

REVIEWED: PIKO'S HO SPRINTER p.56



March 2022 • Trains.com

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Easy & excellent weathering!

Gritty high-mileage realism for your passenger cars – one step at a time p.36

Project railroad:
Wiring and
track tips

p.32

David Popp's guide to
adding picture-perfect
weathering. p.36

PLUS

Modeling street life and streetcars p.42

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Interiors and lighting for N scale buildings p.24

MAYBE YOUR NEXT FLIGHT SHOULD BE ON A TURBOLINER



**Pre-production model shown, subject to revision.*



**Preliminary artwork shown, subject to revision.*

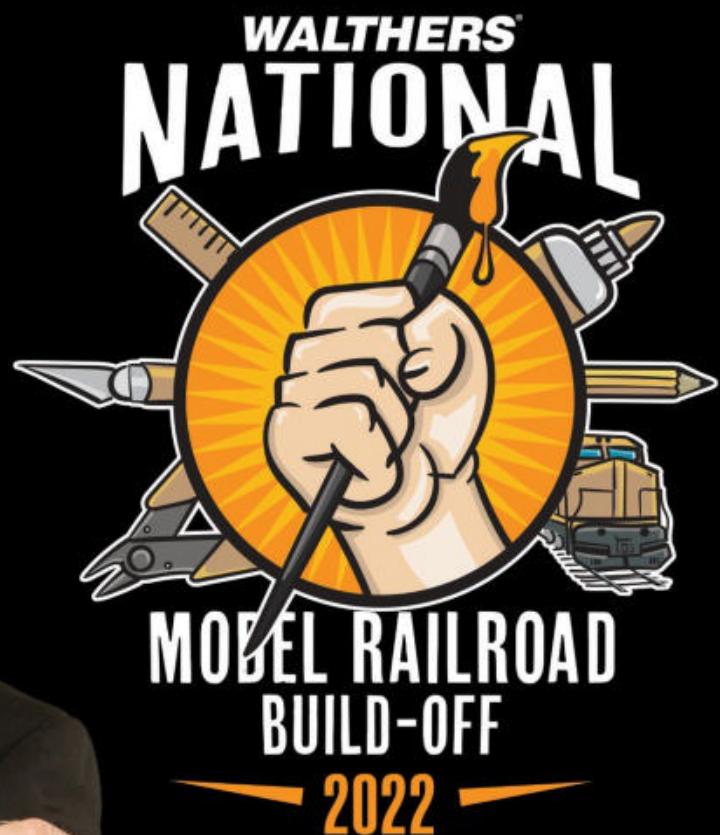
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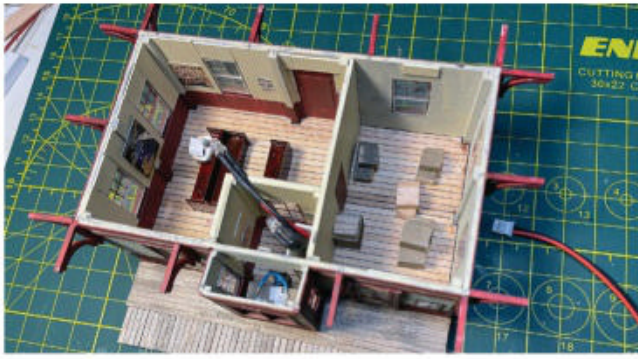
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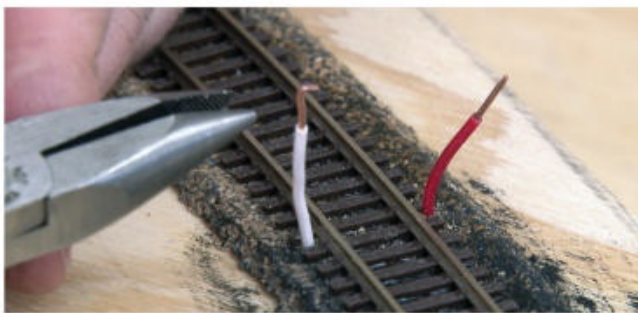
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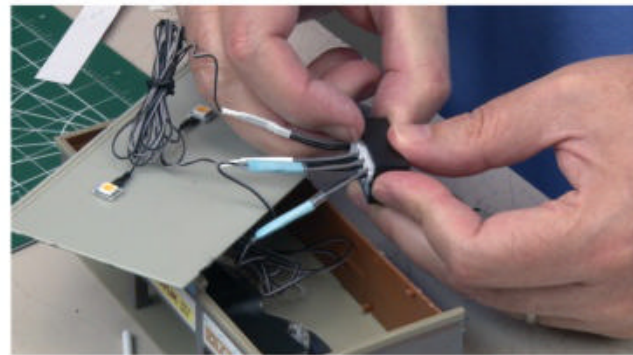
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Making a difference



On the cover: David Popp checks over his weathering job on a Rapido HO scale New Haven coach. Photo by Connor Bruesewitz/Saturn Lounge



Next issue

In April, Cody Grivno salvages a scrap yard and moves it to our project layout. Plus, see Pelle Søborg's new modules, visit an HO scale C&O layout, and more!

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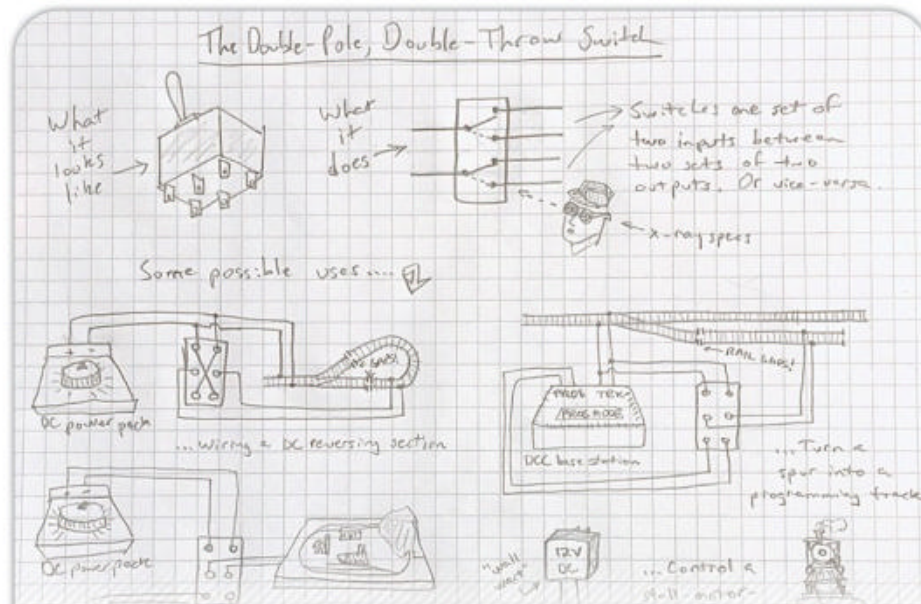


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Your modeling questions answered! Check out the new video series *Ask Trains.com*, where Group Technical Editor Cody Grivno and Trains.com Digital Editor Steve Sweeney address viewer-submitted inquiries on everything from issues with back-orders to free-floating wheelsets. Become a Trains.com member for unlimited access to all the *Model Railroader* video series.



Sketching with Steve

Senior Associate Editor Steven Otte is back with the latest edition of *Sketching with Steve*, and this time he's talking about double-pole double-throw switches.



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Union Pacific Railroad (UP) class 4000

The Union Pacific Railroad rolled out the biggest restoration of 2019, the complete overhaul of the largest steam locomotive in the world – **the Big Boy, road number 4014.**

TRIX



To commemorate this event, Trix has reissued an accurately redesigned model in HO scale (Item No. 22163). This model was made specifically for the HO US market.

- RP 25 Wheels
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This metal model has a total of 14 design changes to accurately represent the prototype, including changing to an oil firing tender, "Big Boy" written on the smoke box door, applying the UP 4014 logo onto cab floor and more!

Also available in a Märklin H0 version (37997) and standard Trix HO version (22014).

Trix products are available from authorized Trix and Märklin dealers. See our complete line of products at marklin.com and trix.de/en. Contact customerservice@marklin.com for more information or to request a free New Items catalog.

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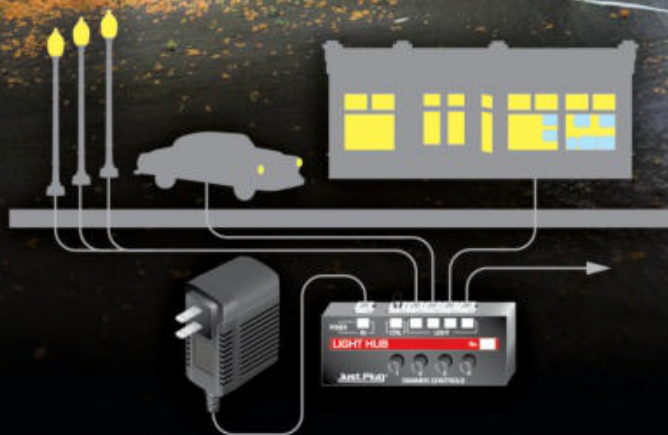
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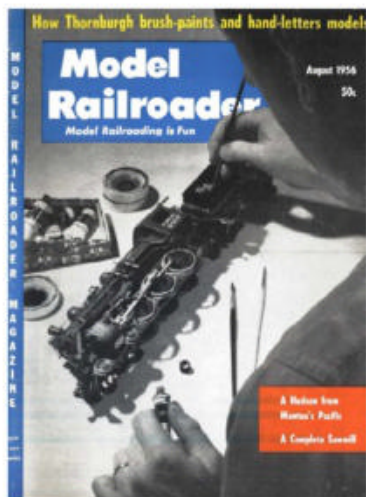
Issue archive offers insights, inspiration

If something seems familiar

about this month's cover, you're right. The image of David Popp weathering a Rapido passenger car was inspired by the August 1956 *Model Railroader* cover.

David's article this month, "Weather passenger cars piecemeal," explains how he gets exceptional weathering effects by working one section at a time. You can read all about it by turning to page 36.

The cover feature from the August 1956 issue, "How Thornburgh brush-paints and hand-letters models," is also well worth reading. This issue, along with every single issue we've published going all the way back to 1934's Volume 1,



Number 1, is right at your fingertips, thanks to Trains.com's issue archive.

The author of that long-ago article, Mel Thornburgh, showed how to achieve smooth, opaque, and precise lettering and stripes with no brushmarks. He notes, "Let me remind those partial to spraying that craftsmen who never held a spray gun once delivered beautifully decorated locomotives and coaches to railroads."

On my way to read Mel's 1956 article, I was distracted by the editorial appearing in the same issue, in which then-editor John Page recalled that early car and locomotive kits required a great deal of soldering. "How

different things are today!"

Page wrote. "Manufacturers, especially in HO, have ingeniously eliminated soldering almost completely from their products."

Clearly a welcome development, right? Not so fast, Page argues.

"But these same kits also eliminate the chance for beginners to learn, naturally and gradually, such fundamental processes as soldering, drilling, and tapping. And they must learn the fundamentals if they are ever going to progress beyond the exclusive use of shake-the-box kits and ready-to-run equipment."

Page concluded, "But if you want to venture further in this hobby – and most of the fun is further – then you'd better learn these fundamentals of our craft. It will be much harder work to try to get along without them than it will be to learn them."



It's an excellent point. Time spent learning a new skill is never time wasted.

As you may have guessed, my quick glance at the archive resulted in a lengthy excursion into our hobby's history.

If you're a member of Trains.com, be sure to check out the magazine archive – but plan on staying awhile!

Model Railroader

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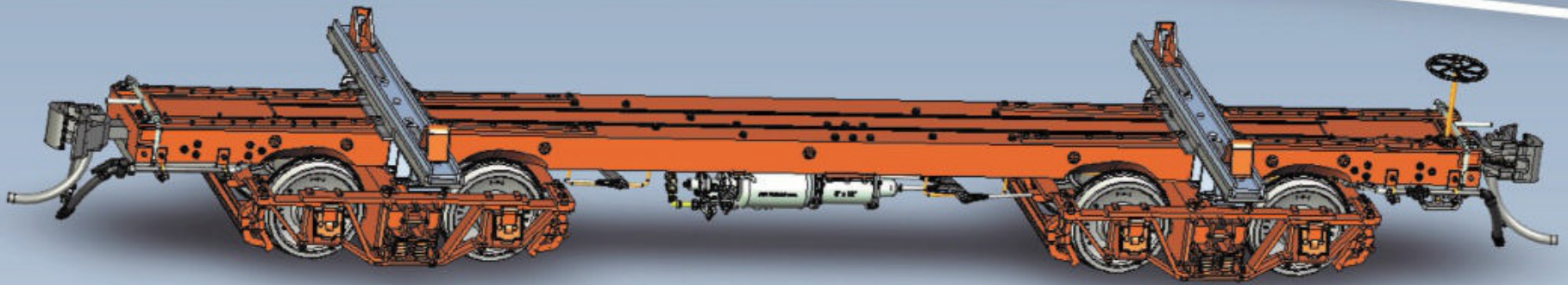
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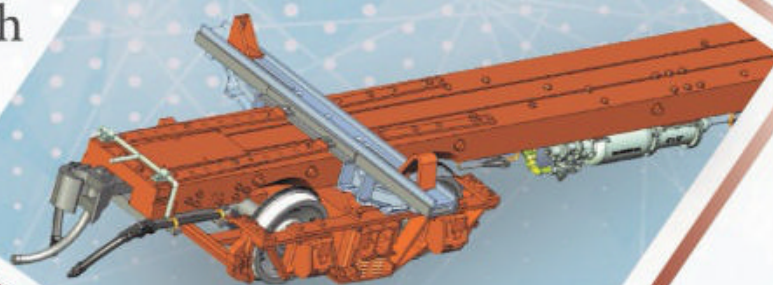
PRESS RELEASE



KR Models proudly announce that we will be producing a logging car to complement our model of **The Shay**.

Logging railways used three basic types of log cars, the disconnect, skeleton and the flatcar. Skeleton cars were the most common, basically consisting of a wooden reach between two freight car trucks. This arrangement allowed for the use of air brakes (unlike the disconnect), while maintaining its light weight and easy maintenance.

We will be producing 3 variants each at \$60.00, which comes complete with logs. A single log or a three log configuration.



To register your interest in this model please go to

<https://www.krmodels.ca/products/expressions-of-interest-ca>

We will announce further details as the project progresses.





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HO scale



Electro-Motive Division F units. Athearn is offering the Burlington Northern “hockey stick” scheme for the first time on its Genesis series F units. The HO scale models are available as a single F9A, an F9A/F7B set, and an F9A/B set in one road number each. The A units feature a detailed cab interior. All of the models have a die-cast metal underframe, factory-

installed and painted wire grab irons, and photo-etched metal and plastic detail parts. Direct-current models with 21-pin NEM connectors are priced at **\$219.98** (F9A) and **\$419.98** (A-B sets). Versions with a dual-mode SoundTraxx Tsunami2 sound decoder sell for **\$309.98** (F9A) and **\$599.98** (A-B sets). Athearn Trains, 800-338-4639, athearn.com

New N scale coal hopper from Rapido

Rapido Trains announced that a FreightCar America AutoFlood III five-bay hopper is the next release in the company’s growing N scale lineup. The modern-era coal hauler is scheduled for release in 2022.

The ready-to-run car will feature a die-cast metal frame and floor; full interior rivet and K-member details; Barber S-2 100-ton trucks with metal wheels; detailed end cages and outlet gates; air and brake piping; separate,

factory-applied crossover platforms and uncoupling levers; and a removable coal load.

Paint schemes on the first release will be BNSF Ry., Carolina Power & Light, CIT Group, GATX Corp., Gulf Power Co., Indiana Rail Road, Union Pacific, and Western Resources Inc.

Single cars will be priced at \$38.95 and six-packs will sell for \$233.70. Unnumbered six-packs will also be offered for each road name.



Rapido Trains will be releasing an N scale FreightCar America AutoFlood III five-bay hopper in 2022.

For the latest updates on Rapido’s FreightCar America AutoFlood III five-bay hopper, visit the manufacturer’s website at rapidotrains.com.

First look at HO Shay from KR Models

KR Models recently released photos and a video showing an early production sample of its HO scale Shay geared steam locomotive. The model, scheduled for release this fall, is based on the Lima-built 50-ton two-truck Class B Shay.

Features on the geared steam locomotive include a die-cast metal chassis, working external valve gear and drive shafts, and directional headlights. Road names offered include Arcata no. 7, Canadian Pacific no. 111, Merrill & Ring

Lumber Co. no. 3, Southwestern Portland Cement Co. no. 12, Sugar Pine Lumber Co. no. 10, and West Side Lumber Co. no. 6. The locomotive will also be available painted black but unlettered.

The model will be priced between \$299 and \$449, depending on features. Sound-equipped models will be fitted with an ESU LokSound V5 decoder.

For more information, visit the KR Models website, krmodels.ca.



KR Models shared this photo of an early production sample of its HO scale Shay. The model is due out this fall.

HO scale locomotives

• **Electro-Motive Division GP40-2 diesel locomotive.** Burlington Northern (Cascade Green and black with stripes), CSX (dark blue and

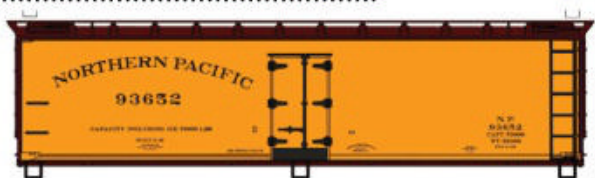
yellow), Denver & Rio Grande Western (orange and black with “Flying Grande” lettering), Kansas City Southern (gray), Norfolk Southern (Thoroughbred scheme), and United States Army (red and yellow). Three road numbers per

scheme. Light-emitting-diode headlights, five-pole motor with flywheels, and Celcon handrails. Direct-current model with 21-pin plug, \$116.99. January 2023. Roundhouse line. Athearn Trains, 800-338-4639, athearn.com



- **Electro-Motive Division SD45 diesel locomotive.** Great Northern, Milwaukee Road (orange and black with “Milwaukee Road” on long hood), Norfolk & Western (black and white), Penn Central (black and white), Southern Ry. (tuxedo scheme, high short hood), and Wisconsin Central (maroon and yellow). Four road numbers per scheme (two each in direct current and Digital Command Control). Railroad-specific details, die-cast metal underframe, and Proto-Max metal couplers. Direct-current models, \$219.98; with dual-mode ESU LokSound 5 sound decoder, \$319.98. August 2022. Walther's Proto. Wm. K. Walther's Inc., 414-527-0770, walther's.com

HO scale freight cars



- **Assorted Northern Pacific freight cars.** Double-sheathed refrigerator car

and single- and double-sheathed box-cars. Injection-molded plastic kits with plastic wheelsets and Accumate couplers. Single car, \$19.98 (refrigerator car, \$20.98); three-pack, \$59.98. Accurail, 630-365-1173, accurail.com



- **70-ton ballast hopper with side chutes.** Conrail (yellow and gray schemes); Atchison, Topeka & Santa Fe (billboard lettering and with circle-cross and quality heralds, four road numbers each); Dakota, Minnesota & Eastern (yellow, four numbers); Denver & Rio Grande Western (black with “Flying Grande” lettering); Erie Lackawanna (black); Louisville & Nashville (gray); Maine Central (green); Morrison Knudsen (yellow); Ontario Northland (blue and yellow); Penn Central (yellow); Reading & Northern (two-tone gray); and Seaboard Coast Line (oxide red with yellow band). Three numbers per scheme unless noted. Plastic trucks, metal wheelsets, and body-mounted couplers. \$29.95. Fall 2022. Executive Line. Bowser Trains, 800-327-5126, bowser-trains.com



- **Celtran Inc. ethylene refrigerated liquid tank car no. 268.** Kit includes cast-resin and 3-D printed parts, assembly hardware, decals, and photo-illustrated instructions but no trucks or couplers. \$34.99 plus shipping. Concept Models, con-sys.com



- **Pennsylvania RR/Penn Central class G43 52'-6" corrugated-side gondola.** Penn Central (class G43A as-delivered February 1968 scheme), Conrail (1984+ PRR number paint out in one road number, 1980 G43A repaint, and 1988 G43B coil service with coil racks but no coils), Norfolk Southern (1999+ class GP44 and 2010+ class GP44 repaint, both with coil racks but no coils in one number each), and Pennsylvania RR (original 11-1966 class G43, six new numbers). Twelve numbers per scheme unless noted, also available undecorated (six versions). Prototype-specific details, see-through etched-metal crossover platforms, and Kadet scale couplers. \$48.95. Tangent Scale Models, 828-279-6106, tangentscalemodels.com

N scale locomotives



- **Union Pacific 4-8-8-4 Big Boy steam locomotive.** 1941 scheme with as-delivered aftercooler and 25-C-100 coal tender in three road numbers, 1944 scheme with Wilson aftercooler and 25-C-400 coal tender in three numbers, “The Big Boy Tour” excursion with standard finish and Challenger excursion tender, “Promontory Excursion” with glossy finish and Challenger excursion tender, two-tone gray and aluminum with Wilson aftercooler and 25-C-400 coal tender, and two-tone gray and yellow with Wilson aftercooler and 25-C-400 coal tender. One number per scheme

HO scale



Pennsylvania RR F30 series flatcars. A new line of flatcars is available from Rapido Trains. The HO scale PRR F30-series flatcars are decorated for TTX (F30G [yellow] and F30D [early and late red]), Pennsylvania RR (F30A [as delivered, 1950s, and 1960s schemes] and F30D [as delivered]), Lehigh Valley (F30A), Penn Central (F30A), and Conrail (F30A

maintenance of way) in six road numbers per scheme. Undecorated single cars (F30A, F30D, and F30G) are also available. The flatcars have a die-cast metal chassis and deck and Rapido semi-scale couplers. Single cars sell for **\$49.95** and six-packs are priced at **\$299.70**. Rapido Trains Inc., 905-474-3314, rapidotrains.com

N scale

Barnesville Tunnel. The N scale Architect has added a new kit to its Layout Builder's Series. The Barnesville Tunnel (\$49.95) includes the main chamber housing, exhaust fan structures, vent ductwork, wooden tunnel casing, exhaust fan castings, etched stainless steel grills, and illustrated step-by-step instructions. The N scale structure, based on a prototype near Barnesville, Pa., measures 5½" x 3½" x 2¼". The N Scale Architect, 607-746-8416, thenarch.com



unless noted. With Dual-mode Paragon 4 sound decoder with Rolling Thunder, \$599.99. November/December 2022. Broadway Limited Imports, 386-673-8900, broadway-limited.com

N scale structures

- **Modern steel warehouse.** Injection-molded plastic kit with exterior railcar

and truck docks, block foundation, and steel upper panels. Includes separate doors and windows, two large rooftop air conditioners, six vents, weather bellows for truck dock doors, and printed signs. Interior has molded cut lines for kitbashing. Measures 10½" x 6⅝" x 2⅓". \$59.98. Cornerstone Series. Wm. K. Walther's Inc., 414-527-0770, walther's.com

O scale freight cars



- **Denver & Rio Grande Western 61200-61399 series door-and-a-half double-sheathed automobile boxcar.** Brass model from Boo-Rim Precision of Korea. Fish-belly underframe, 4/5 reversed dreadnaught square corner ends, AB brake system, and Vulcan 50-ton trucks with 5'-6" wheelbase. \$358. Protocraft, 707-935-7011, protocraft.com

Z scale locomotives

- **Canadian National Electro-Motive Division F7A and F7B diesel locomotives.** Green-and-yellow scheme. A-B set

4 ALL-NEW ANNOUNCEMENTS

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The model of the Beilhack snow blower turns out to be a true all-rounder: The Self-driving model is delicately designed with many digitally switchable functions as for example lifting and lowering of the snow cutter equipment and rotating propellers. The Upper part can be turned 180° and provides rotary equipment, headlights and ditch lights.

Steam locomotive 2610, USAATC



72154

DC

72155

DCC



78155

AC



Box car, USAATC



76316

Low-side gondola, USAATC



76317

High-side gondola, USAATC



76318

Beilhack Rotary Snow Blower, Conrail



72804

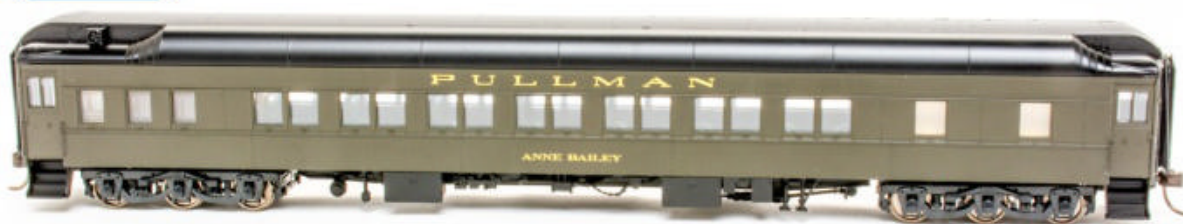
DCC



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Pictures show Photomontages

HO scale



Pullman 14-section heavyweight sleeper. This Atlas Master line car is offered decorated for Pullman (Pullman Green and black assigned to Chesapeake & Ohio, Illinois Central, Rock Island, and Union Pacific and two-tone gray pool car), Pullman (two-tone gray with New York Central sublettering), and National Railways of Mexico (dark green and silver). The HO scale car is offered in one or two car names per scheme. The sleeper (\$72.95) has a detailed interior; separate, factory-installed underbody details; and metal wheels. Atlas Model Railroad Co., 908-687-0880, shop.atlasrr.com

and single A unit. Dual flywheels, 7mm motor, and blackened metal wheels. American Z Line, 614-764-1703, americanzline.com

Z scale freight cars

- **Pacific Fruit Express R-70-20 mechanical refrigerator car.** Santa Fe

Refrigerated Despatch (orange with large circle-cross herald and "Ship and Travel Santa Fe – All the Way" slogan). Seven road numbers (single car, two-pack, and four-pack). Injection-molded plastic body, blackened metal wheels, underbody details, and AutoLatch couplers. American Z Line, 614-764-1703, americanzline.com

Tools

- **65-watt soldering station with digital temperature control.** Includes DCS-AT689A soldering station, solder stand and sponge, Sapphire 179 super versatile solder, 30ml Sapphire No-Clean flux, and medium C-type spare tip. For soldering decoders, general circuit work, re-wiring locomotives, and building brass kits. \$88.90. Price may vary based on exchange rate. DCC Concepts, +44 (0)1729 821080, dccconcepts.com

Books

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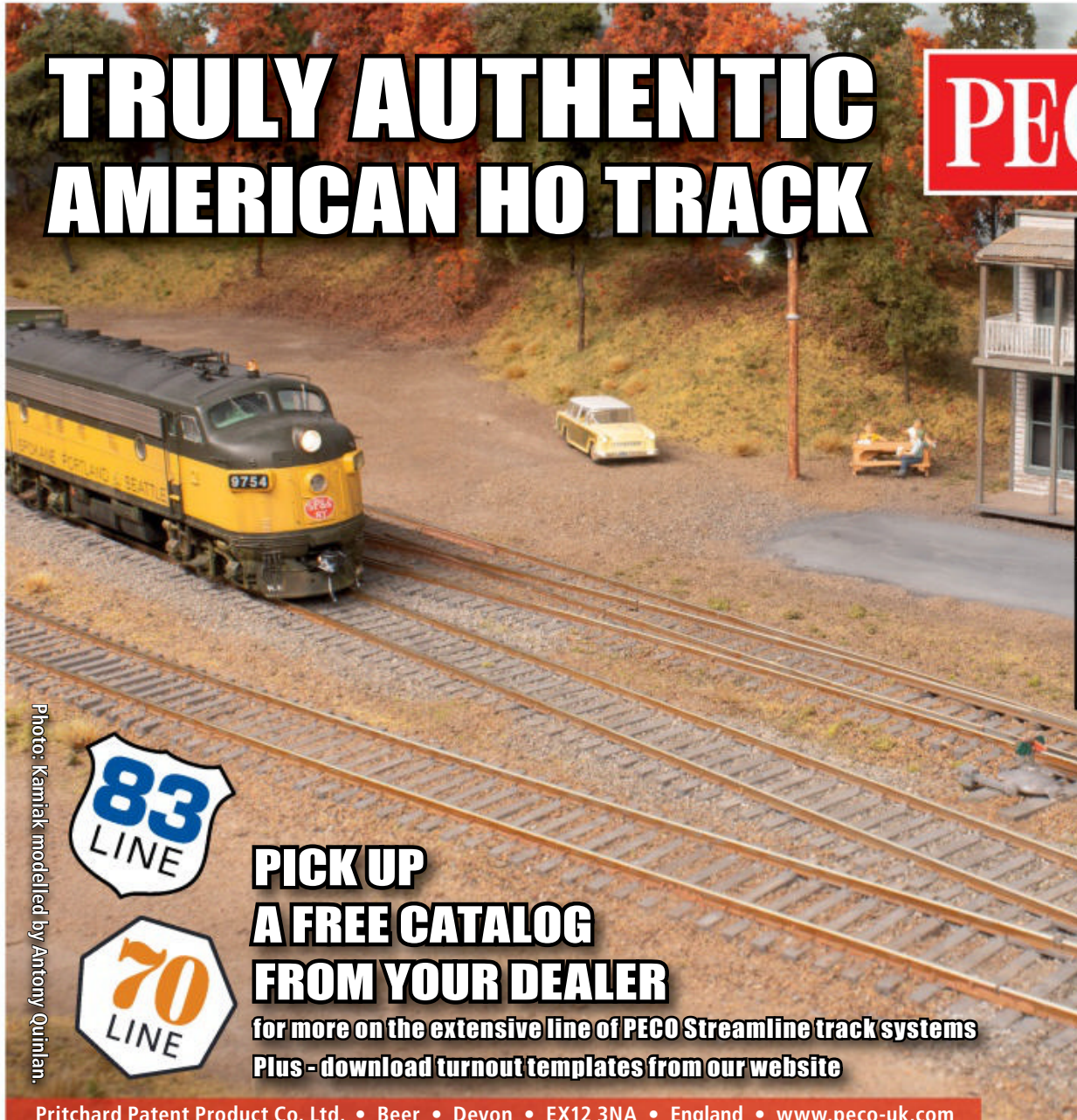


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A quartet of Chicago, Burlington & Quincy (a predecessor to BNSF) diesels led by Electro-Motive Division GP30 no. 957 leads a manifest freight across the diamonds at Rochelle, Ill., in December 1966. What kind of cars would be in a model of such a train depends not on the locomotives, but on your layout's industries and era. Mike McBride photo

What freight cars would my diesels pull?

Q I have some BNSF General Electric Dash 9 and GEVO units that pull my double-stack and trailer-on-flatcar (TOFC) trains as well as a BNSF Executive train. My question is, what sort of freight cars would be used with GP18s and SD45s in the mid- to late 1960s?

Jim Rohrbach

A If you're running Dash 9s and GEVOs, then your railroad is set in the modern era, not the 1960s. The Dash 9 series was introduced in 1995, and the Evolution series in 2003. Double-stack container trains started in the U.S. in 1984. So the way I see it, you have three options:

1) Acknowledge your railroad is really set post-2003, in which case your aged GP18s and SD45s would be relegated to switching, local freight, transfer, and light branchline duty.

2) Run a "swing era" layout, in which the year changes depending on what rolling stock you're running. When you want to run your GEVOs, the layout is set in the 2000s; replace them with GP18s and SD45s if you want to party like it's 1969.

3) Say "It's my railroad" and run whatever you like.

Obviously, number 3 would be the easiest, but you wouldn't be asking the question if you weren't at least a little concerned about prototypical plausibility. So we'll discard that option and look at the first two.

For either, your question becomes not "what sort of freight cars would be pulled by these locomotives," but rather, "what sort of freight cars are suitable for my layout's operating scheme in these two eras?" After all, it isn't the locomotives that determine the freight cars your layout needs, it's the industries on the railroad. (And by "industries," also consider team tracks, interchanges, and staging that represents off-layout destinations.)

So now that you know the real question, you can start to figure out the answer. I suggest reading Jeff Wilson's informative series of books, *The Model Railroader's Guide to Industries Along the Tracks*. You can probably find volumes 1 through 3 at your local hobby store or online. Volume 4 (covering the coal gas, salt, brickyard, quarry, lumber, and waterfront transfer industries) is still available in the Kalmbach Hobby Store, at KalmbachHobbyStore.com/product/book/12439.

You might also find useful Jeff's book *Modern Freight Cars: Rolling Stock from the '60s Through Today*. It's also available at the Kalmbach Hobby Store, KalmbachHobbyStore.com/product/book/12813.

Enjoy building your new, era-appropriate rolling stock fleet!

Q When is a train too long? How can they keep adding rail cars until it's not safe? I don't understand, when there are two crew members up in the first locomotive, with three units trailing and maybe more units midway and at the end pulling a two-mile-plus-long train, is it really safe to do so?

David Spring

A There are a lot of factors to consider when you ask whether a long train is safe. One factor is whether the operators in the front of the train can really know what's going on with a two-mile-long string of cars behind them. A train doesn't operate like a car; as long as everything stays on the rails, a train engineer can be confident he knows where the rest of the train is and what it's doing back there. If a coupler were to detach or brake lines to spring a leak, the engineer would be notified instantly. And if any backing maneuvers are to be done, they are done under the watchful eye of a fellow trainman watching the back of the train.

Another factor may be whether the engineer can really control that much train. All those locomotives you mention are MU'd to the lead engine, train jargon for "multiple unit." In other words, when the engineer is controlling his lead engine, all the others in the train respond as if he were simultaneously controlling them, as well. It's not a burden to him to have to control multiple locomotives at once.

Momentum can be a factor, though, as a longer and heavier train is going to be harder to stop should an emergency occur. Another concern is coupler stress. Even if you have enough motive power to move all the cars in a train, the couplers can take only so much pulling force before they snap. That's why distributed power units are located throughout a long train, rather than all tacked onto the front.

There might be a lot of safety issues to consider as trains get longer, but it's safe to say that engineers and train masters take them into consideration every time they assemble a train.

Q I have two HO scale steam engines that both have the same problem. Their front trucks are always derailing. They are very light. Do you have any ideas how to fix this?

Ted Zieger

A Your locomotives' front trucks should want to stay on the track of their own accords. If they're derailing, there are a number of possible reasons.

The first and most likely is that something is interfering with the trucks' ability to swing freely to track through curves, turnout frogs, and the like. Perhaps the screw, rivet, or pin the truck pivots on is too tight. Or maybe an obstruction on the frame, pilot, cylinders, or running gear is cramping the front truck's style. If there's a spring that's supposed to put pressure on the truck to hold it to the rails, it might be too strong, causing resistance when the truck is supposed to pivot. Turn the locomotive over in a foam cradle and look for these possibilities.

Another problem could be the wheels. While you've got the locomotive wheels-up, make sure the pilot truck is in gauge. Also check the flange depth. If the flanges are too deep, the wheels might have trouble with turnout frogs, guard rails, grade crossings, diamond crossings, and wayward spike heads.

It's also possible that the problem isn't the locomotives, but the track. If the derailments consistently happen at the same places on your layout, you might have an out-of-gauge turnout, a shallow frog flangeway, a kinked rail joint, an obstructing power feeder, ballast in the flangeway, or something of the sort. Or maybe a flextrack curve is tighter than it's supposed to be. If it's a subtle issue, your steam locomotives' light front trucks might be the only wheels on your fleet sensitive enough to pick up on it.

Q As I look at pictures of layouts in MR, I marvel at all the action figures. They aren't just people standing on a train station, but doing actual work, pushing wheelbarrows, directing traffic, or just milling around. Are these figures cast by the layout owner, or are they available in stores or online? There seem to be so many in so many different positions it's hard to believe that one can purchase all these.

Jack Sponaes

+
IF YOUR ENGINES' FRONT TRUCKS DERAIL, THERE ARE A FEW POSSIBLE CAUSES.

A Interesting choice of terms there, Jack. "Action figures" evokes the G.I. Joe and superhero toys we played with as kids, figures with movable limbs that can be posed in a wide range of positions. But since the figures we place on our model railroads are static, molded from a single piece of plastic or metal, they have to come in a wide variety of poses to portray the scenes we might want to display.

If we want to have a dozen passengers standing on a station platform waiting for the train, realism would be broken if they were all standing in the same pose. Therefore, hobby manufacturers offer hundreds and hundreds of figures in different outfits, paint colors, poses, sizes, genders, ages, and of course scales. Look at the website of a model train vendor like Walthers.com and search for "figures" to see the wide variety of tiny people available.

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



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But no matter how many figures manufacturers offer, you might find a situation that requires a pose that isn't offered. In that case, you might have to cut off clothing details, limbs, or heads and reattach them in different positions. We've run articles in the past on how to do this.

Q After building a train table with a plywood top, I plan to put down pink extruded-foam insulation board to help keep down the noise. What would you suggest as an affordable option to put over the foam board for appearance purposes? I have O gauge trains.

Angelo A. Spiezia

A If you don't mind the tabletop-flat look, and many O gaugers don't, it's simple to make that surface look a lot more realistic. Paint it with an earth-colored interior latex flat house paint. While the paint is wet, sift a thin coat of fine real dirt on top so it sticks. (You can buy powdered earth products from scenery vendors like Scenic Express, or use your oven to dry dirt from your yard and sift out any rocks and impurities.) Work in small patches so you can get the dirt sifted on before the paint starts to dry. Latex paint dries quickly!

Once the paint dries, wet the surface with a mist of wet water (water with something to cut the surface tension, such as three or four drops of dish detergent or about a tablespoon of isopropyl alcohol in a typical spray mister). Sift on



Model Railroader contributing editor Pelle Søbørg flows scenic cement into real dirt he has sifted onto his layout's terrain. Such simple steps can go a long way to making a plain train table look realistic. Pelle Søbørg photo

more dirt to cover any bare spots or visible brush strokes, then shake on fine ground foam turf in a natural-looking assortment of random greens. Leave dirt roads, farm fields, and structure sites bare of foam. Spray the foam with another mist of wet water. Then, using a pipette held close to the surface to avoid cratering, carefully flow commercial scenic cement, diluted matte medium (1 part matte medium to 4 parts water), or diluted white glue into the scenery and let dry. Stuff like trees, bushes, and structures can be glued down with white glue once everything's dry.

Q Knowing I was building a small layout, friends gave me some old equipment. Included were two DC power packs – an MRC Tech II

Railpower 1400 and a Tech II Railpower 1440 Tru-Sound. Would these power packs have any application on a DCC layout? Could the accessory terminals be used for structure lighting or anything else?

Jim Ross, Pickerington, Ohio

A Yes, direct-current power packs (especially their constant-voltage accessory terminals) can still be useful on Digital Command Control-powered layouts to power DC accessories like structure lighting, switch motors, and turntable motors. They can also be used to power some DCC devices. I use an old MRC Tech II Loco-Motion 2500 as the power for the DCC booster that runs the Middletown power district on my HO scale Cincinnati, Lebanon & Northern.

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Q Recently I attached some magnets to the bottom of an HO scale flatcar to try to recover a truck screw that had gone missing on our club's layout. I found a number of spikes, as well as the missing screw. But what was interesting was the metal filings the magnets picked up, a lot of which had a slight lubricant on them. I'm curious as to what the source of these metal filings may be. The club has been conducting daily operating seasons for 15 years, but this is the first time doing any magnetic pick-up on the tracks.

*Alan Armbruster
Tanana Valley Model Railroad Club
Fairbanks, Alaska*

A Hi, Alan. Those metal filings most likely came from a locomotive (or several). Though most modern model locomotives have gears made of nylon, Delrin, or some other kind of engineering plastic, in the old days they were made of steel or brass. (Though brass isn't magnetic, it's hard enough to grind bits off of a soft metal gearbox or frame.)

It's good that your magnet car picked those up, because if they'd gotten into the magnets in one of those old locomotives' open-frame motors, they could have caused trouble. You should probably make such sweeps a regular thing.

Q I have a 4 x 8-foot HO scale layout with 18" radius curves. But there's a train set I want (the Bachmann Amtrak Acela) whose description says that it only works with 22" radius curves or more. The set comes with track, but I probably won't have space on my layout for 22" curves. Plus, it would be a lot of trouble to remove the grass, roads, street lights, signs, and such. What should I do?

Tal Pearlman

A As much as model train manufacturers would love to have all their HO scale equipment run on 18" radius curves, the restrictions imposed by modeling some prototype features mean it's not always possible. If a manufacturer says a train set needs a 22" minimum radius, there's

a good reason. Unfortunately that leaves you with just two options: build a new layout with a larger curve radius, or don't get that train set. Sorry.

Q What is dynamic braking on trains?

Mark Kroll

A Unlike a typical diesel-powered car or truck, a diesel locomotive doesn't have a direct mechanical linkage between its engine and its wheels. These locomotives are more properly called diesel-electrics. Rather than turning a driveshaft that drives the wheels, the engine (or "prime mover") of a diesel locomotive instead drives an electrical generator. The current generated then powers electrical motors (called "traction motors") mounted on the locomotives' axles to make it go.

As you may know, there isn't that much structural difference between an electric motor and a generator; if you apply rotary force to a motor's shaft, it will act as a generator and generate current instead. This is the principle behind

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dynamic braking. When a diesel-electric locomotive is facing a long downgrade, the engineer engages the dynamic brake, which throttles down the diesel engine and turns the traction motors into generators. The momentum of the train rolling downgrade turns the traction motors, which generate electricity.

The electricity generated needs somewhere to go, though. If there's no electrical load on the motors, they'll spin freely. An important part of a dynamic brake is a bank of electrical resistors, which converts the excess electricity into heat. Basically, they're big electric heating elements, like in an electric oven or stovetop. This electrical load causes drag or resistance on the traction motors, keeping the train's speed in check.

You can spot a dynamic brake on an EMD diesel such as the SD40-2 in the photo at right by the air intake grills on the side of the dynamic brake enclosure and the large fans on top that blow away the hot air. Other locomotives may have their dynamic brake resistor grids mounted elsewhere in the carbody, but



Norfolk Southern no. 3366, an Electro-Motive Division SD40-2, leads a train of empty coal hoppers in Harrington, Del., in July 2011. The bulging section on top of the long hood, above the herald, is the dynamic brake enclosure. Jason Walter photo

there's always a fan to dissipate the heat. When you push the function key to turn on the dynamic brakes on a DCC-sound-equipped model locomotive, the sound you hear is those fans kicking in.

When the train reaches flat land, the engineer disengages the dynamic brake, which turns the fans off and resumes sending current to the traction motors once again.

Q I've used Testor's Dullcote in the past on plastic freight car kits and buildings that I didn't want to paint. The new spray cans say that it's lacquer. Is this safe to use on these kits?

Joe Lonergan

A As far as I know the only thing that's changed is the label. Dullcote has always been lacquer. It's safe for plastic. **MR**



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Light and easy on an N scale Main Street

Our new Milwaukee, Racine & Troy State Line Route N scale project railroad has a small-town Main Street scene. There's a strip mall, a Dairy Queen, and two blocks of brick stores typical of an older town.

All of these buildings have large storefront windows, which begged for lighting. However, just throwing lights into the buildings would've shown they were empty shells. This would've let down the excellent work of Gerry Leone and Steve Brown, who built the structures.

I wanted the look of a detailed interior, without all of the work. I turned to a simple trick I've used on N scale models before – paper scenes placed behind the windows.

An easy and convenient way to light the buildings is Woodland Scenics Just

Plug lighting system. It uses light-emitting diodes (LEDs), which for practical purposes never burn out. In addition, they don't produce any heat, so there's no reason to worry about melted plastic or singed paper.

And since it just plugs in, modelers don't have to worry about soldering, finding the right resistors for their LEDs, or searching for a compatible power supply or controls. Making the project even easier, most of the Just Plug items we used are available in the Kalmbach Hobby Store (KalmbachHobbyStore.com), so everything we needed was already in the building!

Follow along to see how David Popp and I finished this project in a couple of hours on a Monday morning.

Materials list

Woodland Scenics Just Plug

(Quantities are for the whole layout)

JP5638 Wooden pole streetlight (2)

JP5639 Arch cast iron streetlight (2)

JP5641 Lamp post (1)

JP5681 Port sharing device (2)

JP5700 Lights and hub set with LEDs (4)

JP 5702 Hub expansion box (1)

JP5716 Light block kit (1)

JP5725 Auxiliary switch (1)

JP5740 LED stick-on lights –

warm white (4)

JP5743 LED Nano lights – warm white (3)

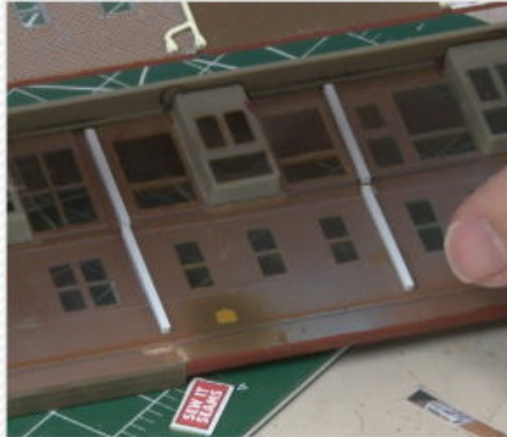
JP5770 Power supply (1)

Gerry Leone built this block of buildings for our N scale State Line Route project railroad. Senior editor Eric White and Executive Producer David Popp added interiors and lights to the town of Williams Bay on the layout. Photo by Connor Bruesewitz/Saturn Lounge

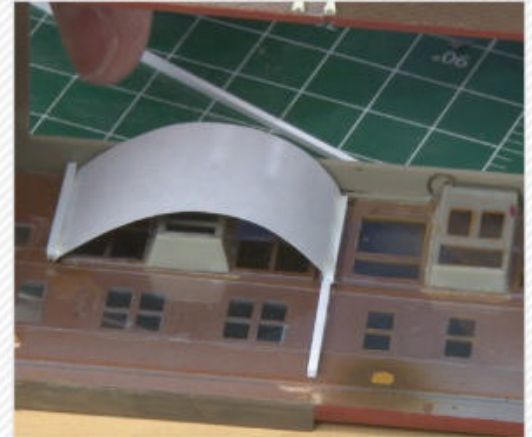


STEP 1 GET A ROOM

Our buildings are against the backdrop, so I didn't need lots of detail, but the windows are big, so we needed something, especially with the lights on. I turned to Google and searched for images that would fit the signs Gerry and Steve had placed on the buildings. Using Photoshop Elements I sized them a little wider than the room they'd go in to create a bow. This helps create a bit of a 3-D effect.

STEP 2 SUPPORT POSTS

To keep the individual scenes where I wanted them in the building, I added strips of .080" square styrene where the rooms would end. These were the stops that the bowed paper rested against.

STEP 3 CUT TO FIT

I used a sharp no. 11 blade in a hobby knife to get clean, square cuts on my photos, which I printed out on copy paper. Make sure the edges are square so your scenes don't droop. In larger scales, matte photo paper would make the images sturdier, but it won't allow light to shine through as well.

The paper is glued to the posts with Testor's Clear Parts Cement. White glue would work, as well.

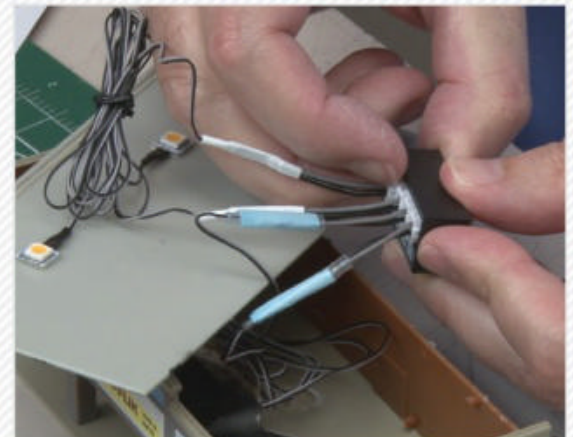
STEP 4 BLACK BACKER

Since the lights were going to illuminate the whole interior of each building, I had to block light from coming out of unwanted places, such as shining through the back windows onto the backdrop. I used heavy black paper from our photo studio. Black construction paper would work, as well, or you could paint the inside of the windows black for a permanent solution.

STEP 5 LIGHTS

In our strip mall, there was an opportunity to add lights above the walkway. The Just Plug LED Nano Lights were perfect for this. These surface mount device (SMD) LEDs are just a couple millimeters wide. I drilled holes in the walkway ceiling, then placed the lights over the holes and secured them with black electrical tape.

To light the interiors of all of the buildings, I used Just Plug LED stick-on lights. These are easy to use – I peeled off the backing sheet and stuck them to the underside of the building roofs.



I made sure to place the lights behind the bowed scenes so light shone through the paper instead of on the front of it.

In the strip mall, I used a Just Plug Port Sharing Device. It's the small black box I'm holding in the photo. It has four sockets to plug lights into – just right for this project! I plugged all of the individual lights into it, then I only had to run one set of wires out of the building, which meant I didn't need a large hole in the floor.

STEP 6 TEST

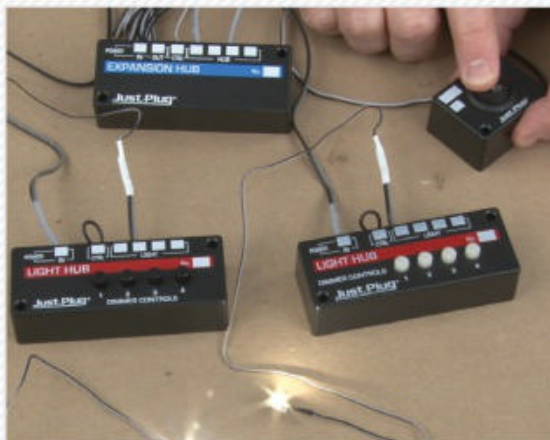


With all of the lights installed in the building, I plugged it into the control wiring David had been installing under the layout. The scenes looked good, but we noticed a problem – a crescent of light leaking out from under the photos.

Fortunately, Woodland Scenics has a solution for this as well: the Light block kit. This includes a bottle of thick black paint, but even better for our situation, there's a roll of strips of black putty I could knead into the shapes I needed to keep the light from getting out under the photos.

I rolled the putty into snakes and formed it to the back of the photos. Of course, this is easier when the roof is removeable. David and I later noticed a similar effect on the Main Street buildings, but we haven't popped the roofs off those to fix the problem yet. It's most noticeable when looking at the scene from above.

STEP 7 POWER HUBS



Powering the LEDs by plugging them into the Just Plug Hubs from the Lights and Hub set is really the whole key to the Woodland Scenics Just Plug system, and it makes for a neat and easy installation job.

The base unit is called a Light Hub. These have four plugs with dimmer controls on each one, allowing you to adjust the intensity of individual LEDs. To use more than one Light Hub, you need an Extension Hub. This distributes electricity from a single power supply to as many as four Light Hubs. To control the lights of all the Hubs, I added the optional on/off switch. It plugs into the CTRL port on the Expansion Hub and lets us turn all of the lights on and off with the press of one switch.

I placed the Expansion Hub at the center of the layout, then powered the town buildings, station, streetlights, and paint factory using four Light Hubs. This view shows just the boxes attached to the layout, but before any of the lights, power supply, or the on/off switch have been installed. These larger boxes come with screws, so I mounted them directly to joists and the plywood top where needed. You can also install them with double-sided tape, a strip of which is included with each hub.

STEP 8 LIGHT UP THE TOWN



A big reason why we wanted to install the Just Plug system on the layout is the ease of installing working streetlights. The lights, poles and arms are all modeled in one-piece clear plastic. They are illuminated by a surface-mount LED attached to very fine magnet wire. It's nearly impossible to get the plastic casing

off the wire strands, should you decided to clip them shorter, so I installed the with all of the wire carefully wrapped up under the layout.

Installing the lights in the layout is pretty straightforward. Keep in mind you want to choose a drill bit that is slightly larger than the diameter of the base, as the wires run along one side of the base, and you don't want to break them by pressing the post into a hole that is too tight. I used small blobs of the black light leak putty from the kit to hold the posts securely in the holes.

We had great fun setting up our State Line Route layout for lighting, and the streetlamps and buildings look great whether it's day or night on the railroad. **MR**



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A postcard of the Boston & Maine station in Winnisquam, N.H., inspired Tom Oxnard to scratchbuild this model for his HO scale layout. He built the structure using wood, styrene, and modified commercial window castings.



Scratchbuild a station

A single postcard inspired this HO scale structure

By Tom Oxnard • Photos by the author

The station in Warrenton, N.H., on my freelanced HO scale Boston & Maine (B&M) layout had become too small. As commuter service increased on this section of the railroad, the waiting area became crowded with passengers. The town council allowed the B&M to build a larger, more elaborate structure.

I used that story as the inspiration to add a more prototypical station to my layout. Replacing the current structure also gave me the opportunity to move the new one farther from the road and grade crossing so passenger trains don't

block the crossing. But what would this new station look like?

After looking through my B&M books for ideas, I decided to base my station on the prototype in Winnisquam, N.H. Not only did its medium size and features fit what I was looking for, the prototype was located on the line to Ashland, N.H., the next town on my model railroad.

The full-size Winnisquam station was a popular stop in the Lake District of New Hampshire in the early 1900s. This area had some of the first views of the

1 The source. This is the postcard that Tom used as a reference for his project. It was the only prototype image he could find of the station in Winnisquam.

Postcard from Matthew D. Cosgro collection, courtesy Nashua City Railroad History



Sandwich Range and the Ossipee Mountain Range.

The catch

Though the Winnisquam station had the features I was looking for, documentation on it was scarce. The image in the book, a colorized postcard **1**, showed up in other searches, too. I couldn't find a Sanborn fire insurance map for Winnisquam. After I finished this project, I learned the full-size building still exists and is privately owned.

Scratchbuilding a prototype structure from one reference is difficult, but not impossible. Though the postcard doesn't provide a 360-degree view, it does reveal the size, shape, and proportion of the structure. I was able to see the types of doors and windows used on the station, the shape of the roof, and details like the station and Bell Telephone signs, the trim, and the chimney.

Windows and doors

The doors and windows for my model are from a variety of sources **2**. I used Tichy Train Group 36" x 64" 6/6 double-hung windows (no. 8024) on the side and rear walls. I removed the muntins from the bottom to make them 6/1 windows.

I modified doors from Tichy's double door and frame (no. 8189) for the front and rear doors. I added a mullion and transom using styrene strip.

The 30" x 66" front window in the operator's booth is from Northeastern Scale Lumber (no. W115NEB). Like the Tichy windows, I had to remove the bottom muntins to convert the 6/6 window to a 6/1 window. The side windows are Tichy 6/6 double-hung masonry (no. 8052). I kitbashed the 34" x 67" plastic castings to make them 4/1.

Walls and brackets

With the window and door sizes finished, I drew the walls. By the fourth drawing I had proportions that best matched the prototype. I printed the walls on 65-pound cardstock and created a mock-up to make sure the station would fit the space.

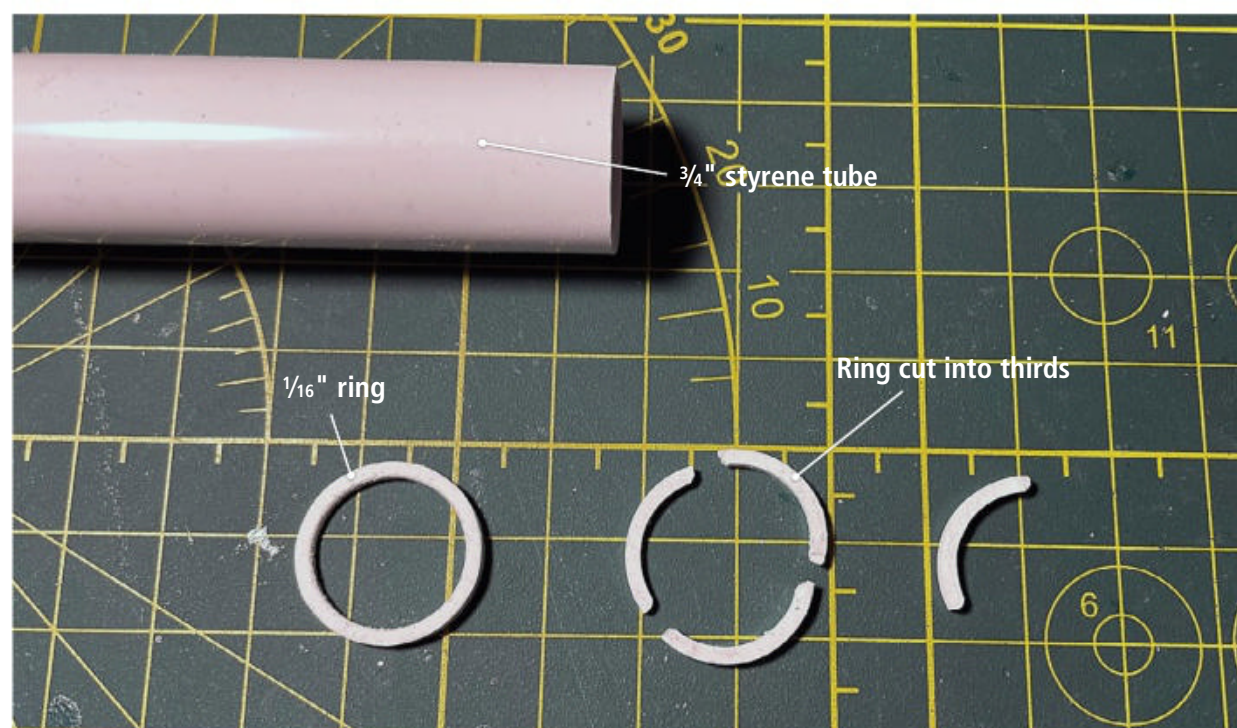
Once satisfied with my mock-up, I first cut a base to the exact dimensions of the structure from $\frac{1}{16}$ " basswood. The base will be visible and is used as the bottom trim board.

Then I used basswood clapboard siding for the walls. After I cut the door and window openings **2**, I braced the walls with basswood strip to minimize warping. Since the operator booth wall sections are narrow beside each window, I made them from styrene clapboard siding. I trimmed the side windows with .010" x .040" styrene strip and the corners with .060" square styrene strip.

I glued the walls together and installed $\frac{1}{16}$ " basswood strip in the corners. Then I sprayed the station with gray primer. Once that had dried, I used Polly Scale Aged White for the faded yellow and the same company's Rock Island Maroon for the lower walls, windows,



2 Bits and pieces. Tom cut out the walls and openings for the doors and windows prior to assembly. He built the operator's booth out of styrene.



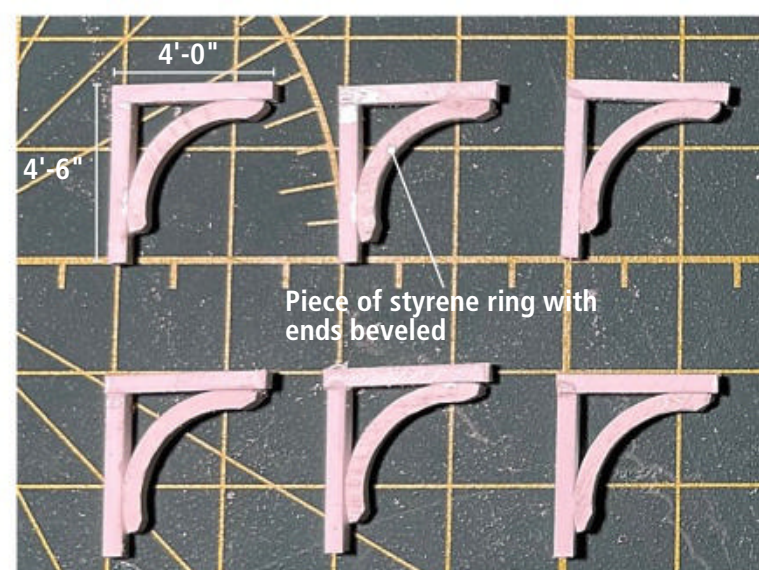
3 Clever solution. Needing curved brackets for the braces, Tom cut a piece of $\frac{3}{4}$ " styrene tube into $\frac{1}{16}$ " rings. Then he cut the ring into thirds.

and trim. [Polly Scale has been discontinued by the manufacturer. – Ed.] Then I glued the walls to the basswood base and added a $\frac{1}{16}$ " basswood interior floor.

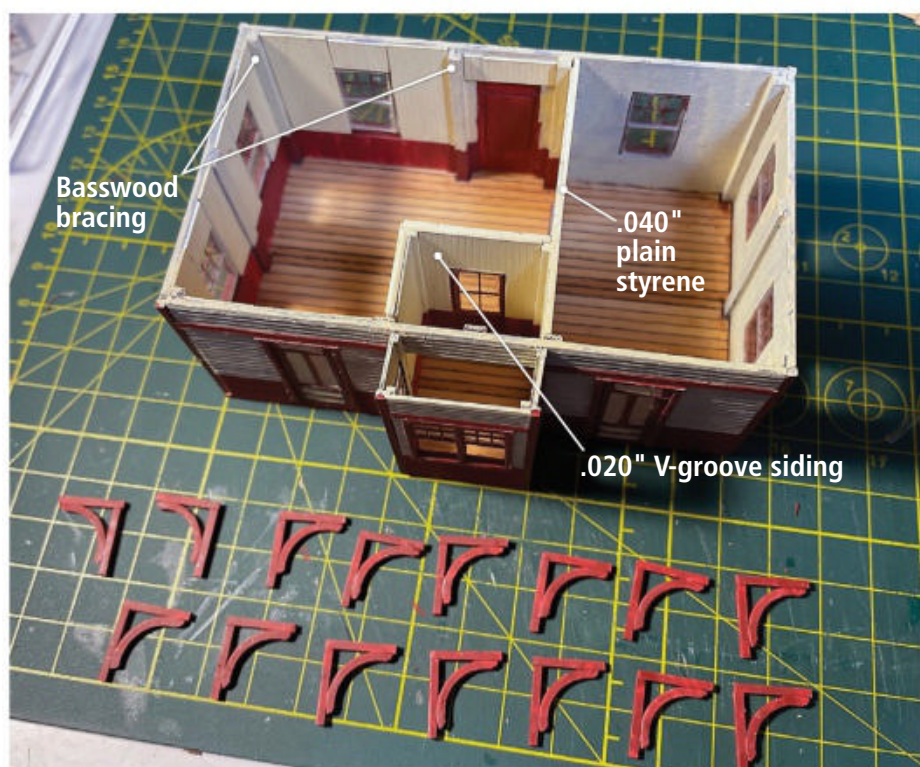
I designed the roof brackets with a scale 4'-6" rise and scale 4'-0" arm from .060" x .060" styrene strip. To make the curved brace, I placed a $\frac{3}{4}$ " styrene tube in a miter box and cut several $\frac{1}{16}$ "-wide rings. I then cut each ring into thirds and beveled the ends **3**. The finished brackets are shown in **4**.

Interior walls

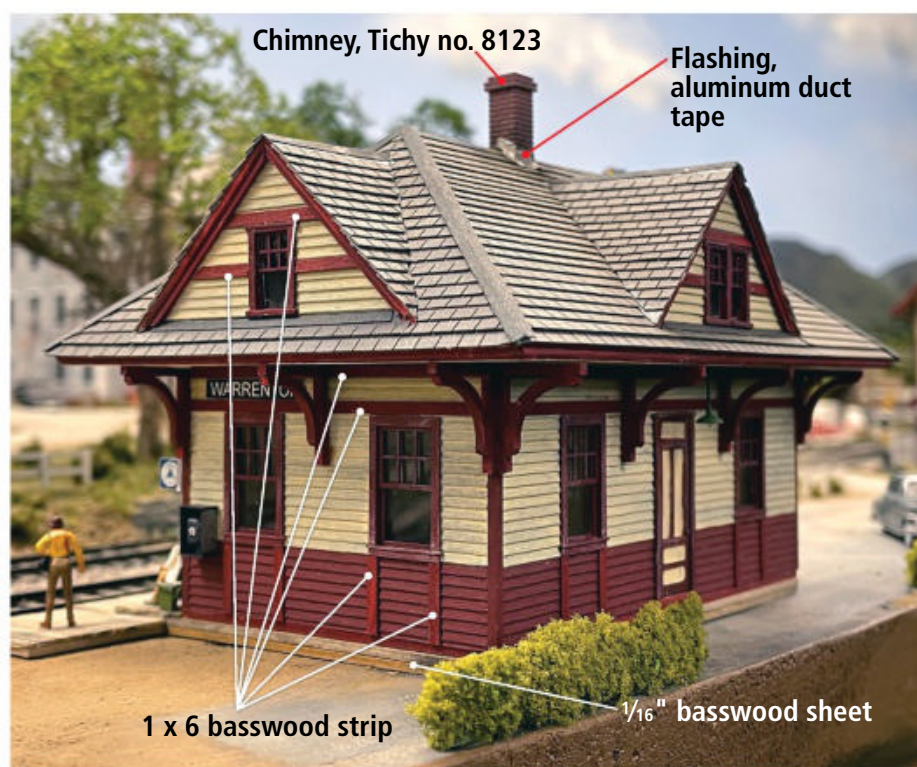
The layout of the station's interior is purely a guess. I used .040" plain styrene sheet to make the wall that divides the



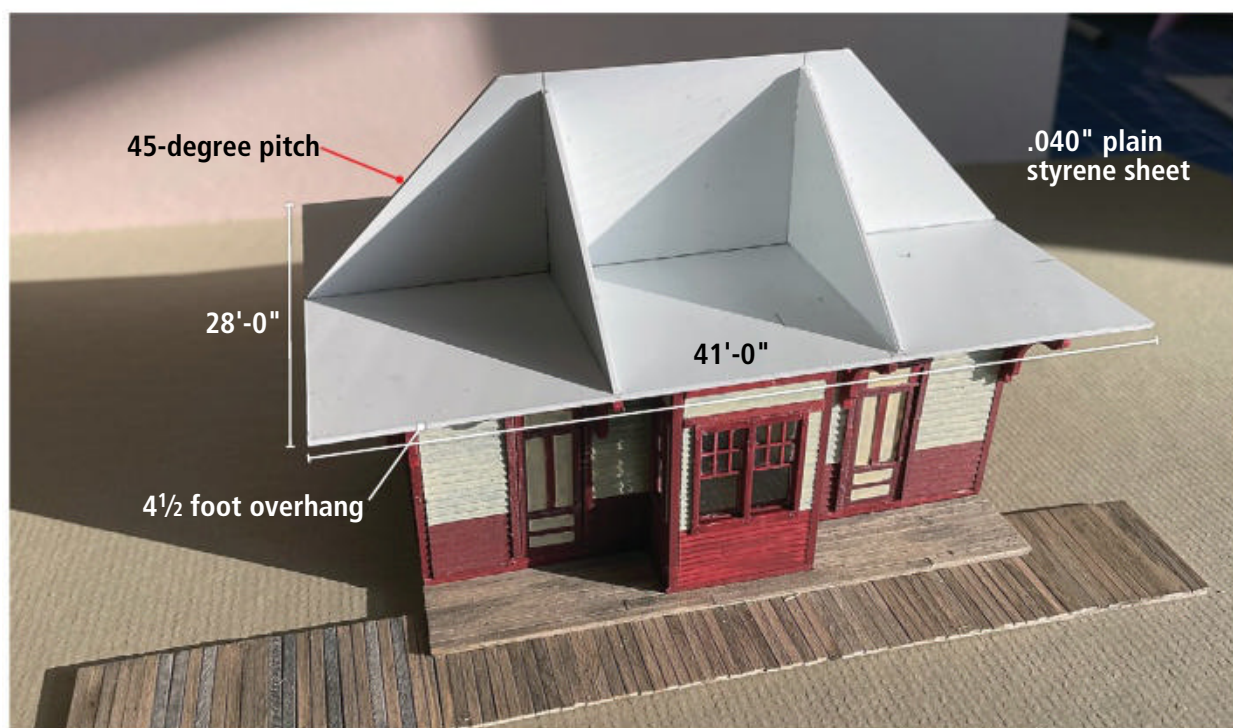
4 One by one. Here's a shot of the finished brackets. Tom fashioned the L-shaped parts of the brackets from .060" x .060" styrene strip.



5 Interior detail. Plain .040" styrene sheet divides the waiting room from the freight room. Tom used .020" V-groove siding to simulate wainscoting.



6 Exterior accents. Lengths of 1 x 6 basswood strip were used as trim for the depot. Tom painted the stripwood Polly Scale Rock Island Maroon prior to installation.



7 Constructing the roof. Tom cut the structural members for the roof from .040" plain styrene sheet. Though not visible from this angle, he used V-groove siding for the soffits.

freight office from the waiting room and the walls for the operator's office. I added a door to the operator's booth and freight room.

In the waiting room I installed 3-foot tall wainscoting from .020" V-groove styrene, painted maroon. The upper walls are paneled with the same V-groove, but painted Aged White. This matches pictures of other B&M station interiors that I've seen. I cut the glazing for the doors and windows from clear styrene and attached it with Aleene's Tacky Glue **5**.

Exterior accents

I shifted gears and glued the 14 brackets around the station. In **6** you can

also see the trim board detail under the side windows, beside the dormer windows, above the doors and windows, as well as the frieze board. I used 1 x 6 basswood strip, painted maroon, for all of this. The basswood base serves as the trim for the base of the structure.

I made the station platform from two layers of 1/16" basswood sheet. On the prototype there was only one step down to the platform. I used two on my model. The platform is made up of 2 x 6 basswood strips stained prior to installation.

Roof, dormers, and shingles

The roof, which I cut from .040" plain styrene sheet, measures a scale 28 x 41 feet and has a 4 1/2 foot overhang. I began

by gluing the same V-groove styrene used for the interior to the soffits.

The roof ridge has a 45-degree pitch at each end. I then added four "rafters" to support the roof, two each for the front and back faces **7**. You may consider making paper templates first before cutting the styrene.

With the ridge and rafters in place, I attached the .040" plain styrene, which acts as the solid decking for attaching the shingles.

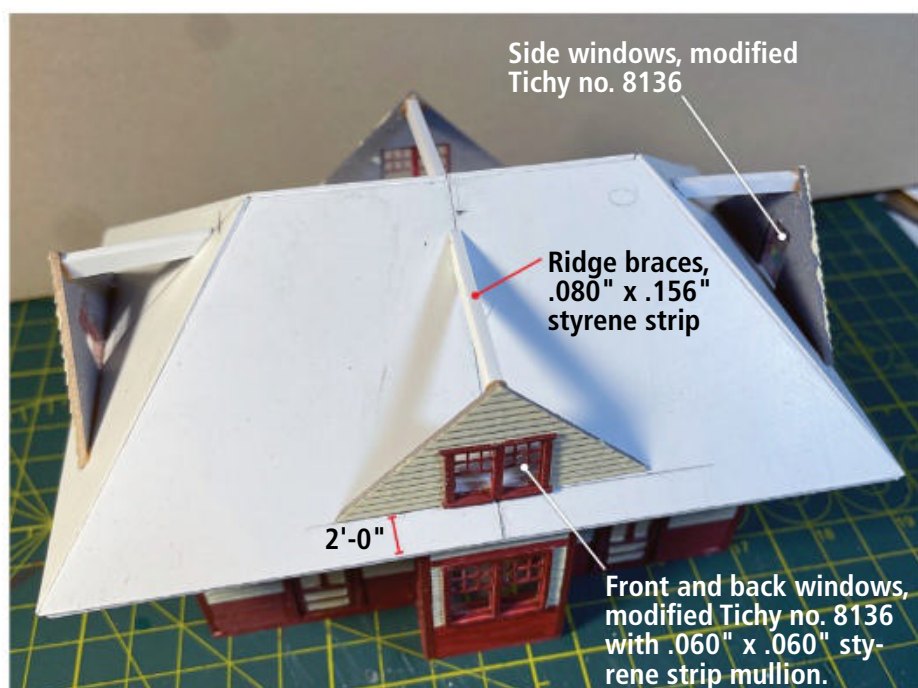
Next, I added the four dormers. I cut the gables from basswood clapboard siding. From the photo it was hard to tell the exact positioning of the dormers, but I decided to place them 2 feet from the edge of the roof. The ridge braces are .080" x .156" styrene strip.

The front and back dormers have double windows; the sides have single windows. I used Tichy 12/12 double hung windows (no. 8136) because they have small panes. I still had to cut them down from 31" x 62" to 24" x 38" to yield the smaller 6/1 windows. I placed a .060" square styrene strip mullion between the castings for the double windows.

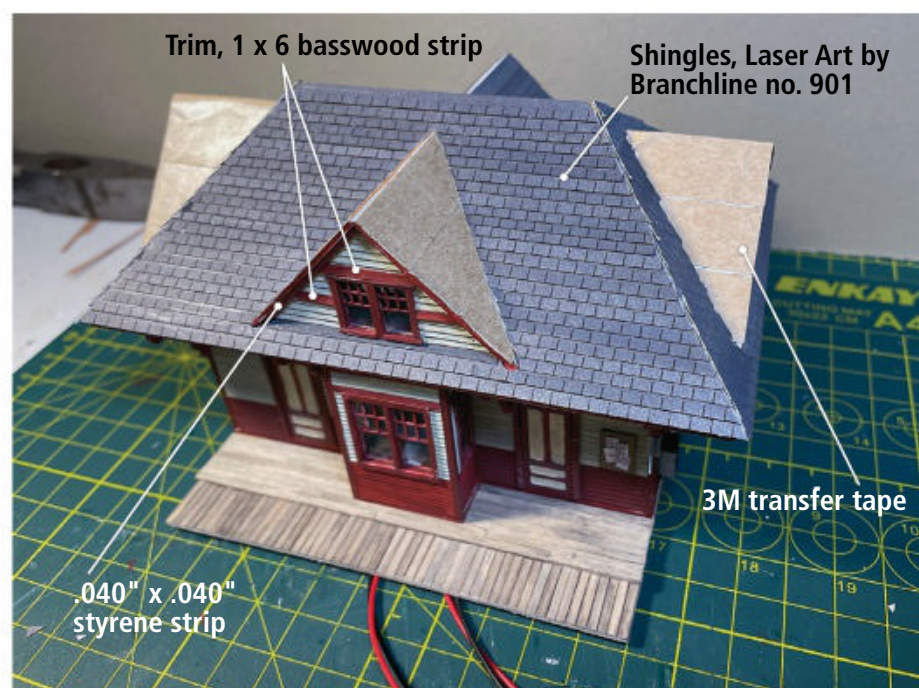
The dormer roofs were a bit trickier, so I'd recommend making paper templates first. I added a .040" x .040" trim board under the eaves.

I painted the windows and trim Rock Island Maroon and the clapboard siding Aged White **8**, opposite. To reduce the chances of seeing white styrene through the dormer windows, I painted the styrene behind them black.

Then I used Laser Art by Branchline three-tab shingles (no. 901) to roof the station. I lightly spray-painted the



8 Taking shape. After adding .040" plain styrene sheet to the framework, Tom cut and installed the dormers. He made the ridge braces from .080" x .156" styrene strip.



9 The home stretch. Laser Art by Branchline shingles were a reasonable match to the roofing on the full-size station. Tom used 3M transfer tape to attach them.

shingles a dark gray color. I used 3M transfer tape to attach the shingles to the styrene, starting with the main roof and then the dormers, as seen in **9**.

I made the ridge caps by lightly scoring a centerline on the paper to make the fold crisp. Then I cut $\frac{1}{16}$ " on each side. The chimney is Tichy Train Group no. 8123. I used aluminum duct tape at the base to simulate metal flashing.

Final details

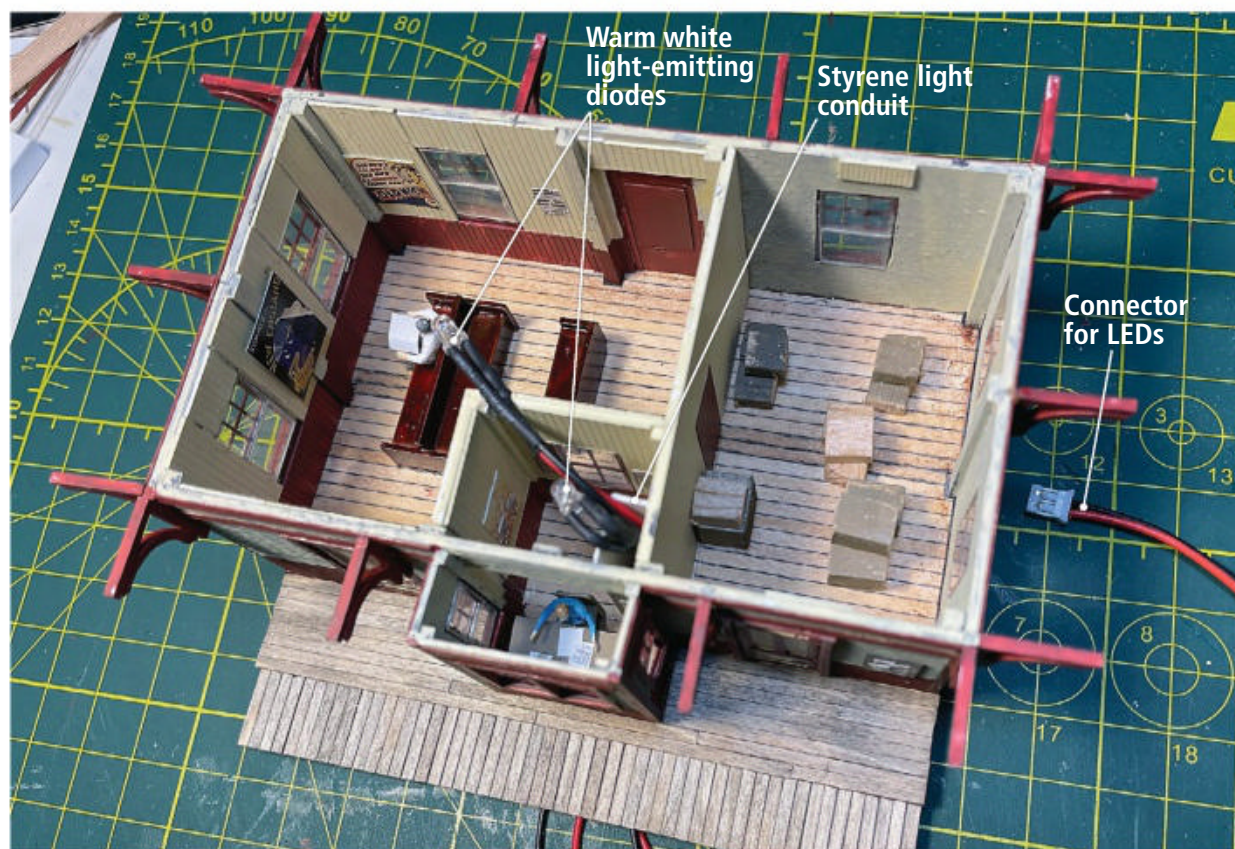
I wanted to illuminate and detail the interior to draw visitors and operators into the structure. I started by cutting a $\frac{1}{4}$ " square styrene tube longitudinally, making it into a $\frac{1}{4}$ " x $\frac{1}{2}$ " channel. This was large enough for the wires with the connector plug to pass through.

Next, I soldered two warm white light-emitting diodes (LEDs) together to the connector. The LEDs are for the waiting room and operator's booth **10**.

To make the station look lived in, I added a variety of details. I scratchbuilt a desk with paperwork, a chair, and added a figure in the operator's booth. In the waiting room, I scratchbuilt benches and painted them brown with an overcoat of Tamiya Clear Red (X-27) to simulate mahogany. Other details include a passenger reading a newspaper, a clock, and posters. I left the freight room unlit but placed wood boxes around the room.

To keep the roof removable, I glued styrene blocks to the bottom. I added .040" x .100" styrene strip, painted black, around the perimeter to prevent any light leaks.

Then I focused on the exterior of the building, adding details I saw in the postcard. Those included a bulletin



10 Lights and details. Tom added figures, benches, and posters to the station's interior. Light-emitting diodes illuminate the operator's office and waiting room.

board at the right end, a bench, a chair, and Bell Telephone signs. Although not visible in the postcard, I added an outdoor telephone booth, a telephone, and hanging lamps over the three doors.

The card shows a square tapered signal mast, but the top isn't shown. I made the mast by laminating three 3 x 10-inch basswood strips. I made the base from styrene. The blades are .020" styrene, and the rods are .015" phosphor bronze wire.

I made the station signs in Power Point. I had them printed on semi-gloss photo paper to simulate enameled metal.

One source, no problem

I feel I've built an accurate, if not precise, B&M station in a location that's

perfect for my layout, using only one image. If you plan on modeling prototype structures, you'll probably encounter a situation similar to this, but don't be discouraged. What you're trying to achieve is a recognizable building that identifies the location you're modeling. Better yet, you can do this with simple and readily available materials like styrene and basswood. For me, it's easier to model reality than fantasy. **MR**

Tom Oxnard and his wife, Sally, live in Exeter, N.H. The retired pediatricians have four grown children and eight grandchildren. In addition to model railroading, Tom enjoys skiing, woodworking, and spending time with his grandkids.

Smooth track and wiring THAT WORKS



In our third installment of the State Line Route series, David Popp shows his favorite techniques for laying and wiring track. He also installs a new Digitrax DCC system on the layout. Photo by Connor Bruesewitz/Saturn Lounge

Building a model railroad that operates reliably starts with the rails and how they are powered

By David Popp • Photos by the author unless noted

Want to learn the secret to building a model railroad you'll enjoy for years to come? Then this installment of our State Line Route N scale project railroad is for you! The key to a successful model railroad is in the track and wiring. If you take the time to build good track and wire it properly following time-tested techniques, your trains will run well every time you power up the layout.

Following are a few of my favorite layout-building tips. You can learn even more of them by watching the State Line Route video series on Trains.com. Regardless of scale, everything here will help you build a better model railroad.

Roadbed



Cork: As demonstrated by Rene Schweitzer in the photo, we used cork strips laid on top of our 1/2" plywood subroadbed. The roadbed is N scale cork from Midwest Products. It is very easy to work with and can be glued to the layout using a variety of adhesives. We used white glue for our project, tacking curves with pins until the glue dried.



Sand the edges: The cork strips have a bevel cut into them to form the profile of the right-of-way. The top of the bevel usually has some flashing, left over from the cutting process. It needs to be removed. After the glue has dried, sand the edges of the bevel smooth. This tip will help the ballast sit properly on the shoulders later.

The State Line series

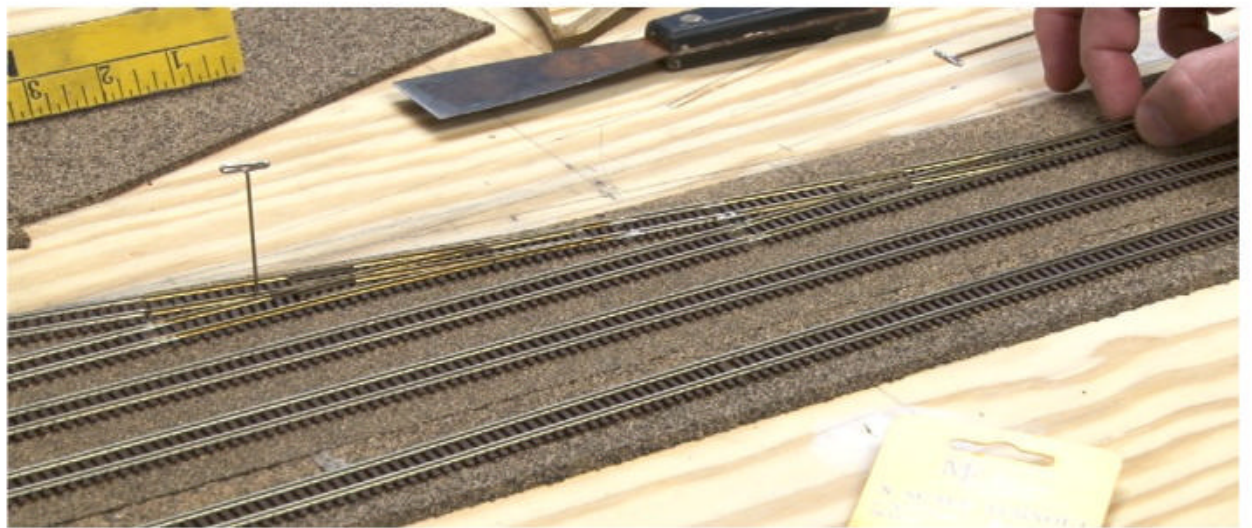
January: Meet the State Line Route
February: Benchwork
March: Track and wiring
April: Scenery tips



Track

Many manufacturers offer ready-to-use track components. For our project, we worked with Micro-Engineering code 70 N scale track. This was my first experience using this brand for an entire railroad, and I am very happy with how it looks on the finished layout.

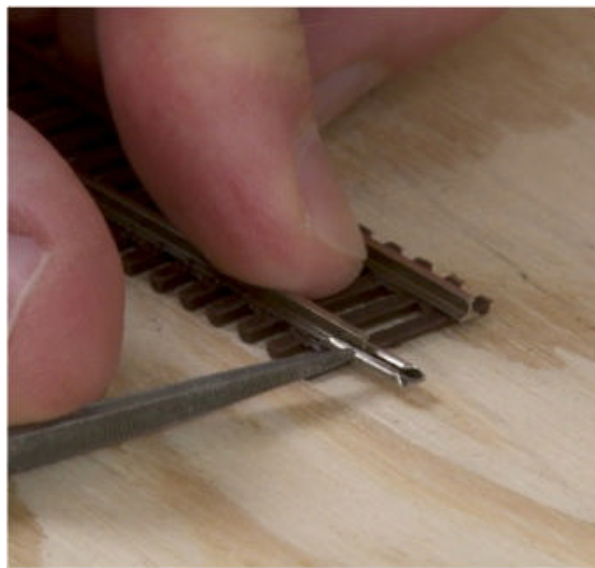
The track is easy to cut, can be attached with nails or glue (or both), and is robust enough to stand up to the layout building process well. There are also bridge track sections available. Following are some of my favorite tips for laying track in any scale.



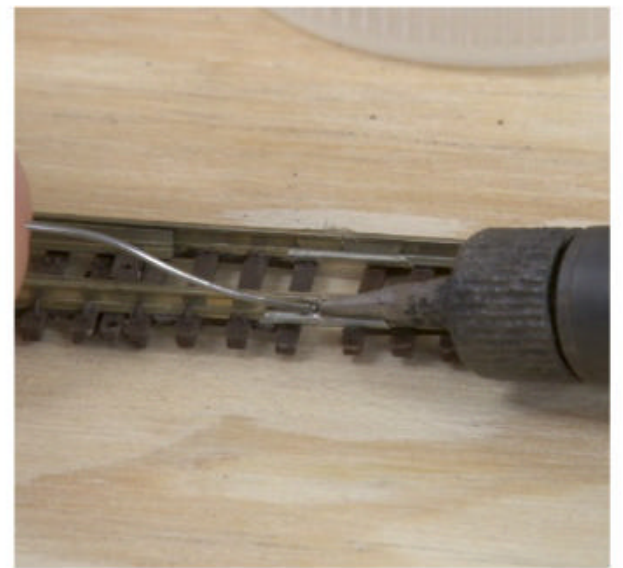
Starting point: I always begin at the place with the most complex trackwork. In this case I started in the yard. It's far easier to lay a complex set of turnouts and their connector sections first than it is to fit them later with surrounding track installed.



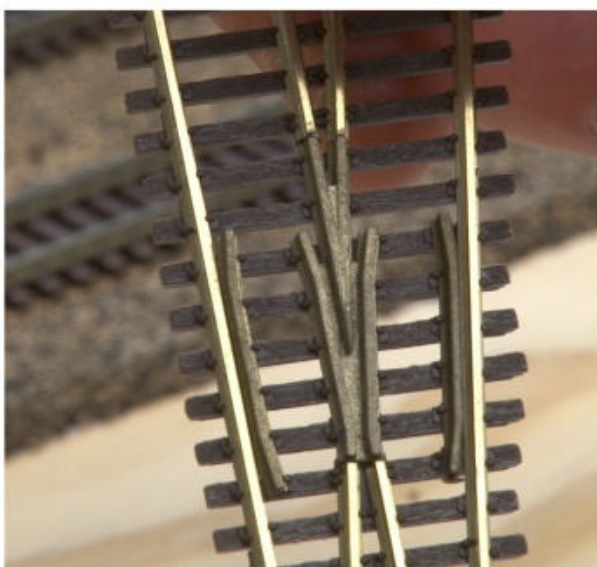
Quick cuts: Code 70 rail is easy to cut with flush-cutting pliers. I used a pair of Xuron rail cutters, sold in the Kalmbach Hobby Store. Two tips for using flush-cutting pliers: First, always face the smooth side of the pliers toward the track section you want to keep. Second, never use the pliers to cut anything other than rail.



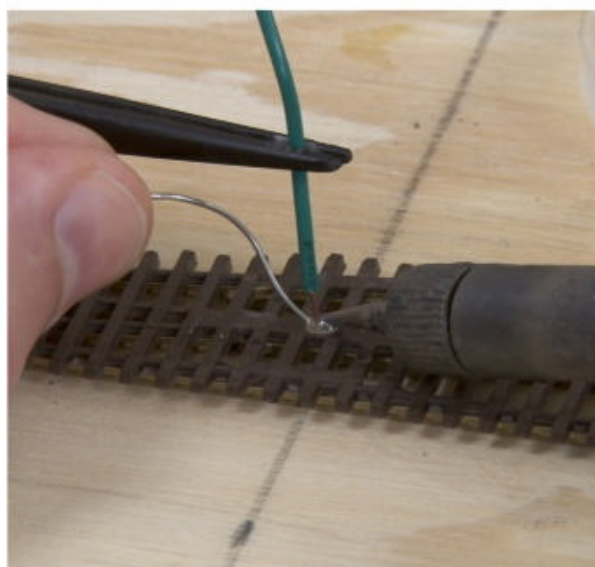
Fitting joiners: Although the pliers make smooth cuts, they often leave burrs on the bottom or top edge. I clean those up with a few passes with needle file. I also use a chisel blade in my hobby knife to remove the tie plate detail on the first tie. Afterward, I install the rail joiners to make sure they slide onto the foot of the rail smoothly.



Solder rail joints: Before I install a group of track components, I solder the joiners to the rail. While you can wait to do this after you lay the track, it is much easier to accomplish at your workbench where everything is easy to see and reach. I leave an unsoldered joiner every 4-6 feet to accommodate seasonal layout expansion.



Unpowered frogs: Micro-Engineering track is considered DCC friendly, meaning that the turnouts are assembled in such a way as to make it very difficult for a locomotive running through them to cause a short. As shown here, the turnouts have a cast-metal frog that is isolated from the rest of the turnout.



Frog feeders: The turnouts will operate more reliably with powered frogs. On the bottom of the frog casting, Micro-Engineering included a wire socket with a solder pad. I used green 22AWG wire to power the frogs, soldering the wire to the pad. As shown later, I connected the wires to Tam Valley Depot Frog Juicers when I installed the DCC system.



Roadbed paint: Turnouts have a lot of moving parts to them, and over the years I've learned that if you paint the roadbed under them black, you can use a lot less ballast and glue around the points and the switch rods – places that ballast can gum up. I used flat black latex paint for this, although acrylic craft paint will work just as well.

Track (continued)



Glued track: To hold the track to the layout, my adhesive of choice is DAP clear acrylic latex caulk. After applying a bead along the track center line, I spread it with a putty knife. You want to smooth the caulk enough that it doesn't ooze up through the ties, but not so much that there isn't enough caulk left to hold the track in place.

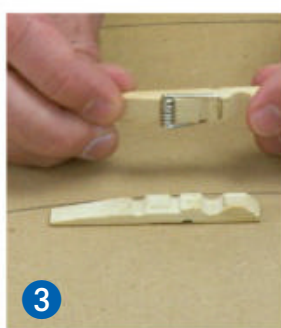
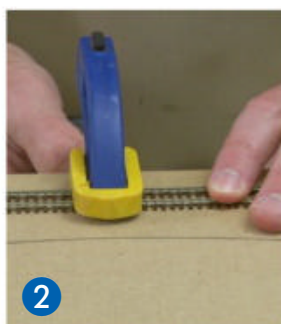
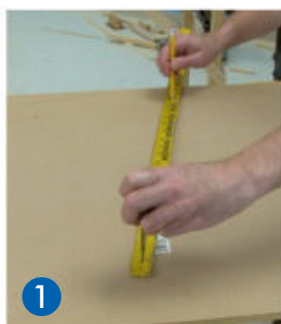


Alignment: Before the caulk set, I made sure everything was in alignment. For the yard, I used a ruler as a guide to straighten the tracks. While I was at it, I also checked to make sure that caulk hadn't gotten anywhere I didn't want it. You can clean up unwanted caulk with a Microbrush and water where it has oozed up through ties.



Weight time: To keep the track firmly in place while the caulk dried, I use heavy objects (books and bricks work well) to press the track securely to the roadbed. Although caulk works well for tangent track, it isn't always enough to hold curved track in place. For that I use Atlas track nails sparingly to hold the curves at key locations, such as joints.

Curving stiff flextrack



Micro-Engineering flextrack is fairly rigid, making it challenging to form into a curve, that is until Gerry Leone told me about this great technique. **1** Mark the radius you wish the track to match on a flat work surface. I used a piece of 1/2" MDF for this. **2** Clamp the middle of a section of flextrack to the MDF and center it on the arc. **3** Split a clothespin in half. You want the piece without the spring attached. **4** Drag the handle end of the clothespin along the ties on the outside of the curve. The track will bend easily into a smooth arc in several passes. Repeat step 4 on the opposite side of the clamp to match your curve.

Wiring

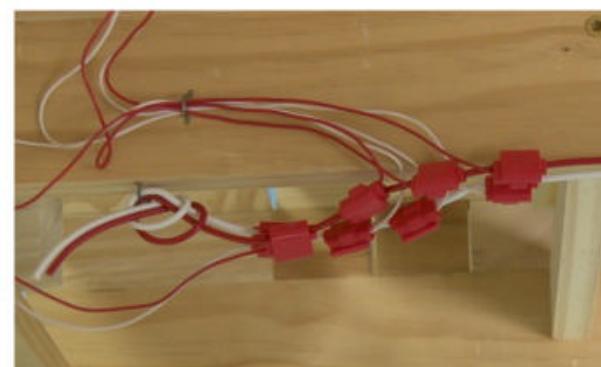
Since we planned to set the layout up for Digital Command Control operation, it is wired as a single block. The wire used on the layout is common solid and stranded wire that you can find at any hardware store. I typically use red and white wire for track feeders because it's the standard color for two-conductor solid 22AWG bell wire and very easy to find. As long as the track doesn't loop back upon itself, I keep the polarity properly aligned all around the layout using the phrase "white out," which means the white wire always goes to the outside (aisle-facing) rail.



Solder: Next, I apply a small bit of paste flux, then heat the wire and rail with a soldering iron. I flow just enough solder into the area to make a solid joint. A good solder joint is shiny, like the one shown above. Once the solder has a minute to cool, I give a short tug on the wire from under the layout to make sure the feeder is secure.



Feeders: After drilling holes for the feeder wires and inserting them into the layout, I strip the last 1/4" of the wire insulation, flatten the exposed tip with smooth-jaw pliers, and bend it into an L shape as shown. I then press the wire back into the hole until the flattened tip rests on top of the foot of the rail.



Bus line: The bus is a heavier gauge wire that carries power to the smaller, lighter feeder wires. For this layout, I used 16 AWG stranded wire. After attaching the bus to the benchwork, I connected the feeder wires to it with ScotchLok insulation displacement connectors. These are easy to use and eliminate the need for soldering.

Test run

While you may be tempted to set up the DCC system right away, at this point it's best to check your work first. With the wiring in place, I used my multi-meter to check that the red and white rails were still isolated from each other. If I had crossed up things under the layout, it will register as a circuit and cause a short.

Next, I connected a train set DC power pack to the layout and ran a train around all the track. I looked at any place it stopped to make sure I hadn't missed a feeder or a connection to the bus. As it turned out, I'd forgotten to attach a pair of feeders at the bridge approach, which was easily fixed.



DC power first: Using a couple of test leads and an Atlas DC power pack, I ran the first train on the new track as a test, making sure that all sections were properly wired. This is an easy way to test your work without risking your expensive DCC system.

Digital Command Control

If you're building a new layout, the easiest train control you can install is a Digital Command Control (DCC) system. This type of control system allows you to run multiple trains on the same track with no special wiring. As long as your locomotives are equipped with DCC decoders, they can run on any DCC-powered layout.

There are many other benefits to using DCC, some of which I took advantage of on our project railroad. You can power switch frogs with automatic polarity-changing circuits, simplifying wiring. And with a few more components, you can even control your turnouts with your DCC system, too.



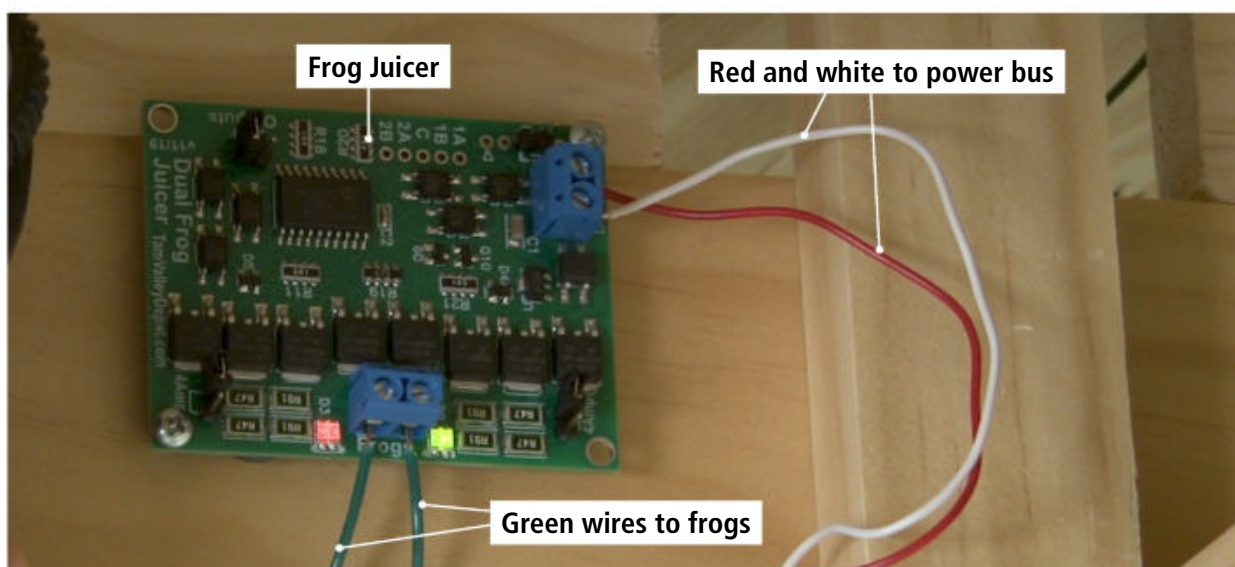
DCC system: For our layout, we chose a Digitrax Evolution Xpress Advanced Starter Set. It includes a base station, power supply, throttle, cab bus panel, and necessary cables. This full-function DCC system is easy to set up following the instruction manual. At 5 amps, it provides enough power to run any locomotive our layout will ever use.



Throttle bus: The throttles talk to the Digitrax DCC system's LocoNet using a cab bus equipped with plug panels. The starter set includes one UP5 plug panel, which I mounted to the fascia and connected to the base station. I added a second UP5 panel to the opposite side of the layout and will likely add a couple more for convenience.



Throttle pockets: To hold the throttles when not in use, I installed holders called Throttle Pockets from New Rail Models. While these accommodate most DCC throttles as is, the new Digitrax DT602 throttle is thicker and doesn't fit the plastic holder. As shown, I added strips of 1/2" MDF to the fascia behind the holder to get enough depth.



Frog power: I used Tam Valley Depot Frog Juicers to power all the turnout frogs. These are auto-reversing modules that connect between the DCC system power bus and the feeders to the frog. When a locomotive enters the frog, the Frog Juicer checks the polarity. It then automatically aligns it if there's a mismatch, allowing the locomotive to make a smooth trip through the turnout. The connections are easy to make using screw terminals, and the Frog Juicers come in different sizes for 1, 2, or 6 frogs powered from a single circuit board. With the track and control system in place, I took some time to enjoy running a few trains around the layout. Next month we'll dig into the scenery work, which will really bring our layout to life! **MR**

WEATHER PASSENGER CARS PIECEMEAL



Get an easy and excellent weathered finish by working on the model one piece at a time

By David Popp • Photos by the author and Bill Zuback

When Rapido Trains came out with its New Haven streamlined passenger cars, I knew I needed a set. From the factory, the car models come with a wealth of detail and factory-fresh paint. To get a train that looked more like the photo by Tom Donahue shown below, I was going to need to do some weathering work.

A train can kick up a lot of dust, dirt, and mud as it moves along, some of which accumulates on the rolling stock itself. At first glance from the photo shown here and many others I've seen, the undercarriage on New Haven passenger cars looks to be rusty. However,

in reality, they're coated with reddish/tan dirt picked up along the railroad's right-of-way.

Where this gets complicated for modelers is that, even on the cash-strapped New Haven, passenger cars were run through the wash rack regularly to keep the sides and windows clean, even though this did little for the trucks and undercarriage.

Fortunately, Rapido's models are easy to disassemble, meaning that you can do your weathering piecemeal to get the correct effect. Following are the steps I took to get my small fleet of New Haven passenger cars ready for the rails.

You can make your passenger car fleet even better with some simple weathering and a few details. David did just that to several Rapido Trains 8600-series Pullman coaches, thanks to the model's easy-to-disassemble construction. Bill Zuback photo



Paint scorecard

I used four Vallejo Model Air colors for this project. I cut the paint with Vallejo thinner (71.361) in most applications.

71.026 US Flat Brown – Full strength for wheelsets and couplers. Mixed 1:4 for underbody, roof vents, and diaphragm plates.

71.055 Black Gray – Mixed 1:4 to fade the factory-painted roof.

71.057 Black – Mixed 1:8 to represent grease and oil on the underbody details.

71.122 US Desert Tan – Mixed 1:5 for dust on car ends, steps, and roof accents.



This string of 8600-series streamlined coaches on the New Haven late in the railroad's life clearly illustrates how mud and dirt accumulated on the undersides and ends of the cars, while the fluted stainless-steel sides retained a clean appearance. Tom Donahue photo, John Garofalo collection

STEP 1 PREP WORK



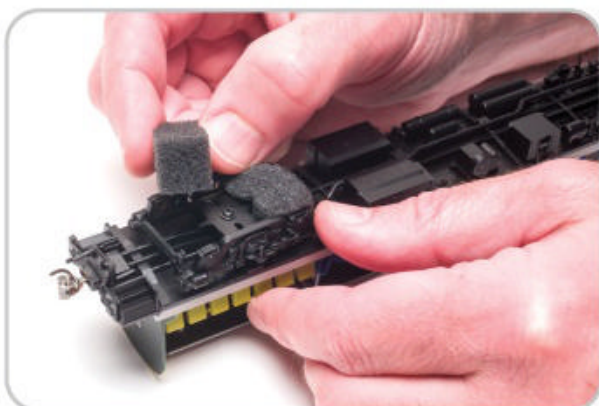
The fleet – Before I could do any painting work, I had to disassemble the cars and prepare the parts. For my project I had 5 Rapido New Haven cars to work with: 3 coaches, 1 parlor, and 1 diner. While they look similar, they do have differences. Take your time to explore the nuances of each car type and things should proceed smoothly.



Removing shells – Many of the Rapido cars have press-fit shells. Gently pulling outward on the bottom of the shell detaches it from the tabs that lock it to the chassis. The diner requires the coupler box screws to be removed first, but then it also lifts off the frame the same way. Work to loosen one car end before proceeding to the other.



Remove glazing – Where I could do so easily, I removed the window glazing. The large windows on both sides of the car have the glazing molded on a single strip, and it locks into the car with small plastic tabs. Some of the smaller glazing sections, particularly in the doors, were glued in. I opted to keep those in place and simply mask over them.



Truck prep – The trucks on these cars are wired to pick up track power, so I left them on the model. After removing the wheelsets to be painted separately (see Step 6), I cut small blocks of packing foam and inserted them into the trucks to protect the metal power collection strips and the axle sockets from overspray.

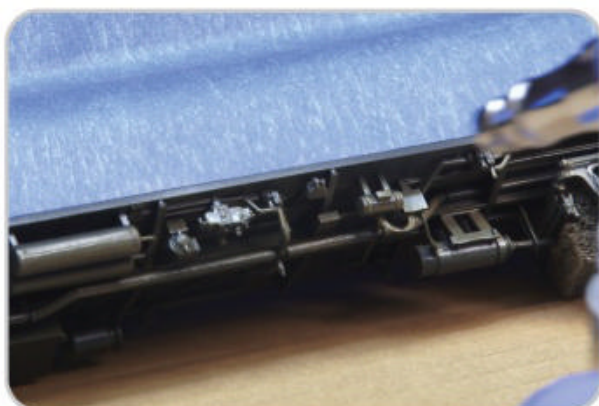


Interior masking – Like the trucks, the interior is wired to the chassis for electric lighting. Instead of removing the interior, I used strips of blue painter's tape to seal up everything above the floor to protect it from exposure to paint. The false floor on the car provides a broad surface to hold the tape in place.



Marking the parts – When working on multiple cars at the same time, I like to keep all of the parts with the original cars wherever possible. I identified all parts of a car by its road number, using small cups to hold wheelsets, couplers, and screws for each, as well as plastic bags for the window glazing. I marked the tape on the chassis, as well.

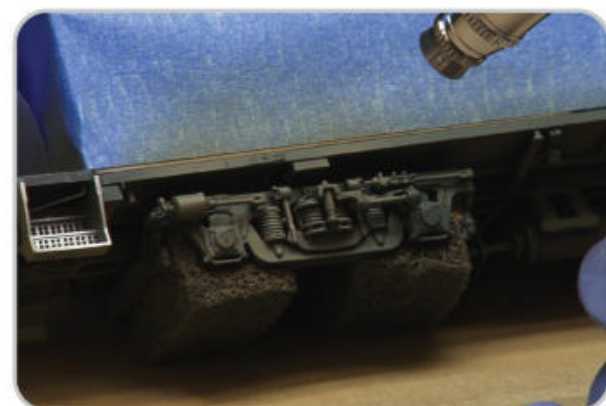
STEP 2 WEATHER THE UNDERCARRIAGE



Underbody base coat – To simulate the reddish-brown dust that coats the undercarriage of most New Haven passenger cars, I used Vallejo Model Air 71.026 US Flat Brown. I applied a 1:4 mixture of paint and thinner in several coats to the trucks, frame, and plumbing, working the paint into all areas.



Check your work – Weathering can get away from you in a hurry if you move too quickly. After each coat, I compared my work to prototype photos as a guide. As shown above, after three light coats of the first color of paint, I felt I was close enough to the actual color to move on to the next step.



Truck details – With the undercarriage looking sufficiently dirty, I switched to detail painting, starting with the trucks. I applied Vallejo 72.057 Black, thinned 1:8, to add some oil and grease marks to the roller bearing caps, brake pistons, and such. I also used it to add some depth between the springs.

STEP 2 WEATHER THE UNDERCARRIAGE (CONT'D)



Screens and hinges – The thinned black paint is good for other detail work too, such as darkening the recesses in screens and vents. I also used it on places that would see regular maintenance, such as the latches and hinges on the undercar cabinets. Work carefully; a little black goes a long way.



Missed spots – Before putting any of these colors away, I did a thorough check of each part of a car. As shown here, I missed a spot on the top of the truck, and as it turned out, I'd missed that same spot on nearly all of the cars. It's much easier to fix it now than after the car has been reassembled.



Grimy undercarriages – With the initial weathering step complete, I slipped a shell onto its painted undercarriage, just to see how it turned out. While there is still more weathering to come, the model already looks like a road-weary New Haven coach from the late 1950s through the 1960s.

STEP 3 ROOF VENTS



Rusty vents – While the roof and vents of the cars were painted at the same time at the factory, the sheet metal vents tended to rust quickly due to condensation. I found this picture and others like it in the *Morning Sun* book *NH Color Guide to Freight and Passenger Equipment*. Photos like these are important for good weathering work.



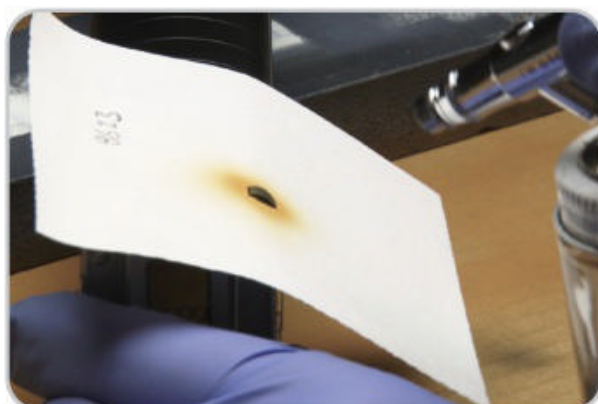
Taking an impression – I masked the vents to paint them separately from the roof. Using a heavy-stock sticky note, I first pressed the paper over the vents on one end of a car. You need to press firmly, but not so hard that you risk damaging the model. When you look at the paper, you should have indentations outlining the vents.



Cutting the mask – Using the hard edge of the dimples in the sticky note as a guide, I cut openings for the vents in the mask. I used a metal rule to keep the cuts in the mask straight. Many of the vents are wedge-shaped, so I was careful to note that as I worked.



Test the fit – After making the cuts, I test fit the mask on the car. I found that some of the vents with long curved backs needed to be extended beyond what I had cut, as the smooth back left no clear indent in the paper where it joined the car roof. As shown in the photo, I made one complete set of masks for each type of car.

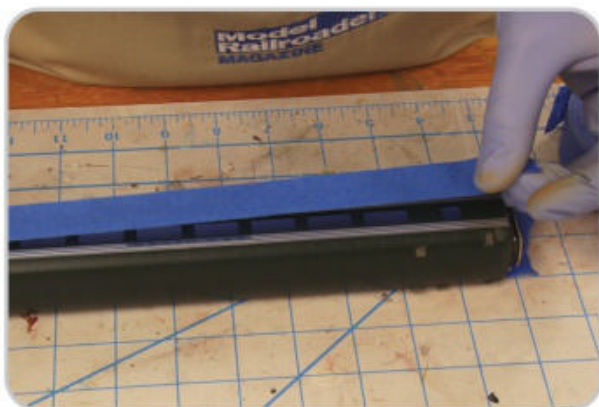


Apply the rust – I found that the Vallejo 71.026 US Flat Brown I used for dirt under the car also worked well for rust if it is used at or near full strength. The roof vents on these cars are not solid rust and still have some paint left, so I applied the paint thinned at a 1:4 ratio and made two passes with the airbrush.



Finished vents – This photo shows the vents after painting. Without any other roof weathering to blend things together, the vents stick out too much. If you were going to weather the vents but not the roof, a single pass of thinned US Flat Brown paint would blend them in with the existing roof color better.

STEP 4 FADED ROOF



Masking sides – After painting the vents, the roof itself was a piece of cake. I used blue painters' tape to mask the sides of the car. However, since I wanted to blend the vents in with the roof better, I didn't mask them, but left them exposed to overspray.



Painting the roof – I used Vallejo 71.055 Black Gray on the roof. As the New Haven's car fleet aged, the roofs took on a faded gray look. The Vallejo color approximates that well. I mixed it to a 1:4 ratio with thinner and applied it in several coats. I also used this coat to correct a couple of rust overspray spots.



Fine spray pattern – I work with a double-action airbrush, which allows for delicate paint control. As such, I could carefully spray the gray paint around the vents without getting much paint on them. It also allowed me to leave the original, darker roof paint next to the vents, creating shadows.

STEP 5 WEATHERING DIAPHRAGMS



Making a mask – Diaphragms are flexible walkways between passenger cars. They're built with steel frames and covered with a canvas bellows. They also take a heck of a beating in service, particularly the steel end plate. To rust up the end plate, I made paper masks that slid between the end plate and the end of the car and covered the doors.



Paint the plate – To start the end plate rusting process, I airbrushed it with a 1:4 mix of Vallejo 71.026 US Flat Brown. I'm not entirely happy with the results of the thinned paint (full-strength would have been better), but I was attempting to protect the delicate end gate as much as possible without having to remove it.



Dust coat – Since I had the airbrush out, I also applied a coat of dust to the car ends. While the sides stayed fairly clean, the ends tended to pick up grime from dirt swirling between the cars. To apply the dust coat, I used a 1:5 mix of Vallejo 71.122 US Desert Tan. When thinned, this makes a subtle effect that is easy to build up in layers.



Comparison – The car on the left has the dust coat applied to the end. The car on the right does not. I'd considered applying dust to the sides of the cars along the bottom edge as well, as I've used it on other cars to good effect. However, I decided against it here, as I liked the car-washer-clean look combined with the dirty undercarriage.



Pastels for rust – The paint only got me so far for modeling rusty diaphragm end plates. Once the paint dried, I sprayed the car ends with Testor's Dullcote, then applied three colors of Monroe Models pastel powders – 3105 Dark Rust, 3106 Light Rust, and 3107 Dark Earth. I scrubbed the pastels into the surface with a Microbrush.



Before and after – When coupled into a train, the diaphragm plates rub against each other constantly and rust quickly. By using paint as a base coat, then three colors of powdered pastels, I got a satisfying effect of old and new rust. The diaphragm on the right is finished except for a shot of Dullcote to seal the powders.

STEP 6 PAINTING WHEELSETS



Painting wheel faces – Cody Grivno came up with this technique years ago, and it's the best I've used for painting wheels. I used Vallejo 71.026 US Flat Brown full strength. I applied the paint with a Microbrush, working on the wheel faces first and taking care to keep the paint off of the axle tips.



Painting axles – Once the wheel faces had dried, I painted the axels and the backs of the wheels using the same technique. Since I had 5 passenger cars worth of wheelsets to complete, by the time I finished the last of the faces, the ones I had completed first were ready for the axles.



Clean up – Try as you might, you invariably get some paint on the wheel treads. To clean the treads, I used a fresh Microbrush dipped in Windex glass cleaner. The Windex softens the paint quickly, making it easy to scrub off the tread. Clean the Microbrush on a paper towel between applications.

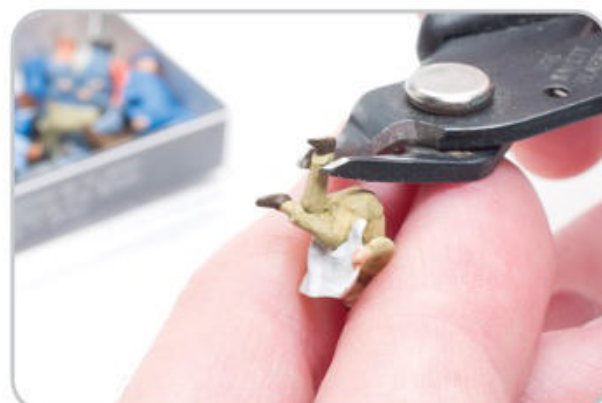
STEP 7 PASSENGERS APLENTY



Seated people – Unless you leave your passenger cars sitting empty in a yard on your layout, you'll need to have people in them for the cars to look right. Walthers, Preiser, and other manufacturers sell HO scale seated people in bulk packs. I used a Walther's SceneMaster set and a Preiser seated figure bulk pack for this project.



Floor height – In order to manufacture model trains, some allowances always need to be made. In our case here, the floor has been raised to cover the car weights. Correspondingly, the seats were lowered to be the correct height when viewed from outside the car. You can see the problem it causes this couple trying to ride our train.



Necessary adjustments – Unfortunately, lower seats and higher floors means that our passengers need to leave their feet at home. This is an easy enough operation to accomplish. Simply clip off the lower part of the leg with a sprue cutter until the passenger sits correctly in the seat.



People placement – With the feet removed, our newspaper reader can now take a spot in this coach. He's glued in place with CA. You don't have to put passengers in every seat to make it look like your train is full. Space people so that when you look across a row, you see a passenger on one side of the train or the other.



Challenging seats – Coach seats were easy to do; the diner seats were another matter. First, because of the chair arms, I had to select figures that had narrow hips. Next, as the table has a cloth on it, they lost all of their legs. Finally, many still had to have their hips reduced to fit. The waiter didn't require any modification.



Detail worth doing – The Rapido cars have LED lighting. All the work you put into adding passengers into your cars is worth the effort, since you can see them well. As shown in this photo, the woman seated in the smoking section is clearly there for the right reason, even though the cigarette she is holding is rather large for HO scale.

STEP 8 REASSEMBLY



Wheels and couplers – With all the work complete, the last step is to reassemble the cars. Because the bulkheads on the interior support the undercarriage well when the car is upside down, I put the wheelsets and couplers back first, making sure I had the correct wheels for each model.



Window replacement – Next, I replaced the window glazing. The long sections are supported by tabs and snap into place. You might want to carefully wipe the glazing sections with a soft cloth and a little water or glass cleaner first, as I found some of mine had fingerprints on them from handling.



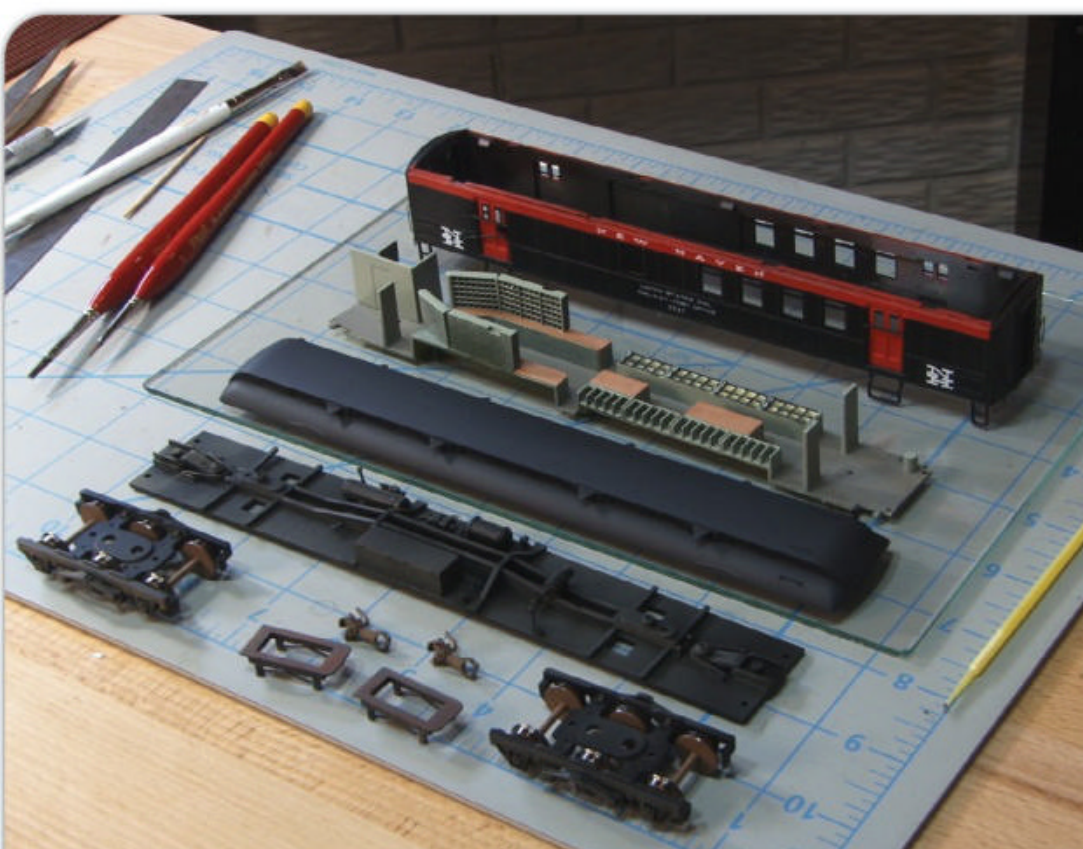
Replacing the shell – The final step was to replace the shell. I was careful to make sure the light bar at the top of the car was properly seated before I began. I also made sure the shell was oriented properly before sliding it over the interior; bathroom windows are a good guide for this.



Final results – The finished train looks stunning making a station stop on our Milwaukee, Racine & Troy HO scale layout. Each step uses just one or two easy techniques, and when combined, they provide a high degree of realism you can use on most any passenger car. **MR**



If you want to see David's techniques in action from start to finish, check out his *Summer Camp: Passenger Car Weathering* DVD, available from the Kalmbach Hobby Store in April 2022.



David used the same weathering techniques on this Rivarossi RPO that he custom-painted for his New Haven passenger train.

Do it again!

Although I used Rapido Trains' cars to demonstrate the techniques shown in this article, you can do the same thing with pretty much any passenger car that allows you to remove the undercarriage from the shell.

As a case in point, I'd wanted a head-end car for my passenger train, and I had a nice heavyweight Rivarossi RPO left over from another project. After completely disassembling the model, custom painting it, and lettering it for a prototype car on the New Haven, I then applied the same weathering techniques to it that I'd used on the streamlined cars. The photo at left shows the car ready for reassembly.

I toned the weathering down some for this car because I was working from prototype photos of a car that had been recently shipped and repainted. – *David Popp*

① A Philadelphia Transportation Co. Presidents' Conference Committee streetcar weaves through traffic past The Benjamin Franklin Hotel on David Arrell's HO scale traction layout.



Modeling street life and streetcars



2 The newlyweds emerge from the chapel to cheers from family and friends. Around them, city life continues, including a Bachmann PCC streetcar bringing commuters from the suburbs.

This HO scale traction layout re-creates the feel of visiting the big city as a child

By David Arrell • Photos by the author

The Philadelphia experience was exciting to me as a child. Our infrequent trips to Center City, as the downtown area is known, were filled with memorable sights, sounds, and smells. It seemed to me that people were everywhere. You needed an extra set of eyes and quick feet to cross the street due to the number of cars, trucks, buses, and

streetcars. The streetcar rides were, by far, the best parts of the excursion.

Although I avoided the project for decades, it was inevitable that I would build a realistic-looking streetcar layout. I grew up just outside Philadelphia adjacent to the 69th Street Terminal of the Market-Frankford “El” (elevated) line, where a “Gateway Transfer” could take you from one of the collector lines in the



3 David's compact layout is in display mode with skirting. David enjoys sharing the layout with others at train shows and meets. The layout is on wheels for ease of use. The track height is 48" for easy viewing.

suburbs to downtown or across the city. Later we moved farther into the suburbs, but found a house right on the Sharon Hill line (Route 102) of the Philadelphia Suburban Transportation Co. I rode a streetcar, the El, and the subway every day for a year as a student at Temple University in North Philadelphia. As you can see, traction modeling was inescapable. This layout is my homage to Philadelphia and my hometown.

I have created 10 layouts over the years, including a few collaborative efforts, one notably located in my college dorm room. Due to career circumstances, our family has moved several times over the years. My goal in this project was to design a layout that could move with me.

Benchwork construction

To be budget conscious, I designed my layout to use one sheet of plywood, including the tabletop, support structures, and legs. I chose $\frac{3}{4}$ " cabinet-grade plywood for this project for its strength and stability. I had the lumberyard cut the main top length to 6 feet so it would be easier to handle in my workshop.

The first cut at home created the 2 x 6-foot tabletop. I cut the parts for the open-grid framework in 3" strips, which are installed around the perimeter and every 2 feet under the tabletop. The legs were made by ripping the 3" material in half lengthwise. The pieces were edge-glued and screwed to make $1\frac{1}{2}$ x $2\frac{1}{4}$ " L-shaped legs, which are bolted to the open-grid framework.

This extra effort proved invaluable in moving the layout to train shows and other venues. The final project incorporated a few additional pieces of wood when I added wheels to the legs.

Track design

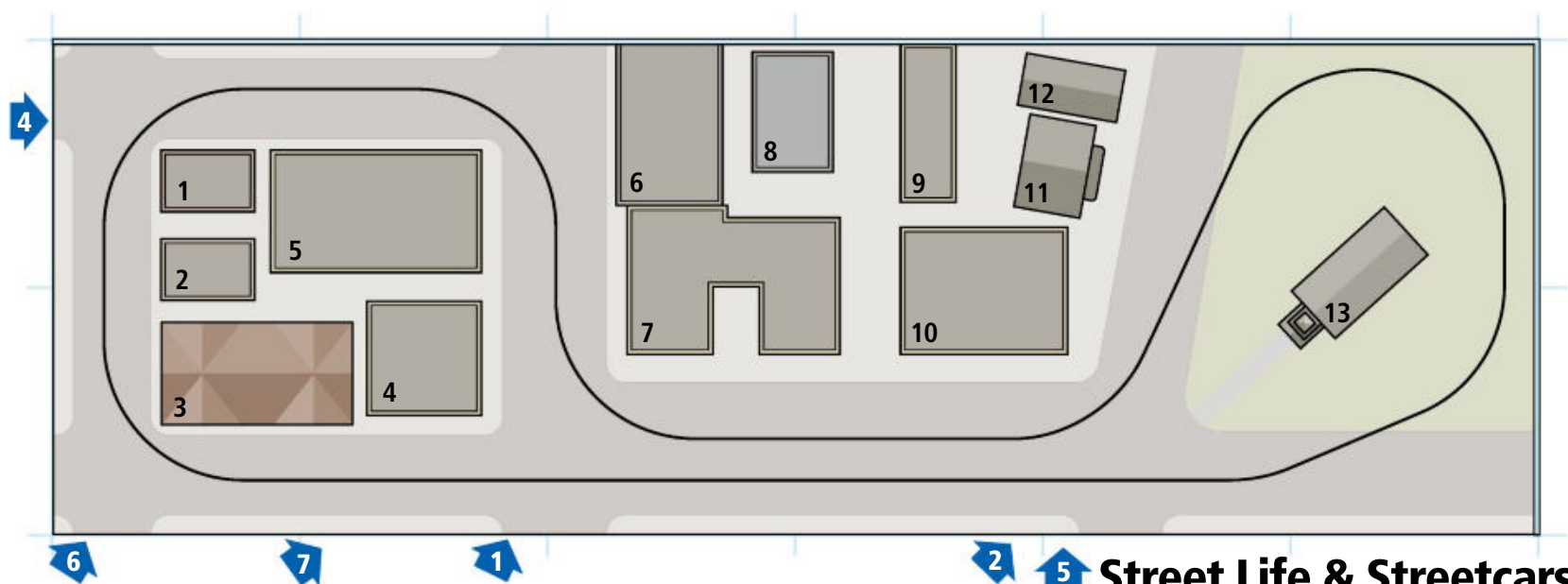
Even in a small space, I wanted to create a sense of movement. I created a dogbone track plan weaving through three distinct areas of the layout. The right side of the layout depicts the suburbs. The middle section of the layout represents Center City Philadelphia. The left side portrays life in a city neighborhood, away from the din of downtown. The specified radius for most HO gauge streetcars is 15", which is much too gracious and impractical for scale modeling.

Through experimentation and a slight modification, I concluded that the Bachmann Spectrum Peter Witt streetcar could handle 6" curves. I used Atlas code 100 rail with a $6\frac{1}{4}$ " radius to avoid any track issues. I employed this radius for most of the track. To signify a transition in neighborhoods on the right side of the layout, I chose a more generous radius as the streetcar leaves the city streets for the suburbs.

The Spectrum Peter Witt streetcar and a Bachmann PCC streetcar each have a Digital Command Control (DCC) decoder. My other streetcars are direct-current (DC) units. Since my layout is merely one loop, I mainly use DC and save DCC for special occasions. I can switch between the two systems fairly quickly. The power to operate the streetcar comes from the overhead wire. By changing the power routing under the tabletop I can switch to a two-rail system.

Scenery

I wanted to re-create a time when more people relied on mass transit for their travel. I chose to focus on the late '50s when cities, made up of distinct



1. Pete's Meat – Model Power
2. Walker Building – Design Preservation Models
3. Addams Ave. Part IV – Downtown Deco
4. The Bon Ton – Lunde Studios
5. Bailey Savings and Loan – Wm. K. Walthers Cornerstone
6. Addams Ave. Part I – Downtown Deco
7. Ambassador Hotel – Bachmann Spectrum

8. Front Street Building – Design Preservation Models
9. M.T. Arms Hotel – Design Preservation Models
10. Department Store – Bachmann Spectrum
11. Star Diner – Bar Mills
12. Wooden Shed – scratchbuilt
13. Community Church – Campbell Scale Models

Street Life & Streetcars

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

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



4 There's action away from the big avenues, as well. David has created scenes such as the ever-present road work just as the streetcar swings around the curve, a pickup basketball game mid-block, and a hopeful dog next to a customer of Pete's Meat, a Model Power kit.

neighborhoods, were filled with people beginning to explore the freedom that came with the automobile. At the time, most streets with tracks were either cobblestone or brick.

I chose Durham's Water Putty for the roads and sidewalks. The cobblestones were hand-carved with a motor tool. After repeated failed attempts to carve brickwork between the rails, I substituted plastic brick sheets. The sidewalks are also hand-carved water putty. Learn how I built my streets in "Making cobblestone streets" on the next page.

The church landscape is 1" foam covered by patching plaster. The trees are from Woodland Scenics, JTT, and a

private supplier. The background images are from Realistic Backgrounds (realisticbackgrounds.com) mounted on tempered hardboard.

More than 200 figures populate the layout. Most of the figures fill the busy street scenes. Some were placed in vehicles, while others are used as mannequins in the department stores. The figures come from Woodland Scenics and bulk suppliers.

There are 48 cars and trucks on the layout, including models from Woodland Scenics AutoScenes and Oxford Diecast Ltd. The vehicles set the stage for the late-'50s. There are six dogs on the layout and various birds, including

The layout at a glance

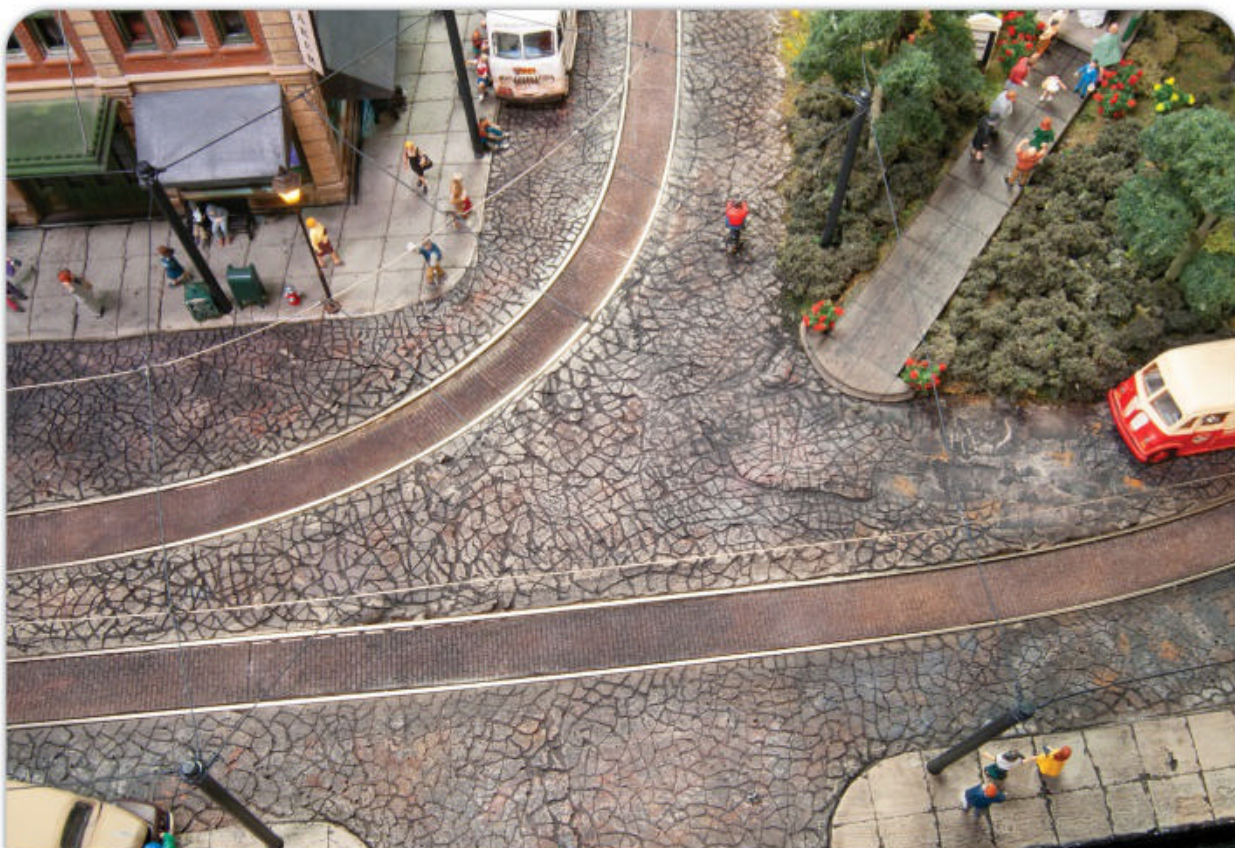
Name: Street Life & Streetcars
Scale: HO
Size: 2 x 6 feet
Prototype: Homage to streetcar service in and around Philadelphia
Locale: Philadelphia and suburbs
Era: Late 1950s
Style: island
Mainline run: approximately 16 feet
Minimum radius: 6¼"
Minimum turnout: none
Maximum grade: none
Benchwork: open grid
Height: 48"
Roadbed: Homabed/cork
Track: Atlas code 100 flextrack
Scenery: water putty on plywood, patching plaster on foam
Backdrop: photo backdrops from Realistic Backgrounds mounted on tempered hardboard
Control: direct current with powered overhead wire

pigeons. After all, how can you model a city scene without pigeons?

Overhead wire

My original goal was to model, but not rely on, the overhead wire that powers the streetcars. Even that limited goal proved elusive at first. To be frugal, I attempted to build my hangars and stretchers using 26AWG telephone wire. This material proved inadequate.

My next attempt included a different type of wire and commercially available



Making cobblestone streets

My goal was to create an old cobblestone look for the streets. On previous layouts I primarily used styrene sheets for the roads and sidewalks. They always came out clean and crisp, not the look I wanted this time. As I pondered my options, I was reminded of a product that I had used, Durham's Rock Hard Water Putty, in various forms for other projects, both in and out of the hobby.

I made a form of stacked blue masking tape to define the edge of my roads and used the rail on the inside. I tested in a small area. The initial results were promising, so I did another section. I noticed a slight variation in color and texture due to my imprecise mixtures of water and product, which turned out to be a good thing. Every one of my outside-the-rail pours turned out great. My between-the-rails pours were not as good. I thought the mix was stiff enough to prevent leakage. I was wrong. More on that subject later.

Due to poor planning, I had to cut back much of the cured product to have space for my structures. The sidewalks were cast using the same basic method by using tape barriers to raise the level.

Each of my cobblestone roads and sidewalks are hand-carved with a motor tool and bit. I destroyed a couple of bits creating this effect. It took approximately three hours to carve the roads. Right at the end of that phase of the project, I remembered that I could soften the water putty with water. So much for working smarter and not harder.

Once I was pleased with the carvings, it was time to add color. I used a thinned version of Polly Scale Aged Concrete [no longer in production – *Ed.*] for the sidewalks and portions of the roadway.

The road stones were colored using thinned dabs of black, dark red, dark gray, light gray, light brown, and dark brown. I didn't paint each cobblestone individually, but rather did small areas of color. To mute the colors and bring out detail, I applied several India ink washes using black, rust, and brown ink. I then drybrushed the cobblestones with light gray and light brown to add highlights.

To finish the project, I started to use the water putty on the space between the rails and even attempted to carve bricks. Due to a combination of my limited skill level and the product's limitations, the results were disastrous.

Instead, I used styrene brick sheet. After cutting the sheets to fit, I gave them a base coat of dark red spray paint. I used colored pencils (brown, black, purple, and orange) to add visual texture. I finished with India ink washes.

The overall effect is pleasing and sets the stage for the streetcars and cityscape. The water putty poured in smaller areas gave me the imperfections that I was looking for in creating my cobblestone streets. I even have some unplanned potholes to add to the realism. – *David Arrell*



hangars. These hangars worked well but appeared oversized. I was able to keep the streetcar on the wire reliably, but I was unsatisfied with the appearance.

Inspired by inquirers at train shows who repeatedly asked if the overhead wire powered the unit, I accepted the challenge and looked for another solution. Proto87.com offers scale traction products to solve this problem. The wire is 28AWG nickel silver, and the hangars are photo-etched brass.

These products work well and look terrific. However, my aging eyes struggled to see and solder these small parts. In the end, the results proved that the persistence was worth it. The streetcar has worked flawlessly and continuously at multi-day train shows. Due to the fragile nature of the overhead wire, I can revert to two-rail power, if necessary, to keep operations going during public exhibitions.



5 Ice cream, ice cream, we all scream for ice cream! An ice cream truck pulled up to the curb in front of the famous John Wanamaker department store in Center City. The Bachmann Spectrum Department Store kit makes a good stand-in for this popular meeting place.

6 Turning a corner brings a streetcar into a new neighborhood, each with its own charm. This building has had multiple lives and purposes and currently gives new life to old treasures. The structure is a Downtown Deco kit.

Structures

A significant number of structures on this layout are re-purposed from earlier projects. Two City Scene kits from Bachmann Spectrum highlight the center block. The Ambassador Hotel kit roughly resembles the landmark Benjamin Franklin Hotel on Chestnut Street. The prototype is “E-shaped” while the model is a scaled-down “C-shaped” structure with identifying signage.

The department store is named for the historic John Wanamaker store, famous as a meeting place in Center City Philadelphia. The church is a Campbell Scale model that resembles an old chapel in suburban Philadelphia.

To expand the downtown look, I added a Lunde Studios resin kit, modeling The BonTon. This kit replicates the structure of that department store chain in York, Pa. I chose it because it looks like it belongs in this cityscape.

A small kit from Bar Mills, the Star Diner, is partially hidden from some views of the layout. I intentionally wanted to create engaging vantage points only viewable from certain positions. Kits from Walthers, Downtown Deco, and Design Preservation Models complete the cityscape.

I added signs and details to enhance the structures, and a few have detailed interiors on the ground floor. Both department stores have mannequins advertising the latest styles of 1958 in their display windows.

I scratchbuilt water tanks for buildings over four stories tall (owner’s ordinance) using a small section of PVC pipe wrapped with scribed basswood siding to mimic the appearance of wooden water tanks.

Most of the buildings and details are heavily weathered. I use black, brown, gray, and rust-colored India ink-based isopropyl alcohol washes in multiple layers to achieve the grimy, urban effect. All structures have interior light-emitting diode (LED) lighting. This number of lights requires additional low-voltage circuits underneath the layout. See “Department store lighting” at left.

Streetcars

The Bachmann Spectrum Peter Witt streetcar runs and looks great, especially wearing the green of the Philadelphia Transit Co. But over time, the streetcar pole springs proved insufficient to keep tension on the overhead wire.



Department store lighting

Department stores have big display windows that beg for lights and an active interior to add to the realism. I have two department stores about a block away from one another with mannequins and lighting. I added color to the flooring and walls of the displays, as well as a different color of lighting in each structure.

The easiest way to build the display window interior is by tracing the inside of the structure on a scrap piece of paper before you add the roof to the kit. As you do this, take note of the height of the bottom edge of the windows, as that will become the “floor level” of the display windows. The height of the display area is a little more flexible. You will need some extra height for your lighting, but not so much height that your wiring is visible in the windows of the floor above. You may want to black out those second-floor windows now, so they don’t become an issue later.

I used styrene to build the window boxes for my displays. It’s easy to cut, cheap, and assembles quickly with solvent. Remember to check your fit with the actual structure before you proceed with lighting and decorating. The fit should be close, but not tight. If you use light-emitting diodes (LEDs), you probably won’t need to replace a light, but you may later want to change out a scene in the display.

Design your scene before adding lights. In both department stores, I painted the floor and walls as well as added some elements for the mannequins to use as props. I tried to highlight a new fashion line, so I painted similar and complementary colors on the mannequins. Check online images for inspiration for fashions in your modeled era.

One department store has warm LEDs that produce a softer, more yellow effect, mimicking incandescent lights. I used LEDs that came in a long strip on a reel. These lights are easily cut to length with increments marked on the tape. Once cut, they have the appropriate resistors and solder points in place. I wired them in series and added 12” feeders to connect to the accessory bus line under the layout.

In the other department store, I installed cool white LEDs in the display windows, imitating fluorescent lights. I used individual LEDs wired in a series. Make sure you have the proper resistors. Mine came with resistors attached. [Evan Designs, evandesigns.com, makes easy-to-use hobby LED kits. – Ed.]

Once the interior is installed in the structure, it’s important to check for light leaks. Depending on the fit of your interior within the structure, there may be areas where light will leak. Correcting this on the workbench is much easier than on the layout. – David Arrell



The SCHOOLHOUSE page of the website Trolleyville.com provided valuable insight and a solution. John McWhirter wrote a detailed explanation of what products to buy and how to install them based on the experience of the Southern California Traction Club. I am indebted to them and Miniatures by Eric for solving my problem.

My traction roster has expanded to include two Bowser President's Conference Committee (PCC) cars, two Pennsylvania Scale Model Brill units, and another Bachmann PCC model equipped with DCC and sound.

On the move

After receiving some encouragement from fellow modelers in my town, I took the layout to area shows. I started small by attending a one-day regional show. To protect the layout en route, I constructed a framework out of 2 x 4s. This frame permits me to easily slide the tabletop into the back of our minivan and secure it to minimize movement.

Since then, I have taken the layout to the K-12 school where I work and to larger train shows. Initially, I took almost everything off of the layout to

prevent damage. In doing so, I realized that this much handling of the structures proved detrimental. Now when I travel, I only remove the cars, trucks, and a few small details.

I place foam sheets between the buildings and metal poles supporting the overhead wires while in transit. To keep the layout dust-free in the house and car, I clip large panels of foam board to each side and cover it with a bedsheet. These protective measures have significantly reduced the amount of dusting and rail cleaning required for the best results.

I am grateful to those who shared their work and techniques with me over the years, including those in this magazine. I am very thankful for those who made suggestions and provided feedback throughout this project. I appreciate the people who I've met at train shows who chat with me about the creative process.

Invariably when I acknowledge the streetcar is powered from the overhead wire, people respond by saying that they don't have that kind of patience. I tell them that I didn't have that level of patience either at the outset, which is why I avoided the project for so many years. Now I tell them it's more about persistence than patience. **MR**

7 David has created a scene of busy city congestion outside Wanamaker's and the Benjamin Franklin Hotel, where exhausted shoppers look for a snack from the street vendor. The cars from Oxford Diecast have drivers installed.



Meet David Arrell

David has been a model railroader for over 45 years. This is his 10th layout, including one in his college dorm room. He is the superintendent of a Christian school in Ohio. He enjoys traveling and riding bikes with his wife, Lori. They have two adult children. He is in the planning stage of his next project.



With a bit of remodeling, Richard's now-tidy work area is optimized for successful model building.

THERE'S A PLACE FOR EVERYTHING

A little organization goes a long way for a modeler's success

By Richard Turton

Photos by the author

Having recently retired after 35 years at West Virginia University, I've been looking forward to spending more time working on my layout. However, my work area, although quite large, was frankly a mess.

I built my work area about 20 years ago with the thought that having a lot of horizontal surfaces would allow me to work on multiple projects at the same time.

This idea is probably a great one for a very organized modeler, but for me it was a disaster. I suffer from a

combination of poor organization, procrastination when it comes to tidying up, and lack of discipline in maintaining a clean working area.

This trifecta of disorganized behavior made it difficult for me to approach new projects with enthusiasm. I decided to completely redesign my work area before starting any new projects.

Learning from mistakes

In putting a plan together for the new work area, I wanted to avoid the mistakes that I'd made with my original

set-up. Some of the key changes I wanted to make involved:

- All modeling supplies are clearly displayed and easily reachable
- Avoid using horizontal surfaces not specifically designated for model construction
- Narrow shelving to avoid access issues
- Bright overhead LED lighting
- Keeping the floor area clear – this would allow for a later addition of carpet and avoids tripping hazards

Designing the new space

The result of the remodel was a clean, organized work space that easily met all my outlined criteria.

In designing the shelving, I customized some of the shelves to hold and display a wide array of paint bottles, allowing for easy access.

The main work area for building models is relatively small. I designed the work surface to be at a comfortable height, and the depth allowed me to reach the back edge without any effort. I added magnetic strips to hold tools on the back wall, and the LED strip light



A custom-built spray booth with a standard furnace filter and powerful fan was added to replace Richard's antiquated one. Shelves to the right keep paint handy.

provides ample lighting and removes the need for additional table lamps.

The final step in completing the work area was to replace my aging spray booth. In order to keep the cost down, I constructed my own by modifying a design from Vent-Works that was available online. This design uses a standard furnace filter and a powerful fan to provide the necessary air flow and filtration.

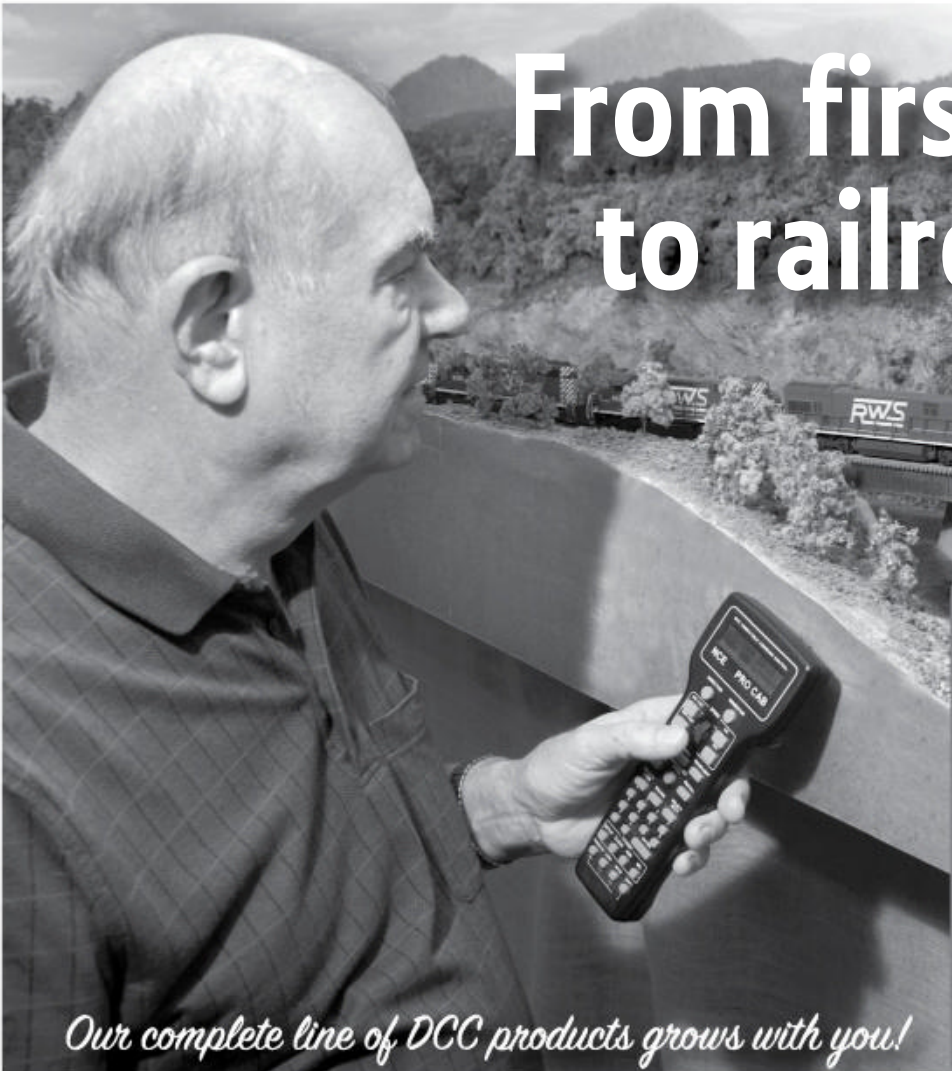
The exhaust is vented to the outside of the house via a flexible aluminum 4"

diameter duct. Since I only paint with water-based acrylic paints that are essentially non-flammable, I'm comfortable using a fan that is not explosion-proof.

I'm pleased with the new work area and excited about starting some new modeling projects. Now I just need to make sure I promptly return everything to its correct place! **MR**

Richard Turton lives in Morgantown, W.Va. This is his first byline in MR.

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Using servo motors to control turnouts



1 The Digitrax DS78V. All connections to Digitrax's DS78V are solderless. The screw terminals are for connections to your track bus. You can power the DS78V from your track bus – a dedicated bus is preferred – or a wall transformer. The PS14 wall transformer can be plugged into the top, as can LocoNet. The servo motors plug onto the triplet connectors. Buttons can be connected to the two 10-pin connectors.

Servo motors are gaining the attention of model railroaders due to their low cost and small size. I will cover the Digitrax product this month and will cover the Walther's product next time.

No soldering is required! Even if you are good at

soldering, the ease and speed of using a screw terminal or slip-on connector can be quite appealing, particularly when working upside-down under a layout.

The Digitrax DS78V is the servo motor-controlling stationary decoder from Digitrax (digitrax.com). It's the same size as the company's compact DS74 **1** but can control twice as many switch machines (eight vs. four), twice as many routes (16 vs. eight), and optionally, trigger 16 routes. Like the DS74, you will need to use LocoNet for the routes feature to control turnouts on other accessory switch controllers. You can

configure the routes using EZ-Routes or a DT602 throttle, just like the DS74 **2**. Finally, you can power the DS78V from either your track bus or a dedicated 12V supply. See the January 2022 DCC Currents for more details. You can also use the DS78V to operate three-position semaphore signals.

The DSXSV9 is Digitrax's servo switch machine kit based on the popular 9G servo **3**. It consists of a servo motor, a mounting bracket, an arm on the servo, and a piano wire. Digitrax provides two pre-formed piano wires – 0.24" (0.6mm) diameter and 0.032" (0.8mm).

A little bit of assembly is necessary, requiring just three screws. You can put a switch machine together in just a couple of minutes.

A note of clarification is due. The motor mounts from the back of the mounting bracket, with the actuator arm sticking through the front. If you get this wrong, you'll find that piano wire hangs up on the actuator arm. Fixing it is no big deal, and you'll build the rest of your switch machines correctly.

For HO and N, Digitrax recommends using the hole farthest from the pivot on the servo arm. This will provide about 1/4" of travel 1" above the switch machine. You may want to experiment with the

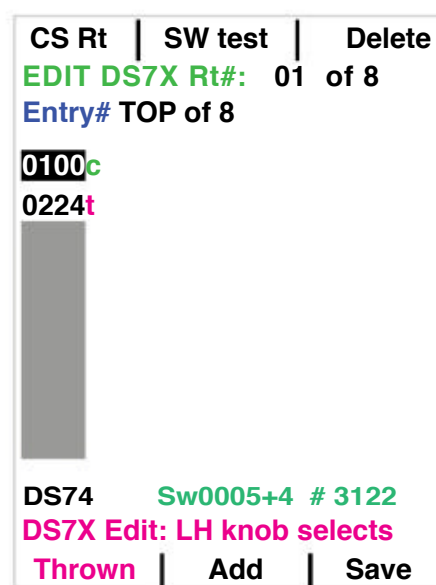
other holes closer to the servo's pivot if you don't need as much travel or holding force.

I found it interesting that the Digitrax instructions stated that the 0.024" piano wire would probably be adequate, especially since turnouts like the Peco Unifrog and the new Walther's turnouts have no hinges on the points and are a bit stiffer. I removed the spring from a Unifrog and tried the 0.024" piano wire with this switch machine. It didn't hold the points against the stock rails. I found I needed the 0.032" piano wire to drive the points against the stock rails as desired.

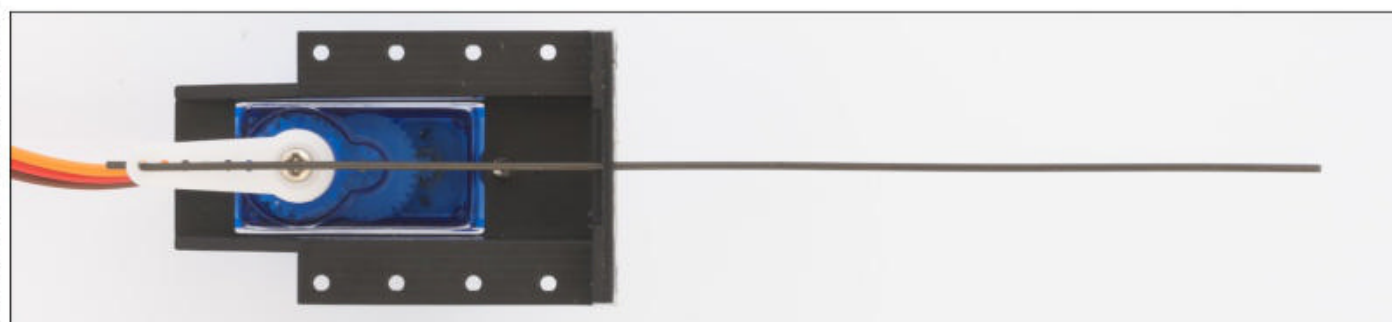
I should also mention that the piano wires that come with this product are more than long enough to get through 1 1/4" of layout and 3/16" cork roadbed with plenty still protruding through the switch rod to snip off. Be sure to wear safety glasses when you do this, and use a cutter made for hardened steel wire. Piano wire will ruin your usual track cutters.

You should not try to move the servo arm manually. The DS78V has three buttons that you can easily use to center the arm as well as to verify that the servo properly moves the points to the closed and thrown positions.

Modelers love the challenge of saving money. If you



2 Programming routes. Routes within the DS78V are most easily programmed using the Digitrax DT602 throttle. See my January 2022 column for other features that the DS78V and DS74 share. Simulated throttle display used with permission of Digitrax



3 Servo switch motor. When mounted vertically, the DSXCV9 requires a mere 2 inches of clearance beneath your benchwork. For some of you, this low amount of clearance required may be a game changer. When attaching the servo to the mounting bracket, insert the servo from the back of the bracket so that the pivot protrudes through the front.

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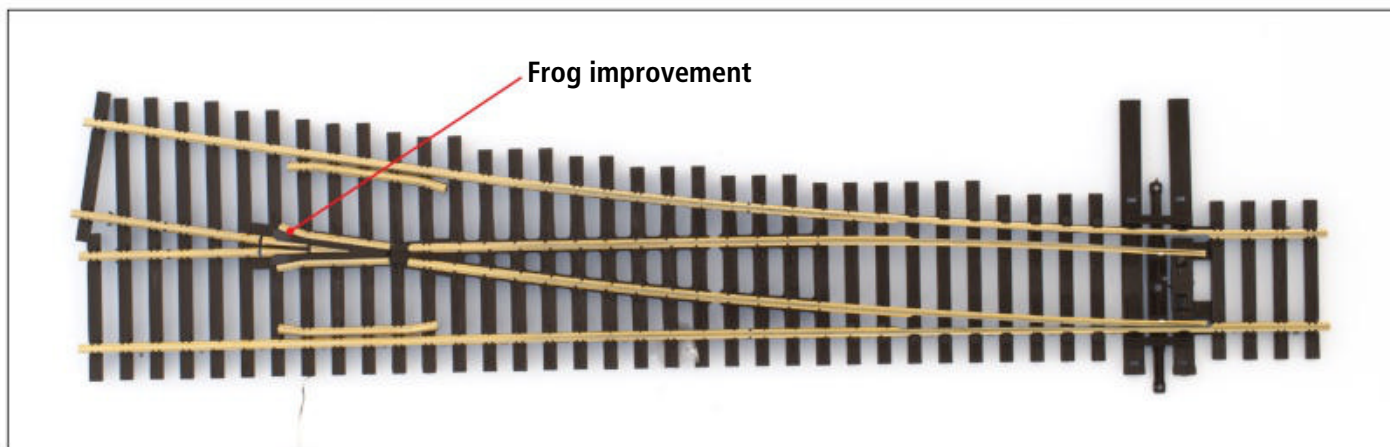


4 Generic 9G servo. These devices, available at radio-control hobby shops and on eBay, are for those who want to make their own actuators. If you do this, don't forget the arms for the pivot and connectors for the end of the servo cable.

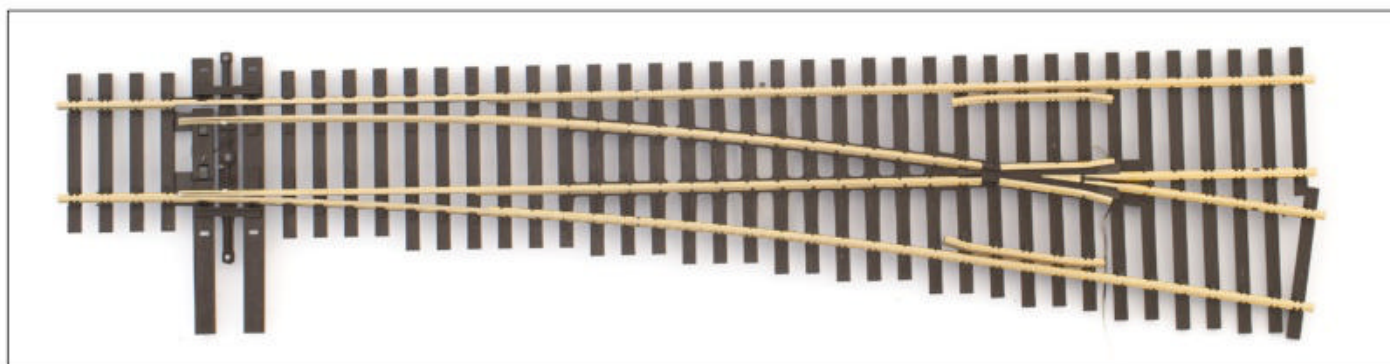
want to roll your own switch machine, you can buy 9G servos at a hobby shop that sells radio control products. The connector on the servo is an industry standard. Fans of eBay can find 9G servos there for even less **4**. There are also metal gears available for them on eBay. You'll just have to fabricate or 3-D print your own mounting brackets to use these servos. Cables to extend the distance between the servo and the Digitrax controller can be bought on eBay, or you can use the Walthers cable kit, no. 942-113 (walthers.com).

Servos have no provisions for powering a turnout frog. If you want to power the frog, an all-electronic Frog Juicer by Tam Valley Depot (tamvalleydepot.com) will do it.

Like the DS74, you can use two DSXC4 breakout boards to make connections for wires coming from switches or sensors. Similarly, you can use the DSXCP1 to operate a turnout from your control panel. See the



5 Peco's new code 70 Unifrog. Compare the frog improvement to the original Unifrog **6**. Note that the frog rails now contain small segments. These are electrically connected to the frog tip. Now wide metal wheels won't short as they go over the frog rails.



6 The original Unifrog. Compare to **5** for the small but important change that should prevent wheels from shorting on the frog rails as they pass over the frog.

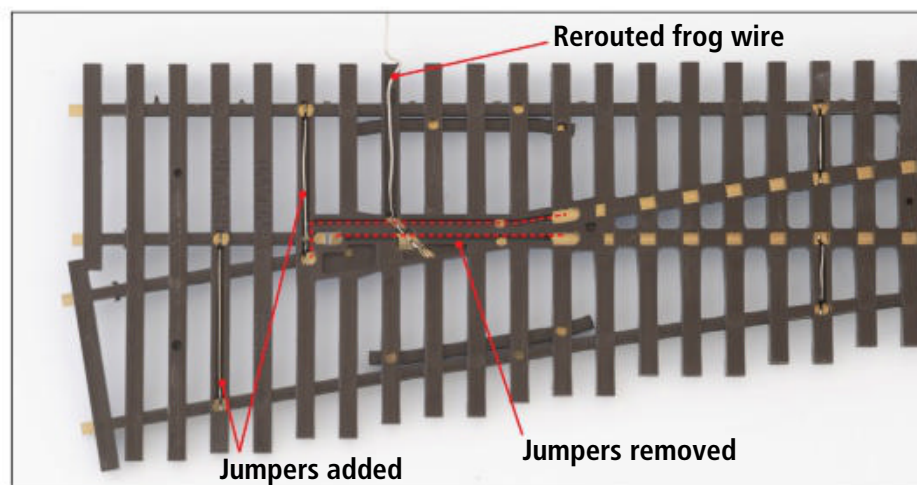
January 2022 DCC Currents for photos of these products.

Peco has expanded its Unifrog line. I first covered these in the March 2021 DCC Currents. The new offering is a code 70 no. 6 turnout. Peco (peco-uk.com) also hopes to have a no. 8 turnout Unifrog later this year.

The manufacturer didn't just expand the line; it's also made some refinements to the code 70 and code 83 Unifrog turnouts.

The manufacturer has extended the area of the frog that you can optionally power **5**. If you had a problem with metal wheels bridging both sides of the frog rails, causing a short, this refinement should take care of the problem **6**.

Peco has also relocated the jumpers on the



7 Relocated jumpers. You can see where the jumper wires that connected the closure rails to the frog rails were removed to prevent shorting to the frog wire. To route power to the frog rails, jumpers were added to connect them with the stock rails. I routed the frog wire up in this example. This isn't necessary on the improved Unifrog.

back of the turnout that transferred power between the frog and closure rails **7**. They no longer risk the possibility of shorting to the wire for powering the frog. (To fix the original code 83 Unifrog, run this wire out to the side of the turnout, away from the frog, before dropping it through your benchwork. For insurance, I used Walthers Goo to hold it in place.)

Enjoy exploring the use of small servos and the new

Unifrogs! For one convenient link to all the links in my columns, go to WiringForDCC.com/dcc_currents.htm.

Here's a money-saving tip: I recently discovered that the inexpensive 7-function digital meter available at Harbor Freight for \$6.99 (item no. 63759) can accurately read DCC track voltages. I was able to get the same reading when compared to an RRAmmeter. **MR**



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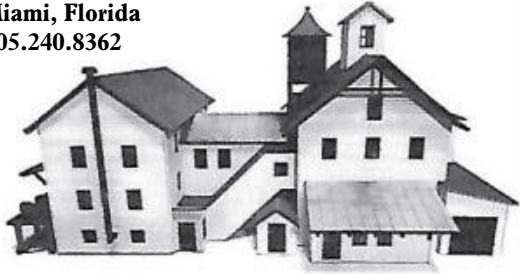
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Atlas Master N scale Alco S-2 switcher

A popular, hard-working, and ubiquitous diesel switcher is the latest N scale locomotive model from Atlas. Alco's S-2 is being offered as a Master Line model, equipped with knuckle couplers, wire and etched metal details, and an optional ESU LokSound Select Digital Command Control sound decoder.

Popular and long-lived. *Model Railroader Cyclopedica: Vol. 2, Diesel Locomotives* (Kalmbach Books, out of print) calls the S-2 "Alco's best-selling diesel unit ever." Introduced in April 1940, the same month as its 660hp, non-turbocharged contemporary the S-1, the S-2 sold almost three times as many units. Just over 1,500 of the 1,000hp S-2 units were delivered to North American buyers between 1940 and 1950, compared to 540 S-1s. It also outsold its Electro-Motive Division competitor, the 1,000hp NW2, which had been introduced more than a year earlier.

More than 100 railroads and industries in the United States, Canada, and Mexico bought the doughty little diesels, lured by their high pulling power combined with a short, flexible wheelbase. The biggest purchasers were the New York Central, which bought 77 units; Southern Pacific, at 76 units; Atchison, Topeka & Santa Fe, at 70; Baltimore & Ohio, at 59; Chesapeake & Ohio, 58; and Union Pacific, 54. Some of these were offered in previous releases of the model.

Since yard duty was light work in comparison to moving trains over the

road, and maintenance was often nearby, many of these diesels lasted longer than expected. Though they may be more than 70 years old, some are still in operation today at museums, tourist railroads, and industrial short lines.

Spotting features. The first generation of the S-2 had a round fan enclosure on top of the front of the hood and radiator shutters set in flush with the sides. Atlas' model represents a Phase II model, with a square radiator fan enclosure and shutters that protrude slightly from the sides. The cab and body were riveted until

about 1944, welded after; Atlas' model has rivets.

According to the book *Diesel Locomotives: The First 50 Years* by Louis A. Marre (Kalmbach Books, out of print), the body of a late Alco S-2 is visually almost indistinguishable from an early S-4. The main spotting difference is the trucks; an S-2 has Blunt trucks, while the S-4 has Association of American Railroads type A trucks, so a rebuild that includes truck replacement could cause misidentification. The model bears Blunt trucks that look like those in prototype photos.



The DCC-equipped Alco S-2 from Atlas features accurate tooling, fine printing, and robust sound. The DC model has a speaker installed for future decoder installation.

PERFORMANCE CHARTS

DRAWBAR PULL .64 ounce
15 free-rolling freight cars

SCALE SPEED (DC)

VOLTS	SCALE MPH
1	2.7
7	19
14	44
21	76
28	89

The S-2 likewise strongly resembles the 660-hp S-1, which also rides on Blunt trucks. The main spotting feature to tell the difference between these two is the stack; the S-2's has a wide, rectangular base to accommodate the turbocharger.

First look. Our sample model was decorated as Chicago Great Western no. 9. The paint job and the placement of markings and details closely resembled a prototype photo I found online. The maroon and black paint scheme may look simple, but there are some tricky bits to the printing, all of which are executed well. The builder's trust plate on the side of the cab is too small to be legible, even under magnification, but it looks convincing to the eye. The yellow stripes on the black sill are crisp and opaque. I was also impressed by the model's accurate reproduction of the slightly off-center circles in the CGW's "Lucky Strike" herald. Even a slight misregistration could have ruined the famous logo. Well done!

I put my scale rule to the model and compared its measurements to drawings in *Model Railroader Cyclopedica: Vol. 2*. All the dimensions I checked – wheel-base, height, length over strikers, long hood width, and more – matched up. The details matched, too, from the pilot and horn to the characteristic swooping handrail on the fireman's side.

Road test. I tested the locomotive using our test bench's NCE PowerCab Digital Command Control system. It was easy to reprogram the address from 3 to the cab number. At speed step 1, the model rolled at 2.7 scale mph, a good speed for switching. At speed step 28, it zipped along at 89 scale mph – faster than the prototype's rated top speed of 60 mph. An adjustment to the decoder's Configuration Variable (CV) 5, Vmax, would rein it in.

Another option thoughtfully programmed into the decoder is what the manual calls Switching Mode. Pressing

function key 7 (F7) toggles between normal operation and this option, which lowers the model's speed curve by almost half. With Switching Mode turned on, the locomotive topped out at 45 scale mph. This mode also gives the operator finer control of the model's speed at the low end.

I also liked the decoder's manual notching mode, controlled with F9 and F10. These two buttons let me rev up the diesel engine sounds independent of the throttle setting, as an engineer on the prototype might do when moving heavy cuts of cars.

Because of the model's short wheel-base and light weight, it had trouble maintaining electrical contact on even slightly dirty track. This problem was most pronounced at slow speeds. I had to assiduously scrub our test track with a Bright Boy cleaning block and an alcohol-soaked pad to keep it from sputtering and stalling. The model's performance smoothed out at higher speeds.

There might not be a whole lot of space under the hood, but the speaker built into the S-2 sounds like one you'd find in a bigger model. I love the sounds of an Alco diesel engine, and those produced by the ESU LokSound Select sound decoder did not disappoint. The volume and clarity of the sounds were impressive for such a small locomotive. Though the DCC-ready versions of the model don't produce sounds, they have a speaker installed, making upgrading to a sound decoder that much easier.

Our workbench force meter measured the locomotive's drawbar pull at almost $\frac{2}{3}$ of an ounce, enough to handle 15 free-rolling N scale freight cars. That's plenty, because as an industrial or yard switcher, the S-2 wouldn't be called upon to move a large number of cars at once. I would not recommend adding traction tires, since the small improvement they would bring to a model of such light weight probably wouldn't be worth the loss of electrical pickup from those wheels.

In a real-world test, I put the Atlas S-2 on our Canadian Canyons project layout and coupled up six Micro-Trains freight cars. It handled the layout's 13-inch minimum radius and 1.9 percent grade, up and down the helix, just fine.

Atlas doesn't recommend operating the decoder-equipped model with direct current. However, other LokSound decoders are dual-mode, intended to run

Facts & features

Price: DCC-ready with speaker, \$129.95; with ESU LokSound Select DCC sound decoder, \$239.95

Manufacturer

Atlas Model Railroad Co.
378 Florence Ave.
Hillside, NJ 07205
shop.atlasrr.com

Era: 1940 to present (CGW model as decorated, to 1968)

Road names: Chicago Great Western, Canadian National, Erie, Lehigh & New England, Maine Central, and Southern Pacific. Three numbers per road name; also available undecorated.

Features

- Accurate magnetic couplers, mounted at correct height
- Blackened metal wheelsets
- Directional light-emitting-diode lighting
- Dual flywheels
- Flexible engineering plastic handrails
- Horizontal or vertical radiator shutters, as appropriate
- Minimum radius: 9.75"
- Separately applied horn, uncoupling levers, and other details
- Speaker installed on both DC and DCC versions
- Weight: 2.2 ounces
- Wire and molded grab irons

under either DCC or DC, so I tried it anyway. Around 7.5V, the locomotive produced start-up sounds. But when I turned the voltage down to 0 and back up again, the model no longer responded. Based on that, I have to concur with Atlas' recommendation. If you want to run this locomotive under DC, buy the DC version. You can always install a sound decoder later if you like.

This one's for you. It would be hard to find a prototype railroad that didn't own an Alco S-2. If you model in N scale in the diesel era, your railroad could probably use one or two, as well. Even if your road name isn't offered, Atlas sells an undecorated model ready for you to paint and decal. Whatever your prototype, this well-detailed, accurately modeled locomotive would look great building trains in your yard. – *Steven Otte, senior associate editor*



PIKO America HO Siemens Sprinter DMU

PIKO America is following the prototype in almost every way by bringing its model of Siemens Sprinter Diesel Multiple Units (DMUs) to U.S. modelers, just as the German equipment manufacturer Siemens brought its European DMUs to Southern California. The HO scale models are available with dual-mode sound decoders.

The Siemens Sprinter DMUs are part of the company's Desiro line of DMU/EMU commuter train sets. Available either with diesel engines or as solely electric units, the units are used around the world.

The North County Transit District in San Diego County, Calif., ordered 12 married pairs of Siemens Desiro VT642 commuter cars for its Oceanside to Escondido service inaugurated in 2008.

The DMUs are powered by a pair of 420hp diesel engines connected to the drive wheels through a five-speed automatic transmission using torque converters to connect the engine and transmission like an automobile or heavy truck.

Our sample model came equipped with PIKO's SmartSound Decoder 5.1. Modifications to the U.S. model include an upgraded air-conditioning system and coach-style seating.

The decoration is excellent, matching online photos down to the placards by the doors indicating no smoking; accommodation for strollers, bicycles, and wheelchairs; and onboard WiFi.

Destination boards in the side windows and in the nose indicate our sample train is bound for Oceanside Train Station. All labels are legible, and the painting is opaque with sharp color separations. Large tinted windows allow easy viewing of the interior.

Inside the model is a single can motor with a flywheel driving the front truck,

which has traction tires. The instruction pamphlet shows how to remove the shell for access to the interior to add passenger figures. A driver figure is included in the front of the set.

Simulated commuter-train couplers are included to mount on the ends of the model. There's also a drawbar and simulated "coupled" coupler if you want to combine more than one train set as the prototype does during heavy traffic.

I first tested the model on our staff Milwaukee, Racine & Troy layout, which has Shinohara code 83 track. There was some noise from the wheels, but it was the sound of metal rolling on metal. On my home switching layout's Atlas code 83 track, the larger spike head detail on the track created a drumming noise as if the model had derailed. As PIKO mentions on its website, the deep European flanges can interfere with some code 83 track. It operated well on an 18" radius loop of code 100 track.

Using an NCE PowerCab, I measured a starting speed of less than 1 scale mph at speed step 1, and a top speed of 73 scale mph, a bit higher than the prototype's rated top speed of 55 mph.

PIKO uses a slightly different function map for some of the Sprinter's sound features. Headlight, bell, and horn are in their usual Function 0-2 locations. Function 3 offers a short horn blast, F4 is an emergency horn, F5 starts the diesel engine sounds, F6 turns the interior lights on and off, and F8 mutes sound. You can sound a grade crossing sequence with F9, and there's a four-step volume control at F12. Piko recorded actual announcement sounds from the full-sized Sprinters, which are available on F14 through F22.

On DC, the PIKO SmartSound Decoder 5.1 required 8V to begin making sounds and 9.25V to get the model

Facts & features

Price: \$399.99 (DCC, sound), \$299.99 (DC, no sound), \$424.99 (three-rail, sound)

Manufacturer

PIKO America LLC
4610 Alvarado Canyon Road, Suite 5
San Diego, CA 92120
piko-america.com

Era: 2008 to present

Road names: North County Transit District Sprinter (sound-equipped units in two road numbers each, non-sound in one road number)

Features

- Can motor with flywheel
- Directional lighting including ditch lights and red markers
- PIKO SmartSound 5.1 dual-mode sound decoder
- Weight: 1 pound, 1.4 ounces

PERFORMANCE CHARTS

DRAWBAR PULL	3.8 ounces
	18 passenger cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
9.25 (start)	5
11	10
12	21
13	30
14.5 (max.)	43
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	<1
7	6
14	17
21	37
28	73

moving at 5 scale mph. At our power-pack's maximum voltage, 14.5V, the model moved at 43 scale mph.

This is another unique model from PIKO America. – *Eric White, senior editor*



ExactRail HO scale FMC 50-foot plug-door boxcar

A new run of FMC 5,327-cubic-foot capacity boxcars with 12-foot plug doors is available from ExactRail. The HO scale Evolution Series cars feature plastic and formed wire detail parts, metal wheelsets, and Kadee no. 58 couplers.

FMC produced the 5,327-cubic-foot capacity boxcar with 10'-6" and 12'-0" plug doors in 1979. Original owners of the 12'-0" plug-door cars included the Chattahoochee Industrial RR; East Camden & Highland (EACH); Minnesota, Dakota & Western; and New Orleans Public Belt RR.

Our sample is decorated as Green Bay & Western (GBW) no. 10044, part of the railroad's 10000 through 10099 series. The cars were originally part of EACH's 2351-2499 series, built by FMC under Lot 18011 in April 1979. The boxcars came to the GBW in three groups: 10000-10024 in October 1981, 10025-10049 in April 1982, and 10050-10099 in November 1983.

During their time on the GBW, the boxcars were typically assigned to paper loading at the Consolidated Papers plants in Biron, Stevens Point, and Wisconsin Rapids, Wis. The cars stayed on the GBW roster until 1991.

The ExactRail model has a one-piece injection-molded plastic body with a separate X-panel roof. A steel weight is glued to the car's interior.

Factory-applied parts on the boxcar include plastic ladders, stirrup steps, end tack boards, and door rods; wire grab irons; and see-through plastic crossover platforms. The bottom door tracks are separate plastic parts attached to stand-offs.

Underneath, the car has molded nail-able steel floor, brake pipe, crosstie, and

body bolster detail. The center sills, crossbearers, and narrow-style draft-gear boxes are molded as a single unit. The air reservoir, brake cylinder, control valve, and associated rods, pipes, and levers are molded as part of the casting but look like freestanding parts.

The draft-gear box covers are separate, screw-mounted pieces with shank wedges, striker casting, and nut-and-bolt detail. The ends of a few of the crossbearers cause the sill to bow out slightly.

The boxcar is equipped with American Steel Foundries 100-ton Ride Control trucks. The three-piece trucks consist of a bolster with brake beam and brake shoe detail and sideframes with plastic stubs. The sideframes have raised foundry data.

The faded orange and white paint on our sample is smooth and evenly applied. The car has bright orange patches in the upper left corner, where the EACH name and herald were located on the full-size car; under the GBW reporting mark and road number; and on the body panel below the last two digits of the car number, where the LEASED FROM ITEL RAIL stencil would have been. There's also a light gray patch in the white stripe on the right side of the car. This is where the map of Arkansas with callouts for LITTLE ROCK and the HIGHLAND INDUSTRIAL PARK was located on the prototype car.

Stencil placement matches prototype photos of GBW cars from this series that I found online. The Plate C stencil was omitted. It should be where the tack board is. On the GBW cars, the route and tack boards were on the door, not the car side.

I compared the model to prototype data published in the January 1983

Facts & features

Price: \$42.99

Manufacturer

ExactRail

525 E. 1860 S.

Provo, UT 84606

exactrail.com

Road names: Green Bay & Western (1980s EACH patchout, three numbers); Minnesota, Dakota & Western (1993 green repaint); Chattahoochee Industrial RR (1999 Oxide Red repaint in three road numbers and 1979 as-delivered gray scheme), East Camden & Highland (EACH, 1979 as-delivered scheme); Laurinsburg & Southern (green patchout, one number); Quebec Central (EACH and New Orleans Public Belt patchouts, one number each). Six numbers per scheme unless noted. Also available as undecorated ready-to-run model.

Era: April 1982 to 1991 (as decorated)

Features

- CNC-machined 36" metal wheelsets, in gauge
- Kadee no. 58 couplers, at correct height
- Weight: 4.3 ounces, .2 ounce too light per National Model Railroad Association Recommended Practice 20.1

Official Railway Equipment Register. Most of the dimensions match or are within scale inches of the prototype. The distance over the coupler pulling faces is approximately 2½ scale feet too short. That's because the model lacks the end-of-car cushioning units found on the prototype.

I tested the ExactRail FMC 5327 boxcar on our HO scale Wisconsin & Southern Troy Branch staff layout, which features 30" radius curves and no. 5 turnouts. The car ran smoothly while being pushed and pulled in a train, and it navigated turnouts in both directions without incident. The manufacturer's minimum recommended radius for the boxcar is 22".

Blog posts on the ExactRail website cover some of the production struggles the company has dealt with over the past few years. It's nice to see the firm have product in the pipeline again. If this factory-patched FMC 5327 boxcar is an example things to come, we have a lot to look forward to from ExactRail. – Cody Grivno, group technical editor

Keep time on your side

Hours and minutes regulate everything in railroading from train orders and track warrants to schedules and hours of service. A rail-roader's safety depends on timekeeping, making a reliable watch as important to him as his heartbeat. Here's how timekeeping, schedules, and rules allow trains to move safely.

First, some background. As railroads expanded and train speeds increased in the 19th century, governing scheduled movements by local time based on high noon was no longer safe. In 1883, railroad operating officials assembled in Chicago at the General Time Convention (a predecessor of today's Association of American Railroads) and adopted Standard Time, then a development no more welcome to many citizens than Daylight Saving Time has become now.

Officials also saw the need for rules uniformity, as railroads each developed their own rules before then. A committee formed in 1887 and produced the Code of Train Rules, which later became the Standard Code.

The Standard Code's first three rules deal with Standard Time, indicating the importance of timekeeping. Rule 1 describes how Standard Clocks are synchronized. Rule 2 requires employees to use a reliable watch while on duty, and Rule 3 has them compare it with a standard clock before going on duty. These requirements are still included in

all modern-day rule books, including the General Code of Operating Rules (GCOR) and Northeast Operating Rules Advisory Committee (NORAC).

In TTTO operation, accurate timekeeping joined schedules and train orders so crews could decide about their movements. Consider No. 1, a first-class westward train on single track whose schedule has it depart A at 8:55 a.m. and B at 9:15 a.m., arriving at C at 9:55 a.m. A freight is ready to depart C at 8:15 a.m. Its conductor holds a train order to run extra from C to A. Here's how he decides where to meet No. 1.

Rule 92 demands that a train not leave a station before its scheduled leaving time. Rule S-87 adds a margin of safety with its requirement to clear the time of opposing regular trains not less than five minutes. The conductor calculates his running time, which allows him to clear on a passing siding at B by 8:55 a.m. Knowing that the schedule holds No. 1 at B until 9:15 a.m., he proceeds.

Contemporary rules have a dispatcher making most movement decisions, but time remains important to safe railroading.

Issuing track warrants make a good example. The employee copying a warrant reads back the instructions the dispatcher has dictated, a practice rooted in train orders. After hearing them repeated correctly, the dispatcher says "OK" and gives the time to complete the warrant. It



Legendary railroad photographer Dick Steinheimer took this evocative photograph of a Tidewater Southern Ry. section foreman consulting his trusty Hamilton Railway Special near Escalon, Calif., in 1960. Richard Steinheimer photo

becomes effective when the employee adds these items to the warrant and repeats them. As with a schedule's departure time, the designated movement may begin at this time, not before.

The photo reminds us that safety requires other employees to heed schedules and times, too. *The Railroader*, an exquisite National Geographic short film, contains a wonderful scene of a Cumbres & Toltec Scenic track crew changing a tie, spike mauls marking time against the schedule of a regular train approaching in the distance. Track car line-ups informed workers of extra trains and rules required flag protection in both directions from a work site. Written authorities protect today's track foremen and signal maintainers. While the form of written authority varies, GCOR, NORAC, and individual railroad rules specify

how to authorize a vehicle to hi-rail from A to B or establish times and working limits within which trains may proceed only after the employee in charge first protects workers and equipment and then gives permission.

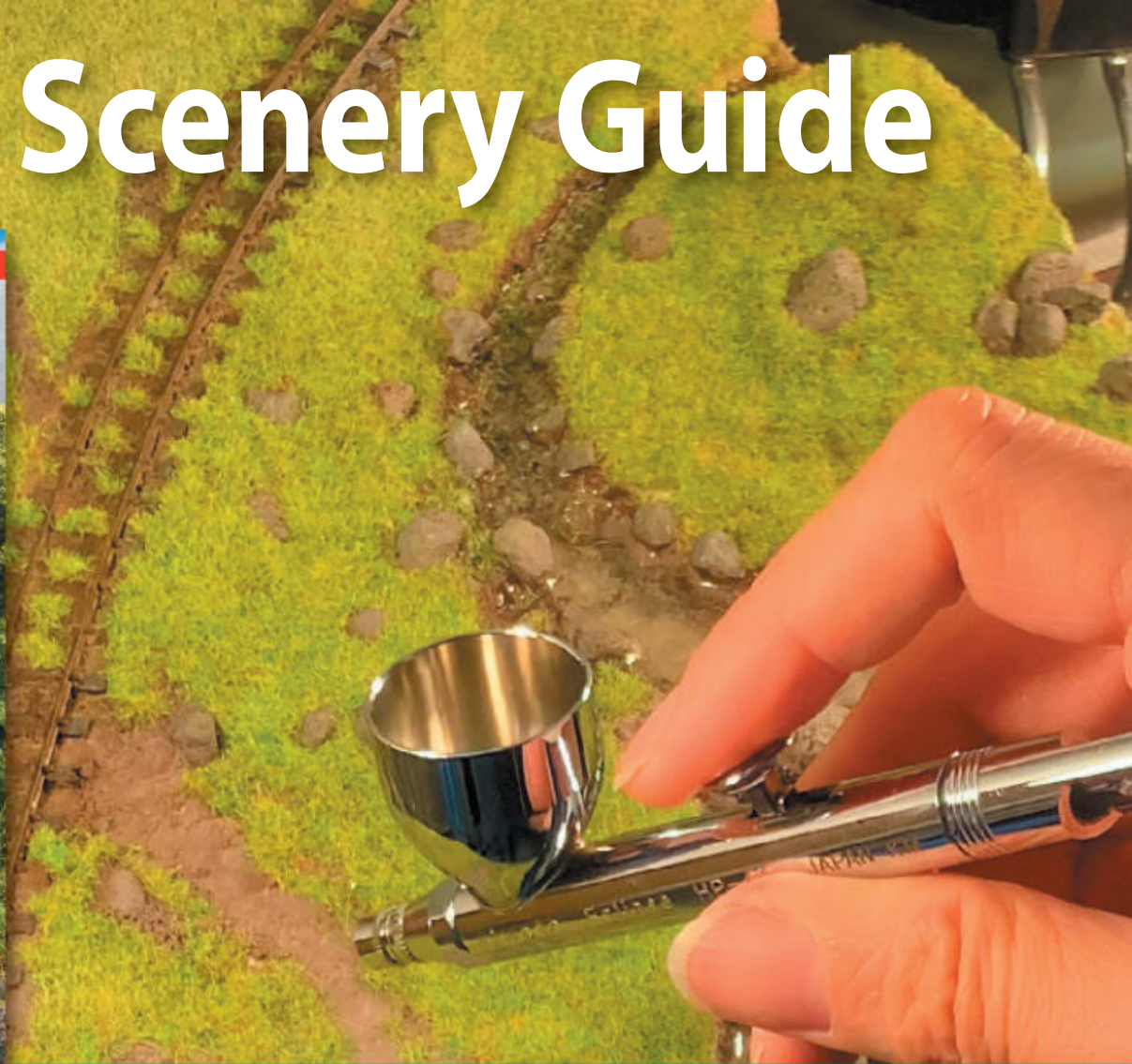
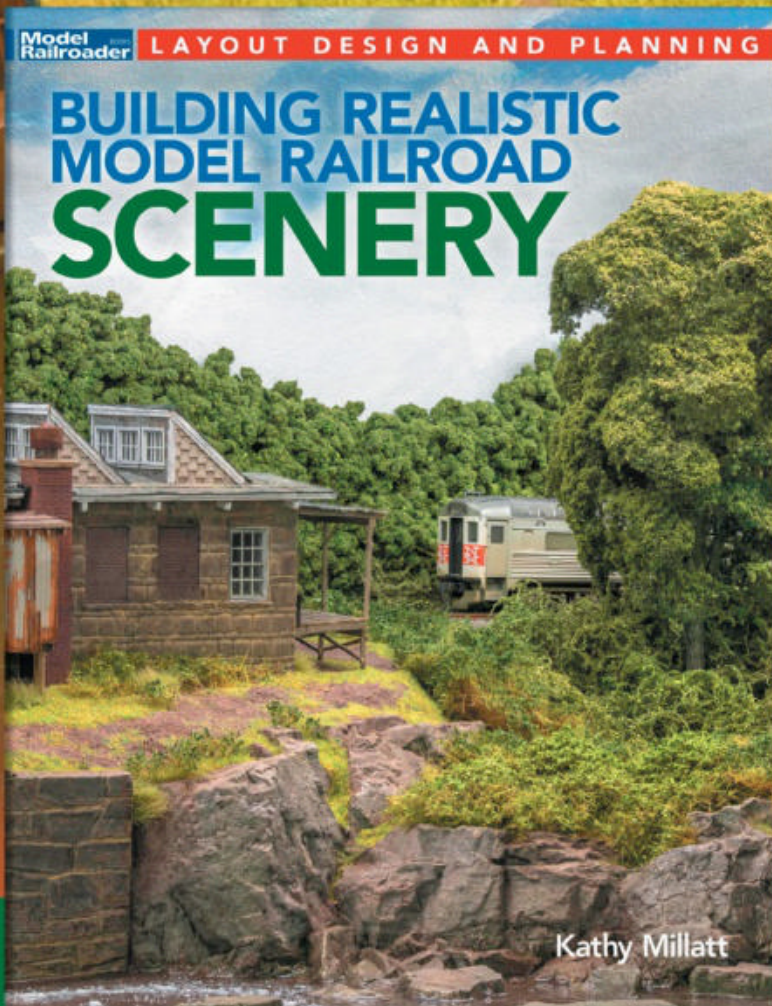
All this depends on watch accuracy. Classic railroad-grade Hamiltons, like the one pictured, could vary no more than 30 seconds from correct time. Periodically, designated watch inspectors checked accuracy and issued employees certificates to be submitted for their railroad's files.

Typical layout operation allows for most of these practices, whether using scale clocks or real time. Comparing watches as habitually as the rules demand is another. I end every crew briefing by doing so, honoring the familiar ritual of a conductor and engineer comparing theirs before starting a run. It's a good way to keep time on your side. **MR**



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Milwaukee Road Train No. 17, the westbound *Columbian*, crosses the Hansen Creek viaduct on the west slope of the Cascades in Washington in the summer of 1950. Kirk Reddie of Seattle, Wash., shot the photo on his N scale layout, using Helicon Focus software to increase the depth of field. The class EP-2 electric locomotive is an NJ Custom Brass import painted by Ron Nowka, and the cars are from Micro-Trains Line, Fox Valley, and NJ Custom Brass. The catenary poles are by Dick Volkman.



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Erie Lackawanna (EL) SDP45 no. 3641

leads a trio of Electro-Motive Division SD locomotives with a manifest freight through Paradise Curve, just east of Tobyhanna, Pa., in 1975. The through train picked up cars at Scranton and won't switch again until it reaches its destination of Croxton, N.J. Jeff Mutter's HO scale EL Scranton Division layout is set in 1975. The stream was created using Enviro-Tex resin, the trees are made from Scenic Express SuperTree armatures, and the treeline is 1/2" foam sheet covered with Woodland Scenics Clump-Foliage and mounted vertically. The locomotives are Athearn Genesis models equipped with SoundTraxx decoders. Jeff shot the photo.



On a cloudy day in late October, Canadian Pacific Alco S-2 no. 7091 is making its last drop of the day before heading to St Eugene, Ontario. Lloyd Henchey of St. Eugene photographed the scene on his HO scale layout. Lloyd made the backdrop on his computer using a high-resolution photo he found on the internet. The bare autumn trees are sagebrush from Scenic Express. The Alco switcher is an Atlas model.



CSX no. 1776, a General Electric ES44AC painted in a commemorative "Honoring Our Veterans" paint scheme, finds itself in an unusual job on this sunny day in Eastern Kentucky, pulling just two coal cars on the branch line to Green Raven Coal. James Brassill of Boulder Creek, Calif., built the HO scale diorama for Wm. K. Walthers' National Model Railroad Build-Off contest, but it will eventually become part of his shelf layout. The locomotive is a ScaleTrains.com model and the Coalporters are by Walthers. James shot the photo.





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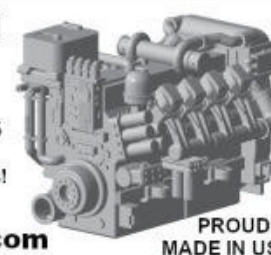
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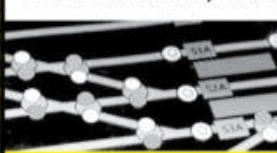
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All ads must be prepaid and pertain to the subject of model railroading.

Schedule of Events

AL, MOBILE: Model Train Show sponsored by South West Alabama Railroad Modelers (SWARM). Via Health, Fitness and Enrichment Center, 1717 Dauphin Street. March 5-6, 2022, Saturday 9:00am-5:00pm; Sunday 11:00am-4:00pm. Admission \$5.00, family \$10.00, under 10 free. Operating layouts, demonstrations, and dealers. Contact Charlie Boyer, 251-454-0572, email: charlieboyer66@att.net, or Glenn Samuel, 205-914-0693, email: gasamuel@aol.com (after 5pm)

CA, SIMI VALLEY: Swap Meet, Santa Susana Railroad Historical Society, Santa Susana Park, 6503 Katherine Rd., March 26, 2022, 8:00am-11:00am. \$2.00 donation, kids under 12 free. All scales, equipment, scenery, books and photos. For vendor table availability contact Chris, 805-494-1044. Website: www.santasusanapacific.org

CO, DENVER: Rocky Mountain Train Show April 2-3, 2022. National Western Complex, 4655 Humboldt St., Denver, 80216. Saturday, 10:00am-5:00pm, Sunday 10:00am-4:00pm. 2-1/2 acres of model trains, all scales, 30 layouts, 600 sales tables, clinics and more. Admission \$13.00, under 12/scouts in uniform FREE. Discounted tickets available for military/first responders. Free Parking. 303-364-0274. www.RockyMountainTrainShow.com information@RockyMountainTrainShow.com

CT, ANSONIA: Classic Shows, LLC will hold a Train and Toy Show on Sunday, April 3, 2022, from 9:00am-2:00pm at Warsaw Park, 125 Pulaski Hwy (Route 243). 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

FL, CRYSTAL RIVER: Regal Railways presents Toy Trains & Hobby Show. Florida National Guard Armory, 8551 W. Venable St., Crystal River, FL 34429. Saturday, March 26, 2022. 9:00am-2:00pm. Admission: \$5.00 adults, children under 12 free. Vendors, operating layout, and serving lunch items. Contact: Joe at 727-244-1341 or visit: www.regalrailways.com for more information.

FL, SARASOTA/BRADENTON: 43rd RealRail Train Show. February 19-20, 2022. Saturday 10am-4pm, and Sunday 10am-3pm. Bradenton Area Convention Center, 1 Haben Blvd., Palmetto, FL. Door prizes, interactive Lionel layout, kids' HO layout, Hobby Mart with 100 vendors. Adult admission \$8, 13 and under free w/paid adult. CDC guidelines apply. Contact David Fontaine for more information 941-685-2221 or david_f_34205@yahoo.com

IA, SIOUX CITY: 10th Annual Sioux City Cosmopolitan Train Show. Delta Hotel Center, 485 E. 5th St., South Sioux City, NE 68776. March 12th 9am-4pm & March 13th 10am-4pm. Adults \$7, kids 12 and under free w/adult. 2 seminars Saturday, 135 vendor tables, 12+ layouts & activities for all! Concessions, free parking. Info: John Koskovich, 712-898-6935, johnkoskovich@aol.com

IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the State Fairgrounds. Sunday, March 13, 2022. 10:00am-4:00pm. Early bird shopping starts at 9:00am for \$10.00. Admission fee \$5.00 from 10:00am-4:00pm. Free parking. Largest show in downstate Illinois! Over 35,000 sq.ft. of trains! For info call Ray at 217-544-4295 or visit www.springfieldtrainfair.com

IN, INDIANAPOLIS: Indy Junction 2022, May 18-22, 2022, NMRA Region Convention. Four Full Days, Three Regions (MWR, NCR, and MCR plus the RPM Conference). Three-Day Train Show, Clinics, Displays, Contest, Tours, Railyard Sale. \$95 primary registration; \$110 after April 27; \$25 family. Info@IndyJunction2022.org or IndyJunction2022.org

IN, MICHIGAN CITY: Duneland Model RR Club Train Show and Swap Meet. IBEW Building, 301 East 8th St., Michigan City, IN 46360. Sunday, February 20, 2022, 9:30am-2:00pm (Chicago time). Adults \$4.00, youths 6-13 \$1.00, 5 and under free. Contact: Dave Novak at trains86@frontier.com or 219-778-1186. (Masks are optional.)

IN, MIDDLEBURY: Essenhaus Train Show. Saturday, February 19, 2022, 9:00am-2:30pm. On the Das Dutchman Essenhaus campus, 240 US 20. All gauge, operating layouts, repairs, parts dealers, selling and trading. Display tables \$25.00 each. Admission cost \$3.00/person or \$12.00/family. (Children under 3 FREE w/adult). Essenhaus.com or call 800-455-9471 (x470).

KS, GARDEN CITY: Boot Hill Model Railroad Club Train Show. Finney County Exhibition Building, 409 Lake Ave., Zip: 67846. March 12 & 13, 2022. Saturday 9am-5pm and Sunday 10am-4pm. Admission: \$6 adults, 10 and under free w/adult. Good for both days. Food available on site. For additional information, contact Henry Turner 620-271-4306. Email hat9@cox.net or cwht@cox.net

MA, AUBURN: Worcester Model Railroaders Annual Show at Auburn Elks Club. 754 Southbridge St., Auburn, MA 01501. Sunday, February 27, 2022, 10:00am-3:30pm. Admission: \$5.00, children under 12 free. Handicapped accessible. Two floors of dealers, exhibits, modular layouts. Contact: Ralph Kimball, 508-868-5189, ralphkimball@charter.net or www.wmrr.org

MI, SALINE: The Ann Arbor Model Railroad Club 52nd Annual Train Show & Sale. February 19-20, 2022. Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Saline Middle School, 7190 N. Maple Rd., Saline, MI 48176. Admission \$6.00, under 10 free w/paid adult. 300+ tables, free clinics, free parking, shuttle buses. Masks required for entry. Contact: www.a2trainshow.com 734-426-5100 Wednesday evenings.

NC, ASHEVILLE: Asheville Train Show. Western North Carolina Agricultural Center. February 25-26, 2022. Friday noon-7:00pm and Saturday 9:00am-5:00pm. Admission \$6.00, under 10 free. All scales, all gauges, collectibles, artifacts, operating layouts, hundreds of vendor tables. More: www.Asheville-Trainshow.com

NJ, BRICK: ECTP and Collectibles LLC presents The Brick Train Show. Elks Lodge, 2491 Hooper Avenue, Brick, NJ 08723. Sunday, March 6, 2022, 9:00am-2:00pm. Admission: \$6.00; under 10 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on The Brick Show.

NJ, CLARK: Jersey Central Train Show & Sale. Mother Seton Regional High School, 1 Valley Road, Clark, NJ 07066. Sunday, March 6, 2022, 9:00am-3:30pm. Admission: \$5 adults, children under 12 free, \$10 family. Model trains, railroadiana, photos, slides, books and videos. Refreshments available. For information: Heinz Ricken, hicken@gmail.com, 908-272-3910, or Mitchell Dakelman, dakelmanm@aol.com, 908-208-2522

NJ, WAYNE: ECTP and Collectibles LLC presents The Wayne Train Show. P.A.L. Hall, 1 Pal Drive, Wayne, NJ 07470. Sunday, April 10, 2022, 9:00am-2:00pm. Admission: \$7.00; under 10 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on The Wayne Show.

NY, HOWARD BEACH: METCA/TCA Train Show. Saturday, March 5, 2022. St. Helen's Church Hall, 8309 157 Ave., Howard Beach, NY 11414. METCA Members admitted free at 8:00am, Public at 9:00am. Admission: \$5.00 per person 16 and up. (METCA Members free.) Show runs until 2:00pm. Info: metcamail@metca.org or Bob Amling, 718-541-8619

OH, MT. HOPE: CJ Trains Spring Train and Toy Show. Mt. Hope Event Center, 8076 St. Rt. 241, Zip 44660. Saturday, March 19, 2022, 10:00am-4:00pm. Admission: \$5.00, under 12/FREE. \$25/dealer table, 600+ 8' dealer tables. Contact: Jon Ulbright, PO Box 446, Wooster, OH 44691. 330-262-7488, cathijon@sssn.net or www.cjtrains.com (GPS info: 8076 St. Rt. 241, Millersburg, OH 44654)

OH, TOLEDO: Greater Toledo Train & Toy Show. Owens Community College (SHAC), 30335 Oregon Rd., Perrysburg, OH 43551. Sunday, March 13, 2022, 11:00am-3:00pm. "Early Birds" 9:00am-3:00pm. Adults \$7, Early Bird Adults \$10, 12 and under FREE w/ paid adult. Contact: Randy Ramsey, 1566 South Ave., Toledo, OH 43609, 419-215-4181, email: toledotoymasters@gmail.com, website: www.toymasters.org

OR, PORTLAND: Willamette Model Railroad Club Swap Meet. Kliever Armory, 10000 NE 33rd Dr., Portland, OR 97211. Saturday, March 12, 2022. 9:30am-3:00pm. Admission: \$5.00 Adults, 12 & under free with paid adult. Free Parking. Food available. Website: wmrrc.com For information or Table Reservations contact: Capt. Brigg Franklin, wmrrcswapmeet@gmail.com, or 360-241-5908

PA, NEW CASTLE: BLRHS Frosty Rails Train Show. Sunday, February 13, 2022, 10:00am-3:00pm. Shenango Twp VFD Social Hall, 2424 E. Washington St., Zip: 16101. Next to Dunkin Donuts. Adults \$5.00 (\$4.00 if you mention Model Railroader ad). Children under 12 free. Tables \$25 each. For show info: blrhsinc.org or table reservations: George Alberti, galberti990@gmail.com 724-581-5560

UT, OGDEN: 32nd Annual Hostlers Model Railroad Festival. Ogden Union Station, Historic 25th St. & Wall Ave. March 4-5-6, 2022, Friday 3:00pm-8:00pm; Saturday 9:00am-6:00pm; Sunday 9:30am-3:00pm. Admission: adults \$7, adult weekend pass \$10, children 12 and under FREE. Layouts - all scales, many vendors, LEGO layout. Biggest train show in the Intermountain West. Information: 801-394-4952, www.hostlers.info

VT, ST. ALBANS: Vermont Rails Show. Collins Perley Sports & Fitness Center, Interstate 89, Exit 19. Saturday, March 12, 2022, 10:00am-4:00pm. Adults \$6.00, children 6-12 \$2.00, children under 6 free. Sponsor: NWV Model Railroad Association. Contact: Ron Piro, 802-598-0905, www.nwvrailroad.org

WA, CHEHALIS: Lewis County Model Railroad Club, Annual Spring Train Show and Swap Meet. Southwest Washington Fairgrounds, Blue Pavilion Building, 2555 N. National Ave., Chehalis, WA 98532. April 2-3, 2022. Saturday 10:00am-4:00pm and Sunday 10:00am-2:00pm. Admission \$5.00. Free parking. Contact information: Ted, 360-985-7788 or TedsTrains@LewisCounty.com

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

WI, LA CROSSE / ONALASKA: La Crosse & Three Rivers Railroad Club's 41st Annual Model Railroad Show. Omni Center, 255 Riders Club Road, Onalaska, WI. May 19-20, 2022. Saturday 9:00am-5:00pm, Sunday 10:00am-4:00pm. Adults \$8.00, \$7.50 with a non-perishable food item, children 11 and under free w/ adult. Info: Belva Thompson, 608-780-7364

WV, CHARLESTON: KVRRA Model Railroad Show. Charleston Coliseum & Convention Center. 200 Civic Center Dr., Charleston, WV 25301. March 12-13, 2022. Saturday, 10am-5pm, Sunday, 10am-3pm. Admission \$5.00, under 12 free. Tables \$30.00. Clinics, layouts, new and used equipment for sale. Website: www.kvrailroad.org Contact Joe: 304-539-6721 or kvrrailroad@gmail.com

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

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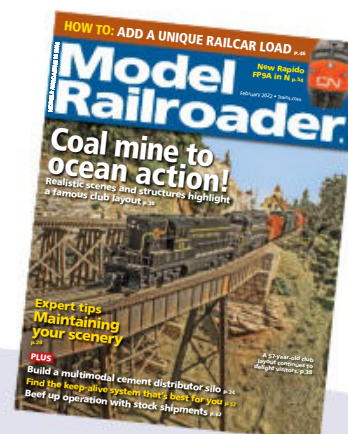
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Making a difference



It's obvious that Ken Chick and George Van Duyne are having a great time as they operate Tom Dart's On3 Durango & Silverton (see *Model Railroad Planning 2022*). As intense as op sessions can get, making and maintaining friendships is still important. Scott Kremer photo

There are two basic ways to experience our great hobby. No, I'm not going to discuss freelancing vs. prototype modeling, as they are subsets of a larger concern that I want to chat about with you on this occasion, and that is the social aspect.

Some of us are, for whatever reason, lone wolves. We tend to build one-person model railroads or restrict operating sessions to a small group of close friends. We don't attend conventions, have almost no presence on chat groups or social media, and so on. Others are more gregarious and see the hobby as an opportunity to get together with like-minded friends during op sessions, National Model Railroad Association meets and conventions, Railroad Prototype Modelers seminars, and even occasional breakfast gatherings and vacation trips.

To each his or her own.

Something that surprised me, but shouldn't have, when I became a model railroad magazine editor was the – I'm

searching for a word – respect or admiration that other modelers had for magazine staffers. We were all greeted like long-lost friends wherever we went, and that included trips overseas. I was humbled by these gestures, and I still am. Readers seem to think we know more about the hobby than we do, but our real talent is in knowing someone who does know the answers when we don't.

This, well, "courtesy" extends to the better-known modelers, who are usually better known because they often write about their model railroads. I've seen Paul Dolkos, Allen McClelland, Lance Mindheim, Pelle Søeborg, and the like treated like rock stars at model railroad gatherings.

That applies to many manufacturers and importers, too. George Sellios of Fine Scale Miniatures, Art Fahie of Bar Mills, the late Lee Riley of Bachmann, the always effervescent Jason Shron of Rapido, the staff members of several DCC product makers – these ladies and gentlemen

and their professional peers are sought out at conventions and train shows to call upon their expertise or just to say hello to them. One of the great benefits of being associated with the model railroad industry for as long as I have is that I can count many of these folks as good friends.

I was recently chatting with one of them, and the opposite of this camaraderie surfaced. We were reminiscing about times past, and he recalled the first time he displayed a diorama at a train show held in conjunction with a multi-region NMRA convention. He was understandably a bit nervous about how it would be received. Two exhibitors came over to tell him how much they enjoyed his display, which surprised and delighted him.

But other exhibitors were

what he perceived as "just plain rude" to what was then a young fellow just trying to share his enjoyment of our hobby and developing modeling skills with fellow model railroaders. Little did they know that this young lad would one day become a well-known supplier of plastic kits.

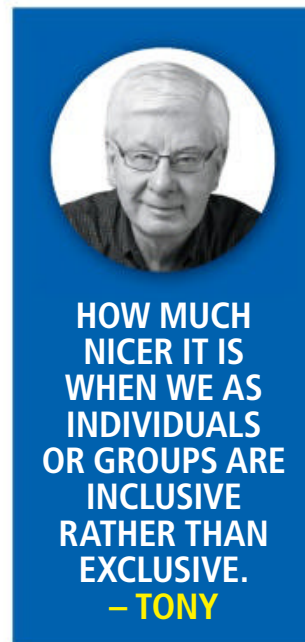
After the show was over and my friend attended the banquet, he found an empty seat at a table but was totally ignored by others seated there. One was a famous model railroader and his friends; clearly, the newcomer was out of his league. I'm not sure I would have had the nerve to speak up, either.

A hobby means different things to different people, but there is one aspect of any hobby that is common to us all: It is a place of refuge. We indulge in leisure-time activities to carry our minds away from everyday concerns. In that spirit, perhaps it's time to reflect on how much nicer it is when we as individuals or groups are inclusive rather than exclusive.

We do not have a pandemic of ill will on our hands, but that tale from some time ago has recurred in recent times in venues including conventions large and small,

seminars, organizational meets, and even less formal gatherings. We can all recall instances of feeling unwelcome or of being unwelcoming. As a real pandemic subsides, we can ensure the social side of our hobby is not neglected.

Together, let's try to make a difference. **MR**





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