

SIMPLIFY DCC PROGRAMMING p.52



**Bowser
SD30C-ECO
diesel tested** p.12

July 2023 • Trains.com

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Rebuild for realism

Update a layout to better represent its prototype p.38

**High ceilings and
mirrors expand
layout space**

p.32



Al Warren models
the Chicago & North
Western's Spine Line
in 1995. p.38

PLUS

Model a parts-donor diesel p.44

A work car hides electronics p.23

Make setup night fun! p.27

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SCALE**

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**Preliminary renders shown, subject to revision.*

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**Decorated sample shown, subject to revision.*

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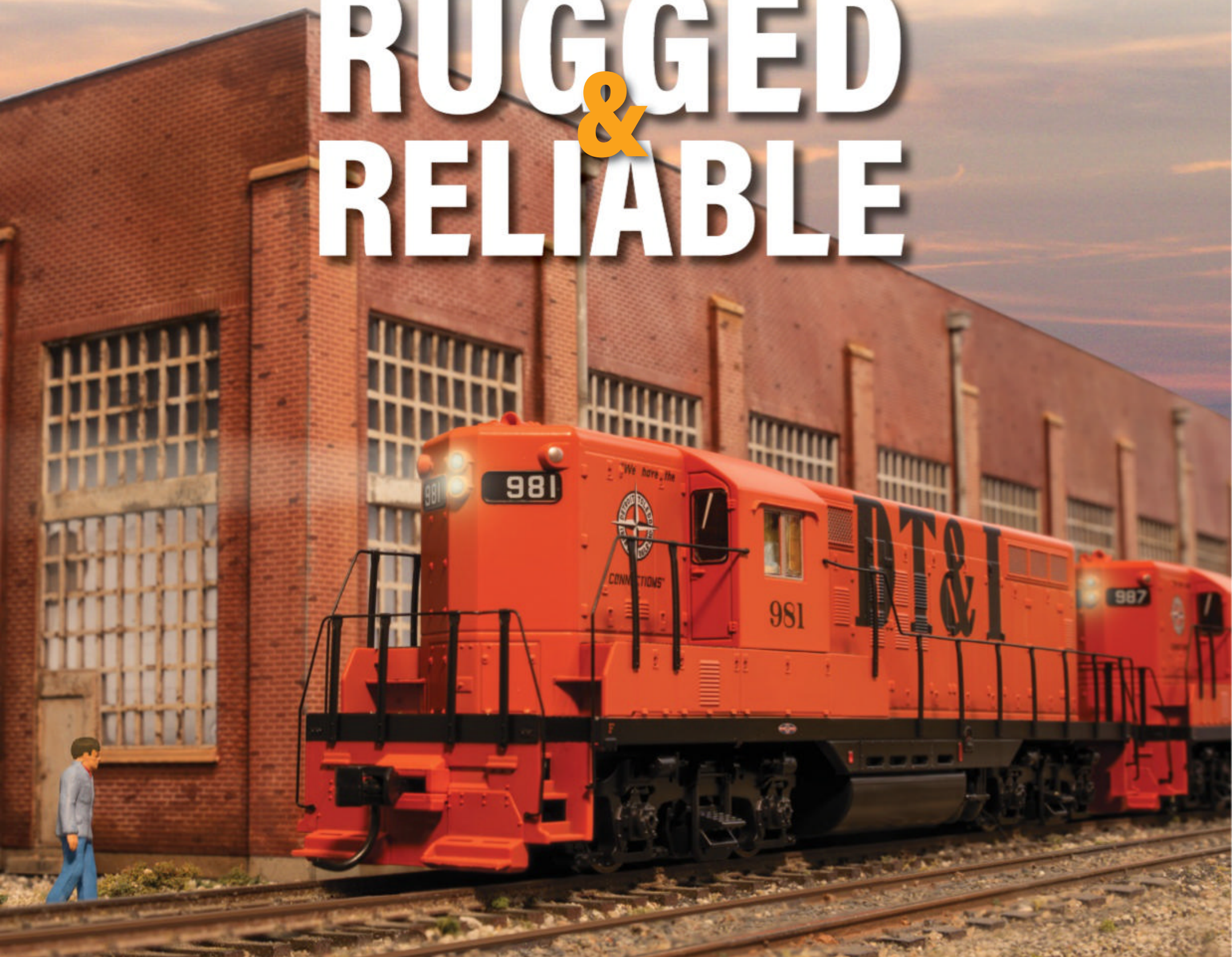
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Features



27 Extending the fun

"Setup night" builds camaraderie on the Onondaga Cutoff
by Dave Abeles



32 Steaming through coal country

Mirrors and a cathedral ceiling make this 12 x 25-foot HO scale layout feel much larger
by Lou Sassi

38 A new route to St. Paul

After 25 years, it was time this HO scale layout got a remake
by Al Warren

44 Model a parts locomotive

This HO scale model adds interest to an enginehouse scene
by M.R. Snell

50 Boost your color IQ

For a more realistic layout, look at what color things really are
by John Pursell

In every issue

6 On Trains.com

The latest features on our website

8 From the Editor

Whither the contributors of yore?

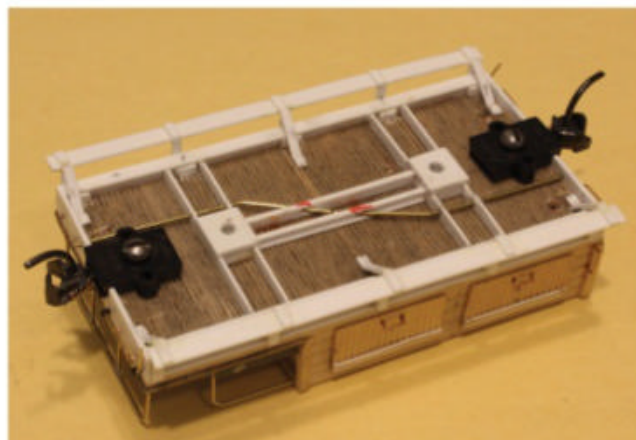


10 News & Reviews

Bowser HO scale EMD SD30C-ECO diesel reviewed, plus the latest new products

18 Ask MR

Which diesels should pull a 1950s coal train?



23 Step By Step

A work car and much more

52 DCC Currents

Setting up JMRI and DecoderPro

54 On Operation

Wizard at work

56 Trackside Photos

65 Index of Advertisers and Cartoon

66 Trains of Thought

It's not even on the map



On the cover: Trains roll on Al Warren's HO scale St. Paul & Southern, based on the C&NW's Spine Line through the Midwest. Al Warren photo



Next issue

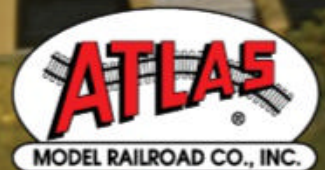
In August, visit a spectacular narrow gauge New England layout. Plus, build an Arduino-controlled transfer table, scratchbuild a 40-foot flatcar, and more!

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The model trains as decor series

In a series of three articles, Trains.com Director David Popp explores the use of model trains as home decor. David looks into the *Model Railroader* archives to understand the history of coffee table layouts, showcases an elaborate seven-layered shelf layout encircling a dining room, and highlights various model train decorations included in the homes of Trains.com staff members.



trains.com
Exclusive layout tour

Gregg Condon's
HO Scale Milwaukee Road Shullsburg Branch

Intro

Gregg Condon's Milwaukee Road in HO scale

See Gregg Condon's HO scale model railroad based on 1950s-era Milwaukee Road operations along the Shullsburg Branch in Wisconsin in action on Trains.com Video. This layout will be featured in *Great Model Railroads 2024!*



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Whither the contributors of yore?



Bill Albertson received the inaugural Model of the Month award in the April 1968 issue for his scratchbuilt UP turbine.

Model Railroader is headed toward its 90th anniversary. In 2017, we published our 1,000th issue. That's a lot of ink on a lot of pages, and a good portion of it came from contributors to the magazine who were hobbyists, just like you!

A recent e-mail asked about the whereabouts of some of the models that

appeared in the magazine years ago. "(T)he other day I was going through my April 1968 issue, and came across some interesting articles. I came upon Model of the Month Award. William Albertson's custom-built UP 8500 gas turbine. Fantastic details. Bill took 4 years to build it. Is Bill still around?

What happened to his model? There are a lot of skilled modelers back then that I wonder what happened to the model and is the modeler still with us," wrote Ray Bedard.

To be honest, we lost track of Bill years ago. Given how long *Model Railroader* has been around, there are many contributors who are no longer in touch (or no longer with us) to write new stories.

In fact, in our News & Reviews section (more on that change coming right up), we remember Robert Hundman, who contributed prototype drawings in the 1950s, and went on to publish magazines of his own. Bob passed away April 22 at the age of 88.

Who are your heroes of past issues of *Model Railroader*? If we know their



whereabouts, we'll be happy to share what we can.

You might have noticed we've combined Product Reviews with News & Products into the News & Reviews column at the front of the magazine. We hope you'll like the additional how-to features this move will let us fit into each month's issue!

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

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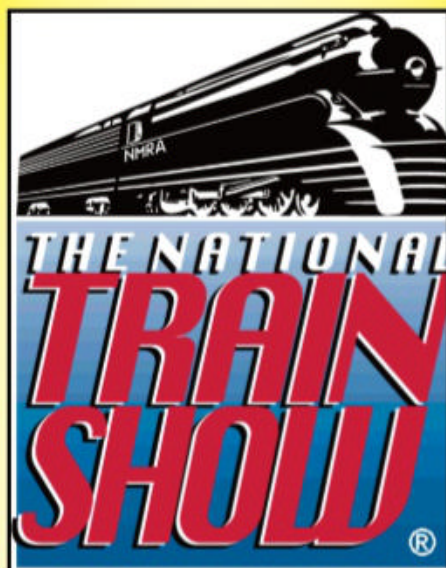
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HO scale



Electro-Motive Division SD40 diesel locomotives. Broadway Limited Imports offers these six-axle road units decorated for CSX; Southern Ry. (with high short hood); Atchison, Topeka & Santa Fe; Chesapeake & Ohio; Canadian National; Canadian Pacific; Conrail; Pennsylvania RR; Southern Pacific; and Union Pacific, in two road numbers per scheme. An undecorated version with C&O details is also available. The HO scale models have injection-molded plastic bodies, die-cast metal

chassis, and Kadee-compatible metal couplers. Additional features on the six-axle road locomotive include a dual-mode Paragon4 sound decoder featuring Rolling Thunder, a GoPack capacitor pack, back-electromotive-force control, railroad-specific details, and individually controllable lighting. The Electro-Motive Division SD40 diesel locomotives are priced at **\$399.99** each. Broadway Limited Imports, 386-673-8900, broadway-limited.com

HO scale



Canadian Pacific Angus Shops vans. Rapido Trains has released a new run of these distinct cars. The CP Angus Shops vans (caboose) are decorated for Canadian Pacific (multiple paint schemes and road numbers); Toronto, Hamilton & Buffalo; Algoma Central; Ontario Northland; and Ontario Southland Ry. An undecorated model is also available. The HO scale vans (**\$99.95**) feature improved lighting, underbody details, Barber-Bettendorf caboose trucks, a multi-color interior with textured floor, see-through etched-metal end platforms and steps, and metal Macdonald-Cartier couplers. Rapido Trains Inc., 905-474-3314, rapidotrains.com

HO scale locomotives



• **Alco Hammerhead RS3 diesel locomotive.** Western Maryland (speed lettering scheme). Four road numbers. Phase 2 or 3 long hood as appropriate. Factory-applied air hoses, windshield wipers, uncoupling levers, window glazing, fuel tank, and wire grab irons. Light-emitting-diode headlights, blackened-metal wheels with RP-25 contoured flanges, and knuckle couplers. Direct-current model, \$249.95; with ESU LokSound5 sound decoder, \$349.95. Bowser Manufacturing Co. Inc., 570-368-2379, bowser-trains.com



• **Electro-Motive Division SD60E diesel locomotive.** Norfolk Southern (Honoring our Veterans scheme, Thoroughbred herald, Central of New Jersey fantasy scheme, and Norfolk & Western fantasy scheme) and CSX (Monon fantasy scheme). One to six road numbers per scheme. Road-number-specific details such as PTC antenna arrangements. Separate, factory-applied



m.u. stands, windshield wipers, uncoupling levers with loops, m.u. and train-line hoses, and wire grab irons. Walkway safety tread detail and step wells with see-through photo-etched steps. Light-emitting diode ground lights and ditch lights. See-through cab windows with detailed, painted interior. Celcon handrails. Direct-current model, \$269.99; with dual-mode SoundTraxx Tsunami2 sound decoder, \$369.99. Athearn Trains, 800-338-4639, athearn.com



- **General Electric B40-8 diesel locomotive.** Amtrak (phases 3, 4, and 5 and Amtrak California); Atchison, Topeka & Santa Fe; Burlington Northern Santa Fe; Southern Pacific; and Union Pacific. Four road numbers per scheme (two direct-current, two with DCC and sound). Road-specific details and drill starter points for grab irons (sold separately). Die-cast metal chassis. All-wheel drive and electrical pickup. Constant, directional light-emitting-diode lighting. RP-25 contour metal wheels and Proto-Max metal couplers. Direct-current model, \$169.95; with ESU LokSound decoder, \$219.98. Walther's Mainline. Wm. K. Walther's Inc., 414-527-0770, walther.com

HO scale freight cars



- **Association of American Railroads 41-foot steel gondola.** Milwaukee,

Athearn GP7 update

In the May 2023 issue I reviewed the Athearn Genesis HO scale GP7. In the review, I noted the model had pressed steel stanchions instead of T-section stanchions.

James Wiggin, associate brand manager for Athearn Trains, said the quality control review samples had the correct stanchions but the production models were shipped with the wrong parts. Athearn's service department is aware of the situation and is offering the correct stanchions to customers who purchased GP7s from this production run. A proof of purchase is required. Contact athearnhelp@horizonhobby.com to get the replacement parts. – *Cody Grivno*

Racine & Troy (brown with vintage herald). One road number. Sides and underbody are molded as a single piece. Underside detail including center sills, crossmembers, and body bolsters. Two sprues of modeler-installed parts including car floor, car ends, draft-gear boxes, brake wheel, handbrake rod fulcrum and chain, brake platform, air reservoir, control valve, brake rod assembly, and stirrup steps. Plastic solid-bearing trucks, Delrin engineering plastic wheelsets and Accumate couplers. Limited-run model. \$27.99. Produced Accurail Inc., available from the Kalmbach Hobby Store, KalmbachHobbyStore.com



- **Marine Industries and National Steel Car bulkhead flatcar.** CP Rail (Action Red, black, and Mineral Brown); BNSF Ry. (Mineral Brown and ex-BCR); British Columbia Ry. (dark green with BCR reporting marks and dark green "international" scheme with BCIT reporting marks); Canadian National (with CN and CNIS reporting marks); Iowa, Chicago & Eastern; and Ontario Northland. One single car and one six-pack per scheme. Also available undecorated in early and late versions. Three different bulkhead variations. Laser-cut wood deck in two styles. Die-cast metal

In Memoriam

Robert (Bob) Hundman, 1935-2023

Robert (Bob) Hundman, founder of Hundman Publishing Inc., passed away on April 22, 2023. He was 88 years old.

Robert's work appeared in the pages of the hobby press for nearly 50 years. His earliest published drawing, a Duluth, Missabe & Iron Range class M-4 2-8-8-4, was in the March 1958 issue of *Model Railroader*. Robert's drawings would continue to appear in MR through the late 1970s.

In 1980 Robert launched *Mainline Modeler* magazine. Nine years later he started *N-Scale Magazine*. In 1995 he acquired *CTC Board Railroads Illustrated*.

His publishing company also produced model and prototype railroad books.

frame. Four jack pad styles and two end sill styles. Etched-metal bulkhead end sheet, deck, tie-down loops, and cross-over platform. Factory-applied grab irons. 100-ton Barber S-2-c trucks with metal wheels. Single car, \$54.95; six-pack, \$329.70. Rapido Trains Inc., 905-474-3314, rapidotrains.com

HO scale structures



- **Hardware and lumber store.** Injection-molded plastic kit includes main building, lumber shed, street sign, and accessories. Detailed wood front and overhead garden center rear door on main building. Eight pallet racks can be built as six singles or four doubles. Plastic parts to build 10 lumber stacks in four sizes (2 x 4 and 4 x 4 in 10- and 16-foot lengths). Optional clear exterior lights can be illuminated from behind (lighting/electronics sold separately). Separate details include rooftop air conditioner, trash cans, propane locker, and gas and electric meters. Cornerstone Series. Wm. K. Walther's Inc., 414-527-0770, walther.com

Continued on page 14



Bowser HO scale SD30C-ECO diesel locomotive

A **Canadian Pacific SD30C-ECO** diesel locomotive is the latest addition to the Executive Line from Bowser. The HO scale six-axle road locomotive features a can motor with flywheels; Kadee couplers; and many separate, factory-applied detail parts.

Canadian Pacific has 50 SD30C-ECO diesels on its roster. The railroad received the units in two groups. Units 5000 through 5019 were built at Electro-Motive Diesel's (EMD) Mayfield, Ky., facility in 2012 and 2013. All but one of the locomotives were delivered to CP in 2013. The 5018 arrived in 2014.

Locomotives 5020 through 5049 were rebuilt for EMD at Bombardier Transportation's Sahagun, Mexico, plant. The units were delivered in 2015 and 2016.

Assorted General Motors Diesel Division (GMDD) and Electro-Motive Division SD40-2s were used as donor units for the rebuild program. The trucks and frames from the SD40-2s were retained; the cab and fuel tank are new. The SD30C-ECO has an EMD 12-710G3A-T2 diesel engine.

The Bowser model features an injection-molded plastic shell and die-cast metal chassis. The pilots have factory-installed m.u. and train line hoses (all with the glad hands picked in silver) and uncoupling levers. The ditch lights on the front pilot are located on top of the anticlimber. The rear ditch lights are on the face of the pilot. Light-emitting diodes are used throughout.

The front pilot also has a snow plow and an m.u. cable and receptacles. Additional details on the rear pilot include two spare knuckles painted a

rust color and a basket for storing an end-of-train device.

The shell features factory-installed and painted wire grab irons. On top of the cab is a "bread loaf" style Global Positioning System dome flanked by two Positive Train Control antennas. Metal details include the lift rings and air horn. The plastic radiator and dynamic brake fans have see-through grills.

A detailed cab interior is visible through the windows. The side windows in the cab should be tinted.

The handrails and stanchions are flexible plastic. Following the prototype, the handrails terminate at a stanchion instead of being attached to the cab. The vertical handrails in the step wells are painted white; the horizontal handrails are painted black or white as appropriate in other locations.

The model is neatly painted red and black. The white printing is opaque and sharp. The placement of the lettering and various labels matches prototype photos.

Our SD30C-ECO sample has an ESU LokSound V5 sound decoder. Bowser does not recommend operating LokSound-equipped locomotives on direct-current layouts, so I only conducted the testing in Digital Command Control mode using an NCE PowerCab.

At speed step 1, the six-axle locomotive crawled at less than 1 scale mph. The model achieved a top speed of 70 scale mph at step 28. The prototype units have a top speed of 65 mph.

I then took the locomotive over to our Milwaukee, Racine & Troy staff layout for real-world testing. The Bowser model handled mainline trains and switching duties without incident.

Facts & features

Price: Direct current with 21-pin plug for Digital Command Control decoder, \$239.95; with ESU LokSound V5 DCC sound decoder, \$339.95

Manufacturer

Bowser Manufacturing Co. Inc.
1302 Jordan Ave.
Montoursville, PA 17754
bowser-trains.com

Era: November 2015 to present (as decorated)

Road names: Canadian Pacific (locomotives delivered in 2013 and 2015/2016, six road numbers each).

Features

- General Motors Diesel Division-style steps
- Kadee couplers
- Light-emitting-diode lighting
- Prototype-specific details
- Weight: 1 pound, 1 ounce

I also tested the SD30C-ECO on the challenging 3 percent grade between Williams Bay and Skyridge. The six-axle locomotive muscled 11 50-foot boxcars up the hill.

The SD30C-ECO is one of the newest locomotives on the rails today, and Bowser is the first company to offer it as a mass-produced model. The CP units can be found helper duty in the Canadian Rockies and on road trains, transfer runs, and locals throughout the Midwest. If you model the modern era, the six-axle unit would be a colorful and attention-getting addition to your fleet. – *Cody Grivno, senior editor*



Facts & features

Price: \$259.95

Manufacturer

Train Control Systems Inc.
P.O. Box 341
Blooming Glen, PA 18911
tcsdcc.com

Features

- 7-foot connector cable
- LT Panel with track power terminals, power supply jack, LT-50 jack, and 3 Layout Command Control jacks
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- Up to 20, 10-step macros
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- Up to 30 throttles on the network
- User manual included

Train Control Systems LT-50 DCC system

It's been known for several years that Train Control Systems (TCS) has been developing a new Digital Command Control (DCC) system. However, the company surprised me this past year with the announcement of not one, but two new DCC systems: The CS-105 and LT-50. I'll focus on the latter here.

The LT-50 has been positioned as a direct competitor to the NCE PowerCab. The LT-50 handheld throttle contains both command station and booster circuitry. Owing to this combination, the throttle must remain plugged into the fascia panel in order to supply power and commands to the track. If disconnected, everything on the layout will stop.

The easy-to-read display has a menu system that makes it equally easy to navigate the many functions provided, including connecting to a Wi-Fi network, programming decoders, setting up consists, and locomotive rosters. TCS developed its own in-throttle consisting system that combines features of universal and advanced methods.

The 15V DC power supply is rated at 2.4 amps. The LT-50 can supply 1.4 amps continuously and up to 2.8 amps peak. In order to protect the electronic components, the throttle has a built-in thermal

sensor that will shut it down if the temperature reaches a preset level. It will restart after a cool-down period.

The LT-50 is designed to support National Model Railroad Association (NMRA) Layout Command Control (LCC) devices and functions. Although it has numerous potential functions, LCC was developed to serve as a parallel communications and control system for layout accessories.

Another supported function is NMRA RailCom. This feature allows bi-directional communication between the DCC command station and decoders. One immediate use of this feature is the ability to read back configuration variable (CV) settings from decoders when using programming on the main. However, there's a catch. It only works with decoders that support RailCom.

Both the TCS UWT-50 and UWT-100 Wi-Fi throttles can be used with the system. Currently this requires adding an LCC-USB interface from RRCirKits, which allows the LT-50 to communicate with JMRI and use its WiThrottle Wi-Fi capability. Consequently, any Wi Throttle-compatible throttle can be used.

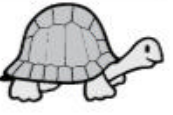
In addition, iOS and Android phones and tablets using the WiThrottle or

Engine Driver apps will work. The upcoming release of the TCS LCC Wi-Fi Panel will allow direct communication with Wi-Fi throttles, bypassing the need for a JMRI connection.

Both mainline and service mode programming are supported. However, the LT-50 only has a single set of output terminals used for track power and programming track connections. Consequently, you can't run engines and use the service mode programming track simultaneously. You can use programming on the main while trains are running.

If you wish to set up a service mode programming track, I recommend using the NCE Auto-SW. This device automatically detects when programming commands are being sent and switches the output from the main tracks to an isolated programming track.

The LT-50 offers newcomers to DCC another option for getting started with the latest features, while providing a clean upgrade path when they need additional power and capabilities. Check out the documentation on the TCS website (tcsdcc.com). I also have a video review on my DCC Guy YouTube channel. – *Larry Puckett, contributing editor*

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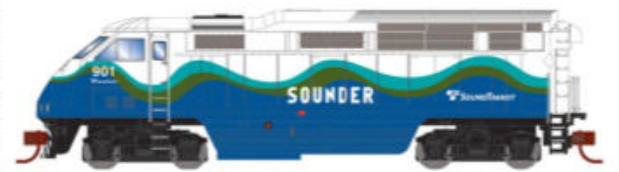
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News & Reviews

Continued from page 11

N scale locomotives



• **Electro-Motive Division F59PHI diesel locomotive.** Sounder, New Mexico Railrunner (fantasy scheme), Utah FrontRunner (fantasy scheme), and Metrolink (standard scheme and “launch livery” fantasy scheme). One or two road numbers per paint scheme. See-through cab windows. Die-cast metal frame. Direct-current model, \$159.99; with SoundTraxx Econami sound decoder, \$259.99. Athearn Trains, 800-338-4639, athearn.com

• **Electro-Motive Division SD70ACe diesel locomotive.** BNSF Ry.; Canadian National; CSX; Ferromex; Florida East Coast; Kansas City Southern; Montana Rail Link; Norfolk Southern; Union Pacific; and Vermont Ry. Multiple road numbers per scheme. Separate, factory-applied details such as handrails, grab irons, horn, bell, and uncoupling levers. Light-emitting diode lighting including headlights and ditch lights. Direct-current model, \$179.99; with Paragon4 sound decoder, \$279.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com

S scale freight cars



• **United States Railroad Administration 40-foot rebuilt steel boxcar.** Elgin, Joliet & Eastern; Atchison, Topeka & Santa Fe; Atlantic Coast Line; Charleston & Western Carolina; Chicago & North Western; Detroit, Toledo & Ironton; Rock Island; and St. Louis-San Francisco (Frisco). Multiple road numbers per scheme; also available undecorated. Injection-molded plastic body. Metal grab irons and handrails. Detailed brake system. Equipped with American Flyer-compatible wheels and couplers. Scale Code 110 wheels and Kadee-compatible scale couplers included. \$54.99. S-Helper line. ScaleTrains, 844-987-2467, scaletrains.com 

QUICKLOOK

Broadway Limited Imports N scale Reading Co. T-1 4-8-4

Price: \$449.99

Manufacturer

Broadway Limited Imports
9 East Tower Circle
Ormond Beach, FL 32174
broadway-limited.com

Road names: Reading Co. (in-service and Iron Horse Rambles schemes, three road numbers each); 1976 American Freedom Train; Chessie Steam Special; Delaware & Hudson Centennial; and Reading, Blue Mountain & Northern. Fantasy schemes: Christmas, Conrail Steam Excursion, and Independence Day. One number per paint scheme unless noted. Also available painted black but unlettered.

Era: 1945 to present (varies depending on paint scheme).

Comments: After looking at the photo, you might be asking, "Hey, where is the

paint and lettering?" Well, that's not a production model. Instead, the team at Broadway Limited Imports sent us a pre-production sample of its N scale Reading Co. class T-1 4-8-4 steam locomotive. The model, scheduled for release this fall, features a dual-mode Paragon4 sound decoder, a built-in capacitor pack, and a smoke unit.

The Reading Co. T-1 fleet has a long, storied history. The 30 full-size units, numbered 2100 through 2129, were built between 1945 and 1947. The Northerns weren't new locomotives, though. Instead, they were rebuilt around parts from class I-10sa 2-8-0 Consolidations. The 4-8-4s were mainly used in fast freight service. The T-1s were retired in 1957.

A small group of Northerns received a new lease on life when Reading Co. launched its Iron Horse Rambles steam excursion program, which ran from 1959 to 1965. The initial locomotives

earmarked for the program were 2100, 2101, 2123, and 2124. In 1962, the 2124 was retired and replaced by the 2102. The 2123, used as a parts source, was scrapped in 1966.

All four units from the Iron Horse Rambles program were saved. The 2102 is in service on the Reading, Blue Mountain & Northern. The American Steam Railroad Preservation Association is working on getting the 2100 under steam again. The 2101 and 2124 are on static display at the B&O Railroad Museum in Baltimore and at the Steamtown National Historic Site in Scranton, Pa., respectively.

Broadway Limited Imports will be offering the 4-8-4 in three versions. The sample we received follows the lines of an in-service Reading Co. class T-1.

The engine has a die-cast metal boiler; numerous plastic details, including the cab, smokebox front, pilot, and



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walkways; etched-metal details; and a turned brass bell. Formed-wire parts include the uncoupling lever, handrails (mounted on plastic stanchions), and grab irons on the back of the cab. The cab is fitted with clear plastic window glazing, and the backhead has cast details. A light-emitting-diode (LED) headlight is located below the bell on the smokebox front.

The smooth-side, all-welded tender has a die-cast metal body and underbody. The coal load, handrail stanchions, ladders, and footboards are plastic. The handrails, grab irons, and uncoupling lever are formed metal. An

LED backup light is located at top center to the left of the ladder.

The underbody is secured to the body with four screws. Above the front truck is the printed-circuit board and sound decoder. A downward-facing speaker is located in a plastic housing above the rear truck. Slats in the underbody allow the sounds to pass through. The on/off switch for the smoke unit is located between the trucks.

The tender rides on screw-mounted plastic Commonwealth-style trucks

with roller bearing journal detail. The metal wheels are mounted on plastic axles. The coupler is body mounted.

Our sample had a Union Pacific Big Boy sound set and a placeholder chuff timer. The production models will have the prototype T-1 sounds and the correct chuff timer.

Other versions of the T-1 being produced by Broadway Limited include the Chessie Steam Special and Delaware & Hudson Centennial unit. The Chessie model will be painted in the vibrant blue, yellow, and vermillion scheme and have “flying” number boards and a pilot-mounted name plate. The D&H version will be fitted with “elephant ear” smoke deflectors and wear number 302.

It was a treat to get a first look at Broadway Limited’s upcoming N scale model. To see video of the T-1 in action on our Milwaukee, Racine & Troy State Line Route layout, visit Trains.com. – *Cody Grivno, senior editor*

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A scene on Tim Neale's Lemmington Park. Photo: Geoff Helliwell.

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Pulled by a trio of Electro-Motive Division F7s and an EMD GP7, a Denver & Rio Grande Western coal train makes its way through a defile near Helper, Utah. A coal train in the 1950s could be pulled by either early hood or cab units – or, apparently, both. Donald Sims photo

Which diesels should pull a 1950s coal train?

Q I'm building an N scale model railroad that will be set in the 1950s. I plan to run two loops independent of the rest of the layout, up high, at the back of the layout. One loop will have a train running counter-clockwise, consisting of a locomotive and four loaded coal hoppers. When it runs out of sight behind the backdrop, an identical train with empty hoppers will run clockwise on the other loop. The effect will be a short train carrying coal from a mine to a processing plant, then returning with empties. My question is, what type of diesel engines would be appropriate to pull this train?

Frederick Wilson

A In the early 1950s, most drag freights were still being handled by steam locomotives. This was because diesels were still rather new, and thus were assigned to priority jobs like passenger trains and hotshot fast freights. Plus, fuel for steam locomotives was plentiful and cheap on a coal-hauling line.

But you asked about diesels. By the late '50s, steamers were mostly phased out, diesels were prevalent, and all kinds of trains – including coal drags – were being headed up by cab units and hood units alike. The most common motive power for heavy freights was a multi-unit lash-up of F units, usually in an A-B-A or A-B-B-A arrangement. Whether those locomotives were Electro-Motive Division FTs, F3s, and F7s or Alco FA1/FB1 and FA2/FB2 sets was up to the railroad in question, though EMDs were more popular.

Hood units made their debut in this era, too, including EMD's early Geeps and SDs, along with Alco's RS and RSD diesel locomotives. (General Electric didn't get into the road-switcher business until 1960.) If you're the kind of modeler who thinks a hood unit looks more appropriate hauling freights, hooking up a set of GP7s or RS3s to a coal train would certainly look plausible.

Since you're only talking about a four-car train (plus caboose, presumably), you could pull your coal trains with a single locomotive. After all, a prototype railroad wouldn't assign multiple units to a train that short unless it was expected to pick up considerably more cars farther down the line. So, depending on the prototype and specific part of the '50s you're modeling, my recommendation would be for a single GP7 or GP9. If you prefer a cab unit, go with an EMD F3 or F7.

Q I live in Tennessee. We do not have train shows in our state. I am 84 years old. What can I do to get train shows near me?

M. Collins

A As one 84-year-old hobbyist, probably not much. But as a member of a group, you might be able to do more than you think.

Are you a member of your local train club? Talk to other members about holding an annual or semiannual swap meet and show in your clubhouse or a nearby library or legion hall. The public would love to watch model trains go around, and members would probably enjoy the opportunity to clean out their dusty cabinets and find new homes for their excess inventory. The club might gain some new members, too. And every large train show started out small. If there are truly no train shows in your state, modelers there are probably hungry for such an event. Your club's little swap meet might grow into something big someday.

Are you a member of the National Model Railroad Association (nmra.org)? Tennessee is part of the NMRA's Southeastern Region. Regional conventions are held annually in cities around the region. The 2019 regional convention was in Chattanooga; did you go?

NMRA Regions are divided into Divisions, each of whom can have its own convention. Sometimes these are modest affairs, but some are big enough to draw nationwide interest. You didn't say what part of Tennessee you're in, but there are four Divisions in your state: Cherokee, Cumberland, Plateau, and Smoky Mountains. Check the Southeastern Region's website (www.ser-nmra.org/divisions) for a breakdown. If you haven't attended an NMRA meeting lately, you aren't doing everything you could to bring train shows to your state.

Not to mention, NMRA headquarters is in Soddy Daisy, Tennessee! Pick up the phone, send a postcard, or drop by in person if you're within driving distance, and let them know how much Tennessee modelers want a train show of their own. Tennessee has several cities big enough to host the annual NMRA National Convention and National Train Show, and there's never been one in Tennessee, so you're definitely overdue!

Send questions to senior associate editor Steven Otte at AskTrains@Trains.com.



Every big train show – like the Amherst Railway Society’s annual Railroad Hobby Show, seen here in 2022 – started out small. Join forces with your local club or National Model Railroad Association chapter to help grow train shows near you. Eric White photo

Q Our HO scale club layout, which appeared in the July 2023 edition of *Trackside Photos*, is what I would call “mature.” All the track, scenery, and structures are well in place. We have discussed how to modernize a club layout and take it to the next level. We have discussed adding technology such as signals, block detection, animated crossing gates, and semaphores, but we do not have that expertise in the club. Is this a topic that has been covered in *Model Railroader*?

Maurice DiTrapani, Treasure Coast Model Railroad Club, Port St. Lucie, Fla.

A Sure, we’ve published a lot of articles about installing crossing gates, block detection, and signals over the years. In fact, we just ran an article on installing working crossing gates in our May 2023 issue. Animated accessories like this are a great way to make your layout more realistic, as well as to add excitement.

A good standalone project to get your feet wet with this kind of work would be to install a train-order semaphore, driven by a slow-motion switch motor or a servo, at a station. By flipping a switch, the dispatcher can let an engineer know there’s a train order waiting for him at the depot. Look up Dave Mashino’s “How to scratchbuild a semaphore” in our December 2021 issue.

Before you get into block detection and signaling, though, you need to talk to your club members about prototypical operation. Specifically, about the type of traffic control system the layout is likely to use in the future. Sequential operations? Timetable and train order? Track

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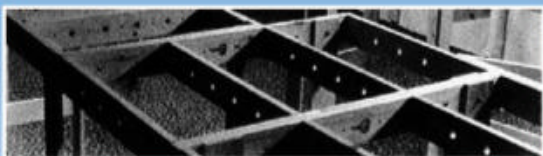
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In our May 2023 issue, Tom Klimoski explained how he installed this working grade crossing signal with sound on his HO scale Georgia Northeastern layout. Installing animated details like this is a great way to keep working on an otherwise complete model railroad. Tom Klimoski photo

warrants? Centralized Traffic Control? Will there be a dispatcher, and how much control will he have over the layout? Will he line turnouts remotely?

Once you have an idea how your club might want to operate the layout in the future, plan your signaling and control system to satisfy the pickiest members. The guys who just want to slap a train on

the rails and run it around in circles may not care, but the prototype sticklers want to know the layout can keep up with them as their skills grow.

Now, as for how to do it, here's some reading for you. Our own Ben Lake installed block detection, remote turnouts, and working signals on our N scale Canadian Canyon layout. He wrote about it in our April 2019 issue. Allan Gartner wrote about "Wiring block detectors" in his DCC Currents column of April 2022. Also look up his column from September 2021, "Block detection for signaling." Our previous DCC columnist, Larry Puckett, wrote "Block detection, why and how" in May 2020.

For more on how to design and build a signal system for your club layout, check out Dave Abeles' book *Guide to Signals and Interlockings*, which is available in the Kalmbach Hobby Store.

Q I really enjoyed Christian Javier's article "A Jigsaw Puzzle Short Line" [May 2023]. The Florida Central really is a very interesting railroad. I live in the

area and am fascinated with the railroad's CF7s. I have an unpainted CF7 and have been researching the paint scheme for Florida Central. I can find decals, but no information on the paint colors. Do you know of a source, a close enough color, or a blend of paints to match their colors?

George Fisher

A Florida Central is owned by Pinsly Railroad Co., which holds a large number of short and regional railroads across the American Southeast. Pinsly paints all its railroads' diesels in the same red, yellow, and black scheme, and shares motive power between roads as needed. Based on prototype photos I found online, it looks like the red of the diesel's main body is a vivid Caboose Red. The stripes and lettering look like Signal Yellow, and the black is Steam Power Black, also called Engine Black. But the merciless sun of the Sunshine State quickly fades any locomotive paint, so to model the Florida Central, "close enough" is probably close enough. **MR**



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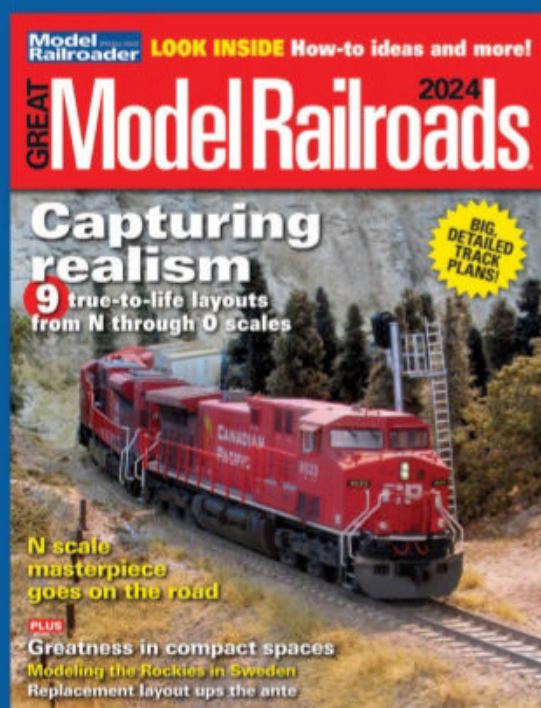
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The 0-6-0 tank engine with work car begins its morning jobs. Douglas created this locomotive and work car pair using an old metal-framed 0-6-0. Photos by the author

A work car and much more

Several years ago, I was given an old 0-6-0 tank engine that had been improved with many exterior fittings and handrails. The open frame motor had been replaced with a modern, flat can motor and flywheel, but still had all-brass drivers.

The main drawback of a metal-frame tank engine, which has no tender, is the challenge of independent electrical pickup from each rail. One side is easy in that the entire engine frame assumes the polarity of that rail. The other rail pickup must be done using thin brass wheel wipers attached with insulated screws. These always seem to need adjustment or cleaning to make good electrical contact.

The interior volume of the engine is quite limited between the boiler weight and the motor/flywheel. Space may be available for a small DCC decoder, but a sound decoder, speaker, and keep-alive unit are impossible to fit.

Because the engine is assigned to my Virginia & Western RR engine facility, I decided to attach a small work car to hold the sound decoder and keep-alive as well as to provide electrical pickup, thus eliminating the need for the insulated wheel wipers on the engine. The downside is that the engine and work car are permanently attached.

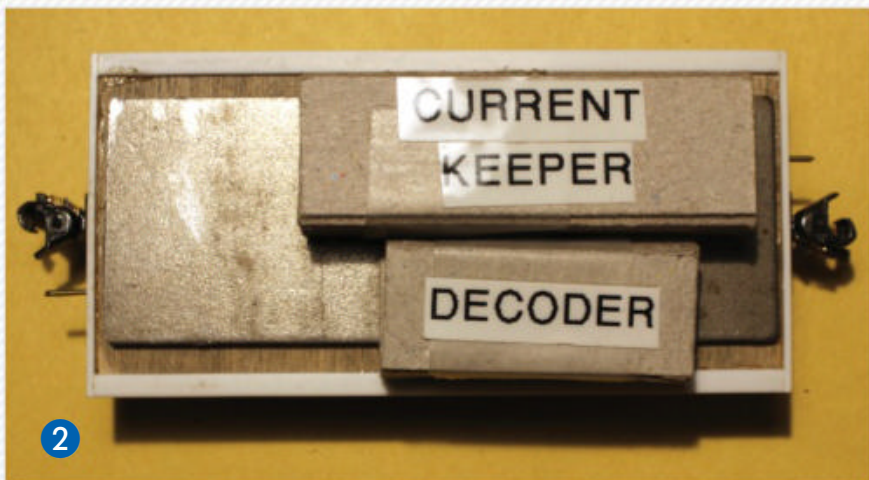
I deliberately made the car as short as possible so that the combined unit would fit on the turntable along with a 50-foot freight car. The work car approach is also suitable to support very small diesels or mine engines when the modeler wants to add sound and keep-alive capability.

STEP 1 SCOPING OUT THE DIMENSIONS



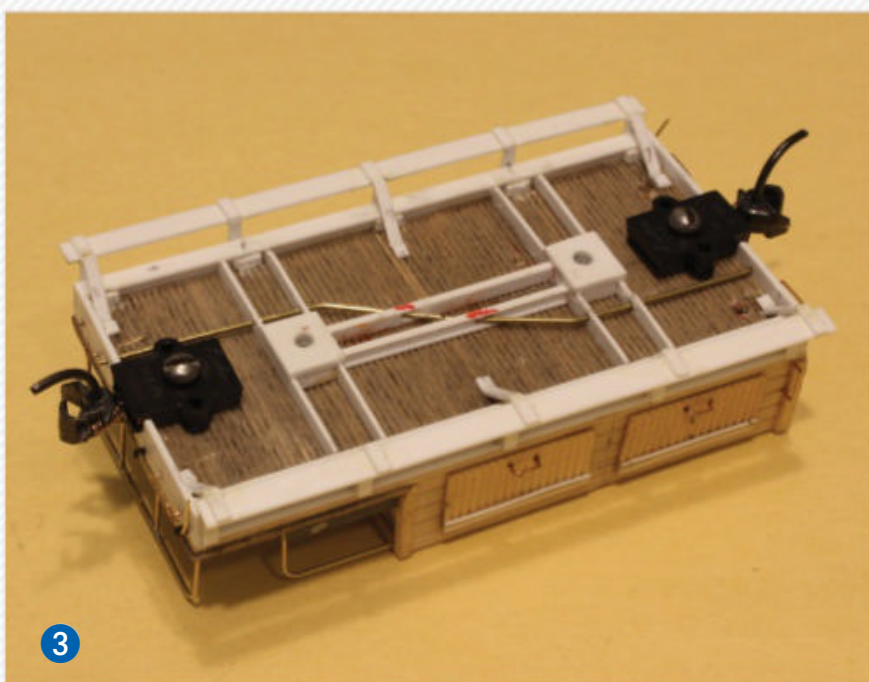
I fabricated cardboard mockups of both the decoder and CurrentKeeper unit **1**. I used these mockups to determine the minimum size of the car, including room for routing the decoder wires. Using dimensions from a 4-6-0 tender, I selected a scale length of 20 feet with the truck centers 5 feet from each end.

STEP 1 SCOPING OUT THE DIMENSIONS (CONT'D)



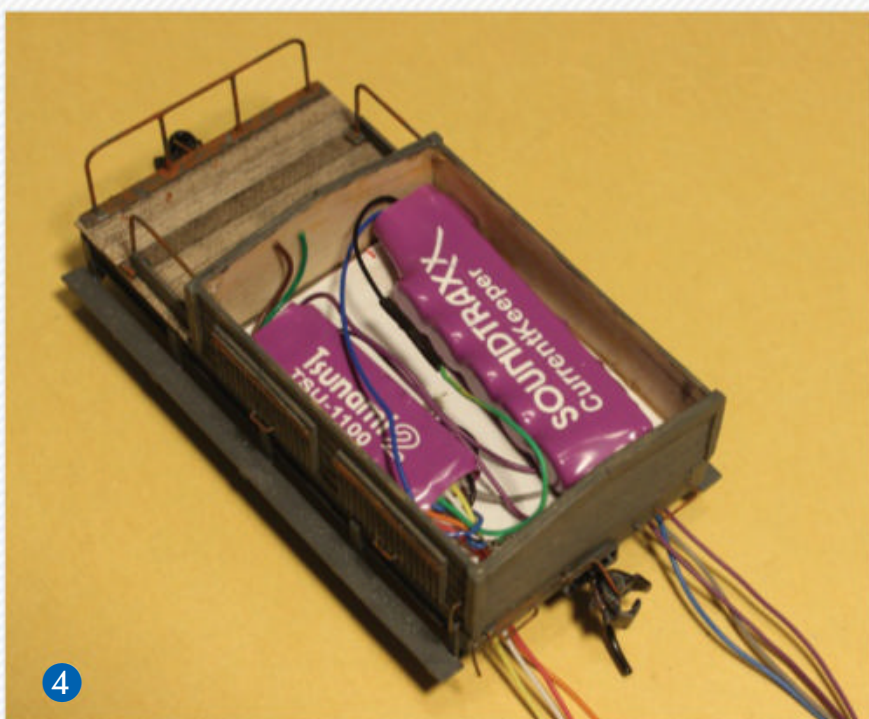
This is the bare minimum that would allow the trucks to swing freely. On the top side, I wanted the lowest enclosure height that would allow the SoundTraxx CurrentKeeper to be positioned on its side and a length that allowed for the maximum amount of free deck space at one end ②. [For additional information on installing decoders in tight spaces, check out Trains.com Director David Popp's video "DCC sound decoder installation for small steam locomotives" on Trains.com –Ed.]

STEP 2 FABRICATING THE FLOOR AND UNDERBODY



From my scrap wood pile, I located $\frac{1}{16}$ " thick scribed sheathing to form the underside decking with a width slightly less than 10 scale feet. Styrene I-beams were attached to each side and end plates were added with cut-outs for the coupler pockets. A coupler was attached at one end of the car to determine the height of the car from the rails. I found two old archbar metal trucks for the car and placed spacers between the truck and bolster until the correct coupler height was achieved. I then measured the height of the spacers and fabricated a solid styrene block. Thin styrene strips were used to fabricate the bolster sides transferring the car load from the I-beam to the trucks. Channel beams were placed between the bolsters along the center of the car. I drilled and tapped holes to mount the trucks using 2-56 screws. The car has a train air line for moving a cold steam engine or pulling a string of freight cars with the ability to stop the heavy load.

STEP 3 FABRICATING THE TOP OF THE CAR



Not only will the work car hide the decoder and keep-alive ④, but it will also provide electrical pickup. A thin metal weight from an old, discarded gondola plus metal trucks ensures good electrical rail-wheel contact. Holes were drilled in the metal sheet for wires from the decoder to the engine prior to attaching the weight. A thin styrene sheet was placed over the metal weight for electrical insulation, which was especially necessary with all of the wires and resistors for the engine lights. A piece of stripwood with a thickness equal to the top of the metal weight was attached to the top of both the I-beams and end plates using contact cement. This allowed the rest of the car to be assembled easily with white glue.

The tool shed is fabricated from $\frac{1}{16}$ "-thick scribed siding with a height of $3\frac{1}{2}$ scale feet ⑤. The scribed sheathing is from Northeastern Scale Lumber Co. The roof needs to be removable for access to the electrical parts. Under-braced cardboard was used for the roof with tar paper sheathing.

STEP 3 FABRICATING THE TOP OF THE CAR (CONT'D)



The tar paper is simulated by brown paper cut a scale 4 feet wide and glued on with a slight overlap between each row. Wood spacers to maintain the positioning of the roof were installed prior to gluing the sides to the floor of the car.

Simulated access doors were added on each side of the enclosure. The doors were fabricated from scribed wood with piano hinges fabricated from wire and styrene strips. The remainder of the car was fitted with scale 2 x 10 wood decking from Midwest Products.

Styrene foot boards, the length of the car, were attached to the I-beams with styrene bracing. The body is rounded out with two Kadee No. 5 couplers.

STEP 4 DETAILS AND PAINTING



Safety railing fabricated from .020-inch brass wire was added to the end and sides of the decking. Drop grab irons were added to the end plates along with coupler cut levers and air hoses. A wooden roof rack to house work ladders and accumulated parts was fabricated from scale 2 x 12 lumber. I selected a maintenance-of-way gray for

the car. The roof was painted a light gray with several coats of an India ink solution. A few decals complete the job along with a light dusting of weathering chalk.

Now old No. 7 can rumble around the engine facility and ring the bell with smooth operations at very low speed **6**. **MR**



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EXTENDING THE FUN

The Onondaga Cutoff track cleaner train works its magic as it runs east toward CP 277 on Track 1. Track cleaning trains make cleaning hidden and hard-to-reach trackage much easier.

“Setup Night” builds camaraderie on the Onondaga Cutoff

By **Dave Abeles** Photos by the author

Operation is a growing part of our hobby that opens doors by running our model railroads in the spirit of the prototype. Full-size railroads

exist to move goods and people.

Prototype operation requires a team of people working together to move those goods and people safely and efficiently. Even on a small layout with only one or two jobs, using our locomotives, cars, and track to model real operations changes our perspective. Suddenly, our prized models and trackwork have purpose: moving freight or passengers to a desired destination. Careful modeling together with operation is a powerful, and fun, combination.

Every railroad operation must make sure trains will run smoothly. A lot of work goes into that on the prototype: track and bridges have to be inspected and maintained; equipment inspected, repaired, fueled, and cleaned; crews called; and paperwork readied. On our

model railroads, good practice requires some of the same attention to detail. Running trains just isn't as much fun when trains stop or stutter, cars derail or uncouple, or when paperwork is out of order. And who wants to run trains amid cobwebs or stepping over clutter on the floor?

On my HO scale Onondaga Cutoff, I had always prepared for operating sessions on my own in the basement. But preparation to ensure smooth operating sessions takes a lot of time and effort – time above and beyond regular model railroading. Add in full-time work, marriage, and three young children along with other responsibilities, and my plate was over-full.

Building a team

As so often occurs on the prototype, someone rose to the occasion. Rich Wisneski is a regular operator on the Onondaga Cutoff and has helped create



Joe Relation, a regular attendee for Setup Night, uses old corks to clean the tops of the rails at Onondaga Yard. As a regular member of the yard crew, Joe has a vested interest in making sure the yard is in good shape.

the current operating scheme. Several years ago, he offered to join me a few days prior to the next operating session so that he could help get the railroad prepared. Rich enjoyed the idea of



helping prepare the layout and saw a “Setup Night” as a chance to extend the fun he had during operating sessions.

Having Rich assist turned out to be a lot of fun for me, too. I trusted his knowledge of the operation, and friendly discussion filled in any gaps in how I was preparing equipment and paperwork. The night went better than expected, and instead of me spending several nights getting ready, the railroad was fully prepared in just one evening. Rich even caught a handful of small issues and data errors that I had missed, allowing those to be corrected ahead of time.

Knowing a good thing when I saw it, I invited a few other trusted regular operators to join, and suddenly Setup Night was a group effort getting the railroad in prime form for each session.

Making a list

I realized quickly that the best way to organize such help was to ensure the team addressed all the items that I would have worried about myself. It’s beneficial to have a list with different tasks to help people work together. A list helps ensure that no task is omitted and provides a satisfying central document showing what was accomplished. Let’s take a look at the topics on the list that we use at Setup Night on the Onondaga Cutoff, as well as some other items you may want to consider for your model railroad.

Layout Cleaning: Onondaga Cutoff (“OC”) operations rely on a fully

operational signal system and centralized traffic control (CTC) on a railroad equipped with digital command control (DCC). Clean track and wheels are mandatory to ensure the session is enjoyable and that the railroad makes a good impression on guests. Each Setup Night involves cleaning all locomotive wheelsets, running a track-cleaning train over each main and as many of the staging tracks as are open, and cleaning all yard and branch track. Any track defects or conditions that could cause uneven operation are listed so they can be addressed before the session.

Consisting: Since the OC models heavy mainline operations in the mid-’90s, most trains require multiple unit diesels on heavy trains. Each train uses a unique

Tracks that are easily reachable can be cleaned by hand. Wine corks work for most areas and do not scratch the rail heads. Where tougher spots appear abrasive cleaners are used, such as Bright Boy erasers and Cratex blocks. Both are available from Walthers.

set of diesels, and all sets are changed each session. We run locomotive consists set up to run as one locomotive. During each set up, the team assigns new motive power to each train, checks each consist, and ensures each locomotive is added properly and is running in the proper direction. Each consist is run back and forth a bit to make sure each unit operates smoothly and is speed-matched to other units in the consist. [See “You’re the power desk” in *Model Railroading: The Ultimate Guide 2022 – Ed.*]



Teddy Abeles, a regular helper on Setup Night, moves a consist of locomotives to the Island Yard for wheel cleaning and re-consisting. Extra hands help expedite cleaning tasks.

Staging adjustments: For the most part the OC is “self-staging.” The staging tracks are double-ended so staged trains can simply proceed out onto the layout, either eastbound or westbound. Even on a self-staging railroad like the OC, however, operation can be enhanced by some adjustments between sessions.

Car blocks occasionally need to be moved to different tracks, modified for the next session, or even just run around the layout to get them to a more convenient starting location. If your railroad uses stub-ended staging, then locomotives, cabooses, and passenger consists need to be moved to their proper starting positions. This restaging effort is a perfect task for Setup Night.



Track cleaning pads are cut from lint-free fabric scraps before each Setup Night. Odorless mineral spirits and Track & Wheel Cleaner from Aero-Car Hobby Lubricants are two liquids Dave uses for track cleaning.

Paperwork: Setup Night is an optimal time to make sure train orders are correct, with engine assignments and car blocks correctly listed. For those using other systems paperwork can be drafted, or more ideally field-checked, on Setup Night after drafting in advance to ensure consistency with the equipment in place.

Other paperwork needed in your session can be checked to ensure an adequate stock is available. This includes employee timetables, special instructions and bulletin orders, blank track warrants, switch list templates, register book pages, and the like. Car counts, car cards (for those who use them), and waybills can be checked and rotated where necessary, and switch lists and blocking assignments can be verified. Everyone has eagle-eyed operators who notice errors in the paperwork!

Supplies: Setup Night is also the time to make sure easily overlooked supplies such as pencils or pens and uncoupling picks or skewers are placed in convenient locations. Similarly, fresh batteries should be available and any rechargeable batteries for radios, throttles, and remotes should be readied. [See “Modeling radio on your model



The track cleaner car on the Onondaga Cutoff is the tried-and-true CMX cleaner car, which Dave painted up in Conrail MOW Yellow. The weathering is a natural byproduct of the cleaning solution.



Dave found and custom-painted a vacuum car from Roco and wired it to work with his NCE control system. A few times a year, a run with the vacuum car on Setup Night helps to keep dust and small debris from building up on the tracks.

railroad” in *Model Railroading: The Ultimate Guide 2023 – Ed.*]

Housekeeping: Just as in other areas of life, general cleanliness helps ensure an operating session goes off without a hitch. Dusting, cobweb removal, and vacuuming the track and floor sets the scene for a pleasant and productive work environment. Also make sure the aisles are free of clutter.

As your operating scheme develops, you can use Setup Night to review how well cars are flowing on your layout from the previous session. It’s better to address any errors and even out any imbalances as needed. Your setup crew can help brainstorm solutions.

On the OC, we’ve developed enough experience with the overall operating scheme that we can adjust the normal operation ahead of time, adding to the illusion of the operation being part of the larger world. Setup, in other words, can be a great opportunity to “look under the hood” to ensure that cars are in the proper train, that passenger and freight consists fit the bill (not too short or too long), and that the sequence of events will fit in the available trackage.

Finally, Setup Night is a perfect time to test new equipment, new trackwork, or adjustments to signal, accessory or locomotive decoder programming. Modelers routinely, and necessarily, adjust all sorts of items between operating sessions, but in many cases, we don’t have time to test everything. Having trusted helpers in the room allows a chance for skilled operators to use the new setup and report anything they see that may still need adjustment.

Camaraderie in operation

A major reason Rich and others come back each month for the maintenance-oriented activities of a Setup Night is that working together at setup provides more than just time savings. Friendships have started and grown stronger. Onondaga Cutoff operating sessions are intense – 12 to 15 people running dozens of trains, yard operations, radio chatter, and constant engine sounds. In contrast, Setup Nights are low-key: conversation is easy, a handful of trusted people are working together, and snacks and beverages are available. People bring a choice dessert or six-pack of beer to share, and there’s talk of railroad history, of the



Getting started in operation

There are many good resources for getting started in operations. One excellent place to begin is Trains.com, where videos such as “Operate The Beer Line, Part 1 – Getting ready for operations” are available. Some basic paperwork for trains is required; on the prototype, each car and train has a unique identification and purpose. Your operation can start piece by piece, perhaps just with modeled industries first while crews get used to the idea. Paperwork and other extracurricular operations can follow.

Having locomotives that are ready to support the operation is equally important. A smooth-running locomotive will help keep your crew focused on operations, not problems. You can learn more about how I maintain my fleet in “Motive power preparations on Dave Abeles’ Conrail Onondaga Cutoff” on Trains.com.

There’s also a monthly discussion on details of operations right in the pages of *Model Railroader*. Jerry Dziedzic’s “On Operation” column is a regular resource that provides insight into how prototype railroads as well as other model railroads authorize track movements and provide protection against collisions. The more you learn about operation, the more fun it becomes to model what the big railroads do – and the more your model railroad will come to life.

For more updates on my HO scale Onondaga Cutoff model railroad, visit onondagacutoff.blogspot.com. – Dave Abeles

Freshly assembled consists with clean wheels sit on the Island, ready for a smooth trip on the Onondaga Cutoff.

management responsibility. The prototype relies on managers to solve problems for crews and to make resources available to them so they can perform their work. Being involved in restaging or updating paperwork or waybills helps provide a higher-level overview of the operating plan and the car movement scheme, which in turn helps those individuals handle questions, thereby relieving the railroad owner from being the sole contact during sessions. It’s a “triage” approach, which has allowed OC operations to take on an even more prototypical level.

Another opportunity that’s present on Setup Night is to include younger modelers in the effort. With more focused one-on-one attention available, Setup Night was the first place where my kids were able to participate, which has kindled the flame for the hobby in each of them. Anyone assisting also gets to know the kids better this way. It helps to encourage the youngsters’ approach to be careful and to be part of a team.

On the prototype, the best railroad-ing happens when camaraderie grows and that sense of trust comes to define railroaders. Camaraderie determines whether an operation – in real or in model form – is efficient or grinds to a

model railroad, and more intimately of family and of coming together.

In that light, Setup Night can help the railroad owner build a corps of trusted lieutenants who know more of the “behind the scenes” workings of the model railroad, including the specific needs of different aspects of your

operation. They become good tour guides for newcomers and can provide answers to questions from new operators and veterans alike, even during a session (“who do I need to call on the radio again for permission into the yard?”).

Further, and more importantly, they are better able to start to take on



Jack Trabachino and Rich Wisneski work together to coordinate the lineup of trains for the next session with available locomotives. Jack will use this data to build a plan for all locomotives for the next session.



The OC "Power Desk" is a document that helps managers plan what locomotives will be used for which assignments. Jack reviews it on setup night to ensure consistency during the session itself.

halt. When things go wrong at a session and stress builds on the owner to address the issue, having a core group allows trusted hands to help get things on track again. People working together can accomplish more as a team than each person working alone – both in

operating sessions and in a good Setup Night. When trusted people have a sense of ownership in how well the railroad runs during a session, that in turn helps ensure that crews enjoy the experience more. When a process leads to everyone benefitting, it's one worth sharing! **MR**

Dave Abeles is a frequent contributor to Model Railroader magazine and its special issues. He models a fictional Conrail bypass of Syracuse, N.Y. Dave's Model Railroader's Guide to Signals and Interlockings from Kalmbach Media is in its second printing.



Organization of consists on the Island is a critical effort that takes more time than is available at a session, so Jack Trabachino takes advantage of Setup Night for that task.

① Dave Wendt's 12 x 25-foot HO scale Norfolk & Western layout depicts the railroad's coal operations in Virginia and West Virginia in the 1950s. At Covington, Va., a loaded solid coal train prepares to depart the mine as an empty train passes above.



Steaming through coal country

Mirrors and a cathedral ceiling make this 12 x 25-foot HO scale layout feel much larger

By Lou Sassi • Photos by the author

Dave Wendt's 12 x 25-foot HO scale Norfolk & Western layout is the latest stop on his model railroad journey. Some of his earliest memories are of toy trains. As Dave was growing up, he watched Baltimore & Ohio trains on the Cincinnati-Indianapolis, Ind., line from his bedroom window in Oxford, Ohio. Those full-size trains inspired Dave to have his own model railroad by the time he was 10.

Over the years Dave has constructed several small 4 x 8-foot layouts and worked on a few more advanced model railroads built by others. During that time, he tried his hand at kitbashing and scratchbuilding structures.

Dave also developed a sense for what he wanted to accomplish on his own layout. Being a photographer, it was essential that the railroad be photogenic and have an industrial atmosphere with multi-level coal mines and steel mills with bridges, catwalks, and stairways.

He also wanted to build a layout featuring Norfolk & Western articulated steam power and a rugged landscape with deep ravines and heavy bridges. This would allow Dave to watch and photograph his steam locomotive fleet, capturing images similar to those of noted photographer O. Winston Link.

Thinking outside the box

Work commenced on the N&W layout in late 2005. The model railroad

reflects Dave's goal of running long solid coal trains through the mountainous scenery of the Virginias while treating the rolling stock, structures, and landscape as multi-dimensional sculpture.

Dave took a unique approach when constructing the layout room. He started by building a 9-foot high cathedral ceiling from tempered hardboard, which he

painted white. Hanging from the center of the room is a 16-foot-long by 3-foot-wide light box that illuminates the ceiling and layout.

The cathedral ceiling has proven beneficial, especially when photographing the railroad from low angles. When looking up, the ceiling looks like the sky on a hazy summer day.



② Scenery is one of Dave's favorite aspects of the hobby. This photo shows the Scenic Express SuperTrees, poly fiber, and Presto Patch rock castings he used at Marshalltown, Va.



3 This overall view, looking into the layout room from the entrance, shows the cathedral ceiling and light boxes. The coal mine at Covington, Va., is visible at left.

Though the layout room is 12 x 25 feet, effective use of mirrors makes it feel more spacious. One large mirror is on the upper half of the wall opposite the room's entrance. Additional mirrors are located above the entrance.

"John Allen's article in the April 1973 *Model Railroader* was my first exposure to the use of mirrors within scenery," Dave recalled. "The first part of the planning for this layout needed to address the way the background would interact with the viewer. How to seal up that end of the room without making it a giant dark mountain."

With scenery covering the lower portion of the walls, the mirrors give an effective reverse image of the room. Dave made the hillsides taller than most people who might view the railroad to create the illusion of being in a deep valley looking up at the action.

"The mirror was the solution to so many problems," Dave continued. "I've been asked many times, 'How do I get over to the other side of the room?'"



4 At Paint Bank, Va., class Y6b 2-8-8-2 No. 2200 leads a loaded coal train over the trestle while 0-8-0 No. 21 works a local below. Dave based the structure on the CSX Sciotoville Bridge over the Ohio River between the Buckeye State and Kentucky.

The layout

The track plan is freelanced, designed to fit the room and take advantage of the high ceiling. Dave's brother, Dan, and friend Todd Smalley helped design the plan and lay track.

Four reversing loops allowed them to create three track levels. This made it possible to fit more large bridges into the plan while emphasizing the vertical canyon areas.

The 240-foot main line uses Atlas code 100 flextrack and Walthers' Nos. 4

Norfolk & Western

HO scale (1:87.1)
Layout size: 12'-0" x 25'-0"
Scale of plan: 3/8" = 1'-0", 12" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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

The layout at a glance

Name: Norfolk & Western
Scale: HO (1:87.1)
Size: 12 x 25 feet
Prototype: Norfolk & Western with
Baltimore & Ohio and Chesapeake & Ohio
Locale: Virginia and West Virginia
Era: 1950s
Style: around-the-walls
Mainline run: 240 feet
Minimum radius: 22"
Minimum turnout: No. 4
Maximum grade: 4%
Benchwork: open grid
Height: 38" to 66"
Roadbed: cork
Track: Atlas code 100 flextrack
Scenery: plaster-impregnated paper
towels over cardboard
Backdrop: hand-painted
Control: NCE Digital Command Control

and 6 turnouts laid on cork roadbed. The turnouts are controlled using a mix of Caboose Industries ground throws and Tortoise by Circuitron switch motors.

The 22" radius curves are broad enough for Dave to run his three brass 2-8-8-2 steam locomotives from Precision Craft Models. The articulated locomotives get put to the test when pulling long coal drags up the approximately 4% grade.

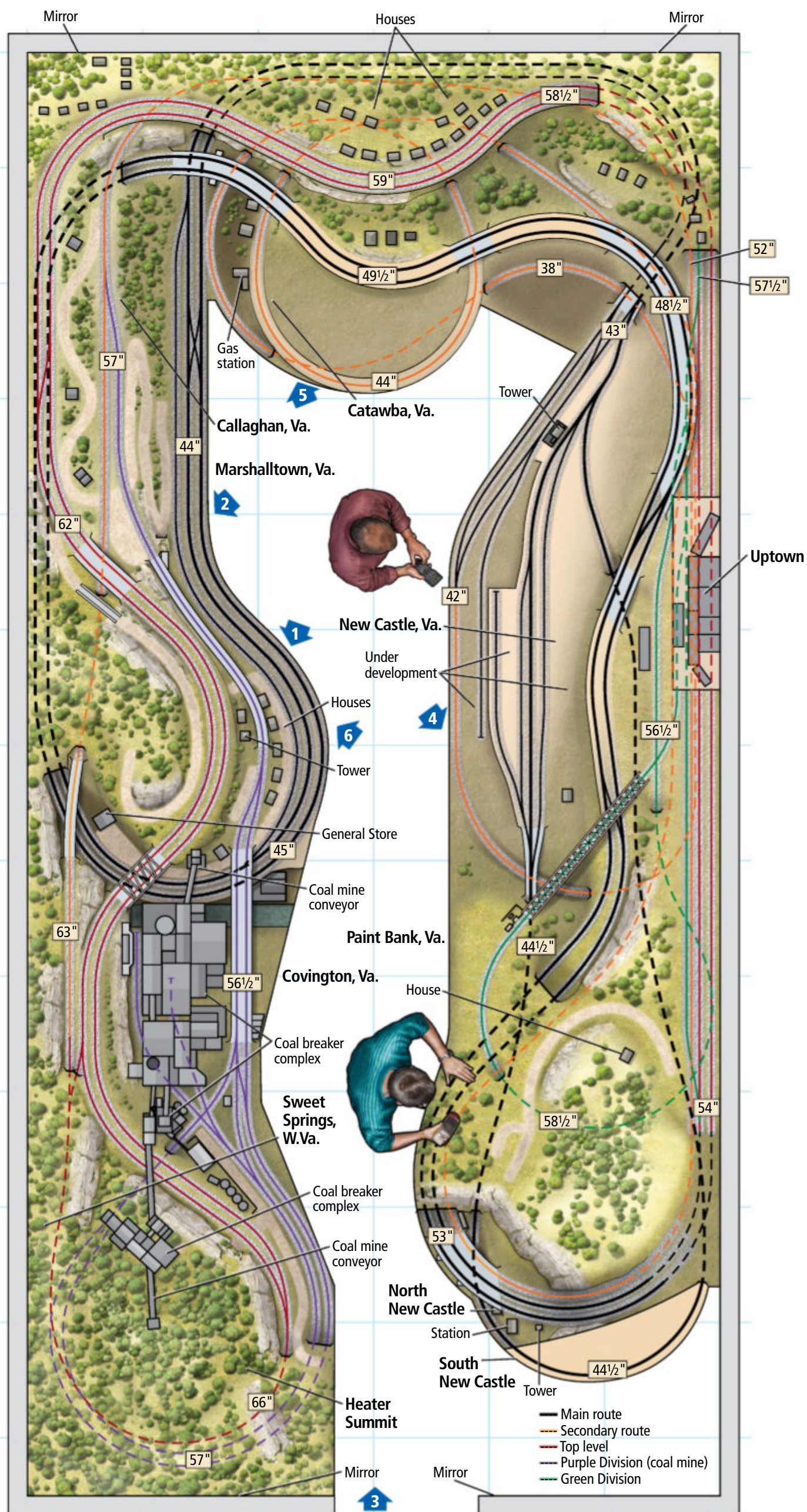
Scenery showcase

Dave enjoys studying, then replicating in miniature, trees, rocks, rivers, and other features of the mountainous terrain in Virginia and West Virginia. He uses scenery to move the viewer's eye from one area of interest to the next.

The scenery was roughed in using a web of cardboard strips secured with hot glue. Dave then covered the web with paper shop towels soaked in a mixture of DAP Presto Patch.

Next, Dave covered the scenery base with different textures and colors of dirt he found locally. He secured the dirt to the layout with diluted white glue.

Dave used poly fiber to represent brush and trees. Prior to installation, he





5 Dave effectively used mirrors to make his model railroad look larger. He reports that they're so convincing first-time visitors ask how they can get to the other side of the room.



Meet Dave Wendt

Dave Wendt lives in Cincinnati with his wife, Susanne Anton. He won an inexpensive camera at age 12 and began photographing the trains that passed behind his childhood home. Those early experiences led Dave to become a (now retired) commercial photographer. His image of Norfolk & Western 4-8-4 No. 611 appeared on the cover of the August 1991 *Trains* magazine.

sprayed the poly fiber flat black and coated it with homemade ground foam in custom colors.

Scenic Express SuperTrees and Woodland Scenics products provided additional colors and textures. Dave installed larger trees to block the view of trains in various locations, similar to what you might find on the prototype.

For the rocks Dave again turned to Presto Patch. He cast the rocks in rubber molds. He used plaster for the riverbeds. After Dave sculpted the plaster with an artist spatula, he painted it with water-based paint and brushed on a layer of high-gloss acrylic to create a wet look.

In addition to commercial scenery products, Dave used natural materials. More than once he pulled weeds in his yard to see if there was anything usable for the layout. In addition, Dave finds items during walks along local roads that he uses for background details.

The star of the show

Dave believes the coal mine is the centerpiece of the layout and one of the most photogenic locations on the railroad. The detailed mine consists of

several buildings at different elevations. The stairways, open windows, and lights further draw visitors into the scene.

The mine complex consists of six kit-bashed Walthers New River Mining Co. coal mines, four in HO scale and two in N. The scene measures nearly 7 feet wide by 4 feet tall. Additional features include a large steel bridge that runs in front of the mine and tracks that pass around and through the scene on three levels.

"George Sellios seems to have perfected the art of structure stacking on his Franklin & South Manchester," Dave said. "I started with the same premise. Using N scale structures at the top of Uptown and HO scale below visually gives depth without using much depth."

For interior detailing, Dave tore apart a CD player and pulled out the gears and pulleys. He placed the parts deep inside the mill complex to resemble sundry mining equipment.

Building a fleet

In addition to the three 2-8-8-2 articulated steam locomotives, Dave operates smaller engines, including an 0-6-0 and two 0-8-0s (Proto 2000) and a 2-10-0



(Bachmann Spectrum). His rolling stock fleet consists of more than 150 cars, the majority of which are Norfolk & Western two-and three-bay coal hoppers.

The locomotives, rolling stock, and structures are weathered using various methods. Dave's preferred technique is drybrushing with powdered pigments.

One of Dave's more interesting weathering methods involves a cast iron frying pan. He set the pan outside so it would rust. Then Dave sanded the rust off the pan and drybrushed the residue on his freight cars and steel structures.

He didn't fix the real rust in place. Instead, he let it settle into the various nooks and crannies.

Running trains

Dave uses an NCE Digital Command Control system to run trains on his around-the-walls model railroad. He's not interested in prototype operations, though. Instead, Dave's favorite pastime is running multiple trains in different directions with a single NCE handheld digital throttle.



Once the trains are in motion, Dave can sit back and enjoy sites like an articulated locomotive hauling a coal drag through the rugged scenery and over the many steel bridges. Unlike the prototype, if things get out of hand, Dave has a master on/off switch to bring all the locomotives to an immediate stop.

The journey continues

Dave's 12 x 25-foot HO scale Norfolk & Western layout, which is a work in progress, reflects lessons learned over many years in the hobby. Watching full-size trains; learning from articles by noted modelers like Jock Oliphant, John Allen, and George Sellios; and be willing to think outside the box have

6 Vertical scenery is one of the features on Dave's layout. As class Y6b 2-8-8-2 No. 2195 leads a coal train back to the mine, 0-8-0 No. 1139 is on the point of a freight to New Castle, Va. Dave scratchbuilt the cantilever bridge from spare parts.

allowed Dave to fulfill many of the goals he had for his model railroad.

"Photography was the end goal to a larger degree," Dave said. "I was creating a setting to do something I could not do in the real world, photograph steam trains in the mountains."

"It was fun to build and play with the materials, the electronic equipment, and all the stuff it takes to make [the layout something] someone would want to see. So as it is now, the stages are set and the lights are on and we're making shots of things that never really existed in places we never were. Until now!" **MR**



A new route to ST. PAUL

After 25 years, it was time this HO scale layout got a remake

By **Al Warren** • Photos by the author



① Chicago & North Western Nos. 8034 and 8017, Electro-Motive Division SD60s, head south out of St. Paul, Minn., on Al Warren's HO scale St. Paul & Southern model railroad. Al recently rebuilt the layout to make it more true to its Midwestern locale.

Hard to believe, but it has been more than 20 years since my St. Paul & Southern RR appeared in *Model Railroader*. After 25 years, I felt it was time for a change. The old layout was too hilly, with too many steep grades, which hurt the Midwest feel. I also wanted to eliminate a four-foot crawl-under to get to the middle of the layout. So about two years ago, most of the St. Paul & Southern was taken apart. The benchwork around the outside walls stayed, with two new peninsulas added to form a new layout.

Design and construction

I model the Chicago & North Western "Spine Line," running from St. Paul, Minn., to Kansas City, Mo. This line is for the most part flat, with few trees, large fields, small towns, grain elevators, and no tunnels. My old layout had big hills, lots of trees, no fields, only one grain elevator, and tunnels. I also didn't want an open concept. I wanted scene dividers so an operator has to follow the train around the layout.

I stripped the benchwork around the outside walls down to the 2 x 4 framing. The new peninsula extensions were built with 2 x 6 framing on 16" centers. On top of these new walls, I used 2 x 4s to create open grid benchwork.

Next, I put down 1/2" plywood topped with 1" extruded-foam insulation board. I installed 1/8" tempered hardboard for the outside walls and the scene dividers.

The track is Micro Engineering code 83 flextrack on cork roadbed. I used Walthers No. 6 and No. 8 turnouts, controlled by Tortoise by Circuitron switch motors. I attached feeders to each section of track and the turnouts.

I then sprayed the track with Rust-Oleum Camouflage Earth Brown. I had my shop vacuum going as I sprayed to cut down on the fumes. I only spray about 6 to 8 feet at a time so I can wipe the paint off the top of the rails before it dries. Wiping off wet paint is a lot easier than removing dry paint!

I used Arizona Rock & Mineral mauve C&NW fine ballast. This color



② A pair of EMD GP38-2s hauls new John Deere tractors past downtown Maryville. An Iowa Highway Patrol car keeps everyone in line.



3 This view from the end of the layout's central peninsula shows the Dougsville lumberyard and grain elevator in the foreground, the Ball Plastics plant at left, and the Heart of Iowa Grain Elevator in the background. One of Al's goals for the layout rebuild was to eliminate a crawl-under entrance. The new layout is walk-in.



4 In the morning sun, a pair of Electro-Motive Division GP38-2s passes a track crew waiting to replace some rail on the adjacent line. The wooden bridge is scratchbuilt. The Geeps are Athearn models.

closely matches what the Chicago & North Western used on the line.

Prairie scenery

From my old layout I tried to save the trees and bigger bushes for placement on the new layout. When I removed the Woodland Scenics trees, the round plastic bases stayed stuck in the plaster. So I drilled out the trunks of the trees and

installed 1/2" pieces of stiff 9 gauge wire. This way I could plant the trees anywhere on the layout.

To make hills and landforms, I stacked, glued, and shaped the blue insulation board. I then covered the new landforms with plaster cloth.

Next, I painted the surface of the layout with a cheap dark brown latex house paint. After the paint dried, I brushed full-strength white glue over it

and sprinkled on ground cover. This way, if my ground cover is too thin in places, only the brown dirt shows. Then, everything is sprayed with thinned white glue to fix all the grass, weeds, and bushes in place.

Structures

The structures are a mix of Walthers, Pikestuff, Design Preservation Models, and scratchbuilt buildings.

There are two major grain elevators; one is scratchbuilt and the other one is a Walthers ADM elevator kit with extra scratchbuilt silos.

All of the C&NW maintenance buildings are scratchbuilt. These are from the Ames, Boone, and Nevada, Iowa area. I built them based on photos and measurements I took of the prototypes.

The Ball Plastic Plant is scratchbuilt, with Walthers plastic plant silos added.

The industries on the layout aren't necessarily on the Spine Line but are found on the C&NW.

Installing electronics

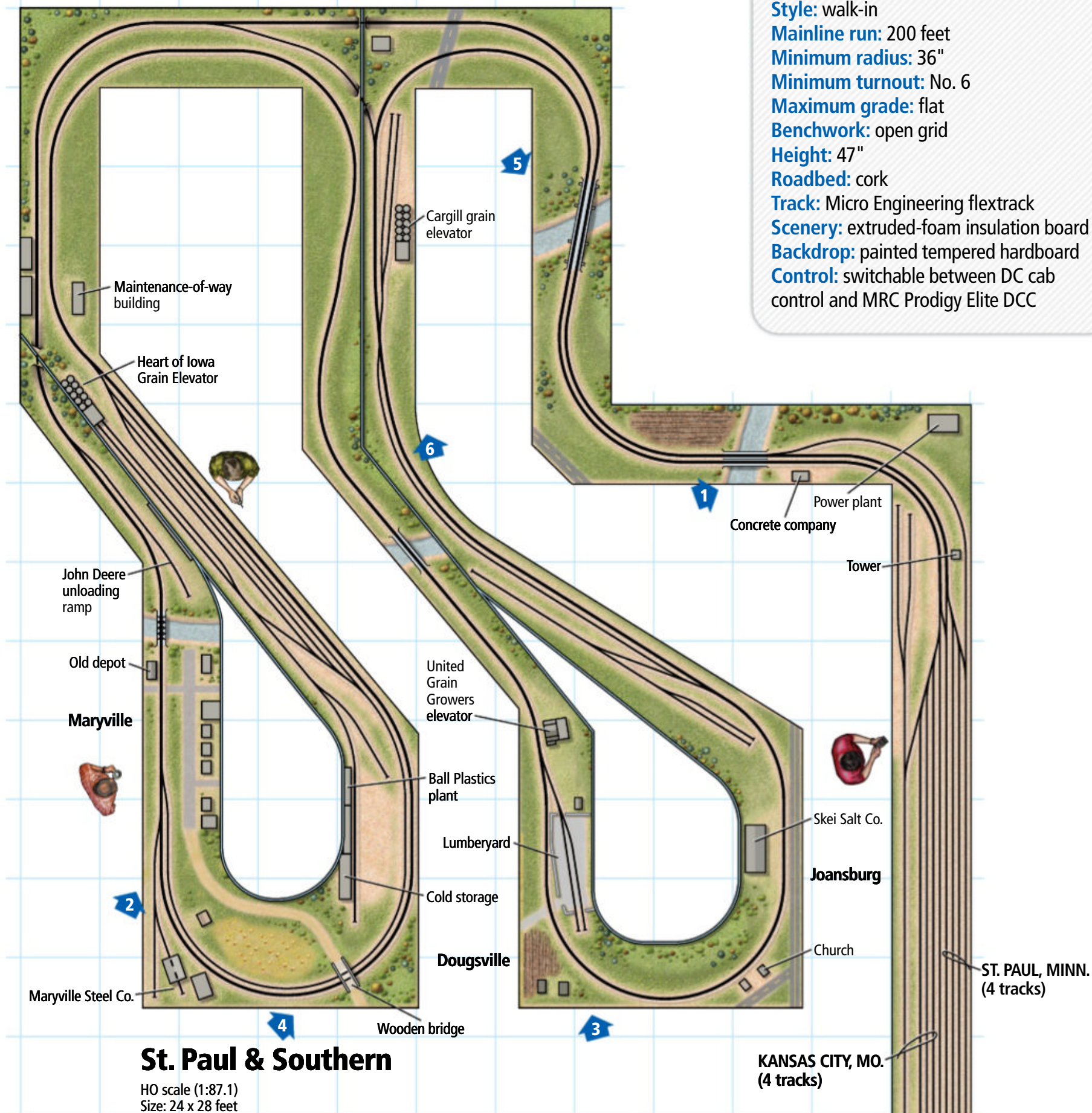
I've built or kitbashed more than 200 diesels over the last 30 years. So I started a few years ago doing what Tony Koester once talked about: downsizing. I wanted to switch to Digital Command Control (DCC) operation, but installing dozens of decoders would cost a lot of money. So I started selling locomotives to fund installation of SoundTraxx Tsunami 2 sound decoders in the engines I wanted to keep.

During this transition period, I installed a double-pole double-throw switch to provide either DC or DCC power to the six power districts on the layout. The layout can be controlled by either an MRC Prodigy Wireless DCC System or an MRC Control Master 20.

Most of the electronics – Tortoise by Circuitron switch machines, signals, and lights – are being installed by my son Doug. We've started installing Walthers signals controlled by Aztec Detection Systems on the grade crossings.

The layout at a glance

Name: St. Paul & Southern
Scale: HO (1:87.1)
Size: 24 x 28 feet
Prototype: Chicago & North Western's "Spine Line"
Locale: Minnesota, Iowa, and Missouri
Era: 1995
Style: walk-in
Mainline run: 200 feet
Minimum radius: 36"
Minimum turnout: No. 6
Maximum grade: flat
Benchwork: open grid
Height: 47"
Roadbed: cork
Track: Micro Engineering flextrack
Scenery: extruded-foam insulation board
Backdrop: painted tempered hardboard
Control: switchable between DC cab control and MRC Prodigy Elite DCC



St. Paul & Southern

HO scale (1:87.1)
 Size: 24 x 28 feet
 Scale of plan: 1/4" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Kellie Jaeger

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



5 Chicago & North Western 8686, a General Electric C44-9W, waits in the hole with a train of empty hoppers while a pair of GP38-2s rolls by with a northbound manifest freight.



I'm still working on the electrical and more detailing on the layout.

Rolling stock

Since the layout is based in 1995, a lot of C&NW freight cars that have the new, larger C&NW herald aren't heavily weathered. I try to weather the cars according to how long they have been in service, and all the trucks and wheels are painted a Rail Brown color.

During this time period, more than 40 percent of the cars on the Spine Line were covered hoppers, 17 percent box-cars, 2 percent flatcars, 10 percent gondolas, 9 percent open coal hoppers, and 4 percent refrigerator. This mostly matches the breakdown of the cars the C&NW had in the mid-1990s.

At first, I had to custom paint and decal just about any car I wanted for Chicago & North Western. Most of these

Meet Al Warren

Al Warren lives in

Ames, Iowa, with his wife of more than 40 years, Mary. The couple has two grown children and one grandchild. Al owns and operates the award winning restaurant The Great Plains Sauce and Dough Co. His son is active in every scale of model railroading except HO.



were Athearn and McKean freight cars. As more and more detailed cars were made by Tangent, InterMountain, and Athearn, I replaced my less detailed cars with these. It seems like I'm always upgrading my car fleet.

6 A northbound manifest led by Chicago & North Western EMD SD40-2 No. 6900 passes the Cargill grain elevator on the way to Joansburg. The grain elevator is scratchbuilt.

Operations

The layout can be operated point-to-point or continuous running for open houses, using the sneak-off through the backdrop behind the grain elevator. My plan for operating sessions includes unit coal trains and stack trains running between Kansas City and St. Paul. There will be various manifest trains and unit grain trains running north and south. Local trains operating out of Maryville will service lumberyard bulk distribution, steel fabrication, and John Deere.

I saved my four-position car cards from my old layout to use for these train movements. This should be able to keep four or more operators busy. 



M.R. Snell modeled this HO scale Electro-Motive Division GP18 to look like a parts source sitting near an enginehouse. The prototype that inspired the project, a former Pacific Harbor Line GP9R, is shown in the inset image.



Model a parts locomotive

This HO scale model adds interest to an enginehouse scene

By **M.R. Snell** • Photos by the author

During a recent railfan excursion along the Louisville & Indiana, I found ex-Pacific Harbor Line GP9R 103 at its Jeffersonville, Ind., yard. The chopped-nose Geep, painted in Southern Pacific's "black widow" scheme, wasn't in service. Instead, it was being used for parts.

The long hood doors had been removed, along with the number boards,

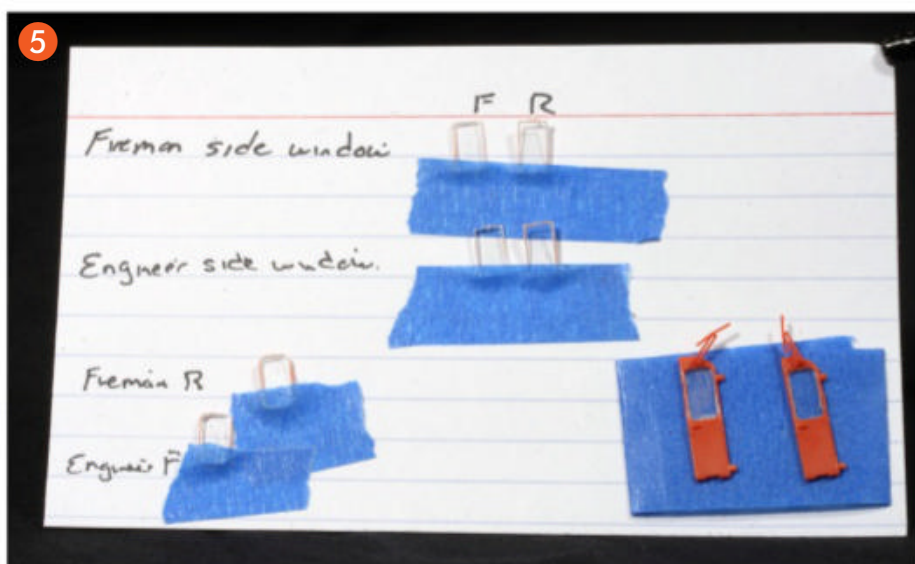
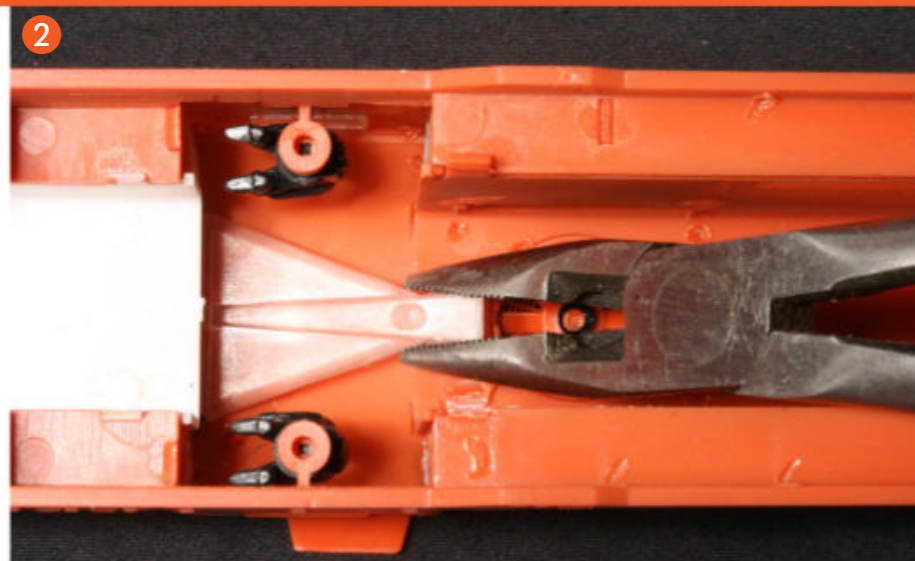
rooftop fans, and various shutters and screens. Though some might consider the diesel an eyesore, the veteran engine was helping keep other units in the railroad's fleet in service. This is a scene played out on railroads large and small, as well as museums and locomotive builders, throughout the country.

After seeing the prototype, I decided to model a diesel in a similar state of

disassembly for my HO scale layout. The locomotive presented a modeling challenge extending beyond the typical kit-bash. The finished four-axle road switcher gets the attention of visitors and operators alike.

M.R. Snell is a frequent contributor to the pages of Model Railroader magazine. He lives in Milford, Ohio.

STEP 1 Stripping the shell



Since the prototype I saw was a first-generation Electro-Motive Division Geep, I searched for a similar model at local train shows. I found a Proto 2000 GP18 at a reasonable price. The HO scale locomotive has a nice level of detail and features many separate, factory-applied parts, which helped make the project easier.

First I removed the air intake and radiator screens. The press-fit parts were easy to remove with a screwdriver ①.

Next, I took out the combined headlight and number board casting from both ends of the locomotive. I used a No. 17 blade to break the glue joint. Then I grasped the parts with serrated-jaw pliers and gently wiggled them loose ②.

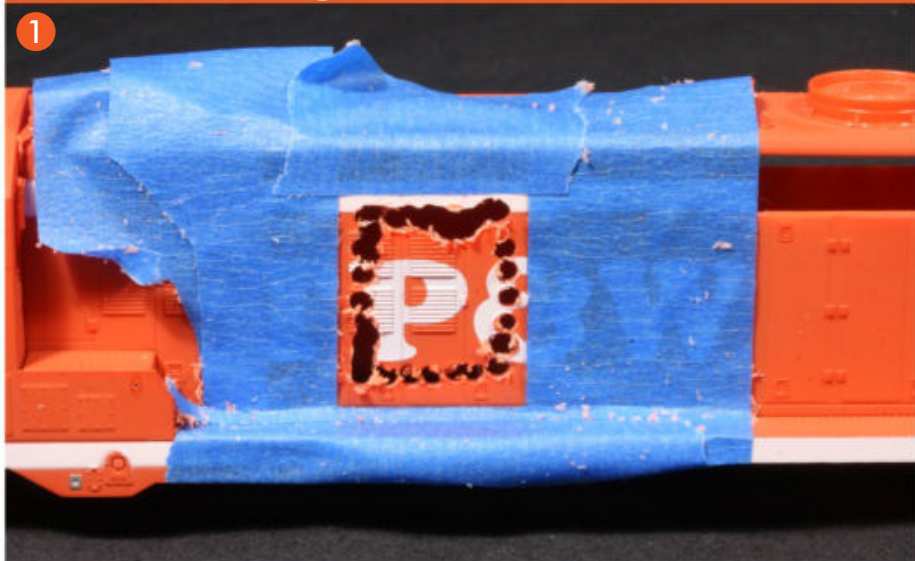
Since the engineering plastic handrails and stanchions would be used on the finished model, I removed them to prevent accidental damage. Pins at the base of the stanchions and handrails were press-fit into holes in the sills and pilots. I used a No. 17 blade to carefully pry them free ③.

I then turned my attention to the cab. The window glazing is secured with glue. To remove the clear plastic parts, I placed a flat-head screwdriver along one edge of each window while supporting the glazing from the inside the shell with a finger. This allowed me to press inward and break the glue joint without damaging the window or shell ④. As I removed each window, I taped it to an index card and marked its location so I'd know where to put it during reassembly ⑤.

I then removed the two cab doors, which are attached to the shell with a pin and spring so they can be modeled open or closed. I left the glazing in the doors, as trying to remove it would almost certainly cause damage.

I wrapped up this part of the project by taking out the cab seats. Since this model depicts an out-of-service engine, I removed the factory-installed crew figures ⑥. I set the seats aside for use later on.

STEP 2 Long hood modifications

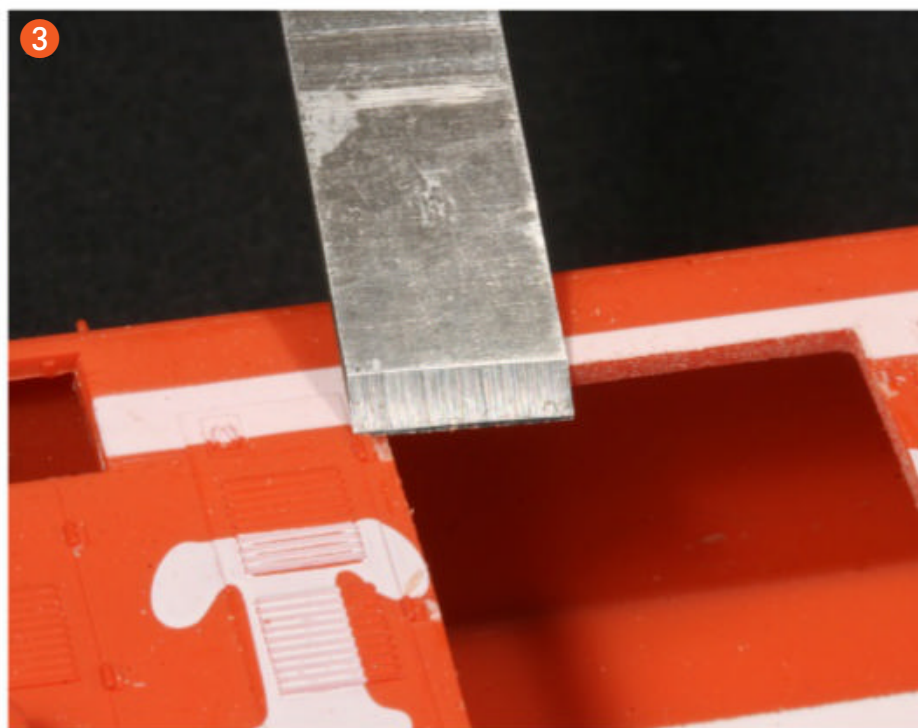


Next, I used a tried-and-true process to remove the long hood doors. I started by masking off the area surrounding the doors that would be removed. Then I drilled a hole inboard of the tape in each corner, followed by several more holes inside the tape boundary ①. I used a fresh No. 11 blade to cut through the plastic between the holes until the section of long hood fell out.

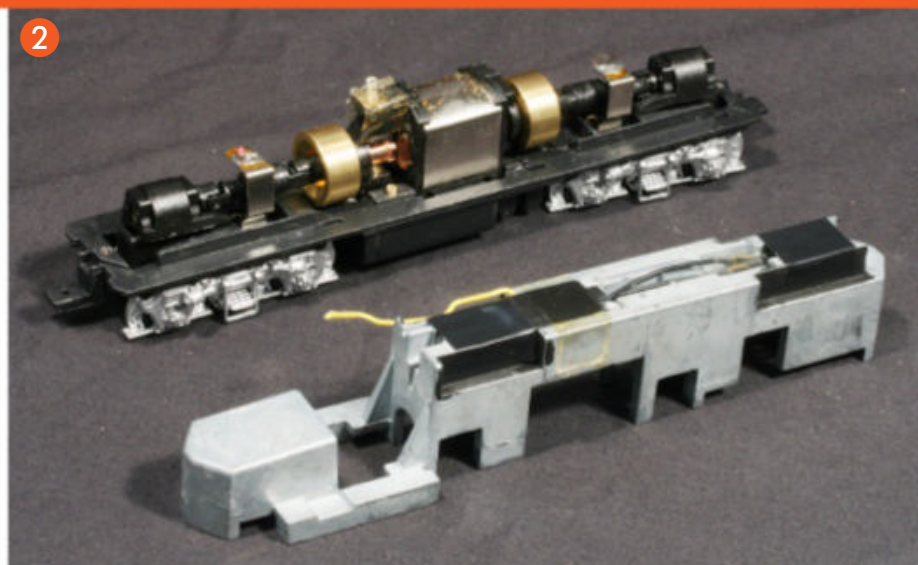
After each opening was roughed out, I removed the tape so I could clearly see what remained of the cast doors. I then filed the edges of each opening until they were straight. I held the file at a slight angle to bevel the edges of the opening to make the plastic look thinner.

After I'd finished the long, straight sections of the door openings, I focused on the corners. I used needle files to carefully restore the corners to a 90-degree angle ②.

Finally, I used a chisel blade to remove the molded door hinge detail ③. I left just a trace of material so you could see there was a hinge there at one time.



STEP 3 Frame modifications



One of my goals with this project was to show the inner workings of a diesel, in this case an Electro-Motive Division 567 engine. However, I needed to remove the motor and other parts to make room for the Walthers injection-molded plastic kit (No. 933-3119).

First, I used a flat-head screwdriver to separate the plastic fuel tank from the metal chassis. I pried down with a flat-head screwdriver until the tank released ①.

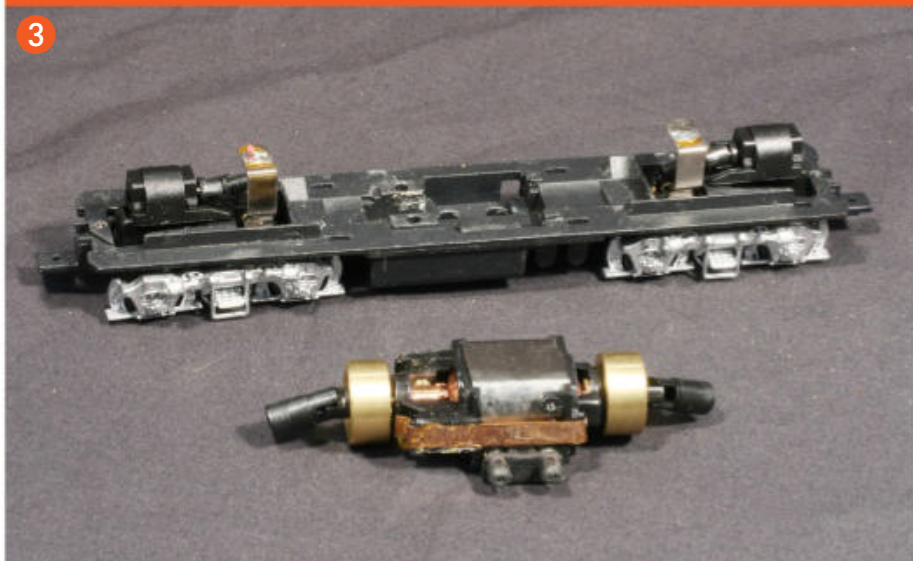
Next, I turned the frame over and removed the four screws holding the weight to the chassis. The screws are behind the draft-gear boxes (one on each end); two are in

the fuel tank area. I also cut the wires to the motor and trucks while removing the weight ②.

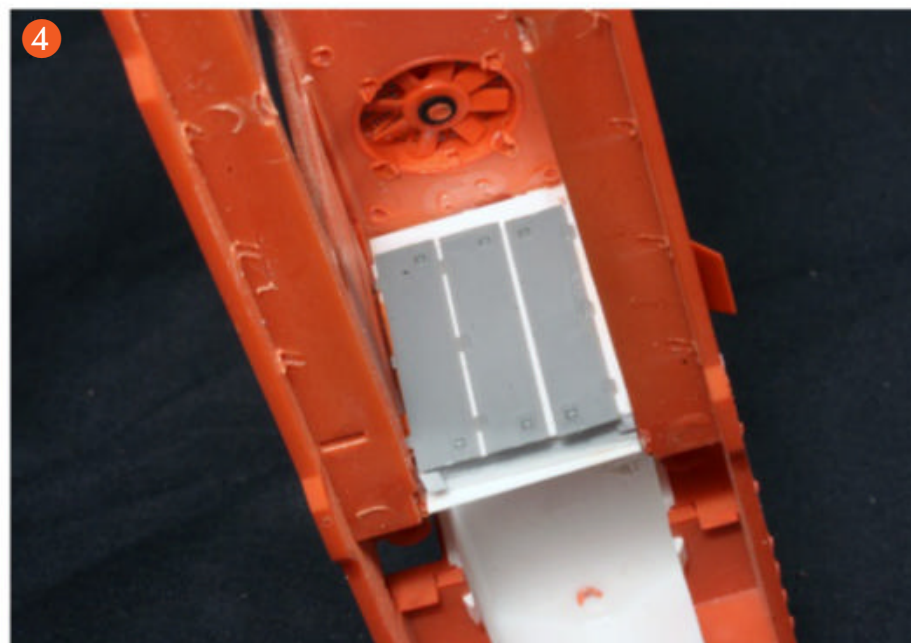
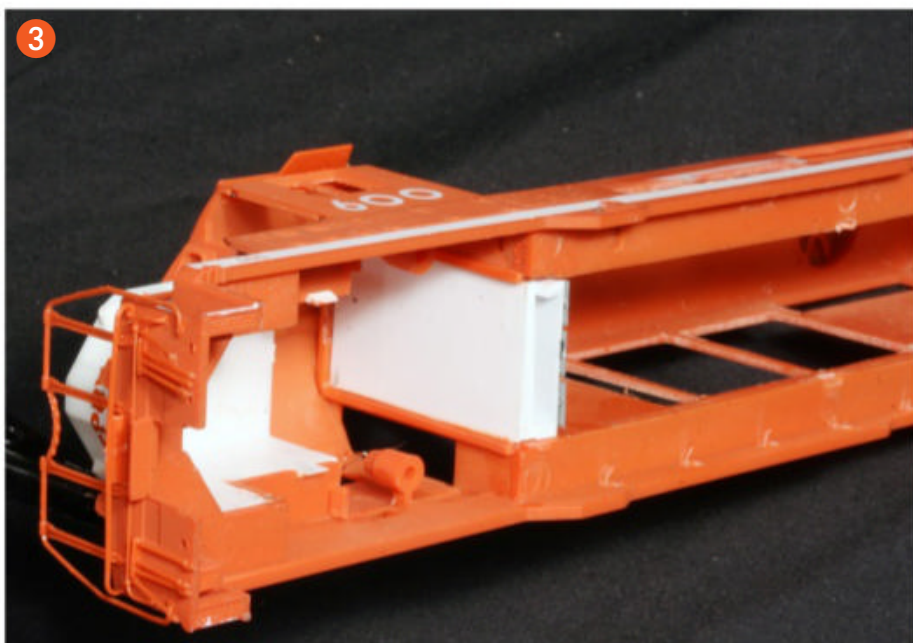
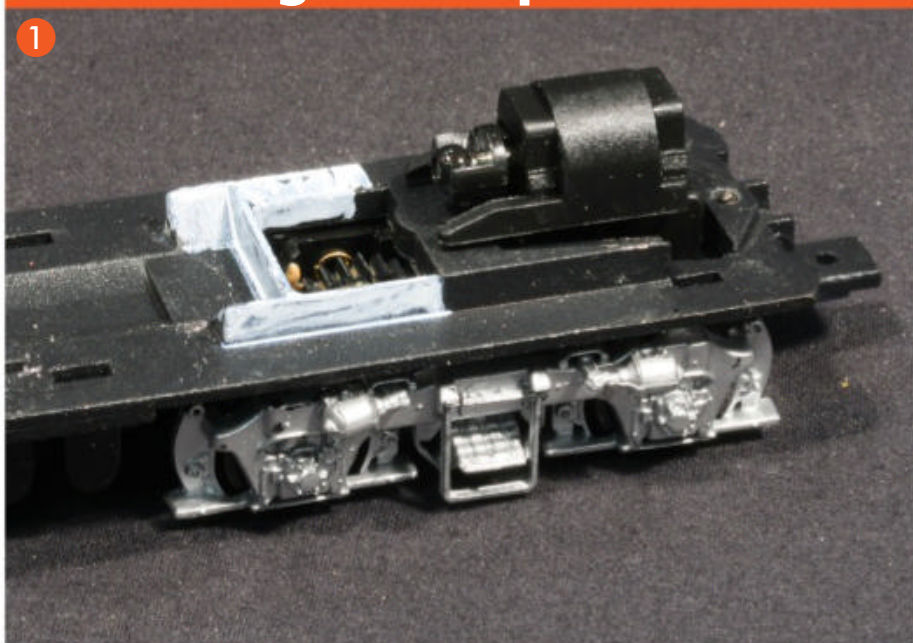
With the weight removed, I was able to pull out the motor. The Proto 2000 motor is held in place by a pair of rubber mounts. While pulling on the motor, I used a screwdriver to disengage the mounts from the chassis ③, opposite.

The locomotive was now unpowered, but the wheels were locked in place because the worm gears remained. To remedy that, I removed the plastic cover from each truck and took out the worm gear and shaft. I left the trucks off in preparation for the next step ④.

STEP 3 Frame modifications (cont'd)



STEP 4 Engine compartment



Using a motor tool with a cut-off wheel, I removed the part of the chassis highlighted in white ① [Wear eye and ear protection when using a motor tool with a cut-off wheel. – Ed.]

Next, I cut a piece of .010" styrene sheet to fit the interior width of the engine compartment. I secured the styrene to the metal chassis with gap-filling cyanoacrylate adhesive ②.

The GP18, like most models, has a gap between the cab and engine compartment, allowing the drive train to pass through. Since that was no longer a concern, I filled the opening with a combination rear cab wall and interior electrical locker.

I used .020" styrene sheet for the rear of the cab. Then I braced it from behind with .100" x .100" styrene strip. I added another .020" sheet, this time to the engine compartment, to create the wall for the electrical locker ③.

I completed the electrical locker with three Cannon & Co. locomotive doors I pulled from the scrap box and cemented to the bare wall ④. Since this part of the engine compartment can be seen through the missing air filter grills on the sides of the locomotive, the doors will be visible.

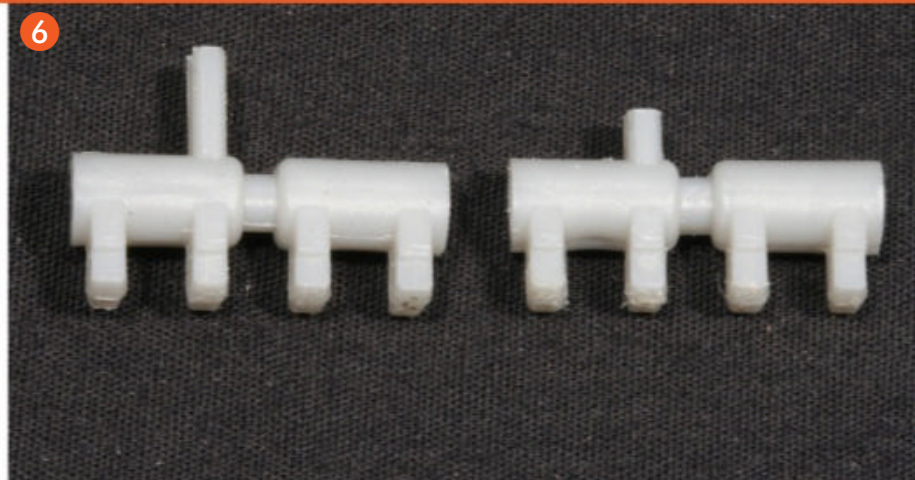
It was now time to add the Walther's EMD 567 diesel engine kit. The kit is designed to represent an engine in

STEP 4 Engine compartment (cont'd)



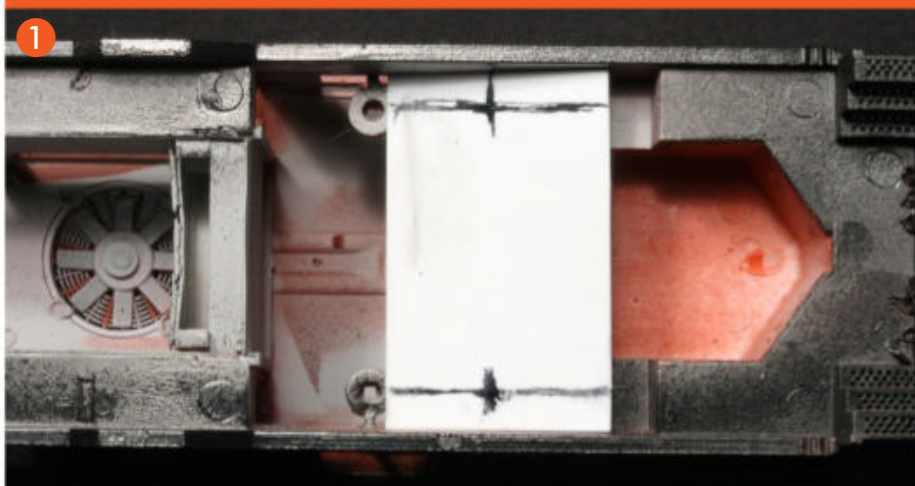
transit and includes a structural steel frame. In order for the motor to seat properly on the styrene floor, I removed the large tab on the bottom and filed the base of the generator so it would seat flush on the floor **5**.

The next modification to the EMD engine was the muffler/exhaust castings. From the box, the exhaust stacks



are at the correct height to extend through the locomotive roof. Since the GP18 shell has molded stacks, I only needed those on the engine kit to touch the interior of the engine compartment roof. I trimmed the castings a little at a time, test fitting after each cut, until they were at a height that allowed the shell to seat properly on the chassis **6**.

STEP 5 Cab interior



Several Proto 2000 diesels, including the GP18, had positionable cab doors. I thought it would be neat to model the doors ajar, which meant I needed to do add a partial interior to the cab.

I constructed a floor, designed to fit under the round mounts for the seats, using .015" styrene sheet **1**.



Then, using a Kato EMD SD40 cab insert as a template, I constructed an angled control stand from .040" styrene sheet and attached it to the engineer's side of the floor **2**.

Finally, I reinstalled the two cab seats that I removed earlier. This took the cab from barren to sparse, but it was better than empty.

STEP 6 Extra details

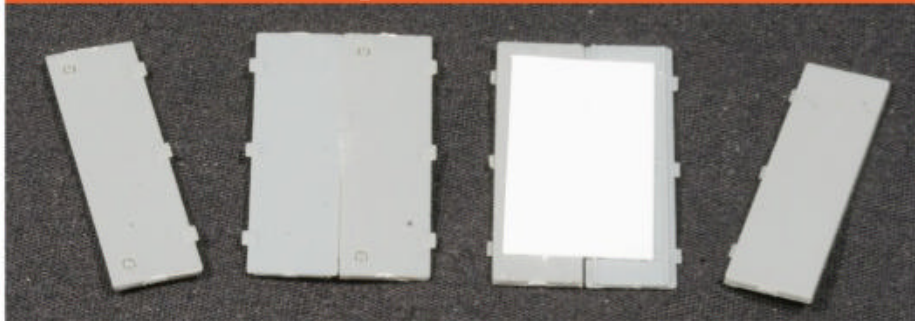


Since I'm modeling a locomotive being used as a parts source, the horn and bell would most likely have been harvested. To capture this look, I cut the bell from its mount behind the cab on the conductor's side **1**.



Next, I cut the horn from the cab. In its place I attached a square light base, suggesting the locomotive had a rotary beacon at some point. I also installed a Sinclair antenna on the cab roof **2**.

STEP 7 Door panels



If you look closely at the prototype photo, you'll notice hood doors stored in the engine compartment. I replicated this detail using Cannon & Co. EMD hood doors from my parts bin.

All I had to do for the single doors was cut the parts from the sprue. For the two-door panels, I attached a pair of doors (one each with and without handles) to a scrap of styrene.

STEP 8 Painting and weathering



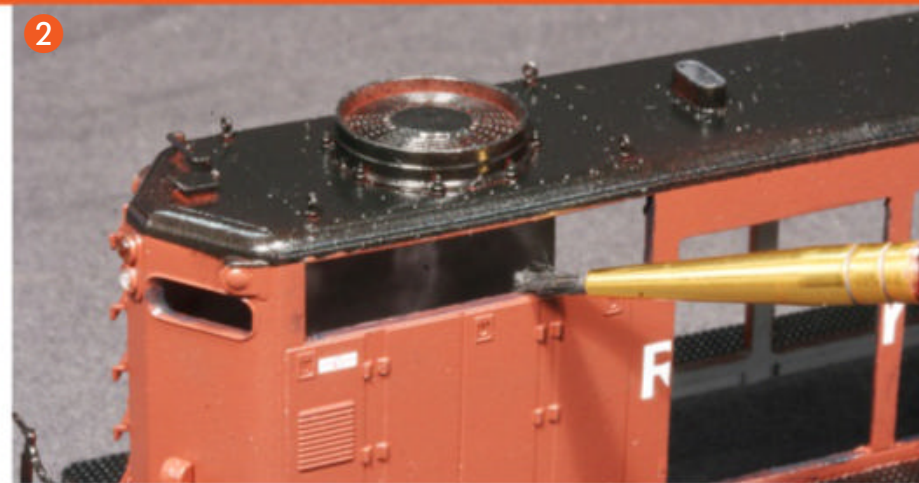
With the modifications complete, it was time to repaint the locomotive for the Rahway Valley, assuming the short line still existed today. I stripped off the Toledo, Peoria & Western colors with Scalecoat II paint stripper. Then I washed the shell in warm water with soap added to remove any residue, rinsed it off, and let the parts dry overnight.

I airbrushed the shell, cab interior, engine compartment, and engine room floor primer gray. Once the primer had

dried, I masked the interior surfaces and sprayed the exterior with Floquil Oxide Red. I brush-painted the delicate cab doors ①. I sprayed the roof, top of the short hood, walkways, pilots, and sills Engine Black.

I studied dozens of prototype photos trying to determine the best color for the EMD 567 engine. I settled on a medium gray. Then I drybrushed burnt sienna ink across the motor, applying it heaviest around the mufflers and exhaust ②.

STEP 9 Finishing touches



Once the paint had dried, I began the reassembly process. First, I removed the headlight tubes from the number board castings and installed them in the front and rear openings.

I then reinstalled the cab window glazing. I pressed the windows into place with a flat-head screwdriver and secured the parts with Testor's Clear Parts Cement & Window Maker.

Reattaching the cab doors wasn't as easy as I'd anticipated. I wound up cutting the mounting tabs on the doors in half. Then I attached the doors to the cab, using the tabs as a guide ①.

Then I shifted my focus to decaling. I used Norfolk Southern-style stripes on the sills and pilots. I also added a road number to the cab sides. The long hood was obviously bare with the doors missing, but it needed some lettering.

I used painter's tape to temporarily secure the doors to the long hood. Then I applied some of the letters from RAHWAY VALLEY on the long hood using a white Gothic lettering set. I used a sharp No. 11 blade to cut the lettering at the edges of the doors and posts.

I wrapped up the project by weathering the locomotive. Though I tried to conceal the shell's thickness, I wasn't happy with the results. I turned to an old theater trick to remedy the issue. Using a fine-tipped brush, I painted the thick frame edges around the doors, number boards, and grills flat black ②. Problem solved.

I feel that I succeeded in creating a model of a locomotive that looked worthy of the scrapper's torch, but would live on supplying parts to keep other locomotives running. 



❶ Are you using the right colors for the scenery and structures on your layout? In this photo, the blacktop street is actually various shades of gray. The image also illustrates the use of white for window frames and trim on buildings.

Boost your color IQ

For a more realistic layout, look again at what color things really are

By John Pursell • Photos by the author

Probably no other element is as important as color for establishing realism on our layouts. The most realistic, well-detailed model can be diminished by the wrong color. Yet many times we labor under inaccurate assumptions about color. Here are a few thoughts about color that might help your next project.

Blacktop isn't black

Despite what the name implies, blacktop quickly weathers to more of a gray color ❶. Many modelers, however, paint their roads a dark black, or even glue down black emery paper to suggest blacktop. Even straight gray doesn't look quite right either. My favorite recipe for blacktop used to be Floquil Grimy Black oversprayed with Instant Weathering. Both products are, alas, no longer made. Now I use a Gull Gray oversprayed with an India ink-and-alcohol weathering wash. This combination more accurately captures the look of faded blacktop.

Concrete isn't gray, either

Sure, concrete is light gray when first applied, but it matures to a light tan color ❷, opposite. I like Weathered Concrete mixed 50/50 with white. Then I rub in dust and dirt for that weathered tan look.

Roofs aren't usually black

Many plastic building kits come with roofs molded in black plastic, and many of us automatically spray the roofs of our buildings with black anyway. A close check of any nearby building will probably show a gray, brown, or very faded black. Many newer roofs will show a wide variety of browns, tans, grays, and even greens ❸.

Metal roofs come in an even wider range of colors, including bright blues, reds, and greens. We have to be careful, though, that these colors are applied to more modern roofs. A shingled roof painted blue is definitely not going to

look right. But a check of older neighborhoods, especially where a single developer built most of the houses, will show a remarkable similarity of roof colors.

Windows are usually white

Speaking of buildings, if you look closely you'll notice most have window frames and trim painted in white ❶. In the late steam/early diesel era that so many of us model, white was by far the most dominant trim color. According to my local Duron Paint man, white still outsells all other trim colors combined. Yet our model towns often show a rainbow of colors – whites, browns, greens, and grays, probably more suited to Disney World's Main Street, U.S.A. Check old photos and you'll likely see many buildings trimmed in white.

Most brick should look similar

When painting your buildings, remember most small towns had only

one brick supplier. That means most of the brick buildings would be built of bricks with similar colors ❶. A dark red brick building next to a light tan one may look out of place because both would have likely been built of similar materials. I have one basic brick color that I lighten or darken slightly for contrast, but most of my buildings look like they belong in the same town.

Grass isn't green

At least, not pure green. Look closely and you'll notice a yellowish tinge, especially on the East Coast. After applying whatever product you use for grass, overspray it with thin wash of yellow. The difference, especially under incandescent lamps, is striking. It also helps with green shrubs and trees.

Tree trunks aren't brown

How many of us paint them that way, especially since model tree manufacturers often cast trunks in brown plastic? Look closely and I think you'll see most trunks are a slightly warm gray ❷. I use a medium gray as a basic trunk color and then add a light wash of Brunswick Green to bring out detail.

Clouds aren't white

Not the bottoms of them, anyway. The bottoms are usually much darker, more of a gray color ❸. A favorite trick of mine is to take the basic sky color, darken it about a third, and spray that on the cloud underside. While you're at it, take your basic sky color, thin it 10:1, and then overspray your background mountains, blending the color up into the sky. It will look like someone pushed the mountains back a few miles.

Replicating undercarriage dirt

How to duplicate that dirty, rusty, oily look that most rolling stock wheels and trucks collect? I could never model it accurately until I discovered Testor's Rubber. The color does a good job of capturing the look of a dirty undercarriage. Sometimes I lighten it slightly or add a little red or black for contrast, but I typically use it straight.

Modeling diverse figures

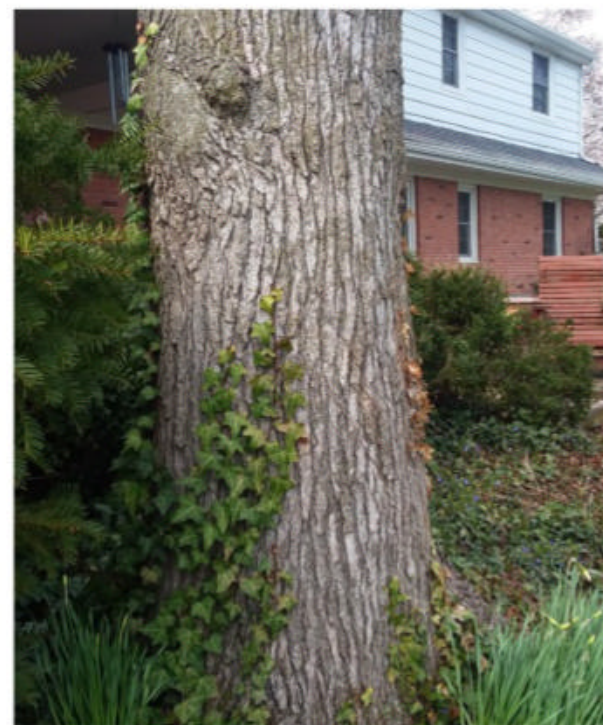
Finally, when it comes to populating our layouts, too many of us really are colorblind. By that I mean most of our



❷ In just a few feet, this driving surface changes from new blacktop to a concrete curb to an older blacktop driveway, demonstrating colors and textures to keep in mind when modeling roads and streets.



❸ The roofs of homes and garages in this neighborhood range from red to gray to green, with different materials used throughout.



❹ The trunk of this tree presents a variety of hues, with brownish-gray accented by patchy green moss and climbing vines.



❺ The clouds shown here are capped in white, but their undersides are a darker gray, as light is scattered and diffused from top to bottom.

layouts are populated with all or nearly all Caucasian populations. Yet people of color have long been a part not only of America, but especially the workforce on the railroads. When populating your layout, be sure to add figures depicting various ethnicities.

Color isn't an easy subject. Colors vary widely and often look different to different people. The best advice I can

give is to observe closely and see what's really there, not what we believe should be there. **MR**

Dr. John Pursell lives with his wife, Bette, in Chambersburg, Pa. He is retired from the United States Air Force Band. Today, he works for the Yamaha Music Corp. He models the Lehigh Valley RR in HO scale.

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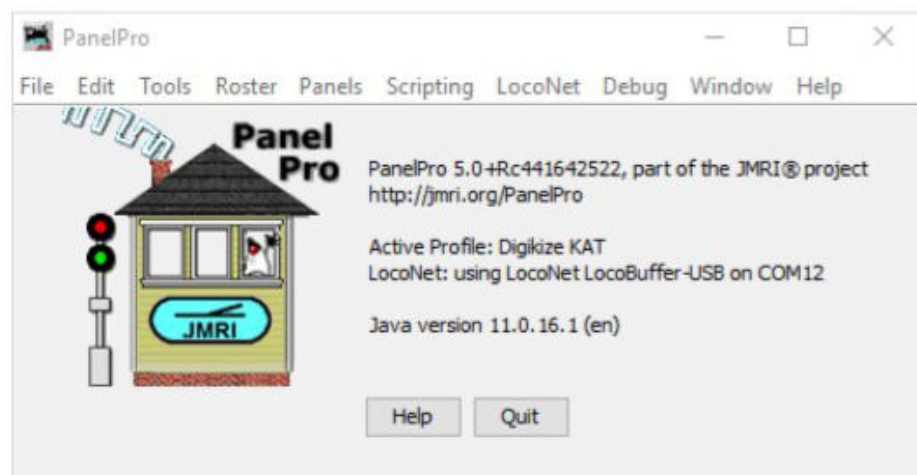


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Setting up JMRI and DecoderPro



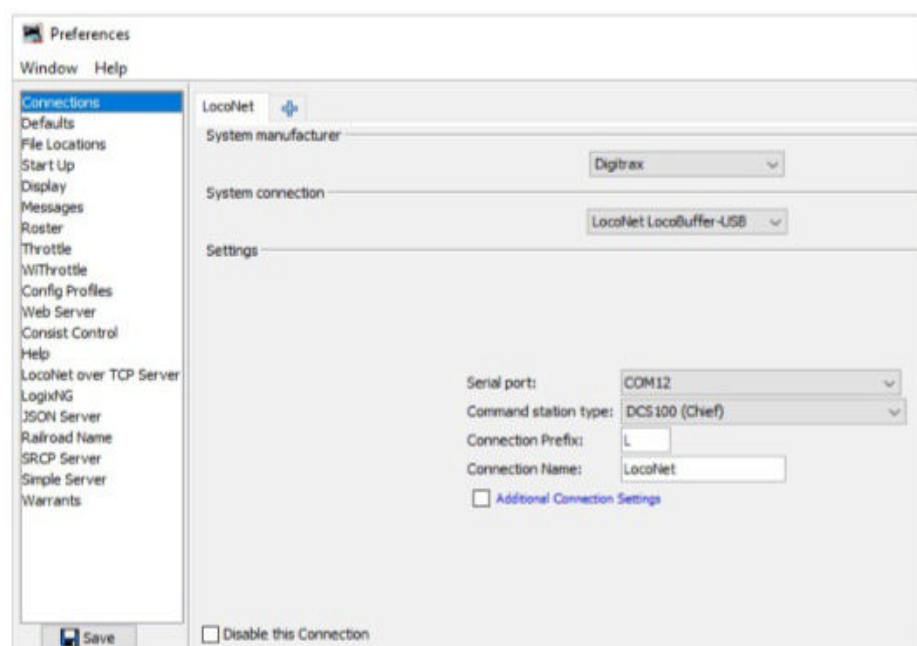
1 This month Allan will guide you through installing JMRI on your computer so that you can use DecoderPro to program decoders or as a throttle on your smartphone using PanelPro.



2 This screenshot from the Azul website shows Java download options. In most cases, you will want the 64-bit version of the JRE. For Windows, be sure to click on the .msi. tab.



3 For Mac OS computers, follow the JMRI instructions by going to the Adoptium website and clicking on the .pkg button to download it. Be sure to select JRE and the latest release at the top of the screen before clicking on the .pkg button. Then double click on the downloaded file to install.



4 If you are setting up your Digikeijs system for use with JMRI, set up the settings as shown here. You will need to enter the COM port that you found displayed on the DR5000 in the screen above.

Many modelers have heard of the capabilities of JMRI (Java Model Railroad Interface) 1. While not all modelers need a dispatcher control panel, most DCC modelers will find at least one of its features of interest. You can use its app, DecoderPro, to program decoders. You can also use JMRI to link smartphones and tablets to your layout to control trains and turnouts. Both Java and JMRI are free.

Controlling trains with an app on your smartphone is popular and less expensive than buying throttles. Phone throttles have fewer features than most top-of-the-line throttles, but many people view that as a plus since they are less intimidating. Even apps that can control turnouts and functions have them on separate screens; again, making them less intimidating. You cannot program decoders with them, making it impossible for guests to make inadvertent changes.

For people who love their cell phones, being able to control a train with one is very cool.

This month, I will guide you to getting started with JMRI and DecoderPro. Next month I'll talk about controlling trains with your smartphone or tablet.

DecoderPro is probably the most popular app within JMRI. To get DecoderPro, you will have to load Java and JMRI onto your computer. DecoderPro relieves modelers from having to understand CVs and binary math by configuring the decoder for you. Find the feature you want to change and select options from a drop-down menu or enter a value. If you are inclined to set up speed tables, DecoderPro makes that easy, too. If you have

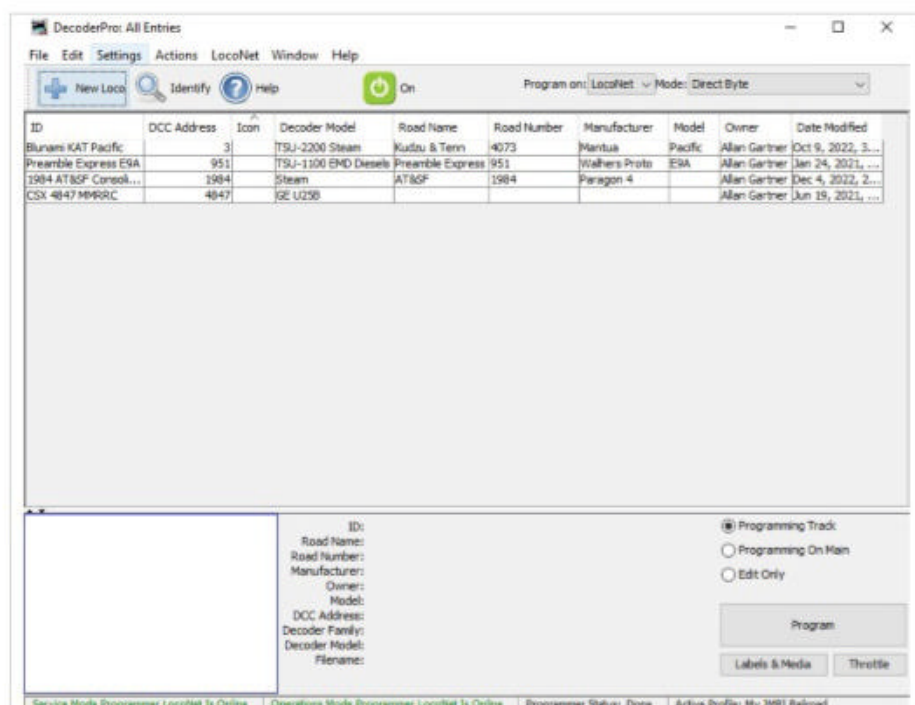
similar locomotives, you can download the same settings into each of them. You can also save all of a decoder's settings, which is very useful if you ever have to factory reset your decoder.

Here are some tips for installing JMRI onto your computer. I will preface this by saying that JMRI has a lot of features that I have yet to investigate. To find out more about these other features, visit the JMRI website and see what else you can use it for.

JMRI runs in the Java runtime environment. You do not need to know anything at all about Java. Just install it onto your computer and forget about it. Once you have Java, then you will be able to install JMRI. You will then use DecoderPro for decoder programming or PanelPro for controlling trains. Among other things, PanelPro provides an interface for wireless throttles that use your home's Wi-Fi network.

Java installs just like any other app you would download from the Internet. There are a number of free websites where you can get it. Go to www.jmri.org/java and scroll down to "Getting Java 11" and follow the instructions. If you have an older version of Java, it is important that you uninstall it first.

Follow the link to the Azul website to get Java for Windows. If you are a Windows user, scroll down to the tab that has the flag "latest" for Windows in the upper left corner of each panel 2. You will have a choice of 64-bit or 32-bit. Even my oldest laptop is 64-bit, so if you don't know what processor is installed in your computer, try 64-bit first. You want the JRE (Java Runtime Environment)



5 DecoderPro's roster screen helps you keep track of all your locomotives and their CVs.

version of Java. Click on the "How to install?" link. Next, click on the tab that says ".msi" for Microsoft Installer. If you click on the wrong tab, Java will not be properly installed. After you download the file to your computer, click on it to install Java.

For Mac OS, follow the JMRI link to Adoptium. Scroll down to the drop down and select macOS, 64-bit for most computers, JRE, and the highest version (currently 11). Then click on the .pkg tab and download it. Next, double-click on the downloaded file and install Java 3.

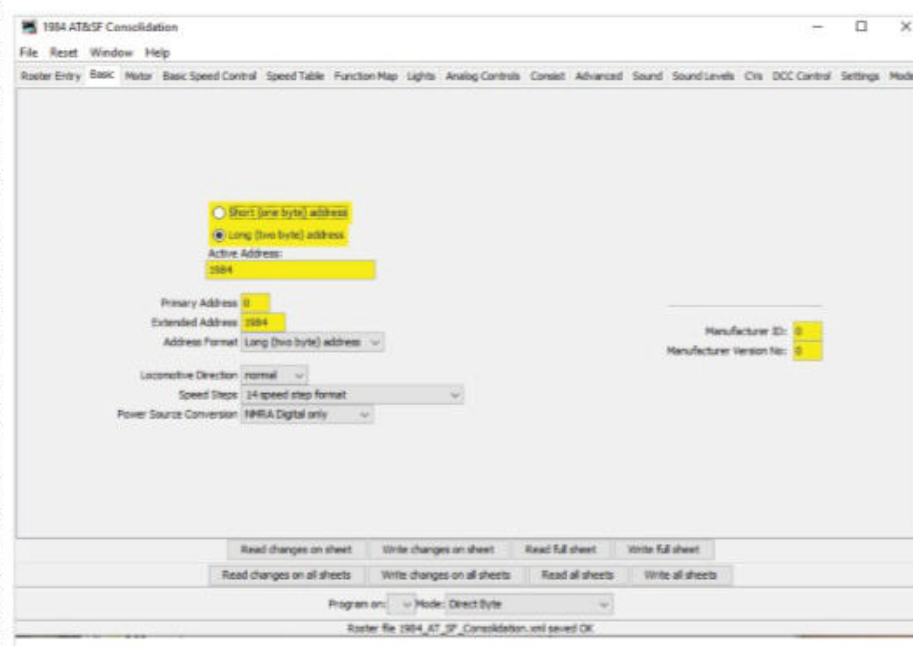
With Java installed, you are halfway done. Now it's time to install JMRI. Go to the www.jmri.org website. Scroll down to the bottom of the left, yellow panel. You will see links for loading to Windows, MacOS, and a few others. Select your operating system. There are detailed instructions and screen shots to guide you to installing JMRI. I recommend that you stay with the latest production release of JMRI. They come out about twice a year.

First, a word of warning. Test releases could have bugs or glitches in them. If a test release has a feature that you

want, it is safer to wait a few months for the next production release. If you opt for a test release and have problems, a new test release comes out about every month or so.

You will need JMRI to communicate with your DCC system. To do this, you will need to add a serial connection to your command station. For Windows, that's done with a USB cable that connects either directly to your command station or your control bus. Macs will need a USB-to-serial adapter. This is discussed in the JMRI installation guide for the macOS. Go to the "Edit" tab on the main JMRI screen, then "Preferences," and finally "Connections." For Digitrax systems, the choices are straightforward.

You can get a USB-to-serial cable for NCE's Power Pro Powerhouse CS02 from NCE. Go to ncedcc.com and click on their "PC Interfaces" link. Go to the same "Preferences" then "Connections"



6 Click on DecoderPro's "Action" tab and then "Program" to access all the pages that are provided for programming your decoder's CVs. At the bottom of the screen, you will see buttons for programming. Only "Read all sheets" or "Write all sheets" when setting up a new locomotive; this can take several minutes for a sound decoder.

menu items in JMRI to set up your NCE system.

For Digitrax users running Windows, right click on the Windows icon on the lower left of screen and launch the Device Manager. Scroll down to Ports, connect the USB cable from your Digitrax system, and note the COM port that appears. You will enter that COM port number into the Connections screen when you set up your JMRI connection.

There a few things you will want to happen when JMRI starts up. First, launch

PanelPro. Go to Edit > Preferences > Start Up, and at the bottom, go to Add > Perform Actions. I have mine set up with:

1. Open JMRI System Console (good for diagnostics)
2. Open Table Contents and Panels
3. If using Loconet, Open Loconet Monitor

(good for diagnostics)

4. Start WiThrottle Server (to use your smartphone or tablet as a throttle)

There are too many combinations of computers, operating systems, and DCC systems for me to try them all and have the answers to any questions that arise. If you have an issue with JMRI, go to the jmri user's group (jmri-users@groups.io) for support.

Now you can experiment with JMRI. Launch PanelPro from your desktop. On the main PanelPro screen, go to "Tools," "Throttles," and then "New" to run a train from JMRI.

To access DecoderPro, there is a separate DecoderPro app icon that the installer put on your desktop. Give it a try. (See Figures 5 and 6.) Be sure to go to "Edit," "Preferences," then "Connections" to set up the communication with your DCC system. If your system offers you a couple of choices for COM ports, try a different one if the one you initially selected does not work. 



Wizard at work

Picture a person wreathed in smoke, enjoying a long drag on a Camel, lounging against the back of a chair at a desk, deep in thought. You dare not intrude because the scene gives the impression of a wizard. Indeed, one definition of the word reads, “a very clever or skillful person.” Could this be a train dispatcher in the timetable and train order era?

Rulebooks I consulted define conductor, engineer, and operator, but omit dispatcher. Peter Josserand’s *Rights of Trains* doesn’t define the term. Neither do the handful of dispatcher’s manuals in my collection. Bernie Kempinski shared a gem with me, a United States Military Railroad rulebook dated April 1, 1862, and approved by Edwin W. Stanton, Secretary of War, which only mentions “dispatcher.” Nevertheless, the profession was so well established by 1887 that The Train Dispatchers Association of America formed. Odd, isn’t it? Such a highly skilled occupation with so much responsibility for safety ... Well, let’s leave it at the one behind the curtain to whom we *better* pay attention.

I asked a circle of advisors, some of them retired dispatchers, to describe the job. Bill Kuebler, never a railroader but a regular fixture on Northern Pacific from age eight, absorbed railroad-ing where he grew up in Fargo, N.D. I like Bill’s description: “A train dispatcher (DS) is really a track dispatcher, because he uses the timetable and train orders to

grant or withhold track authority for specified trains between certain points. To do this properly, he must maintain a precise mental picture of his territory overlaid with train movements as recorded on his train sheet, as he anticipates and plans future events (e.g., meets). He estimates a train’s running times between stations by factoring in crew abilities as observed from past experience, power and tonnage of trains, and other operating conditions – even the weather can be a factor. In short, he must be a mental gymnast!”

Bill wrote an excellent 13-part series about dispatching with train orders for *The Mainstreeter*, the Northern Pacific Railway Historical Association’s quarterly magazine. Back issues are available by visiting nprha.org.

Who do you want behind the curtain if you’re hosting an operating session? DS-ing a TTTO layout is more intense than the prototype in many ways. Trains are more frequent, distances between stations shorter, fast clocks dizzy the pace, and we’re limited by the speed of speech and handwriting. However, as on the prototype, regular patterns develop so experience helps. It’s another matter for a

visitor new to a layout to sit down cold. Hosts usually provide an old head to lean on until the new DS gets a handle on the beat of the operation.

Copying orders as an operator is a good way to break in. This develops the familiar cadence in DS dictating an



This mid-fifties Southern Pacific dispatcher inks an entry on his train sheet, so broad it drapes off the tabletop. He has little more than its rows and columns with which to form a mental picture of his territory. Philip R. Hastings photo

order and the operator reading it back. It allows the candidate to study how DS uses the rules to organize moves. Copying itself involves work under pressure, another condition to try. These DS and operator jobs closely approach their prototypes, if not identically.

The La Mesa Model Railroad Club’s well-known HO scale Tehachapi layout in San Diego is more demanding than any I know. I once dispatched the model railroad, which depicts the joint Santa Fe and Southern Pacific line between Bakersfield and Mojave, Calif., so woefully I tied the railroad into a knot an Eagle scout would be proud of. My relief methodically annulled almost every order I wrote, making me feel even more sheepish.

Abe Burnett led me to a 1902 edition of *The Telegraph Age* which quoted D. Wilmot Smith, a Michigan Central railroad official who came from the Erie in 1856 to establish dispatching by telegraph there. (Michigan Central followed Erie as the second railroad to adopt the method of dispatching.) Smith described a dispatcher protégé this way: “He was a born chess player. Within four days of the issuing of a new timetable, he could from memory give the time of every train, passenger or freight, at every point mentioned on the table, and he frequently had every train on the road running on orders.”

He and Bill might be describing the same wizard. Little has the job changed over time, has it? **MR**



DS-ING A TTTO LAYOUT IS MORE INTENSE THAN THE PROTOTYPE IN MANY WAYS.
-JERRY



FREIGHT CARS & COMMODITIES

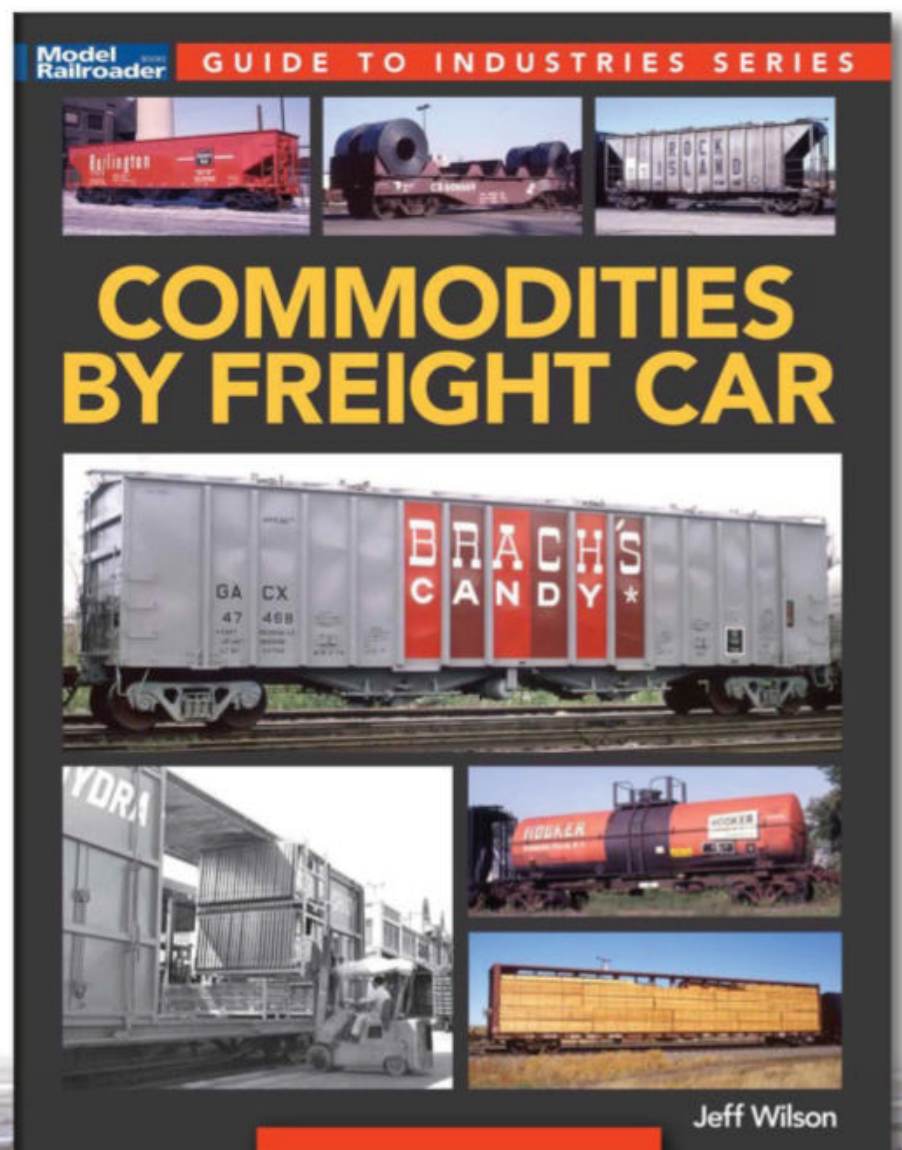
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Trackside Photos

As sunset approaches in Arlen, Texas, No. 42, an Electro-Motive Division NW2, switches Texas Southern's Arlen Yard. Joe Coen of Houston, Texas, shot the photo on his S scale layout. The freelanced Texas Southern is a regional railroad on the Texas Gulf Coast in the early 1980s. The locomotive is an S-Helper Service model that Joe decorated with custom decals, as he also did with the S Scale America boxcars.



Send us your photos

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





Only the click-clack of steel wheels on steel rails breaks the quiet of an autumn afternoon on the farm in Lima. Maurice DiTrapani photographed the scene on the 2,000-square-foot HO scale layout owned and operated by the Treasure Coast Model RR Club in Port St. Lucie, Fla. The farmhouse is an American Model Builders laser-cut wood kit and the pumpkin stand is scratchbuilt.





A Southern Pacific Cab-Forward with a reefer block in tow crosses Cripple Creek at the same time as an SP 2-8-2 steps onto the other bridge. Paul Sadler of Fallon, Nev., photographed the action on a pair of 2 x 4 HO scale modules built by Gary Evans of Fernley, Nev. Gary built the modules to connect with others belonging to members of the Sacramento Modular Railroad Club.



Mineral Point & Northern No. 582, a well-worn former Wisconsin Central Electro-Motive Division SDL39, runs light to work the interchange track. The locomotive belongs to Tim Moats, who weathered and relettered the HO scale ScaleTrains model. Tim's layout has an interchange with his friend Gregg Condon's model railroad, which is where Todd Condon shot the photo.

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

Schedule of Events

IL, GALESBURG: 2023 Galesburg Train Show. June 24-25. Saturday 10am-4pm, Sunday 10am-2pm. Knox College, T. Fleming Fieldhouse, 199 East Knox Street. Admission \$5, under 12 free. 400 tables of model trains, books, videos, t-shirts, memorabilia. 80+ vendors and exhibitors. Operating layouts. Tables: \$30 each. Refreshments available. Handicap accessible. Show Directors: Greg Norris 309-335-2634, John Manderscheid 563-349-0134

IL, ST. CHARLES: 47th Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, (Front Building), 525 South Randall Rd., St. Charles, IL 60174. Sunday, June 11, 2023, 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

IN, INDIANAPOLIS: Central Indiana Division/NMRA announces the Franklin Train Show. Johnson County Fairgrounds, 250 Fairground St., Franklin, IN 46131. August 5-6, 2023. Saturday 10am-4pm, Sunday 10am-3pm. Admission: \$7/person, 16 and younger free w/adult. NMRA members (show membership card) \$5/person. Demos, Displays, Operating Layouts, Door Prizes, Free Parking, Food available. Info/table rental: Michael Roderick, 317-833-3556, FranklinTrainShow@gmail.com or www.cidnmra.org

MO, JOPLIN: Joplin History & Mineral Museum Model Train Show and Swap Meet. Saturday, July 15, 2023. 9:00am-3:00pm. Schifferdecker Park, 504 South Schifferdecker Ave., Joplin, MO 64801. Admission: \$5 adult, 12 and under admitted free with paid adult. Swap Tables \$15 each. Contact Steve Gardner, 119 West Jefferson Street, Pittsburg, KS 66762; 620-230-9545 or email: sogardner1@att.net

NE, DESHLER: Train Show & Open House, July 8-9, 2023. Thayer County Activity Center, 4th & Race St. Hours: Saturday, 9:00am-5:00pm, Sunday 10:00am-4:00pm. Clinics, custom vendors, layouts, and manufacturers. Admission \$6.00, under 12 FREE. Extended hours at Spring Creek Model Trains. 304 E. Bryson Ave., Deshler, NE 68340. Details: www.springcreekmodeltrains.com

OH, VAN WERT: Van Wert Railroad Heritage Weekend Model Railroad Show & Swap. Van Wert County Historical Society, Van Wert County Fairgrounds, 1055 S. Washington St., Van Wert, OH 45891. July 29-30, 2023. Saturday 10am-4pm & Sunday 10am-3pm. Adults \$6.00. Scouts in Uniform and Children 12 & under FREE. Info: Chuck White, railcarman@frontier.com, 260-760-1666, www.vwrrhw.com

WI, LA CROSSE: Rail Fair, Copeland Park, Rose & Clinton Streets. Saturday, July 15, 2023, 10am-4pm. Admission \$5.00, 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

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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2B in Trains	17	Mianne Benchworks	17
Atlas Model Railroad Co., Inc.	5	Micro-Mark	9
Axian Technology	14	Model Railroader Models and Kits.	60
Azatrax	17	Model Train Stuff.	6
Bachmann Industries, Inc.	68	Modelers Marketplace	60-61
Blair Line	17	National Train Show	9
BPL	17	NCE Corp.	17
Broadway Limited Imports.	20	Nicholas Smith Trains	14
Central & Western Homaroad Supply	17	PECO Products.	16
Circuitron	14	POLA G	15
Commodities by Freight Car	55	Pre-Size Model Specialties	17
Custom Model Railroads	20	Rapido Trains.	2
Digitrax	21	Right on Track Models	20
Downtown Deco	17	Showcase Express.	19
Enginehouse Services	17	Sievers Benchwork	20
Evergreen Scale Models	20	SoundTraxx	22
Great Midwest Train Show.	9	Spring Creek Model Trains.	9
Great Model Railroads 2024.	22	Train Sets Only.	17
Great Train Expo	9	Train World	19
Greenburg Show	9	TrainTastic	19
Halfpricehobby.com	20	Trainz.com	19
JB Wheel Sets	17	Wifi Model Railroad LLC.	9
Kato USA	67	Woodand Scenics	7
Loco-Boose Hobbies	19	Wm. K. Walthers	3
Mainline Hobby Supply.	17	Yankee Dabbler.	14
Märklin.	26		

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It's not even on the map



Sproul (rhymes with “roll”), W.Va., was once a busy place that saw countless tons of coal roll out of the mountains to the Chesapeake & Ohio’s main line at nearby St. Albans. Gene Huddleston photo, C&O Historical Society Collection

Well, it's not in my edition of the Rand-McNally Road Atlas, anyway. But there was a time you could ask anyone who worked on the coal branches of the Chesapeake & Ohio where Sproul, W.Va., was, and they'd tell you it was just down this ol' road a spell.

Sproul was at the junction of two C&O coal branches. There was the tiniest excuse for a depot there, but I thought it was really interesting. Using a series of photos taken by the late Gene Huddleston, one of which I've shared with you here, I managed to find out what all four sides of it looked like.

Using standard dimensions for doors and windows and assuming the battens were a foot apart yielded basic dimensions. I built a cardstock mock-up, then rotated it to match the angles evident in Gene's photos to be sure everything lined up. That done, I scratchbuilt a model from basswood that graced Slate Falls on the Allegheny

Midland. I should dig it out and find a use for it on my current railroad.

In the early 1970s, motivated by Gene's captivating photos, Jim Boyd and I set out to find this magical place called Sproul. When we got to where we thought it was, we found nothing. We got out of his Super Pinto (a harvest-gold Ford Maverick that took us to places in central Appalachia that Jeeps would find excuses to avoid) and headed down the tracks on foot. Before too long, we came across a residence with the local folks sitting out on the front porch enjoying a warm April day. “What'cha all doin'?” one asked.

“We're looking for a place called Sproul,” I replied, pronouncing it to rhyme with “growl.” They assured me there was no such place in these parts. Then one of them finally asked if we meant Sproul, pronouncing it like “roll.” Details, details.

Why, yes, we did, I assured him. Specifically, we were looking for the C&O depot that was there.

“Oh, son, that's just too bad,” he said. “You shoulda been here last week. They tore it down a few days ago.”

Thanks to Gene Huddleston, then and now, I got to “see” Sproul in its heyday. I saw it then through photos published in the C&O Historical Society's magazine, and I can see it again now, thanks to a book by Karen Parker and Jim Kehn.

Published by the C&OHS, it features Gene's remarkable photographs taken in the transition era.

Gene held a Ph.D. and taught English at the university level. I knew him as a friend, although I

pushed the boundaries a bit when I kidded him about the C&O's Kanawha 2-8-4s looking a bit odd compared to the NKP's Berks, what with their pilot-mounted headlights and large sand domes mounted well forward. “It looked like the engineer dumped the air and everything slid to the front,” I told him. He didn't see the humor in that at all.

I have to think the C&O folks are on a mission to drag me back into modeling Appalachia again, as my friend and neighbor Ted Pamperin is doing so well. Much as I enjoy modeling the flatlands for a change, there's no denying that the rugged Alleghenies have a magical appeal. They're chock full of hard-to-find places with names like Sproul that are just begging to be modeled.

As you drive through the hollers, you never know what will greet you around the next bend – a coal prep plant, a small coal-loading facility, a company town with look-alike houses lining the road, a pedestrian suspension bridge across the “creek,” a company store that sold its last wares decades ago, or a pristine church that offers the hope of a better tomorrow.

As you've read in the newspapers and heard on TV, coal loadings are down. But today's railroads are still interesting to model, and there's no reason you can't hop into your time machine and arrive at a time when things were more to your liking. Either way, the scenery is still magnificent. **MR**



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