

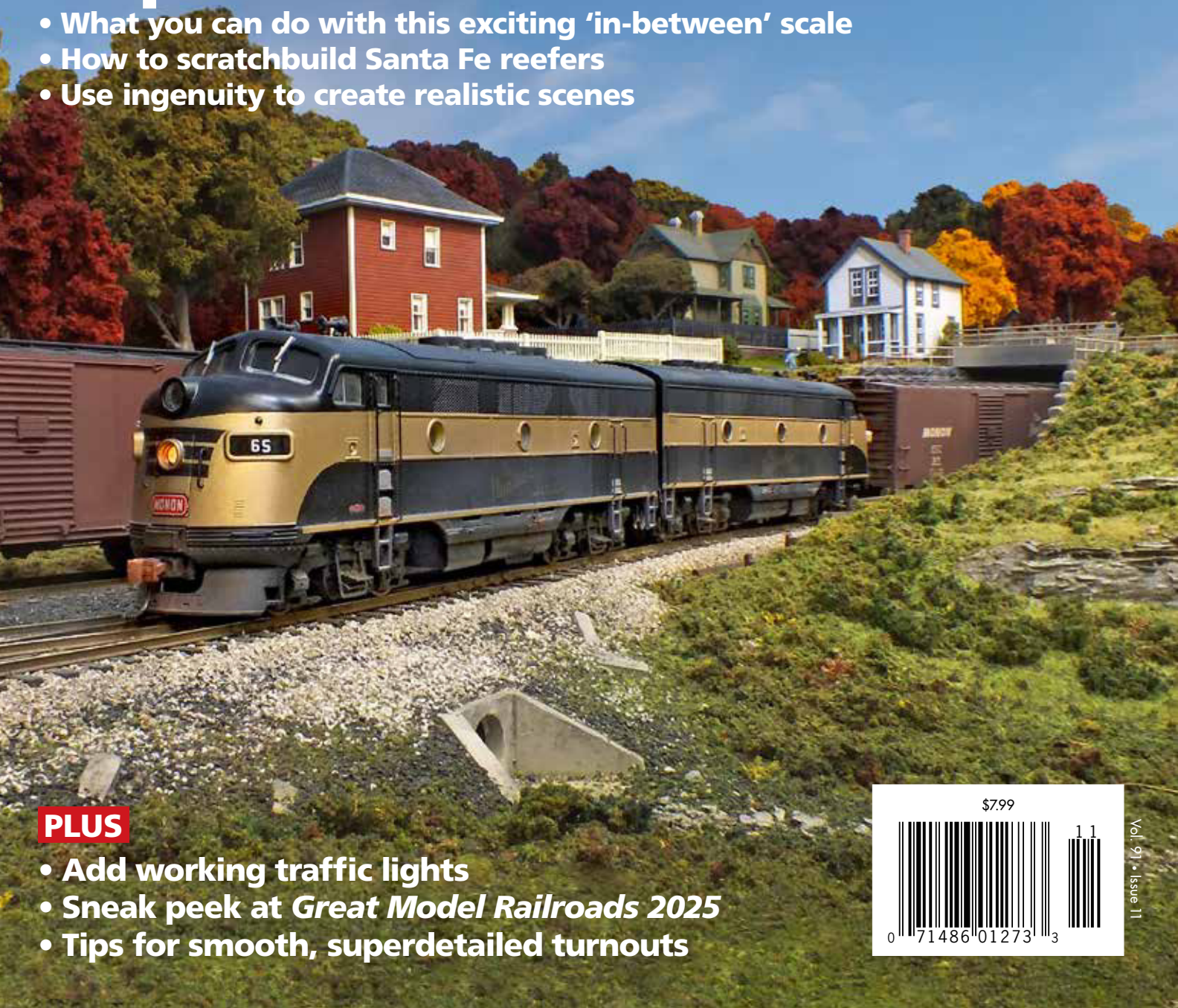
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# Model Railroader®

November 2024

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- How to scratchbuild Santa Fe reefers
- Use ingenuity to create realistic scenes



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Vol. 91 • Issue 11



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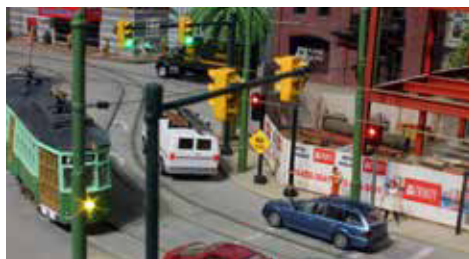
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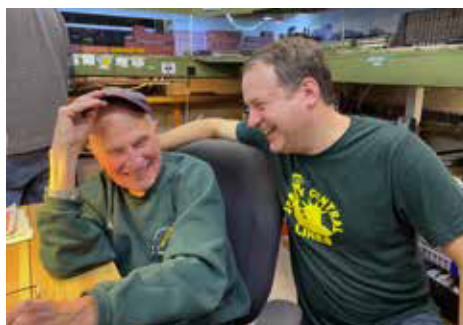
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**On the cover:** A pair of Electro-Motive Division F units leads a freight on Roger Nulton's S scale Monon layout. Roger Nulton photo



## Next issue

In **December**, get an insider's view of Sir Rod Stewart's expanded HO Three Rivers City layout, meet the inaugural class of the Model Railroader Hall of Fame, and more!

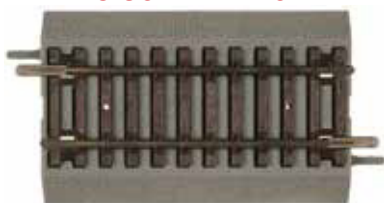
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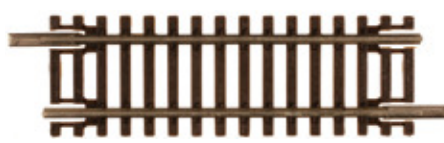
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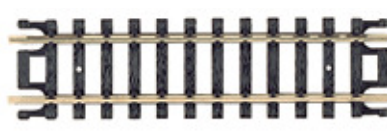
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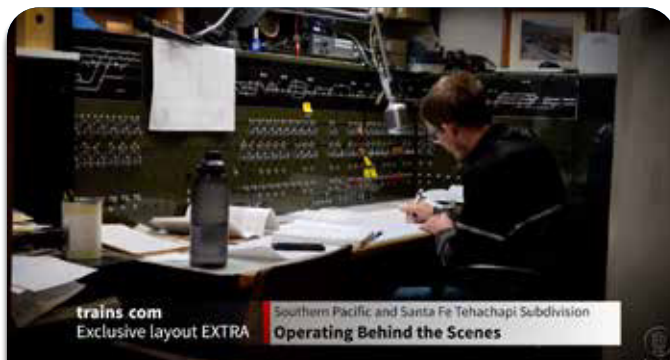




## Ride along on the last run of the HO Milwaukee, Racine & Troy

In this salute to **Model Railroader's** renowned MR&T, Trains.com cameras capture the final run over the entire 200-foot-plus mainline route. Enjoy this first-ever, on-track perspective video of the storied layout that thrilled MR staff members, Kalmbach Media employees, and countless eager visitors since the early 1990s.

Scan the QR code above with a smartphone's camera to watch this exciting perspective of the "Myrt."



## La Mesa Model Railroad Club's Tehachapi Subdivision

Join **Model Railroader Editor Eric White** for a rare inside look at a world-class operating session over the gigantic HO scale public display highlighting Southern California's famed Tehachapi Loop. Scan the QR code to the left to peer into a session that required more than 30 operators to prep, stage, dispatch, and run the seemingly endless parade of 1950s-era freight and passenger trains over 25 scale miles of mainline track.

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# Exploring the opportunities of S scale

As we come to the close of our 90th anniversary year, we're looking at some of the other aspects of the hobby that had their starts in the 1930s. This month, we're focused on S scale.

Historically, many had their first introduction to this "in-between" scale that's just about exactly halfway between O and HO scales with American Flyer trains. As with Lionel trains, hobbyists distinguish between S gauge and S scale, or between toy trains, hi-rail modeling, and scale modeling. You can find more about the toy train side of the hobby in our sister publication *Classic Toy Trains*.

What became today's S scale was originally known as C-D scale, which stood for Cleveland Designed. It was the idea of Ed Packard, who had a model aircraft company called the Cleveland Model &

Supply Co. Ed's first kits, for simplified freight car kits intended as scenery, were introduced to readers of *Model Railroader* in a two-page spread advertisement in the April 1937 issue.

S scale is 1:64 proportion, so  $\frac{1}{64}$ " is a scale inch in S, and a scale foot equals  $\frac{3}{16}$ ". Ed considered this the perfect compromise between the higher cost of O scale, and the small size of HO, touting the improved detail over HO and the chance to build more layout in the same space as O scale. He also said the models just "felt right" in your hand.

If you've been reading *Model Railroader* for a while, you've probably come across Brooks Stover's S scale Buffalo Creek & Gauley model railroad. Brooks has long been a proponent of S scale, and in this issue he shares his arguments for giving it a try starting on page 42.

One of the arguments is that S scale modelers get to scratchbuild stuff, as the ready-to-run options are limited. Brooks has been a master at taking advantage of that opportunity.

With that in mind, we also have an excellent article from Paul Washburn on scratchbuilding a trio of Santa Fe reefers on page 46. Paul shares sources for S scale detail parts, but also shares how he made parts from styrene strips and shapes. This is information useful to modelers in most any scale.

Our cover story shows a great example of what can be accomplished in S scale. Roger Nulton's re-creation of the Monon RR is an excellent piece of model railroading, no matter the scale.

And for those wanting to dip their toes into S without committing to a full schedule of scratchbuilding, there are



manufacturers offering excellent products. ScaleTrains recently sent us a sample of its new S scale International Car Co. extended vision caboose. Read senior editor Cody Grivno's review on page 14.

And if we haven't yet talked you into checking out this "just right" scale, take a look at the National Association of S Gaugers website at nasg.org.

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## HO scale



**Motive Power Industries MP36PH-3C diesel locomotive.** This new Atlas model is based on a modern four-axle passenger locomotive. The HO scale MP36PH-3C is decorated for Metra (including Milwaukee Road and Chicago, Rock Island & Pacific heritage schemes), Massachusetts Bay Transportation Authority, Metrolink, and West Coast Express. The model has a die-cast metal underframe, metal knuckle couplers, and

golden-white light-emitting diode headlights and ditch lights. The cab interior is detailed and features an overhead light. Separate, factory-applied details include handrails, windshield wipers, metal grab irons, m.u. hoses, trainline hoses, and uncoupling levers. Direct-current models with a speaker sell for **\$229.95**. Versions with DCC and sound list for **\$349.95**. Atlas Model Railroad Co., 908-678-0880, [shop.atlasrr.com](http://shop.atlasrr.com)

## HO scale locomotives



**Alco 2-8-8-0 Bullmoose steam locomotive.** Union Pacific in three schemes. One to three road numbers per scheme. Die-cast metal chassis with brass boiler and tender body. Separately applied details including handrails, ladders, piping, cab glass, whistle, brass bell, air tanks, and more. Road-number-specific details. Light-emitting-diode lighting including headlight, reverse light, cab light, front number boxes, and rear marker light. Synchronized puffing smoke. Direct-current model, \$749.99;

with DCC and sound, \$849.99. Broadway Limited Imports, 386-673-8900, [broadway-limited.com](http://broadway-limited.com)



• **General Electric AC44C6M diesel locomotive.** Norfolk Southern in six schemes. One to three road numbers per scheme. Light-emitting-diode lighting including headlight, ground, walkway, number box, and ditch lights. Separately applied details include wire grab irons, spare knuckles, trainline hoses, three-hose m.u. clusters, uncoupling levers, windshield wipers, mirrors, sunshades,

and more. Direct-current model, \$214.99; with DCC and sound, \$314.99. Rivet Counter series. ScaleTrains, 844-987-2467, [scaletrains.com](http://scaletrains.com)



• **General Electric ES44AC diesel locomotive.** Canadian National, BNSF Ry., Ferromex, Kansas City Southern, and Union Pacific. Four road numbers per scheme. Standard high-adhesion or steerable (non-working) trucks as appropriate. Molded drill starter points for grab irons (GE ES44 Evolution Series detail kit sold separately). Direct-current model with speaker installed, \$164.98; with DCC and sound, \$219.98. Walther's-Mainline series. Wm. K. Walther's Inc., 414-527-0770, [walther's.com](http://walther's.com)

## HO scale



**Skeleton log cars.** The common two-truck logging car is available painted but unlettered with three load options: no logs, three logs, and six logs. Details on the model include a separately applied handbrake and brake hoses, solid-bearing trucks, underbody brake appliances, and modeler-installed load chains. A single skeleton log car without a load sells for **\$60**. Models with three or six logs retail for **\$75**. KR Models, 780-863-2330, [krmodels.net](http://krmodels.net)



• **General Motors Diesel SD40-2 diesel locomotive.** Canadian National; Algoma Central; Canadian Pacific; Dakota, Minnesota & Eastern; Quebec, North Shore & Labrador; and St. Lawrence & Hudson. Multiple road numbers per scheme. Separately applied air hoses, windshield wipers, grab irons, uncoupling levers, and window glazing.

## The National Train Show heads west



Among the models showcased by manufacturers at the 2024 National Train Show was the ScaleTrains Norfolk & Western Class J steam locomotive. The HO scale model was announced in the July 2024 issue of MR. Bryson Sleppy photo

**The 2024 National Train Show** in August highlighted some of the hobby's best innovation throughout three days in Long Beach, Calif. After watching multiple modular layouts operating outside of the showroom walls, one first encounters the PIKO America booth right inside the entry. PIKO showcased its new Krauss-Maffei ML-4000 diesel-hydraulic locomotive in 2023 and displayed the locomotive in a new Denver & Rio Grande Western scheme this year.

After PIKO, the ScaleTrains tables had a plethora of models on display, including the recently announced Norfolk & Western Class J steam locomotive. At the beginning of the show on Friday, the company made new model announcements, including the General Electric AC44C6M diesel locomotive featured on page 10. Bachmann was also on hand to showcase new models, including 52-foot flatcars with wheel loads and 0-6-0 steam locomotives.

InterMountain Railway Co. and Broadway Limited Imports had tables next to each other, both with new models to show. InterMountain had samples of its Electro-Motive Division GP10 and GP16 diesel locomotives as well as freight cars including the Trinity 5,161-cubic-foot capacity three-bay covered hopper. Broadway Limited had many preproduction samples on display, including the Class D four-truck Shay and SD70ACe in HO scale.

Finally, the National Model Railroad Association partnered with Grouper to let everyone at the show know that they could have their National Model Railroad Association membership cost covered if they were 65 or older and on Medicare Advantage or Medicare Supplement plans.

For more information, visit [Trains.com](https://Trains.com). — *Bryson Sleppy, associate editor*

Road-specific details and fuel tank. Direct-current model, \$209.95; with DCC and sound, \$309.95. Executive Line series. Bowser Manufacturing Co. Inc., 570-368-2379, [bowser-trains.com](https://bowser-trains.com)



• **Electro-Motive Division GP39-2 diesel locomotive.** Wisconsin & Southern; Atchison, Topeka & Santa Fe; Blue Ridge Southern; BNSF Ry.; Delaware & Hudson; and Union Pacific. Multiple road numbers per scheme. Road-specific body, fuel tank, anticlimber, walkway

steps, horn, antenna, and more. Light-emitting diode headlight, number boxes, class lights, signal lights, cab beacon, and ditch lights as appropriate. Direct-current model, \$229.99; with DCC and sound, \$329.99. Genesis series. Athearn Trains, 800-338-4639, [athearn.com](https://athearn.com)

### HO scale rolling stock



• **52-foot flatcar.** Canadian National; Atchison, Topeka & Santa Fe; New York Central; and Pennsylvania RR. One road

## In Memoriam

**Paul J. Dolkos 1939-2024**

**Paul J. Dolkos, 85,** passed away on August 9, 2024.

Paul was a long-time contributor to the pages of *Model Railroader* magazine and its annuals and special issues. He had three different home layouts featured in MR, including the Duquesne RR/Tygart Coal & Lumber Co., Boston & Maine New Hampshire Division, and the Baltimore Harbor District. All three were HO scale.

But there was much more to Paul than just writing about his home layouts. He authored how-to articles on a wide range of topics and was commissioned to photograph many model railroads.

Paul lived in Alexandria, Va., and worked in computer communications, product sales, and marketing. His wife, Linda, passed away on June 5, 2019. They are survived by children Todd and Paige.



**Fred Hamilton 1942-2024**

**Fred Hamilton, 82,** died on August 1, 2024. Fred served on the advertising sales staff of *Trains* and *Model Railroader* for 25 years. After that

he was general manager of NorthWest Short Line for several years.

Fred was a Trustee and President of the Model Railroad Industry Association, and later served as the organization's executive director. He was a founding director of the Narrow Gauge Trust Fund and the Narrow Gauge Preservation Foundation.

An avid and talented On3 modeler, Fred knew everyone in the model railroad industry.

Fred piloted Air Force C-141 Starlifters during the Vietnam conflict. — *Bob Hayden*





**Electro-Motive Division GP35 diesel locomotive.** Broadway Limited Imports' four-axle general purpose diesel locomotive is available decorated for Burlington Northern; Atchison, Topeka & Santa Fe; Baltimore & Ohio; Canadian Pacific; Chicago & North Western; Conway Scenic Ry.; Great Northern; and Tuscola & Saginaw Bay. Road-specific details include truck sideframes, dynamic brake hatch, front and rear pilot, horn type and location, and more. The HO scale GP35 features light-emitting-diode lighting, including headlights, number boxes, classification lights, cab light, and ditch lights, as appropriate. Direct-current models are priced at **\$249.99**. Models with DCC and sound sell for **\$374.99**. Broadway Limited Imports, 386-673-8900, [broadway-limited.com](http://broadway-limited.com)

number per scheme. Newly tooled wheel transport rack. Removable load of separate plastic wheelsets. Separately applied brake wheel. RP-25 contoured blackened metal wheels and E-Z Mate couplers. \$49. Bachmann Trains, 215-533-1600, [bachmanntrains.com](http://bachmanntrains.com)



• **Trinity 5,161-cubic-foot-capacity three-bay covered hopper.** CSX, Archer Daniels Midland, BNSF Ry., Canadian Pacific, and Norfolk Southern. Multiple road numbers per scheme. New tooling with road-specific details. Etched metal running boards and wire details. \$59.95. InterMountain Railway Co., 303-772-1901, [intermountain-railway.com](http://intermountain-railway.com)



• **Union Tank Car Co. X-3 tank car.** Skellysolve, Hexane, Procor Limited, and Union Tank Car Co. Multiple road numbers per scheme; also available painted black but unlettered. 8,000-gallon, 10,000-gallon, or "Breadbox" body as appropriate. Andrews or Bettendorf cast steel trucks with turned metal wheelsets. Underbody details including two brake

system variations. Separate, factory-applied uncoupling levers and vertical brake staff. Single car, \$59.95; six-pack, \$359.70. Rapido Trains Inc., 905-474-3314, [rapidotrains.com](http://rapidotrains.com)

## HO scale passenger equipment



• **Rapido 20th anniversary sleepers.** *Edmundston* 8-4-4 duplex sleeper and *Rapido Trains Lark* 10-5 sleeper. One road number per scheme. Track-powered interior lighting with capacitor controlled by Rapido Lighter. Tighter connections between body and roof. Improved design and assembly. Redesigned trucks and new couplers. Detailed underbody and multi-color interior. \$49.95. Rapido Trains Inc., 905-474-3314, [rapidotrains.com](http://rapidotrains.com)

## N scale locomotives

• **Electro-Motive Division SW7 diesel locomotive.** Amtrak, Nickel Plate Road, Norfolk & Western, Pennsylvania RR, St. Louis Southwestern, Union Pacific, Union RR, and others. Two road numbers per scheme. Road-specific headlight options. Die-cast metal body and chassis. Separately applied handrails and grab irons. Broadway Limited Imports, 386-673-8900, [broadway-limited.com](http://broadway-limited.com)



• **General Electric AC4400CW diesel locomotive.** CIT Rail, CSX, Ferromex, Kansas City Southern, and Union Pacific. Multiple road numbers per scheme. Separately applied details including wire grab irons, trainline hoses, three-hose m.u. clusters, m.u. cable, uncoupling levers, windshield wipers, brake wheel, and more. Light-emitting-diode ditch lights, number boxes, and headlights. Detailed cab interior. Direct-current model, \$154.99; with DCC and sound, \$259.99. ScaleTrains, 844-987-2467, [scaletrains.com](http://scaletrains.com)

## N scale rolling stock



• **BethGon Coalporter.** BNSF Ry., Canadian National, CSX, Kansas City Power & Light, and Norfolk Southern. One single road number and two five-packs available per scheme. Detailed injection-molded plastic body. Separately applied brake wheel. Removable coal load. Screw-mounted 100-ton roller bearing trucks with 36" RP-25 contour metal wheels. Body-mounted McHenry scale couplers. Single car, \$39.99; five-pack, \$179.99. Athearn Trains, 800-338-4639, [athearn.com](http://athearn.com)

## N scale structures



• **Brick church.** Injection-molded plastic kit with arched windows and two styles of printed-paper stained glass window treatments. Two different front door options. Detailed belfry with steeple. Brick walls and diamond-shingle roof. Measures 4<sup>7</sup>/<sub>8</sub>" x 2<sup>3</sup>/<sub>4</sub>" x 6<sup>7</sup>/<sub>16</sub>". \$49.98. Cornerstone series. Wm. K. Walther's Inc., 414-527-0770, [walther's.com](http://walther's.com)

# Rapido Trains HO Canadian National GP9RM



**A Canadian National GP9RM** is now available in HO scale from Rapido Trains. The four-axle diesel locomotive features a heavy die-cast metal frame, traction motor details on the gearbox, and prototype-specific details.

**From 1981 to 1994**, CN rebuilt its fleet of General Motors Diesel Ltd. GP9 locomotives for various duties at its Pointe St. Charles shops in Montreal, Que. By the numbers, there were 81 road switchers (4000 and 4100 series, GR-418 class), 84 switchers (7000 series, GS-418 class), 81 yard switchers (7200 series, GY-418 class), and 64 yard booster units (200 series) that were used with the 7200-series engines.

The sample we received is decorated as CN 4000. The prototype was built as CN 4568 in November 1957. It was rebuilt in September 1981 and renumbered 4000. Canadian National retired the engine in September 2007. The locomotive was sold to RTEX Rail in December 2007. The following year the diesel was repainted for Dunn Roadbuilders RR in Laurel, Miss., keeping its original road number. In 2022 the GP9RM joined the Meridian Southern fleet.

**The Rapido Trains GP9RM** features an injection-molded plastic shell with many separate, factory-applied details, including trainline and m.u. hoses, windshield wipers, wire grab irons, and metal side

handrails with plastic stanchions. Additional features on the 4000 include front and rear plows and barrel-style spark arrestors.

To separate the shell from the chassis, I removed the front and rear draft-gear boxes. The motor is centered in the chassis, above the fuel and air tanks. A metal weight fills most of the interior. The motherboard and ESU sound decoder are attached to the top of the weight. The speaker is located above the rear truck.

**The CN stripes paint scheme** is neatly applied on our review model. The separation lines between colors are crisp, and the gray stripes are opaque.

I was unable to find prototype drawings of the CN GP9RM. However, the truck centers, distance over the end sills, and long hood height all matched dimensions on a standard GP9 elevation drawing in the 1956 *Locomotive Cyclopedia of American Practice* (Simmons-Boardman Publishing Corp.)

The sample we received features a dual-mode ESU LokSound V5 sound decoder. I did the initial testing at the workbench with an NCE Power Cab. The model moved at less than 1 scale mph at speed step 1. At step 28, the diesel achieved a top speed of 70smph. The prototype unit had a top speed of 65 mph.

Then I took the model over to our Milwaukee, Racine & Troy staff layout for further testing. The diesel pulled a

freight train and switched industries on the Wisconsin & Southern without issue. The GP9RM was able to pull 13 50-foot insulated boxcars up the 3% grade between Williams Bay and Skyridge.

**In addition to single GP9RM** units, Rapido Trains offers GP9RM mother-slug sets in both early and late versions. These distinct locomotives would look right at home on the point of a road freight or switching cars in a yard. —

*Cody Grivno, senior editor*

## Facts & features

**Price:** Direct current — single unit, \$239.95; mother-slug set, \$439.95. Digital Command Control and sound — single unit, \$349.95; mother-slug set, \$669.95

### Manufacturer

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

**Era:** 1981 to 2007 (as decorated)

**Road names:** Single unit — Canadian National (stripes and large “wet noodle” schemes). Mother-slug sets — early and late versions. Three to eight road numbers per scheme.

### Features

- Metal couplers, at correct height
- Metal wheel stubs on plastic axles, in gauge
- Weight: 13.8 ounces
- Minimum radius: 18"



Trains.com members  
can see the Rapido  
Trains GP9RM in action  
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# ScaleTrains S scale wide-cupola caboose



An International Car Co. (ICC) wide-cupola caboose is the latest model to join the ScaleTrains S-Helper Service product range. The model is based on tooling introduced by S-Helper Service in 1997.

The sample we received is decorated as Reading Co. 94104, part of the railroad's 94100 through 94109 NEa series built by ICC in August 1970. On April 1, 1976, Reading 94104 became Conrail 22135, part of the newly formed railroad's 22130 through 22139 N-20 class. In June 1999 the caboose became part of the Norfolk Southern roster after Conrail's assets were split between NS and CSX.

The ScaleTrains wide-cupola caboose has an injection-molded plastic body with a separate cupola and underbody. Rooftop details included a see-through, etched-metal running board; wire corner grab irons on top of the cupola; a free-standing toilet vent stack; and a separate, factory-applied smokejack.

The body has sprung doors on both ends. Interior details include desks, chairs, bunks, lockers, and a stove. Two factory-installed and painted crew figures, both facing the A end, are seated in chairs in the cupola and by a desk.

The underbody features molded center sills, crossmembers, and a battery box. Free-standing parts include the air reservoir, brake cylinder, control valve, and related support brackets, levers, rods, and pipes.

All of the windows have flush-fitting glazing; the end cupola windows have plastic windshield wipers. The interior

and marker lights are illuminated with light-emitting diodes.

The Reading Co. green and yellow paint is smooth and evenly applied, with crisp separation lines between colors. The lettering placement matches a prototype photo that I found online, though some stencils were omitted. The class stencil (NEb) and build date (10-71) are incorrect for the 94104. It should be NEa and 8-70. The stencils are correct for Reading 94110, the other road number offered. Reading NEa and NEb cabooses didn't have running boards or ladders.

From the box, the model is fitted with American Flyer-compatible wheels and couplers. Scale code 110 metal wheel stubs mounted on plastic axles, Kadee-compatible scale knuckle couplers, shims, and mounting screws are included with the model.

One of the sprung, die-cast metal trucks was distorted on our sample. The ScaleTrains customer service team quickly sent me a replacement. Swapping out the trucks and couplers took less than 5 minutes.

A couple of the wheelsets were tight when measured with a National Association of S-Gaugers Standards Gauge. They were brought into gauge by twisting the wheels on the axles.

I was unable to find elevation drawings for a Reading Co. caboose. However, drawings of an International Car Co. wide-cupola caboose built for the Detroit, Toledo & Ironton were published in the June 1974 MR. The

ScaleTrains model closely follows published data.

It's good to see the International Car Co. caboose back in the S scale market. The ready-to-run model is well detailed and faithfully follows prototype dimensions. — *Cody Grivno, senior editor*

## Facts & features

**Price:** \$59.99

### Manufacturer

ScaleTrains  
4901 Old Tasso Rd. NE  
Cleveland, TN 37312  
scaletrains.com

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

**Road names:** Reading Co.; Atchison, Topeka & Santa Fe; Burlington Northern; Chesapeake & Ohio; Chicago, Burlington & Quincy; Chicago & North Western; CSX; Great Northern; and Missouri-Kansas-Texas. One to three road numbers per scheme; also available undecorated.

### Features

- Kadee-compatible scale couplers, B end at correct height, A end .010" too low
- Metal scale code 110 wheel stubs mounted on plastic axles, two in gauge and two tightly gauged
- Minimum radius: 20"
- Weight: 5.7 ounces (.2 ounce light per National Model Railroad Association Recommended Practice 20.1)

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# Moloco HO Northern Pacific 50-foot boxcar



A Northern Pacific HO scale 50-foot XM double-door boxcar is the latest release from Moloco Trains. The model features car-number-specific details, Stanray R3-4 ends, and 8-rung ladders on the sides and ends.

The Moloco model is based on full-size cars built at NP's Brainerd, Minn., shops between 1956 and 1959. During the production run, 1,350 cars were constructed. The cars were primarily used for lumber and forest products.

The plastic model has separate riveted sides and welded Stanray R3-4 ends that are attached to the underbody. The roof is a separate plastic casting with an etched-metal running board and wire corner grab irons.

Three of the cars in the 1956-57 delivery scheme, including the 7035, are fitted with an Equipco 3750 handbrake and the same company's brake wheel. A see-through, etched-metal platform is located below the brake wheel.

Both ends of the car include plastic bracket-style grab irons and 8-rung ladders, formed wire uncoupling levers, wire grab irons, freestanding placard boards, and flexible rubber air hoses.

Molded details on the car sides include the door tracks and 7½-foot Youngstown doors. The doors are detailed with separate, factory-applied placard and route boards and door hardware. Similar to the ends, the ladders and grab irons on the sides are plastic. The stirrup steps are formed metal.

Underneath, the model has molded floorboard and stringer detail. The center sills and crossbearers are a single plastic casting. The draft-gear boxes are separate plastic parts secured with screws.

The NP boxcar is neatly painted Mineral Red with overspray on the edges of the roof. The printing on the car is sharp and opaque throughout. The lettering placement matches prototype



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## Facts & features

**Price:** \$66.99 (undecorated, \$49.99)

### Manufacturer

Moloco Trains  
molocotrains.com

**Era:** 1956 to early 1990s (varies depending on paint scheme)

**Road names:** Burlington Northern (1972 Cascade Green repaint) and Northern Pacific (1956-57 as delivered, 1957 as delivered, and 1969 Cascade Green repaint). Six road numbers per paint scheme. Also available as undecorated kit.

### Features

- 33" metal wheelsets, correctly gauged
- Kadee scale whisker couplers, at correct height
- Weight: 4.3 ounces (.2 ounce too light per National Model Railroad Association Recommended Practice 20.1)

photos I found online and in books. There's even a printed equipment trust plate below the LT WT stencil on both sides. Nice touch!

I found elevation drawings for the 6500-6999, 7000-7449, and 7500-7899 series boxcars on the Northern Pacific Railway Historical Association website. The model's dimensions match or are within scale inches of the prototype.

For real-world testing, I took the car over to our Milwaukee Road Beer Line and Winston-Salem Southbound Tar Branch layouts. The boxcar comfortably

negotiated the 18" radius curves on the Beer Line. It rolled through commercial and handlaid turnouts, as well as a 30-degree crossing, on the Tar Branch.

**As a fan of Burlington Northern** and its predecessors, I was thrilled when Moloco announced the NP Brainerd-built 50-foot double-door boxcar in HO scale. The model certainly lives up to the company's tradition of well-researched and detailed premium-level freight cars. — *Cody Grivno, senior editor*

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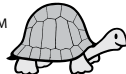
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Mixed train No. 202 stops at Damascus on Joe Giannovario's O scale Norfolk & Western layout. The passenger car in this case is at the end of the train, a common practice with passenger cars in mixed trains. Joe Giannovario photo

## Passenger car placement in mixed trains

**Q** Do the passenger cars in mixed trains go in front of the freight cars, or vice versa?

*Stanley Lachac*

**A** As is so often the case in questions about railroading, the answer is, it depends. As I wrote in my answer to Joe Mizell's question in the February 2020 "Ask MR," a mixed train is a local that has both freight and mail/passenger cars. They often ferry workers to and from their jobs at the end of a logging line or a long mine spur. You also see them on sleepy branch lines that don't get enough traffic to warrant a separate passenger train, not even an occasional one.

The fact that these trains are often the only ones that serve the branch means there's going to be a lot of switching to do. This is most often the consideration when deciding whether passenger cars in mixed trains should go at the front or the back. Even though a mixed train isn't by any stretch of the imagination a luxury trip, railroads still like to spare their passengers from discomfort as much as possible. To minimize the jolts of frequent coupling and uncoupling, railroads most often put passenger cars at the end of a mixed train. That way, the train can drop the car on the main while doing its switching, then pick it up when it's time to proceed. This position at the end of the train also spares passengers from having to breathe engine exhaust.

But as writer William Stixrud pointed out in his letter published in the September 2021 "Ask MR," there are reasons a passenger car might be coupled right behind the engine, ahead of the freight cars. One such reason is the weather. If it's cold and the car needs steam heating, the car might have to be placed up front to connect to the locomotive's steam line. But branch line mixed trains usually don't get the newest or finest passenger equipment, so depending on the era you model, those cars might be old enough to have their own coal or wood stove for heating. Check the car's roof for a smokejack. If there isn't one, and it's winter, the car probably needs steam heat, so couple it behind the engine. But if the car has a smokejack, or if you model warmer months or warmer regions, put it at the back.

**Q** When did the grade crossing whistle signal change from two longs and two shorts (— — o o) to two longs, a short, and a long (— — o —) and under what authority? I model 1907 and I have several early rule books that all have it as two longs and two shorts. At a recent train show I was able to look in a 1927 Santa Fe rule book, and at that time on the Santa Fe, it was still two longs and two shorts. I am hopeful that with the next generation of decoders from SoundTraxx will have the earlier option for those of us who model the early days of railroading.

*Spencer Kellogg*

**A** Since this question is about operations, I bounced it off our resident operations guru, Jerry Dziedzic. As I expected, the answer boils down to, "Follow your railroad's rule book." Here's Jerry's reply:

"The Standard Code adopted two longs and two shorts when it first appeared in 1887. This continued through several revisions until 1928, when long-long-short-long replaced it. But remember, the Standard Code wasn't universal. Many roads adapted it to suit their own operating conditions.

"It surprised me to find that two long-two short remained in the Erie rulebook that governs my 1947 era. The change found its way into Erie's 1952 edition. As I recall from when I wrote 'Whistle Talk' for the May 2000 MR, Boston & Maine's 1961 rulebook also stuck with two long-two short. I wish I had that rulebook handy to double-check my memory.

"You and Spencer have me musing about the reason for the change. I suppose increasing train speed and tonnage extended stopping distance, and automobile ownership put more cars on the road. This demanded a lengthier grade crossing warning. Erie's 1952 rule states the last whistle blast is 'to be prolonged or repeated until crossing is reached.' This requirement endures in today's codes. How often we hear an engineer drawing out the last looonnnng!

"Anyway, I'd advise Spencer that two long-two short works for 1907. And one more thought: either way, it's hard to time the SoundTraxx F9 function against a crossing. Using F2 for long whistle blasts and F3 for a short one is easier. Beats waiting for the next decoder, too."

Send questions to Senior Associate Editor Steven Otte at [AskTrains@Trains.com](mailto:AskTrains@Trains.com).



Sunrise gleams on the whistle of Black River & Western No. 60, a former Great Western 2-8-0 built by Alco in 1937. Though the now familiar grade crossing whistle signal of long-long-short-long was written into the Standard Code in 1928, not all railroads adopted it right away. Jerry Dziedzic photo

**Q** I'm starting an HO layout in my home and have collected several pieces of tree bark and other plant pieces which I hope to incorporate into the scenery on that layout. I've kept these items in a closed dark plastic garbage bag for some time now. Even so, I'm still concerned I could be bringing potentially destructive insects into my home. What can I do to make natural scenery products safe for my layout?

*Joe Grdinich, Center Conway, N.H.*

**A** The best way to make natural scenery materials safe for your layout — whether you're talking about tree bark, plant stems, twigs, leaves, or dirt and sand — is to bake them in the oven. Since dried plant matter is potentially flammable, you'll want to bake your materials at a low temperature, well below the ignition point of wood. I suggest around 250° F. This is enough to kill any bugs, eggs, or germs in the material, without risking an oven fire. But since this temperature is still rather low as ovens go, bake the material for an hour or so to make sure

the heat penetrates all the way through the material, especially if you're dealing with thicker items that are likely to have critters living inside them, like chunks of tree bark.

When you take your material out of the oven, let it cool for a good while, especially sand and dirt, which can hold heat for a long time. What you do with it next depends on what the material is.

For tree bark, which makes for nifty rock strata (see Roger Nulty's article in our June 2017 issue), brush any dried dirt, moss, lichen, and mold off the surface with a stiff paintbrush. Then you can spray-paint it a base rock color, like primer gray, to make sure the color gets in all the crevices. Once that's dry, glue it in place on the layout and brush-paint it to match your surrounding scenery. Thinned earth-tone color washes, an alcohol-based india ink wash to bring out the shadows, and a drybrushing of light gray or white on the highlights should result in a realistic outcropping.

For thinner plant material like sedum, sagebrush, or other shrub or tree

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armatures, baking in the oven will make them quite dry, brittle, and fragile. To keep them from snapping, soak the dried armatures in thinned white glue or matte medium. Let the matte medium soak overnight so it penetrates the material, then let it dry thoroughly hanging upside-down from a clothesline in the basement or garage. This will give the plant material enough resilience to withstand being painted, having foliage added, and being planted on the layout.

Real dirt is probably easiest to use. After baking and cooling, sift it through a series of increasingly fine colanders, sieves, sifters, window screen, and nylon stockings to remove debris and separate the material into different grades from gravel to dust. Put each grade of material into leftover shaker-top bottles, like those that herbs, spices, and dried Parmesan cheese come in. Finer material should go in jars with smaller holes in the top. Then when you're next modeling a farm field, dirt road, gravel pit, riverbed, or rockslide, just pick the right grade bottle and shake, shake, shake.



Modeler Roger Nulty glued chunks of tree bark, painted gray to represent Indiana limestone, to the side of a rock cut on his S scale layout. Roger Nulty photo

**Q** I am in a decision mode as to what's the best industry for a small shelf layout. I'm considering either lumber or grain. My shelf is 14" x 6'-0". Also, what kind of freight cars would be needed to

serve each industry?

Bill M.

**A** You didn't say what scale you're modeling in, but 14" x 6'-0" isn't much space



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for any scale. The grain industry might be doable in that size in N scale, but if you're modeling in HO, that industry would require more space to model convincingly. The most you could fit on a narrow 6-foot shelf would be a single grain elevator, a secondary industry like a feed mill or oil dealer, a station with a house track, and a double-ended siding. You could switch the industries and team track, which might provide a half-hour's operating fun, but you wouldn't have anywhere for a train to go unless you add on a removable staging track.

If you choose to model a lumber line, though, your options expand. Logging railroads could use tighter curves, sharper turnouts, steeper grades, and smaller rolling stock than common-carrier roads. Many such lines were narrow gauge, which improves those metrics even more. Even in HO scale, you could take advantage of this to design a layout with a steeply graded switchback leading from a logging camp to a sawmill. The switchback would increase not only the length of your run, but also the

number of maneuvers needed to navigate it, boosting the layout's operating fun. The steep grade and the length of the switchback will limit the length of your trains, which will require you to run more trains to move the same number of logs. And the vertical separation between the sawmill and logging camp will make the two ends of the line feel farther apart than they actually are.

You don't even need to allocate a lot of layout space to the sawmill itself. All you need is an unloading track next to the edge of a log pond. The sawmill can be inferred to be just off the edge of the layout. That might even let you fit in two log camps on the model railroad, one at each end of the switchback.

For track planning inspiration, check out Chuck Yungkurth's Gum Stump & Snowshoe, a compact shelf layout that features a switchback that crosses over itself. Just add a mountainous backdrop and a bunch of trees, and you're good to go. It was originally published in our April 1966 issue, but continues to inspire other layouts since then.

As for the rolling stock, that depends not only on your choice of industry, but also the era. A steam-powered logging line would be simple; a geared steam locomotive like a Shay or Climax, a handful of cutoff log bunks or skeleton cars, and maybe a bobber caboose. For variety, add a boxcar for the occasional delivery of logging equipment and a combine to carry workers and their supplies up to the camp. For a more modern operation, switch the motive power to a short center-cab diesel like a General Electric 44-tonner, modernize the log cars, and lose the caboose.

To model the grain industry, before the 1960s, you would need boxcars fitted with nailed-in wood (early) or heavy paper (late) grain doors. For motive power, I'd suggest a 2-8-0 Consolidation (early) or 2-8-2 Mikado (late). In the 1960s, covered hoppers came along. By then, motive power would be a road switcher like an EMD GP9, Alco RS3, or later, a GP35 or GE Dash-8.

Good luck building your model railroad! **MR**

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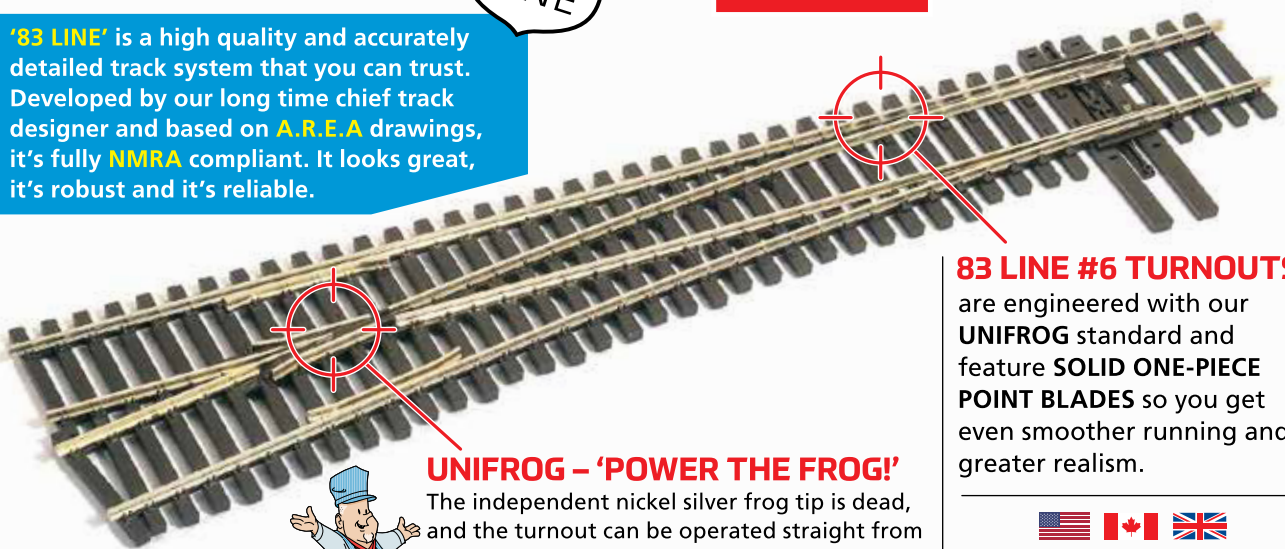


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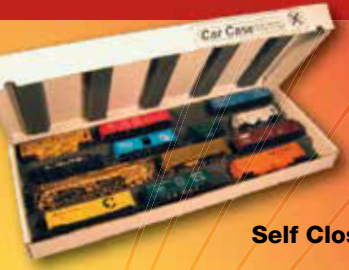
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# Modify a switch kit for smoother operation

Pelle modified a CVMW switch and added paint and ballast to the finished switch. It's operated by a switch machine mounted underneath the roadbed. Photos by the author

I'm a big fan of Central Valley Model Works switch kits and have used them exclusively on my modules in recent years. The kit consists of a tie block, a set of switch points, and various details. All that the modeler has to provide is the rail and spikes.

I'm using these CVMW switch kits on my two and a half FREMO-US modules wherever I need a turnout. [Read more about Pelle's FREMO-US project in the May 2024 and October 2022 issues of MR — Ed.] For these turnouts I'm using the CVMW tie section and Miller Engineering rail. However, I'm substituting a Details West frog for the CVMW frog, and chose not to use the included switchpoint castings, either.

Instead, I have noticed that some of the track manufacturers have recently released new turnouts where they've eliminated the separate switch points and instead extended the closure rail so that part of it works as a switch point.

This inspired me to do the same on one of my CVMW turnouts. It turned out to not be a particularly complicated task, and I was pleased with the result, so in the future I will without a doubt build my CVMW switch kits this way.

[For more tracklaying articles from Pelle, be sure to check out *Realistic model railroading with Pelle Søbørg* and *Tracklaying tips and techniques* vol. 2 on [shop.trains.com](http://shop.trains.com) — Ed.]

## Materials list

**Central Valley Model Works**  
2871 No. 8 left switch kit code 70

**Details West**  
926 Switch frog code 83

**Micro Engineering**  
17-083 Code 83 rail

**Miscellaneous**  
Printed Circuit Board (PCB) tie  
Strip styrene

## STEP 1 TIE PLACEMENT

To start the switch kit project, I glued the Central Valley Model Works tie block to the cork roadbed using common contact cement **1**.

As I was not planning to use the switch rod mechanism that came with the kit, I filled the L-shaped ties with black styrene strip. Note the rectangular hole in the roadbed for the switch rod spring. I cut the hole before I glued the tie block section in place **2**.

I also chose not to use the original frog that came with the kit. Instead I replaced it with a No. 8 Manganese Insert Type (White Bronze) frog with plastic railbars and pewter guard rails from Details West **3**.



## STEP 2 A POWERED FROG

I wanted a powered frog, so before attaching the frog casting permanently with cyanoacrylate adhesive (CA), I soldered a wire to the underside of it and pulled the wire through another hole drilled in the roadbed **1**.

The critical part of the turnout's modification is the switch point, which is an extension of the closure rail. I shaped two pieces of rail by filing approximately an inch of the end of each of them to a point, then soldered them to a printed circuit board (PCB) tie switch rod **2**.

The frog needs to be insulated from the closure rails. I did that by gluing pieces of styrene strip to the end of the frog casting with CA **3**.





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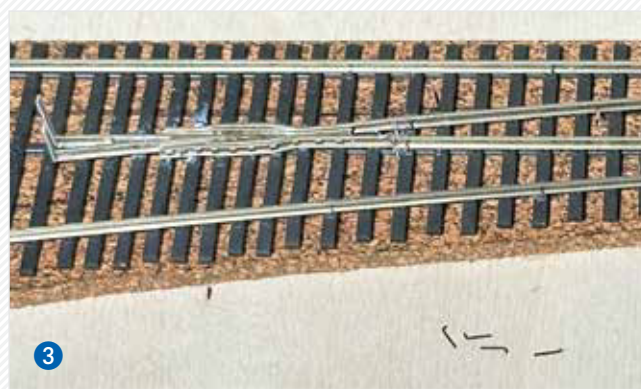
## STEP 3 LAYING THE RAIL

I cut the closure rails to fit and fastened about two-thirds of each rail with a few spikes. The last third of each rail is the switch point, which should be free to move **1**.

Before attaching the stock rails to the tie block, I filed off an inch of the inside foot of the rail so that the end of the points could fit closely up against the rail **2**.

After filing both stock rails, they were also secured to the ties and roadbed with a few spikes.

Finally I trimmed the styrene strips between the frog and closure rails **3**. To minimize the risk of derailments, these strips should be trimmed to the cross-section size of the rail with no protrusions.



## STEP 4 FINISHING TOUCHES

All that's left is to apply your preferred details to the switch. I applied guard rails, a couple of joint bars between the frog and closure rails, and rail braces to the stock rail in the point area **1**.

Finally I tested the turnout by rolling a freight car truck through it a couple of times **2**.

I'm happy with the end result. Everything operates smoothly and in a much more realistic manner. If you have stock switch kits to build, I highly recommend this upgrade. **MR**



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Streetcar and automobile traffic proceed on Market Street now that the traffic light has turned green. Harvey Simon shares how he installed working traffic signals on his HO scale San Francisco F Line traction layout.

# Add traffic lights to a traction layout

These functioning details add visual interest to a model railroad

By **Harvey Simon** • Photos by the author

**I've always enjoyed signals** and other lighting effects on model railroads. They add visual interest that draws visitors and operators into a scene, plus lights have a certain cool factor. Recently, I installed traffic lights to my HO scale San Francisco F Line traction layout.

While surfing the internet, I found a company called WeHonest that supplies traffic lights and other model railroad lighting accessories. The company's eBay store offers many styles of lights.

When I began the project, I started looking carefully at typical intersections. Some have lights suspended from cross-beams attached to poles, others have

them hanging from cross wires, and still others have lights on single masts at the corners of intersections. The variety WeHonest offers contributes to a more authentic look.

## Getting started

The lights operate from a printed-circuit (PC) board, also from WeHonest, that controls the timing and sequencing. The lights change in a normal sequence, where a steady green turns to a brief yellow and then to a steady red. The red turns back to green, and the sequence begins again.

On four-way intersections, lights move in the opposite direction. When traffic is stopped at a North-South red, traffic proceeds at an East-West green. The PC board allows adjustable timing of the green light. You can add or subtract the amount of time the green light is lit before changing to yellow.

The PC board can also be set for different types of signaling, with settings options for both the United States and United Kingdom.

I mounted the PC board and barrier strips to a piece of 1/4" plywood before installing under the layout **1** (page 31). There are four sides, each the same. In a

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typical four-way intersection, there are both East-West and North-South lights, and you can see how these are wired. With four sides you can wire at least two intersections, as the N/S wiring can be combined since the lights would be opposite of each other. The same is true for E/W.

There are connection ports for each wire — black common, labeled C+; red; yellow; and green. The WeHonest web-site has a picture of the PC board and instructions for wiring. Each light comes factory-assembled with thin wire in the same colors that need to be connected to their corresponding ports on the board. There are black, red, yellow, and green wires for each traffic light.

## Wiring the lights

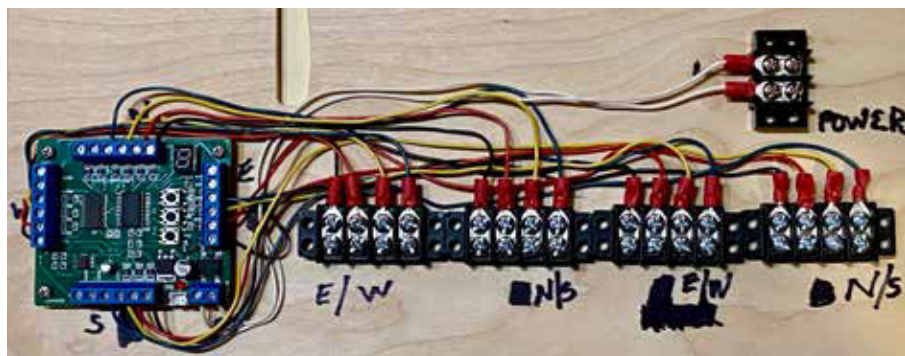
Photos ② and ③ show how I prepared the wiring and made other modifications to the lights. It's necessary to strengthen and add length to the wires, as this will make it easier to complete the wiring under the layout. For this I used 22AWG wire in matching colors. There's also a white spool which I used for feeders from my Digital Command Control (DCC) bus to power the PC board. The board has the necessary resistance built into it, so resistors aren't necessary.

I cut the leads approximately 5" long, soldered them to their corresponding colors — red to red, green to green, etc. Then I tinned the 22AWG wire and taped it to a small piece of wood. I added a bit of flux to the wires coming from the lights, then touched the iron to the joint.

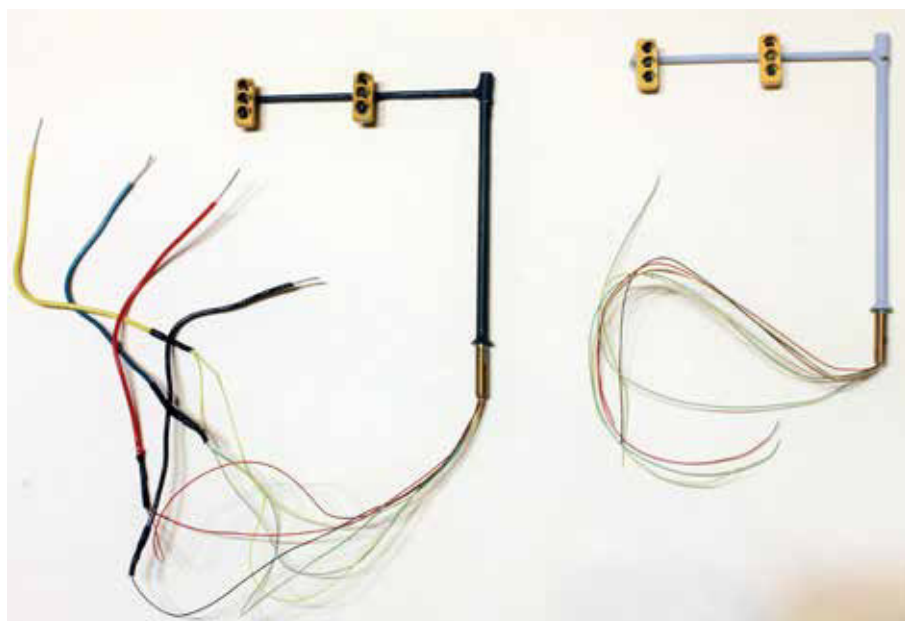
Note how the double traffic light has one black, two red, two yellow, and two green wires ②. Here, I twisted both red wires together and then soldered the red lead to this. I repeated this step for the green and yellow wires. I covered each joint with heat-shrink tubing to prevent short circuits.

The pedestrian signal, ③, is set at a right angle to the traffic signal. Here, the two wires banded by the blue tape represent the red and green lights of the pedestrian signal. You need to first test the light to determine which red and green belong to the pedestrian light.

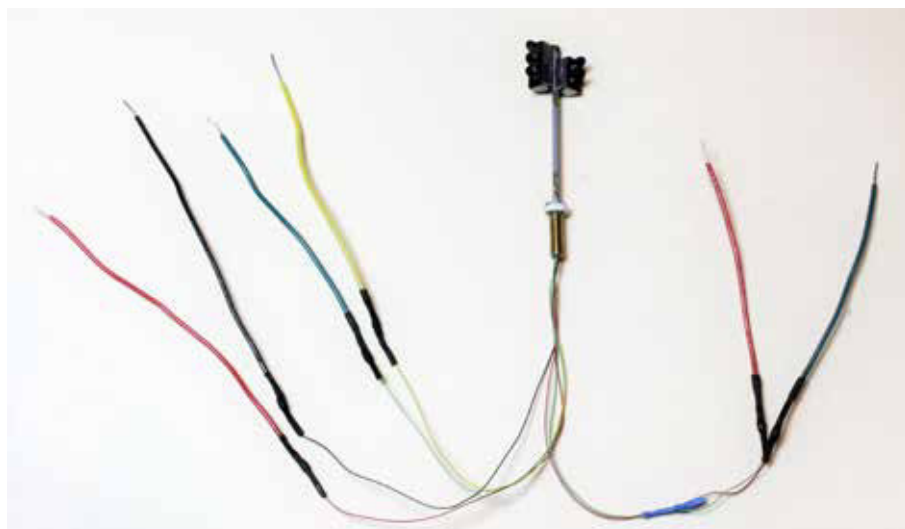
The traffic signal turns red to stop oncoming traffic and at that same moment the pedestrian signal turns green allowing pedestrians to cross the street. As a result, the wiring for the traffic light needs to be in one direction, say N-S, on the board. The red and green pedestrian lights must be wired in the opposite direction. This is explained on



① Harvey mounted the PC board for each traffic light, along with barrier strips to keep the color-coded wiring organized, on 1/4" plywood prior to installation. He labeled the barrier strips E/W or N/S depending on the facing direction.



② The WeHonest double light is perfect for Market Street, a four-lane road with two lanes in each direction. The light on the right is straight out of the package. There's a single common wire (black) and two color-coded wires for the green, red, and yellow lights. The traffic light at left is Harvey's finished product.



③ This perpendicular light is used at an intersection and needs to be wired differently. There are three wires for the traffic light and two for the pedestrian signal. The black common controls both. After testing the wires to see which red and green wire go to each light, he soldered a lead to each.

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the product instructions section of the WeHonest website. My advice is to wire and test each traffic signal to make sure the lights are working in the correct way before the final installation. I also installed separate pedestrian-only signals, which has a light that flashes red before turning solid red.

## Making modifications

The WeHonest lights are OO scale (1:76), a bit oversized for HO (1:87.1). I modified the lights by grinding away approximately  $\frac{1}{64}$ " from each side of the light housing, and the same amount from the bottom, with a cut-off tool. This process removes some paint, but part of the modification is to also tone down the colors with new paint and some weathering. To my eye, this helps reduce the slightly oversized look of the OO details.

For the double lights, I painted the pole and cross arm a blackish green and the housing Polly Scale Reading Yellow. If you don't have this now-discontinued color, any flat yellow will work.

I then weathered the traffic lights with an India ink and alcohol wash. I also added a small  $\frac{7}{32}$ "-diameter styrene tube spacer at the bottom of the pole. This adds some height to the pole and better mimics the base found on lights in the United States.

For the combination traffic/pedestrian lights, I painted the mast Vallejo black gray and housings with the company's flat black. Be careful not to get paint on the bulbs.

Finally, I added traffic warning signs. Across the double yellow traffic lights is a "DO NOT BLOCK INTERSECTION" sign. For the other signals, I found several suitable streetcar crossing warning signs on the internet. After sizing them for HO scale and printing them in color, I attached them to styrene sheet and mounted them to the poles.

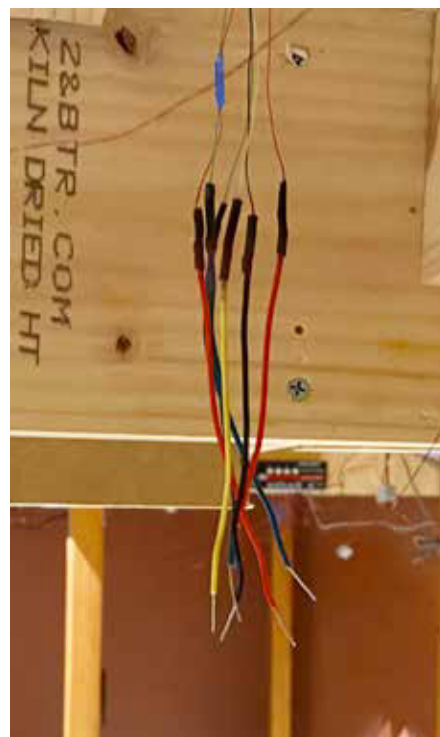
## Final installation

Installing the traffic lights was more challenging than I first imagined. The WeHonest lights come with a screw base and locking nut. Unfortunately, these weren't long enough for my layout, so I glued the lights in place with cyanoacrylate adhesive (CA).

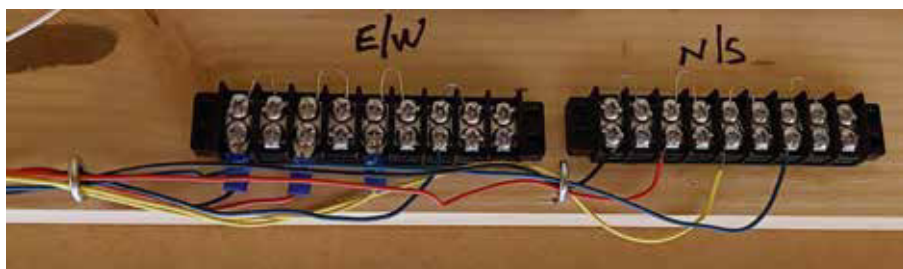
Another issue I faced were the existing traction overhead line poles and streetlamps I had previously installed. To navigate around these details, I used an elongated  $\frac{3}{16}$ " bit to drill the holes in tight spots **4**.



**4** Harvey added the traffic lights to his largely complete model railroad. To get around existing details and into tight spaces, he used an elongated  $\frac{3}{16}$ " bit to drill holes for the lights.



**5** Each traffic light has several wires that need to be connected under the layout. Extra time spent at the workbench neatly soldering and insulating the joints and tinning the leads make installation much easier.



**6** Barrier strips keep the color-coded wiring neatly organized. Note the wire loops that Harvey used to bridge the inbound power from the printed-circuit board to the outbound corresponding traffic light.

Each light has several wires, which needed to be connected under the layout **5**. I used barrier strips at each intersection to keep everything organized **6**. You'll need a barrier strip for N-S and one for E-W. I also added a two-port barrier strip on the printed-circuit board for powering the lights with a simple on/off rocker switch.

Note the small jumper wires in **6**. These allow for the input wires from the PC board and output wires to the lights to be powered. I ran wires from the PC board barrier strips in **1** to those in **6**. Then I ran wires from each color's adjacent port to complete the hookup with the wires from each light. Do one intersection at a time. For an intersection with facing lights in the same direction,

band the reds together and run one lead to the circuit board. Same for the greens and yellows. My suggestion is to wire one intersection completely and turn on the power to make sure everything works. Although it looks complicated, you'll get the hang of it quickly and you'll be pleased with the effect.

If you have a traction layout or an urban model railroad with significant street running, consider adding working traffic lights. It's fun seeing the streets come to life, and the traffic lights have become a real attention-getter. **MR**

*Harvey Simon and his wife, Lisa, live in Boone, N.C. He retired in 2015 and now teaches part time at Appalachian State University.*



# THE HOOSIER in S scale

This late 1940s Monon layout is based on the railroad's Fourth Subdivision

**M**y S scale Chicago, Indianapolis & Louisville (Monon) depicts the railroad's Fourth Subdivision, a 100-mile single-track main line between Lafayette and Bloomington, Ind., during the late 1940s. To fans of the prototype, this was known as The Barriger Era, when Monon President John Barriger III was in the process of

converting a tired old railroad in the throes of bankruptcy into his concept of super-railroading. This was the line's most prosperous time.

Why did I model the Monon? When I returned to the hobby in 1983 and began thinking about building a layout, I decided on prototype modeling because of my interests in history and period architecture. I did some research and

discovered the Monon in the 1978 Kalmbach Publishing Co. book *More Railroads You Can Model*, edited by Mike Schafer.

I flew back to Indiana and took hundreds of photos of the railroad and its settings. Though the Monon had become part of the Louisville & Nashville in 1971, significant buildings and much of its track were still around, to my delight.



# LINE

**By Roger Nulton**

Photos by the author

I liked the small-town settings of the railroad, probably because my family was from the Hoosier State. My mother was born in Lafayette, the main division point on the railroad. Though I was born in Indiana, I moved to Buffalo, N.Y., when I was six. I returned to graduate from Indiana University in Bloomington, another division point on the Monon RR.

While at Indiana University, I rented a house adjacent to Monon's McDoel Yard. Though I enjoyed the comforting sounds of couplers clashing and horns blaring day and night, I had only a fleeting interest in the action taking place beyond my backyard. If only I had the foresight to take a camera and capture those wonderful railroad facilities that are now long gone.

① Monon Electro-Motive Division BL-2 No. 34 leads a freight train over the White River on Roger Nulton's S scale model railroad. The diesel, decorated in the colors of Purdue University, was built from a resin kit.



② Electro-Motive Division NW2 No. 13 switches the New York Central interchange at Greencastle, Ind. The black-and-yellow paint scheme proved hard to maintain and was replaced with the more familiar black and gold.

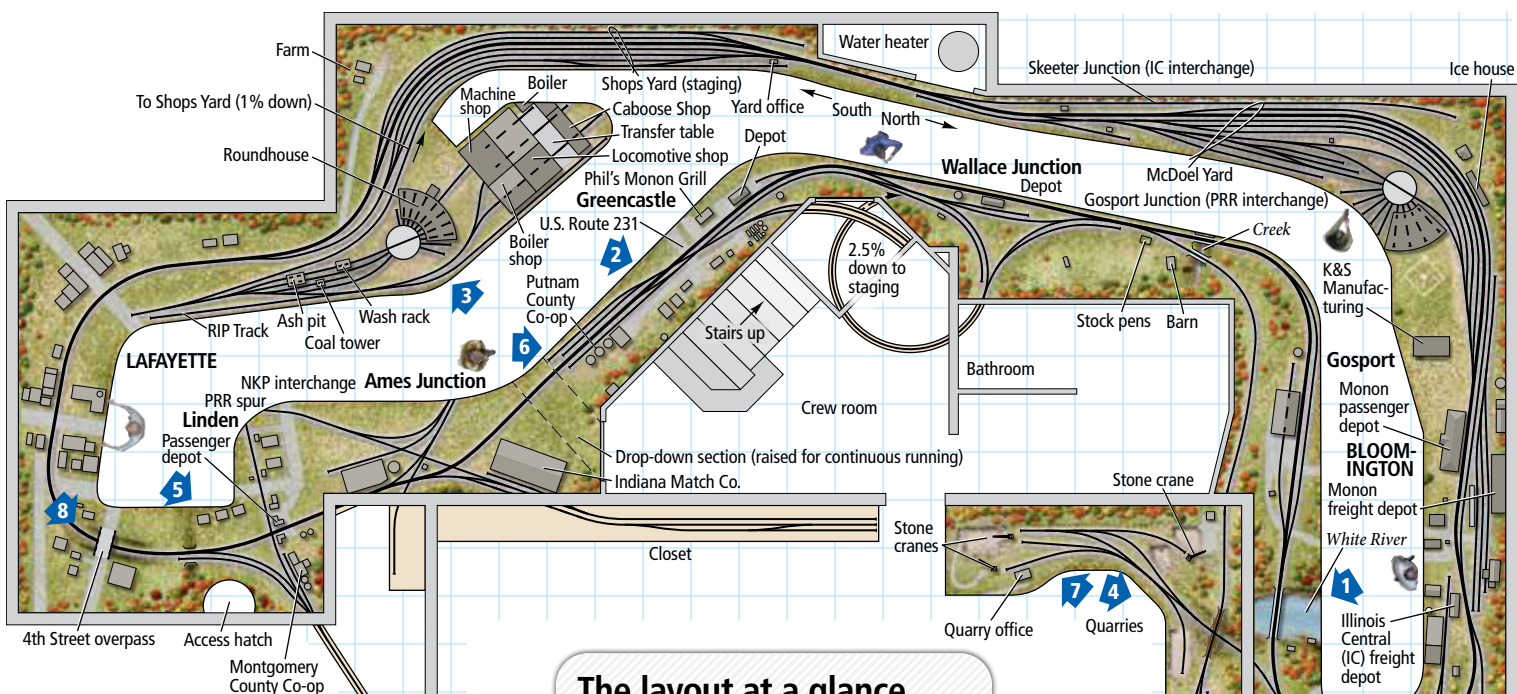
③ Shops Yard in Lafayette, Ind., is home to one of two turntables on the model railroad. Here, 2-8-2 light Mikado No. 550 is turned before heading over to its train. The turntable bridge is a modified Mini-Structures kit. Roger scratchbuilt the turntable pit.

### Basement and benchwork

Before starting work on the layout, I extensively remodeled the finished basement, moving the bathroom into a hallway and removing walls and closets. New electrical outlets were placed on the walls and ceilings for lighting and power.

I used L-girder benchwork on most of the model railroad, switching to open grid where clearance underneath was





## Monon RR

S scale (1:64)  
Layout size: 38 x 62 feet  
Scale of plan: 1/8" = 1'-0", 24" 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:** Chicago, Indianapolis & Louisville  
(Monon)

**Scale:** S (1:64)

**Size:** 38 x 62 feet

**Prototype:** Monon

**Locale:** west central Indiana

**Era:** late 1940s

**Style:** walk-in

**Mainline run:** 180 feet

**Minimum radius:** 48" (main), 36"  
(sidings and spurs)

**Minimum turnout:** No. 6

**Maximum grade:** 1% (main), 2.5% (to  
staging)

**Benchwork:** L girder

**Height:** 46" to 49"

**Roadbed:** Homasote

**Track:** code 100 (main), codes 83 and 70  
(sidings)

**Scenery:** foam board and Hydrocal

**Backdrop:** 1/8" tempered hardboard

**Control:** NCE Digital Command Control  
radio



needed. I ripped cabinet grade 3/4" maple plywood into 1 x 4s for more stable framing members. The plywood accepted power-driven drywall screws without pilot holes, a great time saver.

For the fascia and valance I used 1/4" tempered hardboard. I then hung fluorescent fixtures from the ceiling. The lights are controlled by switches on the layout fascia.

I installed track lights behind the valance with spotlights focused on specific layout features. The valance is below average male eye level to create a shadowbox effect.

The backdrop is also 1/4" tempered hardboard. I painted it with shades of custom-mixed blue house paint matched to photos of skies I took along the Monon main. To reinforce the open expanses of the Indiana flatlands — and because I prefer simple backdrops that don't distract from the layout and compete with the modeling — the sky represents a mostly clear Indiana sky with subtle clouds airbrushed in.

When I began track planning, I turned to prototype diagrams and station site plans of the towns that I wanted to model. Of course, I couldn't include all of the tracks due to space limitations. However, I tried to incorporate significant structures and capture the feel of prototype train movements.

Though the model railroad fills a finished basement, the focus is on the scene in before an operator or visitor because of the way the track plan takes advantage of the size and shape of the available

spaces. I wanted distinct scenes that could be viewed without seeing the adjacent towns.

## Scenery solutions

I used various sizes of extruded-foam insulation board for the scenery base. I glued the sheet material to the benchwork joists with foam-safe latex construction adhesive.

Indiana has few cliffs or tunnels, but as the photos show, some portions are quite hilly, with deep ravines and rock cuts. The foam lends itself well to this type of scenery, as I'm able to stack or cut the material to get the look I want.

I fill any large gaps between pieces with spray foam insulation. The material is remarkably strong, and I'm able to shape it like the foam insulation board.

Usually I paint the foam with latex texture paint and apply ground foam, ballast, or dirt directly on top. Then I secure the scenery materials with white glue or matte medium.

I didn't use plaster on this layout, though some sections salvaged from my previous two layouts still have Hydrocal-soaked strips supported by aluminum screen wire. Sometimes I use a "goop" consisting of vermiculite, papier mache, latex paint, and white glue to model stream beds or other final texturing.

I scratchbuild the trees in the foreground using natural sagebrush for the trunks. Then I attach Scenic Express

4 Electro-Motive Division NW2 No. 1, painted in its original black scheme, pulls Monon stone gondolas over one of the many wood trestles in Indiana's limestone quarry district. Below, the conductor greets the passing train after lining a switch on the branch to the Ellettsville quarries.

SuperTree branches with hot glue. The extruded-foam insulation board scenery base makes tree planting easy.

I use Scenic Express and Woodland Scenics materials for the general foliage. I make the fall foliage using natural foam rubber, which I dye in appropriate colors and grind in a blender.

## Structures, trains, and track

The structures are a mix of S, O, and HO scale offerings, some of which I've modified to work in 1:64. I scratchbuilt significant prototype buildings from photos and/or plans.

Styrene is my go-to building material. I use the score-and-snap method for cutting door and window openings. I laminate the styrene with brick sheet for masonry structures and dimensional strips and wall sheathing for wood.

On most buildings I add as many exterior details as possible. Except for some foreground structures, I don't install interior details.

All of the locomotives are custom decorated in various Monon paint





schemes. The engines have been further modified to include prototype-specific details. For example, steam engines feature capped stacks and crescent steps, while the Electro-Motive Division F3A diesels include Phase 1 details not available commercially.

The rolling stock is a mix of Monon and foreign road cars appropriate for the era. I scratchbuilt cabooses, bunk cars, and kitchen cars. I heavily modified resin kits to re-create Monon's wood-side stone gondolas.

I weather the locomotives and freight cars with artist's tube oil paint thinned to a wash with mineral spirits. I follow that up with chalks. On occasion I dry-brush models. Regardless the technique, I spray a flat finish on all of my models.

5 As a farmer tends to his tractor, Monon BL-2 No. 30 is busy working the Nickel Plate Road interchange at Linden, Ind. Roger scratchbuilt the Monon and Nickel Plate Road cabooses at the left edge of the photo.

Sometimes I brush isopropyl alcohol over the flat coat for a blushing effect.

The main line and sidings feature Tomalco code 100 and code 83 flextrack. Some yard areas have code 70 track. The roadbed is S and HO scale Homabed attached to the painted foam insulation board with spray adhesive. I use spikes, driven into holes in the plastic ties on flextrack or directly into wood ties, to hold the track in place.

The minimum curve radius is 48" on the main (with one exception at 40") and 36" on spurs. I used No. 8 and larger turnouts on the main and sidings and No. 6 or larger on spurs.

### Running trains

Since the Monon was a north-south railroad that traversed many east-west lines, it served as a bridge route to move traffic from one interchange point to the next. My layout features six interchanges with major railroads, so operations are primarily movements between them.



6 Loose-car railroading was common in the late 1940s. Here, an Electro-Motive Division NW2 pulls two 40-foot boxcars loaded with grain from Putnam County Farmer's Co-op in Greencastle, Ind. The metal grain bins next to the elevator are HO scale kits.



7 The quarries are served by the Stone Branch out of Ellettsville. Roger cast the limestone blocks in tinted Hydrocal, drilled them, and split them into smaller chunks. He modeled the cranes using HO high-tension towers. Roger reports that crews enjoy the challenge of switching out loaded cars with empties.

There are also two branches that serve online industries.

Train movements are based on a 1948 Monon timetable, and the dispatcher fills out actual train order forms from

the railroad. I use Micro-Mark cards for car forwarding.

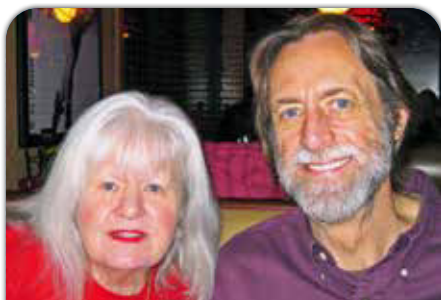
A crew of eight to 12 operators are needed for op sessions, with a yardmaster and one- or two-person crews. The

dispatcher works from a desk in one room. A remote station operator communicates with the dispatcher, relaying orders with a radio.

Three time freights, several extras, a stone train, and a coal train are run during the course of a four-hour session. Members of my operating crew have offered suggestions and created paperwork, such as the timetable and dispatcher's record sheet.

NCE Digital Command Control (DCC) radio cabs allow train crews to follow their train along its route. I'm not a fan of reaching in to switch, so all of the turnouts are controlled from the fascia. I primarily use Blue Point manual turnout controllers. In a few locations I installed Tortoise by Circuitron slow-motion switch machines.

Most of the track is 30" or less from the aisle, so picks are used to uncouple equipment. In areas with a longer reach-in distance, I have short plastic stools (similar in appearance to passenger car



## Meet Roger Nulton

**Roger Nulton retired** from fixing old buildings in 2007 to build his dream layout. His wife, Jami, is a retired middle school teacher. They bought a house in Washington, Jami's birth state, with a view of a Puget Sound shipping lane for her on the upper floor and a large, finished basement for Roger. The couple enjoys gardening, family, and travel. You can read about Roger's first S scale Monon layout in *Great Model Railroads 1998*.

steps) that help operators reach over scenery or structures. Most of the aisles are 48" or wider, except at Wallace Junction, where it narrows down to 29".

In addition to operating sessions, I've hosted open houses for local groups and regional and national organizations. It's rewarding to hear the comments, both positive and negative. The most frequent comments about S are how it's the "perfect scale" and "I thought S scale was just American Flyer." Most have never seen an S scale layout in person, so I'm happy to introduce them.

## Reaching goals with friends

Few model railroads are a solo effort, and many people have helped me along the way. First is my wife, Jami. She paints figures and track, adds interiors to structures, and builds and plants trees, among other modeling projects. She also serves as a gracious hostess for open houses and operating sessions. I'm very fortunate to have such a source of encouragement and understanding.

My cousin, Billy Neal, was a semi-professional photographer and encouraged me to photograph my layouts early on. Paul Scoles shared his insights on lighting and composition to help me get better photos. Fellow S scaler Brooks Stover has provided endless support and guidance, especially with digital photography. Over the years the Monon



**8** A United States Railroad Administration light Mikado ducks under the Fourth Street overpass as it coasts into Lafayette, Ind., with northbound train No. 72. The railings, fences, garage, and stonework are marketed as HO scale but work just fine on Roger's S scale model railroad.

Railroad Historical-Technical Society and Monon Board chat group have been valuable resources for prototype photos and information.

## What's next?

My S scale Monon RR Fourth Sub-division has been under construction for 17 years. The layout is about 70% complete. Though the scenery is in, only about 40% of the structures are built. My primary focus is completing the remaining buildings so I can have more finished scenes. Many of them will need to be scratchbuilt, especially the railroad's signature buildings.

Most scenes that are now considered complete would benefit from additional details. There's a future National Model Railroad Association national convention in the works for my area, which gives me added incentive to get these projects completed.

My original goal for this layout was to relax from the stress of my job and have fun. For the most part, I've achieved that goal. Since retirement, I probably have less time to spend on my modeling interests because of other pursuits. I've learned this hobby can be very time consuming and to not let the objective of completing a project interfere with the goal of having fun. **MR**

# S scale today

As it turns 90 years old, the “in-between scale” has numerous overlooked advantages

By Brooks Stover



**O**n behalf of the community of S (1:64) scale modelers, congratulations to *Model Railroader* magazine for 90 years of service to the model railroading hobby. It's a milestone to be proud of! Railroad models in 1:64 scale first appeared at about the same time MR started publishing in 1934. Both *Model Railroader* and S scale are celebrating their 90 anniversary in 2024!

In that year, Cleveland Model & Supply, a small company in Ohio, began producing locomotive models that were  $\frac{3}{4}$  the size of O scale, or  $\frac{3}{16}$ " to the foot. They called them C-D scale for “Cleveland Designed.” Then in 1943, the National Model Railroad Association (NMRA) changed the nomenclature,

While an S scale model (bottom) is just 36% longer than an equivalent HO model (top), the volume of the S model is 250% that of the HO model. This larger volume and mass offers a number of advantages in operation, reliability, and visual appeal. Brooks Stover photo

and C-D scale became S scale. In 1960, the National Association of S Gaugers (NASG) was formed.

## Growth of S scale

While many modelers enjoyed toy trains in  $\frac{3}{16}$ " size — particularly the American Flyer trains manufactured by A.C. Gilbert — more realistic and detailed 1:64 trains with properly proportioned wheels and track started being manufactured as early as 1940. Because



the interest in toy trains never disappeared even though interest in accurate S models continued to grow, today there's a wide range of equipment available in 1:64 size, from toy-like trains to prototypically detailed scale models.

We like to think there's something for everyone in S scale. But we're also aware that within the broader modeling community, the scale side of S is often misunderstood. Hopefully the two articles featuring S modeling in this issue [pages 36 and 48 —Ed.] and the comments below will resolve some of that.

Today, S scale is a viable size for serious model railroading. Very accurate models are available ready-to-run and can be built in 1:64. The focus of this article is S standard gauge, but there's an



A pair of Southern Pacific Electro-Motive Division diesels leads a train out of the Summit snowshed on Bob Hogan's S scale Sierra Northern RR. Though it had its origins in toy trains, in the past 90 years 1:64 scale has become a favorite of prototype craftsmen modelers. The lead SD9 is a Overland brass model and the following GP9 is from American Models. Bob Hogan photo

equally active segment of 1:64 modeling in S narrow gauge.

### Sizing up S scale

S models are 25% smaller than O scale models and 36% larger than HO scale models (1:87.1) in any dimension. Though the increase in linear dimension is modest, the resulting volume of an S model is 250% the volume of an HO model. This increase in volume offers several significant advantages for model railroading, as we'll see later. Those in S find it a wonderful middle ground in terms of size.

Since there are 1:64 size trains across the spectrum, there are multiple wheel profiles and track systems available in S. Some 1:64 trains have wheels with out-of-proportion flanges and run on oversized track (commonly called "hi-rail"). Those who scale model in S use track systems and wheel profiles meeting NMRA/NASG standards.

Track is available with prototypically sized rail in sizes code 70, code 83, code 100, and code 125. Code 100 is equivalent to 115 pound prototype rail and code 125 is equivalent to 155 pound rail. Turnouts using NMRA/NASG standards have frogs and flangeway

clearances to accommodate scale wheels with RP-25 code 110 profiles, the NMRA/NASG standard S scale wheel. Those scale modeling in S don't have to compromise when it comes to the fidelity of rail sizes and wheel profiles. For those that want to go the extra mile, P:64 (fine scale) wheels are available.

### Why consider S?

There are five attributes associated with S models that attract modelers to the "in between" size of S, and then keep them there once they're in it. An understanding of these attributes will be



Many modelers modify O and HO scale structures for use in S scale by replacing doors and other details with appropriately sized parts. Michael Eldridge modified this HO scale Heljan brewery kit by replacing windows and doors. Michael Eldridge photo

helpful to those looking for a new, or an additional, size in which to model.

- **Uniqueness.** A relatively small percentage of modelers within the hobby make S their primary scale. This means that any S model or S layout is unusual. For many S modelers, it's appealing to be "different from the other guys."

Because of the niche nature of S, fewer ready-to-run products are available in 1:64 than in the more common scales. However, this leads many S scalers into kitbashing and scratchbuilding. This further separates one's model railroad from all the others, in both S and other scales.

- **Physical presence.** While models in 1:64 scale are modestly larger in any dimension than HO, they're substantially larger visually and in physical mass. This makes S scale models and layouts impressive, even when viewed from a distance. Larger locomotives also have room for larger, smoother running motors and larger speakers that produce louder and more accurate sounds. Further, the increased mass of S scale rolling stock improves its stability when moving along the track.

- **Level of detail.** A point I like to make is that you can get "up close and personal" with an S scale model because the level of detail survives close inspection. Smaller details can be modeled and still be resistant to breakage during handling and operation.

- **Reliability and durability.** One of the most obvious benefits of S is that the increased mass and larger wheel-track contact area of the locomotives results

in exceptional electrical reliability. The larger size of the components in the drive mechanisms also make them more robust. Except for the most massive locomotives, S models can use the same 1A decoders used in HO scale locomotives.

- **Easier to see and work on.** Models in 1:64 scale are easier to see to work on, and car numbers are easier to read during operation, than in smaller scales. The larger scale simplifies scratchbuilding, as every part of a model is larger. These attributes become increasingly important as a modeler progresses in age, and dexterity and eyesight become issues.



A full assortment of S scale structures, motor vehicles, details, and figures are available from numerous manufacturers. Arttista offers a wide range of S scale figures, and there's a huge number of die-cast metal vehicles of all vintages in 1:64, as shown in this scene on Mike Fyten's layout. Mike Fyten photo

- **Photogenic.** A final attribute of 1:64 modeling that has appeal for many is that the larger size of an S model makes it easier to photograph. The level of detail shows up nicely in photos. Because the models are a bit larger, the camera can be farther from the subject, resulting in a greater depth of field of the photographed scene.

## How to get started

The National Association of S Gaugers (NASG) has as its mission the promotion of  $\frac{3}{16}$ " modeling in all forms. The NASG's website (NASG.org) is no doubt the most comprehensive website available for any scale. Clicking on the RESOURCES tab on the welcome page takes you to a list of current manufacturers with links to their websites, and the PRODUCT GALLERY tab leads to a comprehensive illustrated listing of all the locomotives and rolling stock ever produced in S. Behind the How To tab is technical information about track, turnout, and wheel specification. Photographs of S scale layouts are available by clicking the LAYOUT tab. A calendar of events of interest to S modelers is available by clicking the EVENTS tab. There are frequent news postings at the NEWS tab, and contact information for the 70-plus S clubs around the country is available by clicking CLUBS. No doubt one is near you!

Other online resources include the digital magazine *S Scale Resource* (sscaleresource.com), published six times per year. There are numerous social



Kitbashing, scratchbuilding, and superdetailing is easier in S than in smaller scales. Bob Frascella models the Delaware & Hudson. The lead locomotive is an American Models Alco RS-11 that Bob altered by installing correct draft-gear boxes and modifying the fuel and air tanks to match the prototype. The General Electric U33C is a modified Lionel model. Both engines retain their factory paint. Bob Frascella photo

media groups for S scalers on Facebook and Groups.io. These groups welcome newcomers and are useful resources to those wishing to explore S.

Though there might not be as much ready-to-run equipment available in S as in some scales, those of us who model in this scale find its advantages more than outweigh the challenges. Roger Nulton's beautiful Monon layout and the other photos accompanying this article demonstrate what can be done in 1:64. The models created by Paul Washburn show that techniques for modeling in other scales are applicable in S.

Modeling in 1:64 isn't for everyone, but it might be for you if you want to have something a bit different in an ideal size and are willing to do the extra work to achieve it.

As veteran S scale modeler Ed Loizeaux says, "The joy of accomplishment is hard to beat." Involvement in today's world of S scale model railroad-ing is very rewarding. [MR](#)

*Brooks Stover's S scale Buffalo Creek & Gauley was featured in Great Model Railroads 2023. He wishes to thank Jim Whipple, NASG president, and Brian Jackson, NASG Central Region VP, for their assistance with this article.*

## Product availability

**A finished S layout** or individual model can be both visually and operationally impressive. However, getting the desired model may be somewhat harder than in a scale with more manufacturers and product offerings. As S modelers are quick to point out, modeling in S calls for inventiveness and perseverance. While there are ready-to-run locomotives and rolling stock covering many popular eras available in S today, a large selection of previously produced items is also available on the secondary market.

For many S modelers, the challenge of the hunt to find a desired item or of figuring out how modify available items to get what they want is a big part of the fun of working in S scale. Of course, some modelers will choose to scratch-build what they need.

- The manufacturer with the largest product line of locomotives and rolling stock is **American Models (AM)** of Whitmore Lake, Mich. American Models has been producing S models since 1981 and currently lists 13 different classes of diesel locomotives and 14 styles of freight cars from multiple eras in multiple road names.

- A relative newcomer to S, **ScaleTrains**, offers a line of hoppers, boxcars, and wide-cupola cabooses. These are built from tooling originally created by S Helper Service (SHS) and subsequently sold to MTH. SHS produced some of the nicest S scale equipment ever manufactured, including a wonderful 2-8-0 Consolidation. SHS products are in high demand in the secondary market.

- **Lionel Corp.** has a line of S models, and while some are not usable by scale modelers, others are with modifications. Scale wheelsets are available for some Lionel 1:64 locomotives.

- **S Scale America** offers a line of rolling stock in both kit and ready-to-run form that are available through DesPlaines Hobbies.

- **River Raisin Models (RRM)** imported 21 different brass steam locomotives, seven diesels in 18 versions, three complete passenger trains, freight cars, cabooses, and structures from 1987 until 2022. Many of their products are still available on the secondary market.

- Likewise, **Southwind Models** offered an extensive line of brass locomotives and rolling stock that are among the nicest and most prototypically accurate models ever produced in S. They are available on the secondary market.

- As for structures, figures, and vehicles, there's no shortage of any of these in S. The advent of laser-cut kits and 3-D printing means that many kits and detail parts previously not available in 1:64 are now available. Many HO and O scale structures can be used with S by simply replacing doors with 1:64 parts.

— Brooks Stover



# NEXT-LEVEL SCRATCHBUILD

A variety of techniques were used to model these refrigerator cars in S scale

**By Paul Washburn**  
Photos by the author

**T**hough I primarily model the Southern Pacific in S scale, I added a trio of Santa Fe Refrigerator Despatch (SFRD) reefers to my layout. Why? To bring back childhood memories. As a teen I remember riding my Schwinn Continental bicycle between rows of class RR-23 and RR-27 cars at Watson Yard near the Los Angeles harbor. I recall how illuminating all those yellow sides looked, and it left a lasting impression on me.

There are no ready-to-run models of the SFRD cars available in S, so I turned to scratchbuilding. Using information from *Santa Fe Railway Rolling Stock*

*Reference Series, Volume Two: Refrigerator Cars* (Santa Fe Modelers Organization Inc., 1994) as a guide, I built two RR-27 cars and one RR-23.

With a variety of modeling techniques and products, I was able to add three colorful cars to my model railroad. Even if you don't model in 1:64, the methods shown here can easily be adapted to your favorite modeling scale.

## Prototype history

In the late 1930s and early 1940s, SFRD started a rebuild program creating new classes of cars from aging United States Railroad Administration-style wood reefers. The program involved replacing the sides, ends, and roofs while



# ING

retaining the fish-belly center sills and other appliances. The rebuilt cars were reclassified RR-23, RR-27, and others.

Among the upgrades the cars received were riveted steel sides, Dreadnaught ends, and rectangular panel roofs. The cars kept other features found on most SFRD reefers, including 5-foot side door openings and ice hatches that open opposite from most other cars of this type.

There were 10,246 cars rebuilt as part of the program. Of those, 1,499 were RR-23s and 500 were RR-27s.

## Concept and components

My build concept for the refrigerator cars was fairly straightforward. First, I

assembled and detailed the floor, ends, and roof to create the body structure.

Next, I shifted my attention to the car sides, adding details such as the door hardware, ladders, grab irons, and tack boards. After painting and decaling the sides, I attached them to the body.

I was introduced to this method of construction when building HO scale Silver Streak reefer kits as a youth. The kits featured painted and lettered plywood sides that were added after the rest of the model was assembled and painted.

I primarily used Evergreen styrene strip, shapes, and sheets to build my S scale reefers. To make modeling the Dreadnaught ends less time consuming, I turned to resin casting. I gathered other components from sources

Can't find the car you want for your model railroad? Try scratchbuilding. Paul Washburn shares the techniques he used to model these three Santa Fe Refrigerator Despatch cars for his S scale model railroad.

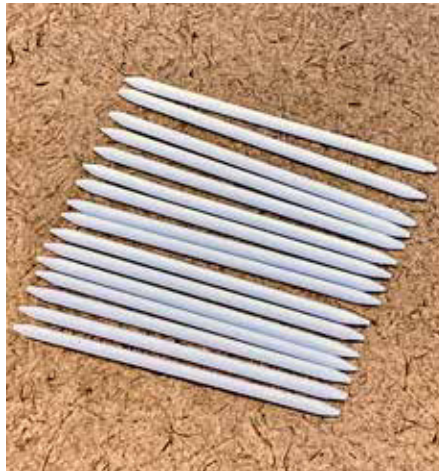
commonly used by S scale modelers. The trucks are from Pacific Rail Shops (later acquired by S Scale America), the wheelsets from NorthWest Short Line, and the couplers are from Kadee. The ladders, roofs, and air hoses are also S Scale America and Pacific Rail Shops offerings, while the brake gear and door hardware came from San Juan Details.

## Making multiples

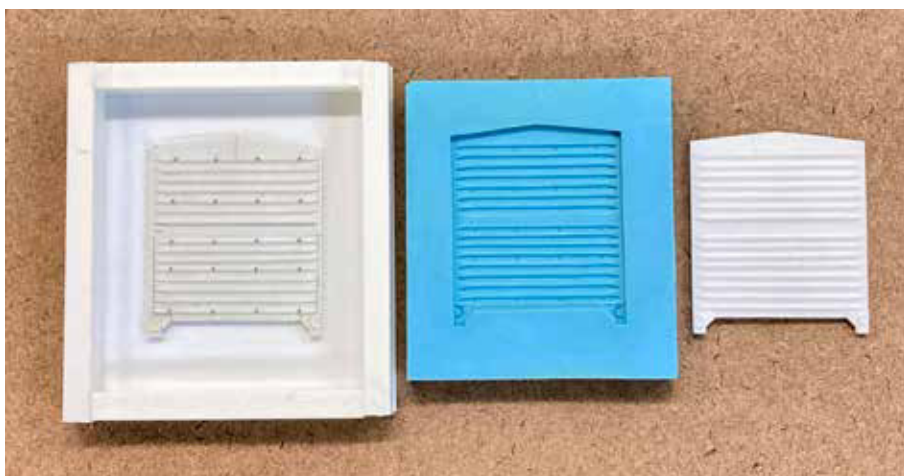
With no commercial offerings available, I had to make my own Dreadnaught



**1 End game.** Paul made a pattern for the car ends from .040" plain styrene sheet. He added a .010" styrene overlay with embossed rivet detail applied with a NorthWest Short Line die.



**2 Rack of ribs.** The ribs for the refrigerator car ends are lengths of .060" half round. Paul tapered each piece with a No. 2 file, 400-grit sanding cloth, and "a lot of eyeballing."



**3 Making copies.** With the end pattern finished, Paul made a styrene mold box (left) and filled it with Micro-Mark's 1-to-1 rapid mold rubber (center). One of the completed ends, made with CR-600 casting resin, is shown at right.



**4 Off-the-shelf solutions.** Paul turned to S Scale America rectangular panel refrigerator car roofs for all three cars. The plastic castings have molded running board supports and rivet detail.

ends. Since the RR-23 and RR-27 cars use the same ends, I built a single pattern. First, I cut .040" plain styrene sheet to the required shape. Then I attached an overlay of .010" styrene sheet with embossed rivets that I added with a NorthWest Short Line die. I used .125" styrene tube for the poling pockets **1**.

I constructed the 16 horizontal ribs for the ends **2** from .060" half round tapered with a No. 2 file, 400-grit sanding cloth, and a lot of eyeballing.

After attaching the ribs to the car end, I built a styrene box and filled it with Micro-Mark's 1-to-1 rapid mold rubber. Once the mold had cured, I cast the ends for the three cars using the same company's CR-600 resin **3**.

### Roof, floor, and underbody

I purchased three rectangular-panel refrigerator car roofs from S Scale America. The off-the-shelf parts, which have molded running board supports of lots of rivet detail, greatly simplified the builds. I added two .060" styrene sheet plates on the underside, as well as a length of 1/4" square styrene down the center, to reinforce the plastic casting **4**.

I constructed the floors from .060" V-groove styrene siding. I placed the scribed side down to represent the prototype's wooden slat floor. Then I installed 1/4" square styrene strip down the inside center of the floor for added strength. I also attached 1/4" square styrene the width of the floor on each end to provide gluing faces for the Dreadnaught ends.

The fish-belly center sills, **5** (opposite page), have .030" styrene sides with slots cut for the brake levers. I added .060" styrene angle to the bottom of the sills. I attached more of the .010" styrene with embossed rivet detail to the vertical face of the angle. I spliced the sill halves with .060" x .080" styrene strip.

Next, I added .060" x .125" styrene cross members and .100" x .125" styrene bolsters to the underbody. I built up the gusset details on the cross members and bolster ends from .010" styrene stock.

Miscellaneous sizes of styrene were used to fabricate the framework at the ends of the floor for mounting the stirrup steps, poling pockets, air hoses, grab irons, and uncoupling levers. The same framework provided space for positioning the Kadee No. 802 plastic draft-gear boxes **6**.

Keeping the parts square, I assembled the ends, floor, and roof with cyanoacrylate adhesive (CA).



**5 Signature look.** The rebuilt SFRD cars featured fish-belly center sills, which Paul scratchbuilt from assorted pieces of styrene. He cut notches in the sides for the AB brake system levers and added styrene flanges.

### Big on details

I built 12 platforms and ice hatch sub assemblies (six left hand and six right hand). Each platform consists of 16 separate parts. I used .020" thick styrene car siding with .090" groove width for the platforms. I made the 12 hatches from .020" plain styrene and placed them over the square openings. I then added the hinges, lifting handle, operating lever, and hatch support triangles. The triangles were used to hold the hatch in the open position while the car was iced. I shaped the corner grab irons from .015" phosphor bronze wires

Three strips of .015" x .100" styrene were used for the running boards. I attached the strips to the molded supports on the roof. I made the supports for the running board overhang using 1/4" lengths of .010" x .030" styrene. A piece of .060" x .125" styrene strip was installed as a gluing surface for the sides; .030" x .060" strip was attached to the bottom edges of the roof **7** (next page).

I used CA to attach the detail parts to the cast resin ends. These included the Ajax brake wheel and housing, both included with San Juan Details Westinghouse AB brake set 4057. Other end details included the ladders, tack boards, grab irons, uncoupling levers, air hoses, and poling pockets **8**.

Then I drilled mounting holes for the trucks, couplers, and stirrup steps in the underbody. I inserted the steps, which I made from .016" flat brass stock, into the holes and secured them with CA. I finished the underbody construction by



**6 Underbody details.** To capture the look of the wooden slat floor, Paul used .060" V-groove styrene siding. The cross members are .060" x .125" styrene strip; the bolsters are .100" x .125" strip.

## Materials list

### Alclad II

ALC311 Klear Kote Light Sheen

### Archer Fine Transfers

AR88072 5/8" rivet decals

### Createx Colors Wicked Colors line

0011 Golden Yellow

### Evergreen Scale Models styrene (strip unless noted)

101 .010" x .030"  
115 .015" x .100"  
120 .020" x .020"  
133 .030" x .060"  
154 .060" x .080"  
156 .060" x .125"  
176 .100" x .125"  
189 .125" x .250"  
210 .030" rod  
218 .020" rod  
224 .125" tube  
241 .060" half round  
291 .060" angle  
409 .250" x .250"  
2060 V-groove siding  
9009 .005" sheet  
9010 .010" sheet  
9020 .020" sheet  
9030 .030" sheet  
9040 .040" sheet  
9060 .060" sheet

### K4 Decals

Santa Fe steam era reefers

### Kadee

802 couplers and draft gear boxes

### Micro Mark

82083 1-to-1 rapid mold rubber  
82057 CR-600 casting resin  
82277 Clear on white decal paper

### Microscale

MI-1 Micro Set setting solution

### NorthWest Short Line

37737-4 33" wheelsets

### S Scale America (including former Pacific Rail Shops items)

SSA-399 air hoses  
SSA-421 reefer end ladders  
SSA-440 reefer car roof  
Bettendorf trucks

### San Juan Details

4014 reefer car hardware  
4057 Westinghouse AB brake set

### Tamiya

87038 extra thin cement  
87064 Light Gray Fine Surface Primer  
X-18 semi gloss black  
X-20A thinner

### Testor Corp.

TES3501 cement for plastic models

### Tichy Train Group

1102 .015" phosphor bronze wire  
8019 .030" diameter rivets

### Miscellaneous

.016" flat brass stock  
.020" styrene car siding, .090" groove spacing



**7 Up on the roof.** Though Paul used commercial roofs on his models, he made them look more like the SFRD prototypes using assorted styrene sheet and strip. He fashioned the corner grab irons from .015" phosphor bronze wire.



**8 Parts for the B end.** This view shows some of the details Paul added to the brake end of the car. The Ajax brake wheel and housing are from the San Juan Details Westinghouse AB brake set. The ladder is a Pacific Rail Shops (S Scale America) part.

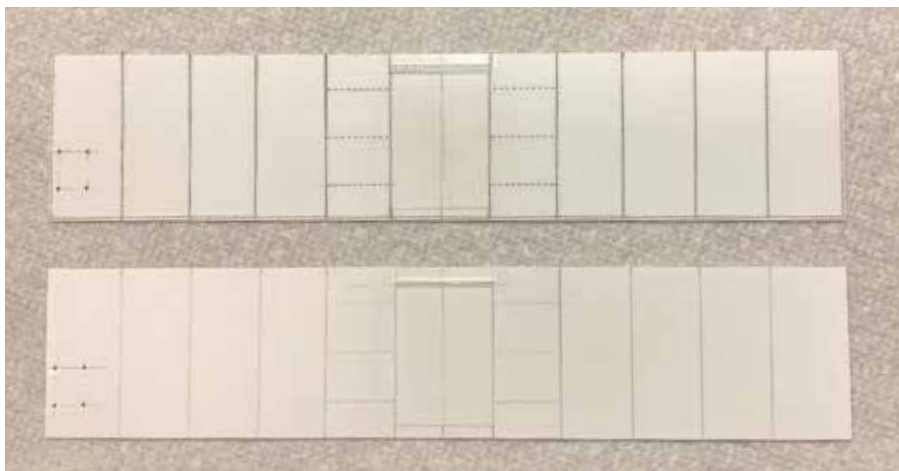


**9 Finishing touches.** Prior to priming and painting, Paul added the air reservoir, brake cylinder, control valve, levers, and related details for the AB brake system to the underbody. He used .020" styrene rod for most of the pipes and rods. The brake line is .030" rod.

adding the brake appliances and related details **9**.

### Custom car sides

Due to slight variations between the three carbodies, I measured and cut the six unique car sides, each for a specific side of a specific car. Then I wrote an identification number inside each carbody and on the inner surface of the sides so I could match them up later.



**10 Styrene sides.** Paul used .030" plain styrene sheet for the car sides. He added Tichy Train Group .030" rivets in the lower left corner, above the holes for the grab irons. The remaining rivets are decals from an Archer Fine Transfers set.

I used .030" plain styrene for the car sides. I marked the locations of the doors and rivet rows in pencil and used a scribe to outline the door perimeters. Then I added a .005" styrene sheet reinforcement gusset and .020" x .020" styrene strip flange above each door.

Next, I drilled four holes in the lower left corner of each side for installing the Tichy Train Group .030" rivet castings (8019). I used decals from Archer Fine Transfers set AR88072 for the rest of the rivets on the sides ⑩. I also put a row of the rivet decals on the roof fascia.

Once all of the decals were in place, I applied Microscale Micro Set. The setting solution helps the decals conform to any irregular surfaces.

I wrapped up this phase of the project by priming the cars with Tamiya Light Gray Fine Surface Primer. Use this in a well-ventilated area and wear personal protective equipment.

### Painting, decaling, and finishing

I let the primer dry for a few days. Then I painted the main carbody, door hardware, ladders, and tack boards Tamiya semi-gloss black. For the sides I used Createx Colors Golden Yellow from its Wicked Colors line.

After letting the paint dry thoroughly, I added the door latch and hinges, ladders, tack boards, and grab irons to the sides. A dab of Testor Corp. plastic cement (TS3501) was sufficient for securing the parts.

I enlarged HO scale artwork for the maps, slogans, and car data 137% and



⑪ **Ready for installation.** Here's what the six painted and decaled car sides looked liked prior to installation. Paul lettered the cars with a combination of homemade and commercial decals.

printed it on Micro-Mark decal paper. I used a set from K4 Decals for the herald, SFRD numbers, and the white letters and numbers on the car ends ⑪.

After applying a few coats of setting solution to the decals and letting it dry, I cemented the sides to the carbody. To give the cars an in-service look, I applied a thin layer of Alclad II Klear Kote Light Sheen to each model ⑫.

Overall, I'm happy with how the SFRD reefers turned out. I think they

capture the look of the prototype. The cars have been running on my layout without problems for a few years now, and the success may lead me to build a few more in the future.

I've been modeling in S for 40 years and find it to be the perfect size, especially for scratchbuilding. Each time I see an SFRD reefer roll by in a freight train on my layout, I'll recall those days of riding my bicycle around Watson Yard. [MR](#)



⑫ **Lookin' cool.** After attaching the car sides, Paul sprayed all three cars with a dusting of Alclad II Klear Kote Light Sheen. Once the trucks and couplers were installed, this class RR-27 reefer was ready to hit the rails.

# Switching timetables on the Pennsy

This HO scale layout changes from 1870 to 1915 to 1959

By Brent Monahan • Photos by Ron Saltzman



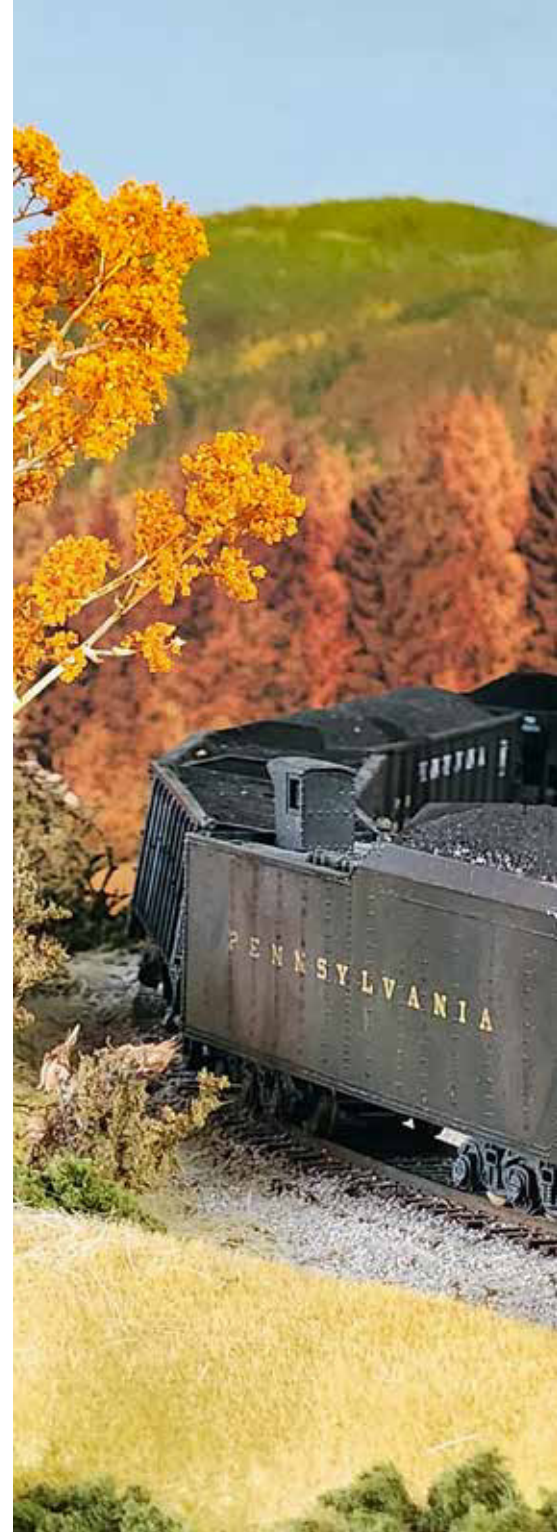
① In the layout's earliest era, a pair of Pennsylvania RR vice-presidents have hired a photographer to take photos commemorating the delivery of a pair of new 4-4-0 locomotives to the Apple Gap branch. The use of period-appropriate figures visually establishes the era.

**M**y wife, Bonnie, and I moved in 2019 to a retirement townhouse with a basement capable of holding a large model railroad. However, at 72, I decided to limit my ambitions, preferring to be able to finish a layout and enjoy it within two years.

The new model railroad would feature the Pennsylvania RR, as my

previous layouts have, since the Broad Way tracks ran near where I grew up. My desires for this latest miniature world were informed by the three designs I had previously built. (My third was featured in the May 2014 *Model Railroader*.)

A large percentage of my fellow enthusiasts choose narrow layouts to maximize the length of mainline track. My layout features one track running



through one locale. To prevent any shadows falling on my backdrop, I allowed walk-around space between the backdrop and the layout edges. This also makes access easier than my previous layouts, which used pop-up access for repairs and derailments.

## The plan

My HO track plan, a racetrack-shaped loop with three sidings, runs through abundant scenery. A mountain conceals the plan's simple nature.



② Pennsylvania RR class I1 Decapod No. 4655 pulls a coal drag southward to Philadelphia on Brent Monahan's freelanced HO scale model railroad. The layout was inspired by his growing up near the Pennsy's famed Broad Way.

Never having built an autumn layout, I opted for the splendid yellow, orange, and red leaves of the Northeast season, as well as harvests of corn and apples.

The prevailing surface height is 51.5", for several reasons. First, it will minimize the "lookdown" angle that reduces the illusion of reality. It also puts the track out of reach of little hands, and makes working under the tables easier on the back and knees.

I love the history of the "The Standard Railroad of the World," and have collected trains from the period of 1870 to

1959. The locomotives and consists I like to run range from early to steam to early diesel. I group these years into three general eras: 1870-1915; 1915-1942; and 1942-1959.

Therefore I needed to vary the structures, roadways, signs, vehicles, and figures for these differing periods. My solution was to create three solid-top  $\frac{3}{4}$ " thick medium density fiberboard (MDF) tables on casters, each 4'-2" x 6'-8". When I'm operating, the tables are bolted together. However, when changing to another period, I can pull them apart

and work without precariously dangling over the layout and risking breakage. Not an inch of the entire layout is inaccessible.

Before building the tables, I installed an eight-lamp light-emitting diode (LED) spotlight fixture in the ceiling connected to a rheostat. The fixture was designed to illuminate a large kitchen island, with each lamp being positionable. This allows focus on specific areas of the layout. The lighting is centered above a diorama-like space, fashioned by enclosing the selected basement corner



3 This aerial photo shot from a mountaintop vantage point shows most of the layout. At left, PRR Alco S2 No. 5927 passes Apple Gap station while an oil tank train rounds Apple Gap Curve in the background.

with an opposite wall. This wall contains electrical feeder outlets and backdrop. The total width of the alcove is 15 feet.

Departing from my previous layout, I focused on commerce and industry rather than passenger dominance. I envisioned a fictitious branch of the PRR that was built after the Civil War to transport coal from northeast Pennsylvania to Philadelphia. It runs north by northwest off the Philadelphia-to-Pittsburgh main line until it comes upon parallel mountain ranges that stretch roughly east by northeast. My layout captures a section of the branch that takes advantage of a break in the mountain range at fictional Apple Gap. There, the track curves back in a northeast direction, paralleling the Susquehanna River until an unseen bridge crossing is possible.

My three-wall frame supports a tempered hardboard cyclorama backdrop. I asked a tall buddy, HO model railroader Ken Schwed, to site the bottom edge of the customized autumn panels created by railroadbackdrops.com, which we marked before applying the 24 feet of continuous self-stick background. I carefully painted down to the top edges of the printed images a cloudless sky with a blue latex that matched many of the fall photographs I've taken in the past.

### Using found material

When we first toured the townhouse with our real estate agent, we found a large fiberglass rock left behind in the basement. It was one of the hollow fake rocks made for hiding outdoor waste cleanout caps, junction boxes, and the like. By trimming it to an ideal height with a jigsaw and then cutting it lengthwise down the middle, I was able to create 6 feet of fairly convincing rock face. Holding up the mountain top are pillars of expanded-foam beam board from the packing materials that came with our new furniture and appliances.

The mountaintop is formed of a 1/4" wafer insulation material from Kingspan, called GreenGuard S14 underlayment. The back of the material is dyed light green. It has a gently wavy nature that suggests natural terrain. It's light enough to be easily pierced by trees, fence posts, and signs, yet stiff enough to hold them upright.

I softened the lower edges of the mountain with stones I collected from a local creek. It would be far less convincing to attempt to re-create the subtle colorations in these rocks.

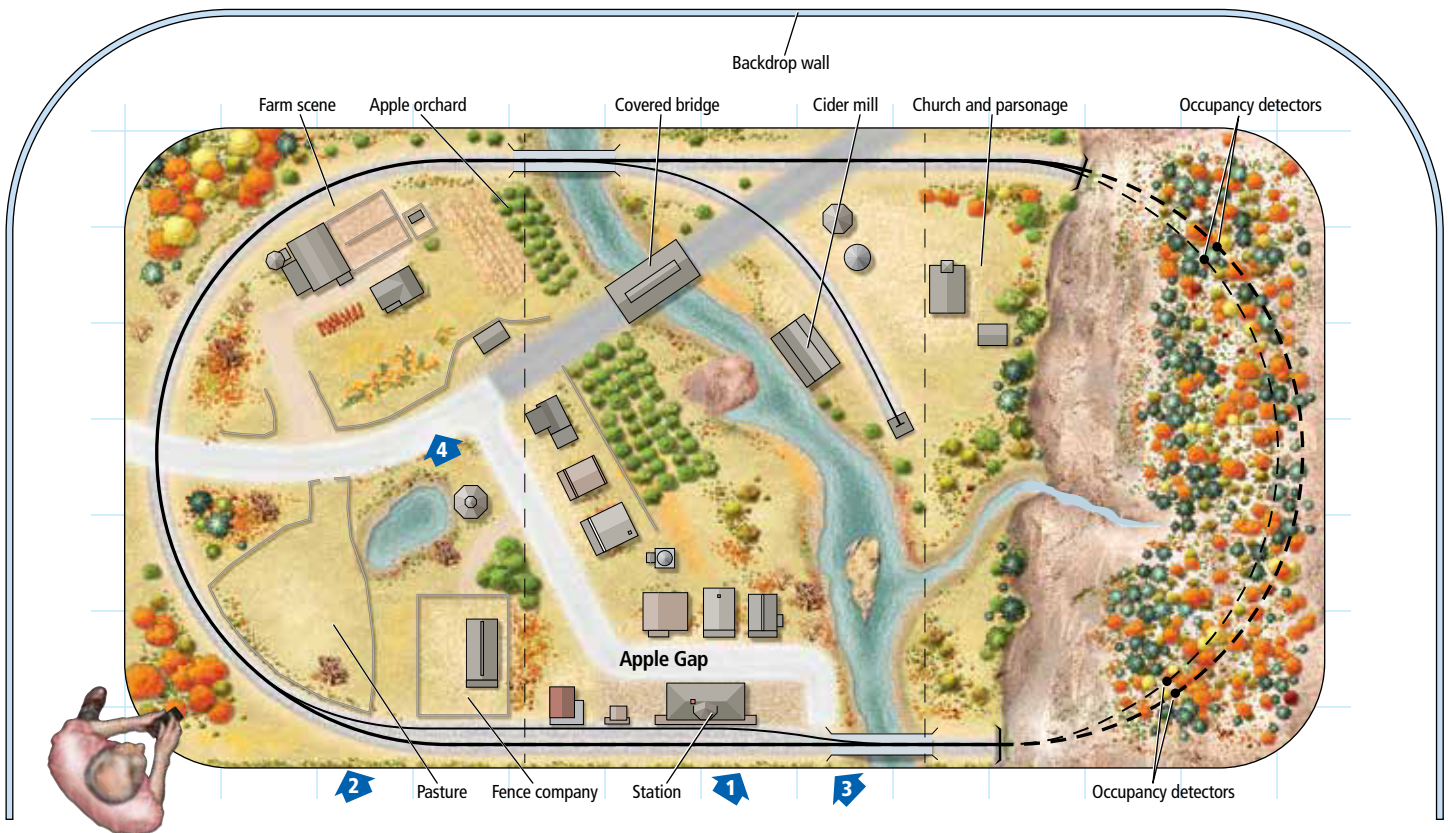
The mountain hides the return curve of my loop and holds two tracks, so that

when one train vanishes into a tunnel, a different one can emerge. Circuitron DT4 rolling stock detectors on my control panel indicate when a train has come too close to a hidden turnout.

### Power and other controls

In order to save open basement space when not operating, I built a control panel atop foldable drop-shelf hinges. Upward pressure on two underside latches unlocks the panel, allowing it to swing vertical. The Plexiglas panel faceplate can be unscrewed and slid into slots for easy access to underside wiring.

Because I built my first HO scale layout in 1982, I used the standard of the time — block controls with direct current. When Digital Command Control (DCC) came into fashion, I already had nine locomotives, which I didn't want to sell or try to modify. The power control is the same Model Rectifier Corp. (MRC) Master I that has run my trains for the past 30 years. This layout has seven blocks. Using digital command control would be nice, especially for sound generation, but I'm content with my simple but fun MRC Sound Station 312. The two speakers are located beneath and on either side of the control panel.



## Pennsylvania RR Apple Gap

HO (1:87.1)  
Room size: 6'-8" x 12'-6"  
Scale of plan: 1/2" = 1'-0", 12" grid  
Numbered arrows indicate photo locations  
Illustration by Kellie Jaeger

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

### Laying track

All three eras feature the fall weekend when Apple Gap's collective of orchard farms celebrate the harvest at the old cider mill. Kiddie rides are brought in during the latter eras. This apple crate and bottled cider siding is balanced by a track at front left that's shared by the local dairy co-op, the area's lumber supplier, and the few passenger trains that stop in the little town.

To prevent locomotives from sailing off the layout and landing on the concrete floor, I allowed 3" of space between the outer track and the edge of the fascia on the front side and 4" on the back. Also, the 36.5"-radius curves on both sides of the layout are super-elevated about 1.5%.

Having used cork roadbed since 1982, this old dog ignored new tricks. The front edge is visually softened by a wall that separates the town from a marshy lowland fed by the Apple Gap Creek

### The layout at a glance

**Name:** Pennsylvania RR  
**Scale:** HO (1:87)  
**Size:** 6'-8" x 12'-6"  
**Prototype:** freelanced, inspired by PRR  
**Locale:** northeastern Pennsylvania  
**Era:** changeable between 1870-1915, 1916-1942, and 1943-1959  
**Style:** island  
**Mainline run:** 31 feet  
**Minimum radius:** 36.5"  
**Minimum turnout:** No. 6

**Maximum grade:** none (flat)  
**Benchwork:** tabletop  
**Height:** 51 1/2"  
**Roadbed:** cork  
**Track:** Micro Engineering flexible code 83  
**Scenery:** foam board and Kingspan underlayment on 3/4" medium density fiberboard; Woodland Scenics Shaper Sheet  
**Backdrop:** commercial photo backdrops on tempered hardboard  
**Control:** MRC Master I DC block control

overflow of the Susquehanna. This wall was formed from the leftovers of jigsawing the fiberglass mountain to size. The layout perpetually suffers from a very dry summer, so that the creek barely flows and the mill waterwheel has temporarily stopped functioning.

### Scenic variety

I devised a technique for producing plumed marsh reeds (see the December 2023 *Model Railroader*). Most of the other foliage was sourced from many excellent hobby manufacturers. Finely detailed birch trees were purchased for the foreground.

I also bought shaped sagebrush for convincing deciduous trunk details. To

the sagebrush I glued many branches made of dried sedum stalks. Most of the other deciduous trees were created by harvesting sedum stalks, allowing them to dry, trimming and shaping, coating with a matte lacquer, spraying with 3M adhesive, and dipping them into pans filled with Woodland Scenics autumn foliage ground foam.

I arranged the more than 200 trees by height, from tall in the foreground to short at the back of the layout, to increase the illusion of depth.

I also used thinner and shorter utility poles and narrowed the road at the rear of the layout for the same reason. Some locally sourced real rocks were embedded in the terrain to crown two hillocks and to define the edges of the waterfall.



4 Brent changes out rolling stock, structures, vehicles, figures, and details on the layout to switch between three different time periods. The top photo shows a farm in the diesel era, while the inset image shows the same scene in the early steam period.

## Sourcing structures

Most of the structures you see are time-saving kits or pre-built models, taking advantage of the considerable craftsmanship of suppliers such as Walther's Cornerstone and Woodland Scenics. However, I also have several kit-bashed and scratchbuilt structures on this layout. Even the church got a little tweaking by visiting the internet, finding appropriate stained-glass window images, reducing them to the needed size, and transferring them onto 3M Inkjet Printer Transparency Film. The sleepy town only sports a dozen lights for nighttime operation, so the illuminated church windows stand out.

All electrical lines from the two outer tables feed into suitcase connectors, obviating the need to unscrew wiring from terminal bus bars. Only my thumbnail is needed for disconnection, and color coding the wires makes reconnection trouble-free.

The center table uses two Woodland Scenics Just Plug power supplies and one

expansion hub. The four lights around and inside the train station are closer to the viewer and adjusted to shine brightly. The lights in the town structures farther back are dimmer, abetting my other perspective tricks.

## Realistic weathering

With my HO stage dressed for a specific era, the proper mechanical actors are ready to appear. Many have been weathered with dustless "greasy" chalk. I grind down my selected colors into a small aluminum dish with a fine rasp and then use a photographer's cleaning brush and eyelid color mini-sponge to apply the powders. Provided I handle cars and locomotives with care, this type of chalk doesn't wear off, eliminating the need to seal with matte spray. The dustless chalk, however, can be toned down or largely cleaned off with water, a soft cotton cloth, and gentle rubbing if desired. I also used a Tamiya Weathering Master pack (No. 87085) with orange rust, gunmetal, and silver semi-wet

material. I didn't overly distress either the trains or the structures.

My goal was to present an idealized Norman Rockwell village, or one like the New Jersey hamlets of my boyhood memory. To younger model railroaders, I want my layout to say, "You missed a gentler, prettier time. Here's a taste of it in miniature." **MR**

## Meet Brent Monahan

**Before retirement, Brent** used his doctorate in music to perform, direct, and teach voice. He also wrote dialogue for TV shows and is the author of 19 novels, two of which have been made into movies. He and his wife, Bonnie, live in Coatesville, Pa. His website is [brent-monahan.com](http://brent-monahan.com).



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# Ain't nothin' wrong with the blues

**My first time** at a nearby layout, I drew a job that had me go on duty at a compact engine service terminal. The host explained that I'd board my assigned power there. He handed me the paperwork and made me comfortable with a few words of advice. I walked through the job's territory to orient myself, grabbed a throttle and proceeded to the enginehouse. I sensed eyes following me and ignored them. The first thing I noticed was the blue flag hung in the engine's front coupler. I turned, found the host watching me, and asked "whose blue flag is that?" He smiled appreciatively.

**A blue flag** or lamp protects workers that are on, under or near the equipment for which it is displayed. It signals that the equipment must not be moved or coupled to, endangering them. Crucially, only the worker who placed it may remove it. This important element of railroading has endured since the Standard Code appeared in 1887. Today's 21st-century versions read almost identically to the original. Blue flag rules have the same effect as lockout and tagout procedures that are found in industrial workplaces.

Think about the potential hazards. Tools, air hoses, and electrical cords may stretch across a railhead. Mechanics may be in a pit inspecting an engine's running gear. Repairs often require car knockers to go underneath or between cars, where they're not easily seen. Other situations deserve

blue flag protection, too. Hard-piped connections used to unload tank cars and covered hoppers present a danger, especially where hazardous materials are involved. Taken altogether, how an unprotected coupling could maim a person, damage property, or evacuate a neighborhood!

**I bet there's no rule** more strictly observed than this. Measures like radar guns enforcing speed limits and efficiency tests for restricted speed compliance aren't necessary. Stern warnings from the rank and file, those at risk, do the job. I dread injuring a coworker so much that I walk all around an engine looking for any sign of workers before I board it, whether a blue flag is displayed or not. Rarely is a walkaround practical on a layout, but the habit brought my attention to the conspicuous blue flag I found. It saved me, as I was new to the crew, embarrassment when I most wanted to make a good impression.

A blue card demands as much attention as a blue flag. The term refers specifically to an engine's mandatory 92-day periodic inspection record. It endures because blue was the card's traditional color.

Inspections trace their origins to the Boiler Inspection Act of 1911, which has evolved into today's Locomotive Inspection Act. This body of law sets minimum safety standards for locomotives. Daily inspections cover essentials such as headlights, bell, whistle, and brake operation.



**I DREAD INJURING A COWORKER SO MUCH THAT I WALK ALL AROUND AN ENGINE ... — JERRY**



A wintry Chicago day in March 1943 sees John Paulinski, a Santa Fe car inspector, blue-flagging a train at Corwith Yard. Jack Delano photo, courtesy of the Library of Congress

Ninety-two-day inspections are more comprehensive. Engineers must complete a daily inspection before operating a locomotive; mechanical forces are responsible for the 92-day. Holders in the cab display both records. Without these records, the locomotive's use is prohibited.

**You say, "Jerry, what's the point?"** Blue flags and blue cards are opportunities to layer more atmosphere on an operating session. Tony Thompson wrote several modelingthesp.blogspot.com posts about blue flags. One describes various blue flag methods he and other modelers have developed. My own are blue push pins which I place on staging tracks to separate equipment in use during a session from

equipment that's reserved for the next. I'll sign up for a durable photo-etched metal panel type in a heartbeat.

Making engine inspection a routine is easy. Don't we all check a Digital Command Control-equipped engine by throttling it up after we acquire it? A few more tests — headlight, bell, whistle or horn, and brake — satisfy a daily. The engineer then initials and dates an inspection slip the size of a car card.

Add to the atmosphere by making the back of an engine card its blue card, prepared by the owner and showing the date of its last 92-day. Searching locomotive inspection reports on internet auction sites can turn up examples to adapt for layout use. Try some blues on a willing crew; you might like it. **MR**

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**Cass County No. 700**, an Electro-Motive Division GP7, pulls into the north side of Logansport, Ind., with a string of empty Farm Bureau Co-op covered hoppers on Tom Johnson's HO scale Cass County RR. The freelanced railroad was inspired by two prototype Indiana short lines. Tom Johnson photo



*Great Model Railroads 2025* is on newsstands now. This year's special issue showcases nine fantastic model railroads in N,

HO, S, and O scales. In its pages you'll find dozens of helpful tips, tricks, and techniques to improve your layout, as well as detailed track plans and big, colorful photos. Pick up your copy at your local hobby store, call 877-246-4879, or order online from [Shop.Trains.com](http://Shop.Trains.com).





**Shay No. 5 couples onto** loaded log cars at the Elkmont log camp on Chris Broughton's Little River Lumber Co. The portable N scale layout is based on the Gum Stump & Snowshoe track plan from *Model Railroader's* April 1966 issue. Chris Broughton photo



**A Galloping Goose** trundles through Timberline Jct. on Jon Stetz's Sn3 Durango, Rico & Northern layout. Timberline Jct. is the starting point for the Hermosa Creek branch, making it a busy place, warranting its own service siding and water tank. Jon Stetz photo



## Send us your photos

**Trackside Photos** is a showcase for the work of *Model Railroader* readers. Send your photos (digital images 5 megapixels or larger) to: *Model Railroader*, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612; or email them to Senior Associate Editor Steven Otte at [steven.otte@firecrown.com](mailto:steven.otte@firecrown.com).

**No depiction of** 19th century Maine would be complete without a shingle-style Victorian "cottage." Highbrook, a landmark on Andrew Dodge's Proto:48 (O fine scale) Central Maine RR, is based on a home in Bar Harbor, Maine. Since the railroad moved in, it's become a resort hotel. Andrew Dodge photo



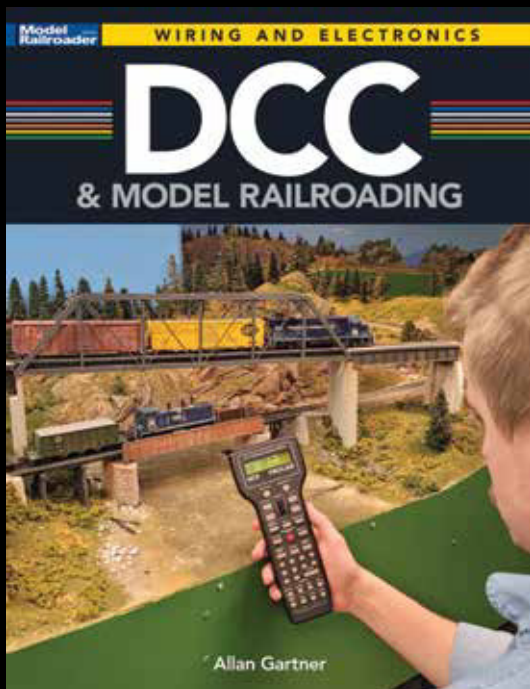


**The Iowa River** is a major landmark on James McNab's HO scale Hills Industrial Spur, known as "The Hills Line." James used Golden Gloss Gel to model the murky and meandering Midwestern waters. The lattice-truss bridge was kitbashed from a Central Valley kit.

James McNab photo



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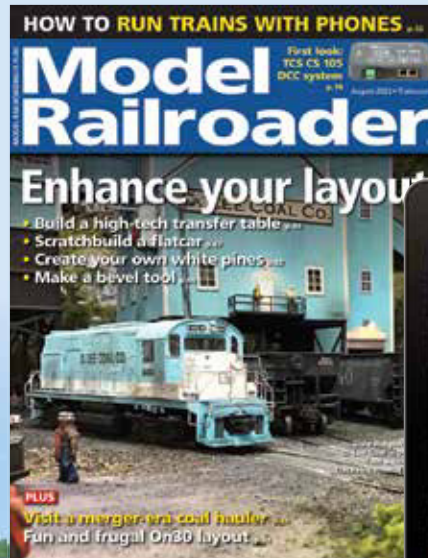
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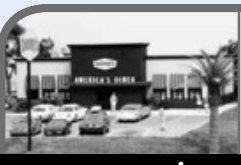
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## Schedule of Events

**AL, HELENA:** Smokey City Rails Show & Sale. October 25-26, 2024. Helena Sports Complex, 110 Sports Complex Dr., Helena, AL 35080. Friday 4pm-8pm; Saturday 9am-3pm. Admission: Adults \$6, Children 8-12 \$2, Under 8 Free. \$10 Two-Day available. For additional information, contact: 205-587-1338, email: [mims9006@bellsouth.net](mailto:mims9006@bellsouth.net) or visit: [SmokeyCityRails.com](http://SmokeyCityRails.com)

**AZ, GLENDALE:** ARHS Model Train Swap Meet. Glendale Christian Church, 9661 North 59th Ave., Glendale, AZ 85302. Saturday, November 9, 2024, 9:00am-1:00pm. Everything Trains — Food — Fun. Admission \$5.00. Tables \$25.00 to sign up, send check or money order to: ARHS, PO Box 5816, Glendale, AZ 85312-5816. Contact: Craig Faris, 623-340-3529

**CA, ANAHEIM:** 2024 TTOS-SP Super Meet. December 13-14, 2024. Friday, 5-8pm; Saturday, Noon-6pm. Brookhurst Community Center, 2271 Crescent Ave. Buy-Sell-Trade Trains, Toys, and Railroad Memorabilia. Train races, super raffle, and more! FREE kids train set raffle Saturday, 2-day admission: \$5/person, \$10/family. FREE parking. Vendors: 8-ft tables, \$25, \$30 after 12/01. Visit: [TTOS-SP.ORG/THESUPERMEET/](http://TTOS-SP.ORG/THESUPERMEET/) to register. Questions: [info@ttos-sp.org](mailto:info@ttos-sp.org)

**CA, SACRAMENTO:** International Railfair 2024. November 2-3, 2024. Cal Expo, Building C, 1600 Exposition Blvd., Sacramento, CA 95815. Saturday 10am-5pm and Sunday 10am-4pm. Admission: Saturday \$12, Sunday \$10. Kids 12 and under free. Several Operating Layouts, Vendors, Kids Activities, on-site food and more! Visit: [internationalrailfair.com](http://internationalrailfair.com) or contact Tom Campbell at [tom.c.irf@gmail.com](mailto:tom.c.irf@gmail.com)

**CO, COLORADO SPRINGS:** Train Expo Colorado (TECO) hosts its next model train show on November 2-3, 2024. Saturday 9am-5pm and Sunday 10am-3pm. Colorado Springs Event Center, Hatt B 3960 Palmer Park Blvd., Colorado Springs, CO 80909. Admission: \$11/person, children 12 and under are free, senior and military discounts available. Contact Elizabeth 915-491-4819 or visit [www.tecoshow.org](http://www.tecoshow.org)

**CT, ANSONIA:** Classic Shows, LLC will hold a Train and Toy Show on Sunday, November 3, 2024, from 9:00am-2:00pm at Warsaw Park, 125 Pulaski Hwy (Route 243), Ansonia, CT 06401. Admission \$6.00, children 15 and under are free with an adult. For information, please call 203-926-1327 or go to: [www.ClassicShowsLLC.com](http://www.ClassicShowsLLC.com)

**FL, NEW PORT RICHEY:** Regal Railways presents a Toy Train, Collectible and Hobby Show/Sale. Elks Lodge, 7201 Congress Street, New Port Richey, FL 34653. Saturday, November 16, 2024, 9:00am-2:00pm. Admission: \$6.00 adults, children under 12 free. Vendors and model train layout. Lunch available. Contact: Joe at 727-244-1341 or visit: [www.regalrailways.com](http://www.regalrailways.com) for more information.

**FL, OCALA:** "Trains for Christmas" Free train show November 9-10, 2024, Saturday 10am-4pm, Sunday 11am-4pm. Experience multiple layouts and participate in great raffles. We are a collection site for Toys for Tots. No vendors. NEW LOCATION: Marion Oaks Community Center, 294 Marion Oaks Lane, Ocala, FL 34473. Information, contact Bill Quast at 352-209-5422 or email [wmquast@gmail.com](mailto:wmquast@gmail.com)

**FL, OCALA:** Lions Tri-Annual Train Show. First Christian Church, 1908 E. Fort King St., Ocala, FL 34471. Saturday, November 2, 2024, 9:00am-2:00pm. Model trains, accessories, detail parts and toys. Admission \$5.00, children 12 and under free w/paid adult. Bring two canned goods and receive \$1.00 off admission. Food/snacks available. Information: Bob 352-694-6381 or cell 352-547-0938

**IA, HAMPTON:** NCIMRRC Train Show. Franklin County Convention Center, 1008 Central Avenue W., Hampton, IA 50441. Sunday, October 27, 2024, 9:00am-3:00pm. Admission \$5.00. 10 and under free with paid adult. Trains (all scales), memorabilia and collectibles to buy, sell and trade. Individual tables welcome. For information or table reservations contact, Eastside Trains, 641-456-1998, email: [eastsidetrains@gmail.com](mailto:eastsidetrains@gmail.com)

**IL, ST. CHARLES:** 33rd Annual Chicago Railroadiana and Model Train Show. Kane County Fairgrounds, (Front Building), 525 South Randall Rd., St. Charles, IL 60174. Sunday, October 20, 2024, 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](mailto:RussFierce@aol.com) or [www.RRShows.com](http://www.RRShows.com)

**IN, DANVILLE:** Central Indiana Division-NMRA 17th annual Danville Train Show. Saturday, November 23, 2024, 10:00am-3:00pm, Hendricks County Fairgrounds, 1900 E. Main St. Operating layouts, displays, door prizes, memorabilia, model trains in all scales. Food vendor, free parking. Admission: \$3.00/adult, 16 and under free w/adult. Dealer Tables \$16.00 each. Contact: Dave Mashino, [danvilletrainshow@gmail.com](mailto:danvilletrainshow@gmail.com) or 765-860-1560. Visit: <http://cidnmra.org>

**IN, LA PORTE:** Duneland Model RR Club Train Show and Swap Meet. La Porte County Fairgrounds Community Building, 2581 In-2, La Porte, IN 46350. Sunday, November 24, 2024, 9:30am-2:00pm (Chicago time). Adults \$5.00, youths 6-12 \$1.00, 5 and under free. Contact: Dave Novak at [trains86@myyahoo.com](mailto:trains86@myyahoo.com) or 219-778-3195.

**MA, MARLBOROUGH:** Hub Division NER/NMRA. Royal Plaza Trade Center, 181 Boston Post Road West (Rte. 20 West), Marlborough, MA. Saturday December 7, 2024, 10am-4pm and Sunday December 8, 2024, 10am-4pm. Admission: \$15.00; Children under 12 and Scouts in Uniform FREE. Admission good both days. Information: Gerry 617-543-0298; E-mail: [TE.info@hubdiv.org](mailto:TE.info@hubdiv.org); website: [www.hubdiv.org](http://www.hubdiv.org)

**ME, BREWER:** Eastern Maine Model Railroad Club Show. Jeff's Catering in Brewer, 15 Littlefield Way, Brewer, ME 04412. Saturday, November 23, 2024, 10:00am-3:00pm. Admission \$5.00 for adults, under 12 free. Dealers, silent auction, and operating layouts. Geoff Anthony, PO Box 187, Blue Hill, ME 04614, 207-374-2786, [dahak@roadrunner.com](mailto:dahak@roadrunner.com)

**MI, ANN ARBOR:** Southeast Michigan Model Railroad Show. December 1, 2024, 10am-3pm; Washtenaw Farm Council Grounds; 5055 Ann Arbor Saline Rd; Ann Arbor MI 48103. 130 Tables; Modular Railroads; Free Parking; Concessions; Admission: \$5.00 per person. Children 12 and under FREE with adult. Early Bird \$10 at 8am. Contact: John Young; 517-449-9063 or [cdjyoung@yahoo.com](mailto:cdjyoung@yahoo.com)

**MI, EAST LANSING:** Lansing Model Railroad Club Show and Sale. Michigan State University Pavilion, Sunday, November 10, 2024, 10:00am-4:00pm. Admission \$8.00, under 12 free. Michigans largest train show: layouts, demonstrations, and 500+ tables. Free parking. Flyer, table forms and map, visit: [www.lmrc.org](http://www.lmrc.org) or call Ron St. Laurent 517-256-3588

**MI, KALAMAZOO:** Southwest Michigan Train Show & Sale. Kalamazoo County Expo Center, 2900 Lake Street. Sunday, October 27, 2024, 10am-3pm. Admission \$6.00; Children 12 and under free. Operating layouts, vendors, railroad memorabilia, model trains, accessories, door prizes. Free parking, concessions and more! Presented by Kalamazoo Model Railroad Historical Society. Contact: David Hayes-Moats, 269-344-0906, [www.kmrhs.org](http://www.kmrhs.org)

**MN, ST. CLOUD:** GRANITE CITY TRAIN SHOW AND SALE. River's Edge Convention Center, 10 4th Ave S, St. Cloud, MN 56301. Saturday, November 16, 2024, 9:00am-3:00pm. \$6.00, Kids 10 and under FREE. Buy/sell model/toy trains, books, videos, railroad collectibles. Operating model and toy train displays. Win a LIONEL train set! 612-558-6484; [GraniteCityTrainShow@gmail.com](mailto:GraniteCityTrainShow@gmail.com) or visit [www.GraniteCityTrainShow.com](http://www.GraniteCityTrainShow.com)

**MN, WOODBURY:** Newport Model RR Club Train Flea Market. All scales, model railroad equipment, collectibles, antique toys, books/magazines, and much more! Woodbury High School, 2665 Woodlane Drive, Woodbury, MN 55125. Saturday, October 12, 2024, 9:00am-2:00pm. Admission \$5.00. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Don, 763-257-5443

**NC, RALEIGH:** Neuse River Valley Model RR Club 40th annual FALL TRAIN SHOW: NC State Fairgrounds, Exposition Center, 4825 Trinity Road; November 9-10, Sat 9-5; Sun 9-4.

**NJ, EAST RUTHERFORD:** METCA/NYSME All Gauge Train Show. November 2, 2024. St. Joseph's School, 120 Hoboken Road, East Rutherford, NJ 07073. 9am-2pm. METCA/NYSME members admitted free at 8am, public at 9am. Admission: \$5.00 per person 16 and up. Layouts, refreshments, and door prizes. For tables and information, contact the NYSME Office at 201-939-9212 or email: [contact@modelengineers.org](mailto:contact@modelengineers.org)

**NJ, WAYNE:** ECTP and Collectibles LLC presents The Wayne Train Show. P.A.L. Hall, 1 Pal Drive, Wayne, NJ 07470. Sunday, October 27, 2024, 9:00am-2:00pm. Admission: \$7.00; under 12 free with adult. John LaLima 732-845-5966. Go to [www.eastcoastrainparts.com](http://www.eastcoastrainparts.com) and click on The Wayne Show.

**NY, POUGHKEEPSIE:** Train & Hobby Show of the Hudson Valley. November 10, 2024, 10am-3pm. M/JN Convention Center, 14 Civic Center Plaza, Zip: 12601. Model train vendors, operating layouts, raffles, kids ride-on railroad, free parking. Vendor Tables \$45 each, Public & Family Discount Tickets all online at: [www.midhudsonciviccenter.org/event/train-hobby-show-of-the-hudson-valley/](http://www.midhudsonciviccenter.org/event/train-hobby-show-of-the-hudson-valley/) Visit the preeminent fall show in the NY/NJ/CT metro area!

**OH, DAYTON:** 48th Original Dayton Train Show. The New Montgomery County Fairgrounds, 645 Infirmary Road, Dayton, OH 45417. November 2-3, 2024. Saturday 11am-5pm and Sunday 11am-4pm. Admission: \$8.00 per adult, children 12 and under free with paid adult. Gail Yarnall, PO Box 341233, Beavercreek, OH 45434, 937-424-6413. Email: [NMRA.Div.3@gmail.com](mailto:NMRA.Div.3@gmail.com) or visit: [www.DaytonTrainShow.com](http://www.DaytonTrainShow.com) for updates.

**OH, MASSILLON:** CJ Trains Winter Train and Toy Show. Massillon Knights of Columbus Hall, 988 Cherry Road NW, 44647. Sunday, December 15, 2024, 10:00am-3:00pm. Admission: \$5.00, 12 and under FREE. \$25/dealer table, 152' - 8' dealer tables. Jon Ulbright, PO Box 446, Wooster, OH 44691, 330-262-7488, [cathijon@sssn.net](mailto:cathijon@sssn.net) or [www.cjtrains.com](http://www.cjtrains.com)

**PA, ALLENTOWN:** ATMA First Frost Train Meet. Allentown Fairgrounds Agri-Plex, 1925 W. Chew Street. Allentown, PA 18104. November 9 & 10, 2024. Saturday 9am-4pm, Sunday 9am-3pm. Advance tickets \$15, admitted at 8am. At the door, admitted 9am; \$10 adults, 12 and under FREE with adult ticket purchase. For more info, visit: [www.allentowntrainmeet.com](http://www.allentowntrainmeet.com) or call 610-442-2859

**PA, BEAVER FALLS:** BLRHS Fall Train Show. Saturday, October 12, 2024, 10:00am-3:00pm. Chippewa Township VFD Social Hall, 2568 Darlington Rd., Beaver Falls, PA 15010. Admission: \$5.00 (\$4.00 if you mention Model Railroader ad). Children 12 and under FREE. Tables \$25 each. For show info: [www.blrhsinc.org](http://www.blrhsinc.org). For table reservations: Tom Bianculi, [tjbian64@gmail.com](mailto:tjbian64@gmail.com) or 412-585-3614

**TX, HOUSTON:** Houston Area Model Train Show. November 16-17, 2024. Saturday 10am-5pm, Sunday 10am-4pm. Adults \$7, 17 and under free. All scales, operating layouts, club/museum displays, table sales and more. Pearland Knights of Columbus Hall, 2320 Hatfield Rd., Pearland TX 77581. More information at <http://houstontrak.org> or by email [info@houstontrak.org](mailto:info@houstontrak.org). Sponsored by Houston Area T-TRAK Association, Inc.

**WA, KENT:** Boeing Employees Model Railroad Club Annual Swap Meet. Saturday, November 9, 2024, 9:30am-4:00pm. Kent Commons Community Center, 525 4th Avenue North, Kent, WA 98030. Admission: \$10.00, under 16 free. Ed Sherry, 550 SW Colewood Lane, Normandy Park, WA 98166; 206-244-3884; [Seattleandnorthcascades@gmail.com](mailto:Seattleandnorthcascades@gmail.com)

**WA, LONGVIEW:** November 23, 2024. LK&R Model Railroad Club presents our 2024 Holiday Model Train and Toy Swap Meet. NEW LOCATION - Cowlitz County Event Center, 1900 7th Ave. 10am-4pm. Admission \$5.00. See [www.cceventcenter.com](http://www.cceventcenter.com), click on Contact Us for directions. Over 150 tables. Information for vendors and guests, visit: <http://lkrtrains.yolasite.com> or contact Howard Flick, 360-751-7276, email: [flickh@yahoo.com](mailto:flickh@yahoo.com)

**WA, SPOKANE:** River City Modelers Fall Train Show. Spokane Fairgrounds, 404 N. Havana. Sunday, October 13th, 9:30am-3:30pm. Admission: \$8 for adults, 12 & under free. 200+ tables of Railroad-related items for sale, operating layouts, Free-MO, Operation Lifesaver & more. Free Parking. For table rental or general info, contact: Shirley Sample, 509-991-2317 or email: [shirley@busnws.com](mailto:shirley@busnws.com)

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

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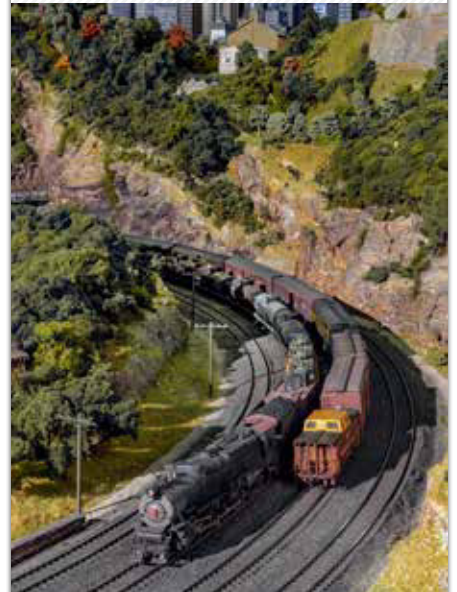
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# An aspect of setup I overlooked



Having a good time, as Jim Dalberg (left) and Dave Abeles are obviously doing, need not be confined to operating sessions. Having a few of the crew stop over to help prepare the railroad for the next op session has turned out to be a pleasant bonus for both Dave and Tony. *Kristen Abeles photo*

**Camaraderie. Esprit d'corps.** Sharing a laugh. Fellowship. None of these terms have much to do with staging a model railroad or attending to the myriad small tasks that must be taken care of before the next operating session. Such chores are usually reserved to the builder of the railroad.

At least, for decades, that's what I thought. Then I read Dave Abeles' interesting article about "Extending the fun" in July 2023 *Model Railroader*. A light went on.

**About the same time**, one of my operating crew members, Jim Leighty, sent me an email suggesting that he come down for a day to help me prepare for my next op session. Jim has a track-cleaning train that's awesome to see in operation, whereas I hate cleaning track. He also has a nice locomotive-wheel cleaning rig.

With those tasks done, we also tackled backing trains out of staging, cycling waybills, and swapping cabooses and locomotive positions using a Peco locomotive rerailer Jim brought along. It was a good day.

For the next session, Jim suggested he bring another crew member, Mike Quinn, to expand what we could do in a day. Mike is a superb modeler in many fields, so he and Jim tackled the installation of Model Railroad Control Systems servos to power a crossover. The crossover, on a Baltimore & Ohio line that crosses my Nickel Plate Road St. Louis Division main line at Metcalf, Ill., was manually operated, but difficult to reach.

The servos needed to be surface-mounted and hidden under plastic lineside structures. It wasn't easy, but Mike got the job done; I would have thrown in the towel about

halfway through the job. And we had some laughs, a few at Mike's expense, probably more at mine.

Meanwhile, Jim cleaned much of the railroad and all but a few locomotives that were hidden away in a roundhouse, while I did some staging. It sure beat the lonely days of staging the railroad by myself and thinking I really should clean the track and those engine and tender wheels, but seldom did.

In fact, it worked so well that we're adding Jerry Albertie, one of our Frankfort yardmasters, to the layout setup crew. He can help ensure that any loose ends in that large dual (east- and westbound sides) yard have been straightened out ahead of time.

**Up until recently**, I also avoided work crews, preferring to go it alone, with rare exceptions. My thinking was that I had my fill of people management before I retired from my day job.

But what I overlooked is that some of my crew have far superior knowledge to mine on key aspects of important enhancements the railroad needs. So if they "helped me," in effect they would be the project managers, and I would be the gofer who supplied needed tools and materials as well as prototype information.

That led to having retired electrical engineer Dave Olesen, Ted Pamperin, and retired professional signal technician Ed Bush install Iowa Scaled Engineering's

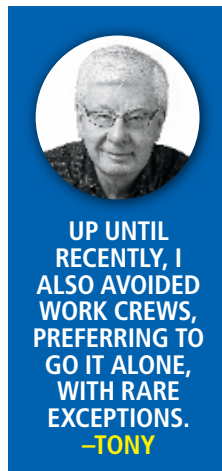
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I used ISE's infrared sensors, so Dave worked with the circuitry while Ted and I covered various IR sensors to ensure the home signals responded correctly. Ed had previously done a lot of the hard-wiring and other tasks.

**Dave, Ted, and Ed** are all regular attendees at my op sessions, and therefore, like Jim, Mike, and Jerry, probably know things about my

railroad and its operations that even I don't. Moreover, until recently, real-life concerns had precluded travel, even to local op sessions. So having several of the crew stop by between sessions has been a very pleasant break in the routine. I should have thought of this sooner. **MR**





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