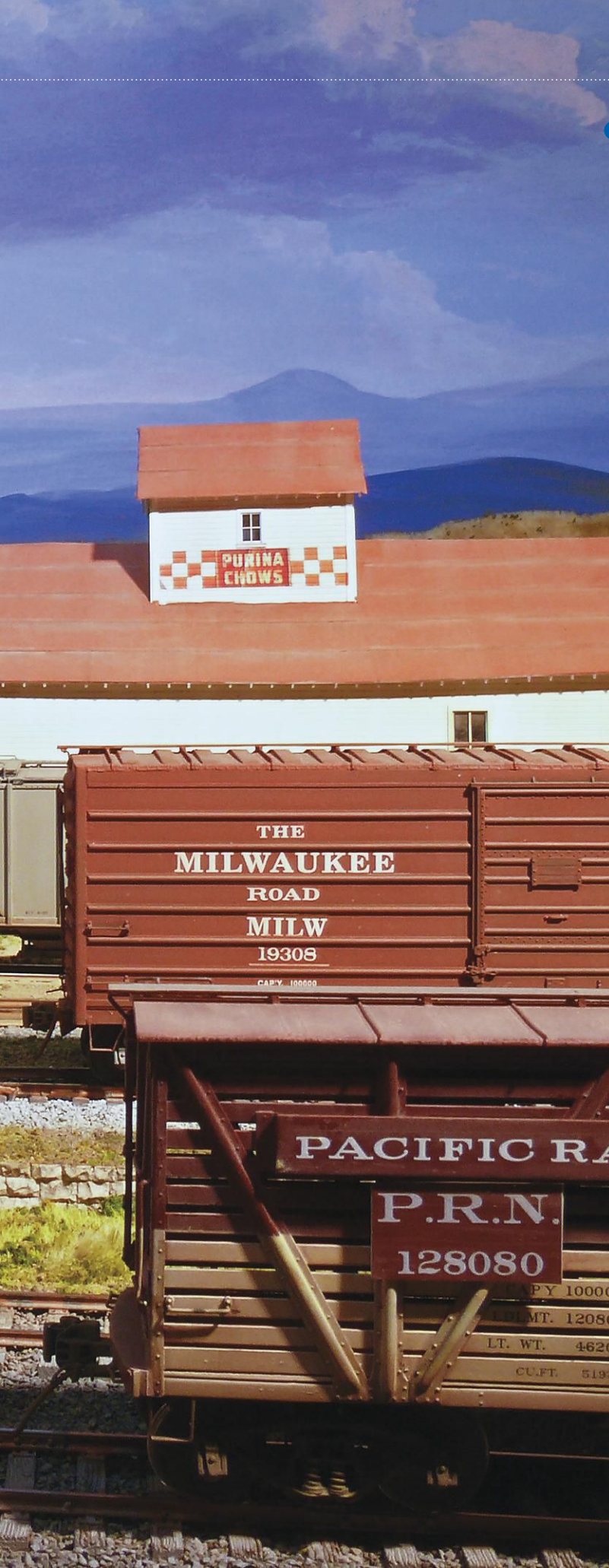
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**Garden
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After a full day switching grain cars, Northern Pacific No. 1369 ties up in the booming farm town of Palouse, Wash. It's the last stop after working these makeshift 40-foot boxcars. It's 1955, a few years ahead of covered grain hoppers. The scene is part of Mike O'Connell's Pacific Railway & Navigation Co., a P:48 model railroad in Maple Valley, Wash. Mike O'Connell photo



Send us your photos

Trackside Photos is a showcase for the work of *Model Railroader* readers. Send your photos (digital images 5 megapixels or larger) on a flash drive to: *Model Railroader*, Trackside Photos, 18650 W. Corporate Dr., Suite 103, Brookfield, WI 53045; or email them to us at editor@modelrailroader.com.

Train ICSW-30 only has one load today, but Iowa Interstate 708 is still hustling to deliver it on time. James McNab shot the image on his Hills Substation module, a project he built to test newer materials and techniques. You can follow along with his progress in season two of “The Hills Line with James McNab”, available on Trains.com Video.

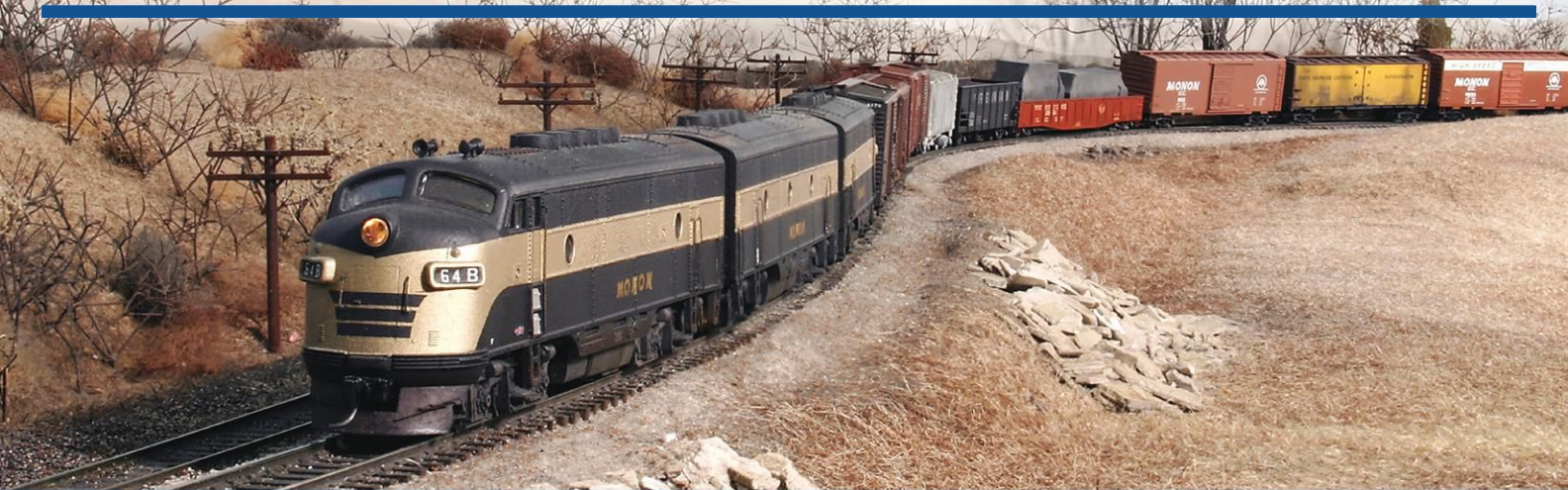


Oliver Wendell Douglas waits at the South Strong Road crossing for engine No. 10 to pass as he leaves Strong headed for his “Green Acres” farm. Contributing Editor Lou Sassi shot the photo on his On30 scale Sandy River & Rangeley Lakes model railroad.



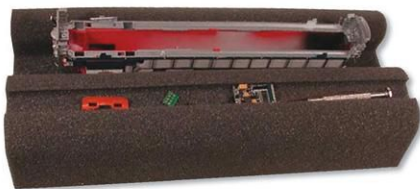
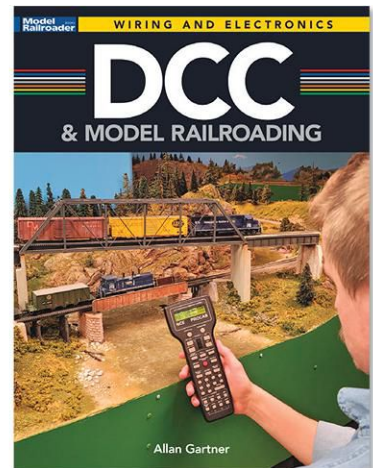
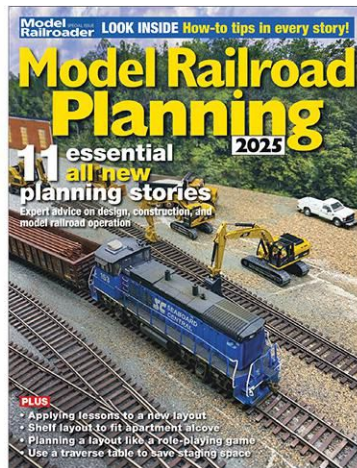
It's late summer 1968 and the Arcade Local is switching grain and milk to Magic Pan Bakeries (a Wm. K. Walthers Cornerstone kit) and empty bottles and cartons to Drywell Inks (a Design Preservation Models kit). Jay Hansell photographed the scene on his HO scale Union Traction Ry. layout. The Baldwin VO1000 is a Bowser model. The trolley poles on the Baldwin are there to activate signals when the locomotive is running under the trolley wire.

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

Schedule of Events

CA, CARMICHAEL: Sac-Sierra TCA Train Show. Elks Lodge, 5631 Cypress Ave., Carmichael, CA 95608. Saturday, May 24, 2025, 10am-3pm. Admission \$10.00, children 12 and under FREE w/paid adult. Buy/Sell/Trade, operating layouts, free parking, food. Free train set drawing for 17 and under (must be present to win). Contact: Bryan Stanton at brsta@comcast.net

FL, PINELLAS PARK: Regal Railways presents Toy Trains & Hobby Show. Lopez Inc. Hall, 7177 58th St. North, Pinellas Park, FL 33781. Saturday, June 21, 2025. 9:00am-2:00pm. Admission: \$6.00 adults, children under 12 free. Vendors and operating layout. Lunch available. Contact: Joe at 727-244-1341 or visit: www.regalrailways.com for more information.

IL, COLLINSVILLE: 18th Annual St. Louis Railroad Prototype Modelers Meet. Gateway Convention Center, 1 Gateway Dr., Collinsville, IL 62234. July 25 & 26, 2025. Friday 9:00am-9:00pm and Saturday 9:00am-5:00pm. Admission: \$35.00 for both days; \$25.00 for Saturday only. Thursday, July 24th, 6:00pm-10:00pm Layout Tours and Operating Sessions. For information, www.stlrpm.com or Contact: Lonnie Bathurst, bathurst@litchfieldil.com or 217-556-0314

IL, ST. CHARLES: 49th Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, (Front Building), 525 South Randall Rd., St. Charles, IL 60174. Sunday, June 8, 2025, 10:00am-3:00pm. Admission: \$6.00 (includes tax). Children under 12 FREE. Tables starting at \$65.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

NJ, BRICK: ECTP and Collectibles LLC presents The Brick Train Show. Elks Lodge, 2491 Hooper Avenue, Brick, NJ 08723. Sunday, May 18, 2025, 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 Brick Show.

NY, DUNKIRK: TCA Upstate NY Chapter Toy Train Show. Dunkirk Fairgrounds, 1089 Central Ave., Dunkirk, NY 14048. Saturday, May 10, 2025. TCA Members: 8:30am. General Public: 9:00am-2:00pm. Admission: Adults \$5.00, Children 12-17 \$3.00, Upstate Chapter Members & children under 12 FREE. Tables are \$20, for reservations email: tcaupstatechapter@gmail.com. Mike: 716-913-4195 or Dave: 716-208-5842

PA, MECHANICSBURG: Williams Grove Historical Steam Engine Association's Train & Toy Show. June 13-15, 2025. Friday 5pm-9pm, Saturday 9am-4pm, Sunday 9am-12pm (Father's Day Pancake Breakfast 8-10am). 1 Steam Engine Hill. Free Admission. Operating PRR 643 Steam Locomotive & Diesel Engine 52. Trains & Farm Toy Vendors - Model Railroad Display - Food Vendors. Visit: www.wghsea.org

WI, LA CROSSE: Rail Fair, Copeland Park, Rose & Clinton Streets. Saturday, July 19, 2025, 10am-4pm. Admission \$8.00, under 12 free with adult. Railroad Show—Flea Market—Swap Meet. BUY/SELL/TRADE. Model, Toy & Antique Trains & Memorabilia, Railroad Exhibits & Displays. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-781-9383 or 608-498-9522. www.4000foundation.org

WI, MARINETTE: Trains, Games, and Automobiles Show. Community Rec Center. 2501 Pierce Ave. 24,000 sq.ft. Saturday June 28, 2025, 9am - 5pm. Sunday June 29, 2025, 9am - 4pm. Free Admission. 100 vendor tables. Operating layouts. Table top board games. (Classic Car Show Saturday only!) Contact: Dave Rickaby, 715-584-9310, wmwestdiv@yahoo.com

WY, CHEYENNE: Sherman Hill Annual Train Show. Event Center at Archer. (I-80 East, exit 370) 3801 Archer Pkwy, Cheyenne, WY 82009. June 28 & 29, 2025. Saturday 9am-5pm; Sunday 10am-3pm. Admission: Adults \$10.00, Children under 12 free. All Scales, model train vendors, operating layouts, door prizes. For info call: Rick Caldwell, 307-321-3644 or email: shmrctts@gmail.com

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

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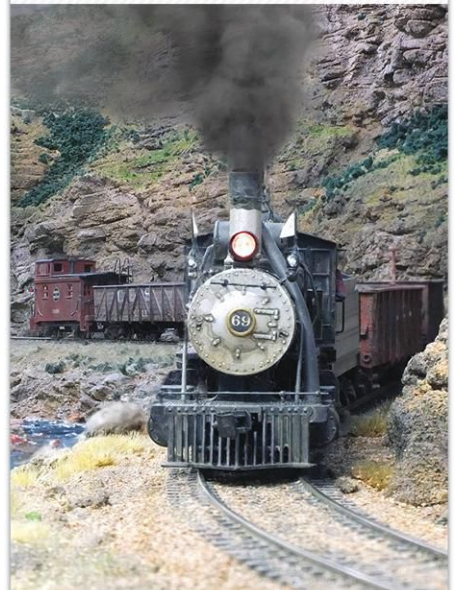
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Atlas Model Railroad Co., Inc.	5	National Train Show	21
Axian Technology	21	Nicholas Smith Trains	17
Azatrax	17	PECO Products.....	9
Bachmann Industries, Inc.	76	Rapido	2, 29
Broadway Limited Imports.....	20	Piko	19
Circuitron	17	Showcase Express.....	17
Custom Model Railroads	21	Sievers Benchwork	21
Digitrax	17	SoundTraxx	9
Great Midwest Train Show.....	9	Spring Creek	9
Great Train Expo	9	Subscribe to Model Railroader.....	63
Greenburg Shows	9	The Space Store.....	59
Kato USA Inc.....	75	Train World	15
Ken Patterson	7	Trains.com	72
Loco-Boose Hobbies	15	Trainz.com	15
Märklin, Inc.	25	Woodland Scenics.....	3
Model Train Market.....	15	Yankee Dabbler.....	17
Modelers Marketplace.....	69		

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A railroad ballet



Three railroaders are visible switching in May 1944 at a Standard Oil bulk plant and pipeline terminal in Friendship, N.C. The fellow in the white shirt is Terminal Foreman H.B. Carlisle, and there's obviously a trainman perched precariously atop a boxcar — apparently the place he needed to be for his signals to be seen — and another hanging onto the end of that car. Standard Oil Co. photo

I've never attended a ballet other than "The Nutcracker Suite," but I've seen enough examples of the art on television to appreciate the intricate timing that is involved. Like trapeze artists, I suppose, only with lower heights to plummet from, mistiming of only a blink of an eye can result in a poor performance or far worse.

However, I'm not writing about the jeopardy inherent in many professions here. Rather, let's focus on our favorite topic: railroading and, more specifically, the professional railroaders who make it all possible.

My friend Tom Holley, a retired professional railroader and *Model Railroad Planning 2024* author, sent me an article he had written for *The Right Way*, the Central of Georgia Railway Historical Society's quarterly publication. I didn't get too far into reading it before I began to notice something. I'll quote a few lines; maybe you'll see it as well:

7:07 p.m. arrived Hurtsboro. Trainman held onto one box, conductor got derail, and other trainman coupled up track, then went to main line. Set two loads out, one partial load back, one load out, shoved back. One trainman spotted bottom, and conductor cut crossing. Other trainman cut off, went to main line, coupled three loads to train, and train departed Hurtsboro 7:33 p.m.

8:30 p.m. arrived Union Springs. Headed in siding, one trainman lined the switch and derail, pulled down and stopped when the other trainman said far enough. He held onto 62 cars and pulled ahead and stopped (via radio) when bottom was in clear over derail, walked up, cut highway crossing, and pulled ahead to open crossing. Conductor cut Tool House crossing, pulled ahead, and cut depot crossing. One trainman held onto two cars, shoved them on the house, cut them off, and went to Dray [team track]. Picked up one car for Montgomery,

went back to train, coupled up, and departed Union Springs at 9:10 p.m. Conductor and one trainman caught the caboose.

Did you visualize what was happening? As Tom puts it, "Watching an old-head crew is like watching a ballet. Those guys are good! I worked with a conductor who had 37 years' seniority, and 30 were one place; he knew his business. Also consider that in 1964, the rules environment was a lot different. There were no safety stops, three-step protection, or securement tests, and you could mount/dismount moving equipment.

"Everybody *was* in the right place at the right time to do his work," Tom recalls. "One thing that was beaten into us by the old heads was to *be in place*. With three ground men, proper placement of people made the job a lot easier and more efficient. If you got out of place, they weren't shy about telling you in less than gentle terms."

Part of their concern had to do with efficiency, part with wanting to do a good job, and part with safety. If a man wasn't in the right place, that meant a pair of eyes and ears weren't where they were supposed to be, and something could be missed. When you're moving around objects on free-rolling wheels that weigh tens if not hundreds of tons, you don't want any surprises. *Be in place!*

I remember operating on a large O scale

model railroad in Texas. It was a bit over-staffed that day, so the local went out with a full five-man crew. I saw the crew working a lengthy cut of cars into a long, curved spur to an industry, and they had spaced themselves evenly along the aisle so as to relay signals from the last guy who could see how close they were to accurately spotting the car all the way back to the engineer. *Be in place!*

That's an extreme example, but there are many instances when we utterly fail to consider where our 1:87.1 railroaders actually would be as we switch our railroads. I got caught by Steve King when I strolled just 10 feet ahead of my train to line a switch to enter a yard. "How did you get up here?" he wanted to know.

That led me to avoid building control panels for towns along the main line, as it's all too easy to stand here and line a switch way down there. Unless it's a CTC panel, someone had to go down there to line that switch.

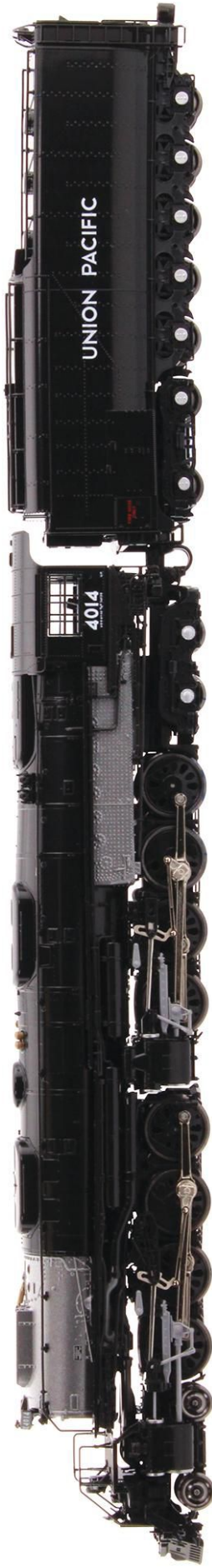
So should one of my crew walk down to the switch to line it? How far is it — 15 feet, perhaps? In HO scale, that's a half-mile round trip. So the

guy on the ground should tell the guy in the engine to give him a ride down to the switch, and then back again.

Railroads function well when everyone works together as a team. When they do that as they should, it is indeed like watching a ballet. We can visualize that as we operate our railroads. **MR**



IF A MAN WASN'T IN THE RIGHT PLACE, THAT MEANT A PAIR OF EYES AND EARS WEREN'T WHERE THEY WERE SUPPOSED TO BE — TONY



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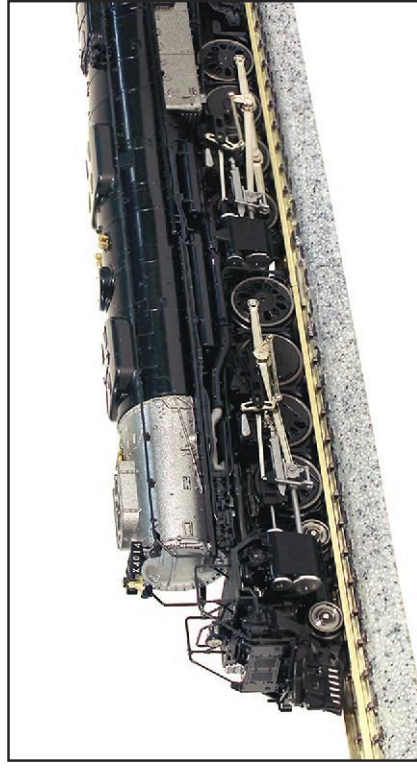
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