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train set in HO scale p.12

October 2023
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Industries that inspire

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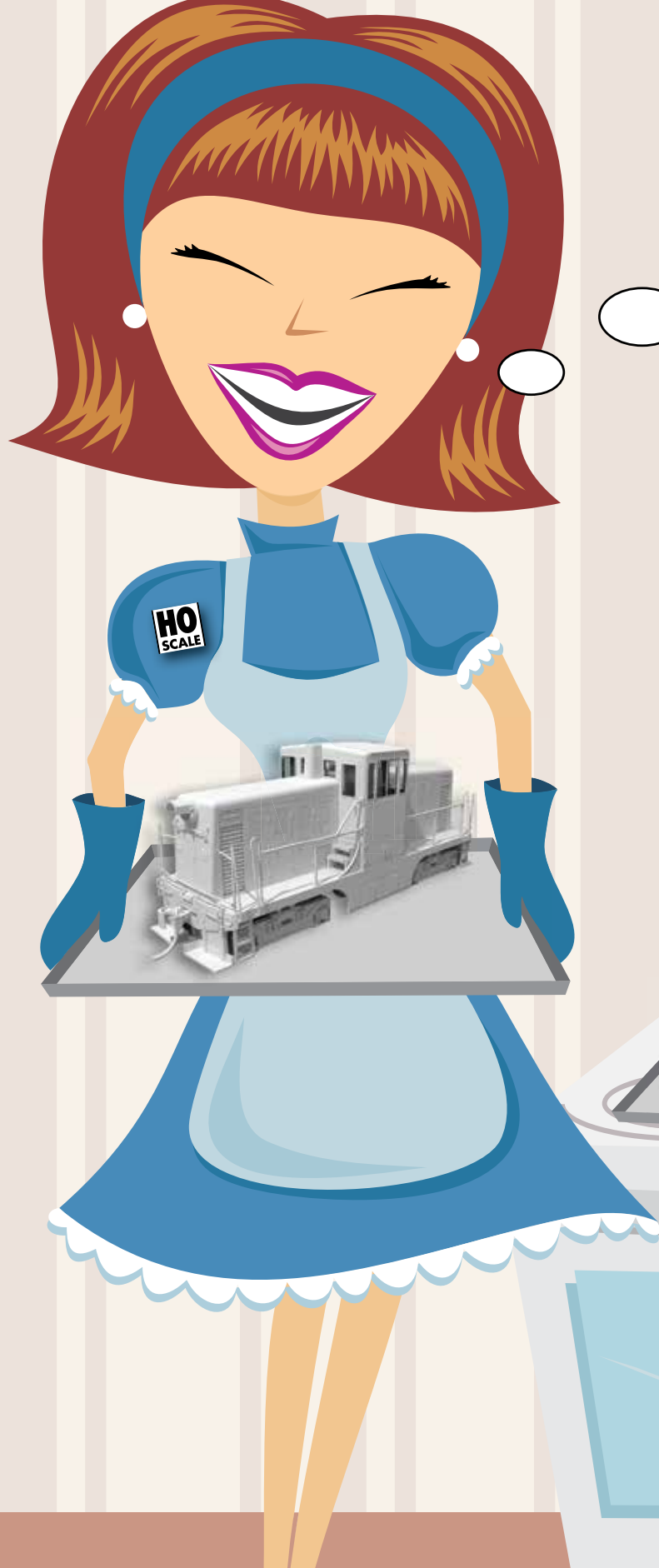
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Joe Green's HO scale
paper mill model
would make a great
layout. See how. p. 42

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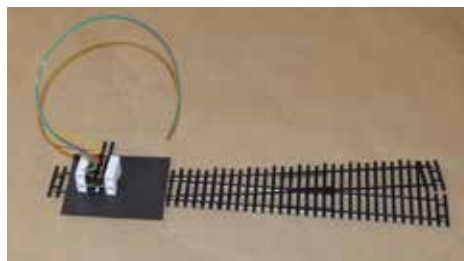
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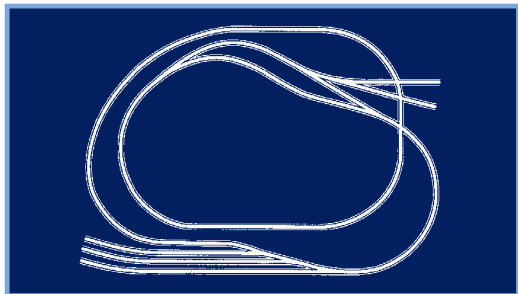
In November, visit a huge club layout that raises money for a good cause. Plus, add lights to your layout, paint a resin car, pick up scenery tips from an expert, and more!

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N SCALE CODE 80: N-7 TWICE AROUND VIA "UP AND OVER"

From Book #6: *Introduction to N Scale Model Railroading*

Minimum Table Size Required: 32" x 45"

N Scale Item #11007

Products Required: Straight sections, radius sections, turnouts, a crossing, bumpers, insulated joiners and terminal joiners, necessary electrical components

If you enjoy watching a long train work its way up and down the grades of a long winding main line, the N7 is the layout for you. On this layout, yard tracks are available for breaking up and storing long trains, and a passing track with two industry spurs is available to provide additional operating diversions.

HO CODE 80/100: HO-7 THE JUNIOR PRETZEL

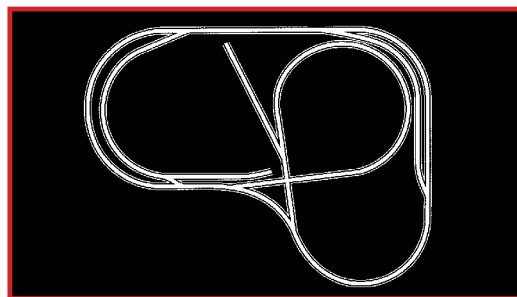
From Book #9: *Beginner's Guide to HO Model Railroading*

Minimum Table Size Required: 6' x 8'

Code 83 Item #10007-83, Code 100 Item #10007

Products Required: Straight sections, radius sections, Snap-Switches, rerailers, terminal sections, a crossing, bumpers, rail joiners and the necessary electrical components

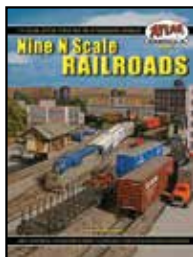
Since it is built on an extended platform, there are many possibilities with the HO-7; such as longer runs, longer trains and more realistic operations.



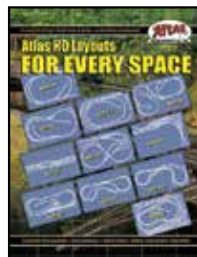
Books & Instructional Guides



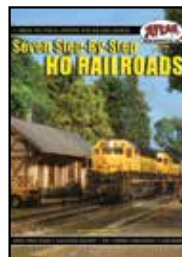
Item #6: *Introduction to N Scale Model Railroading*



Item #7: *Nine N Scale Railroads*



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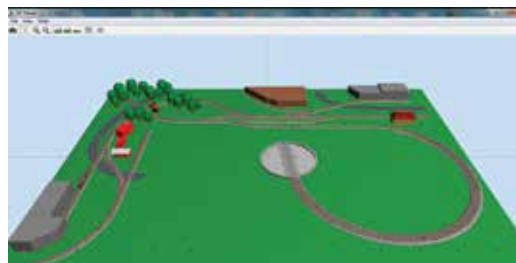
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HO scale freight car kit roundup

Cody Grivno examines the current offering of factory-decorated HO scale freight cars from various manufacturers, including Accurail, Atlas Model Railroad Co, and ScaleTrains. Cody even discusses out-of-production offerings in this category and where to find them, from hobby shops to model railroad swap meets and even online auction sites.



Olympia & Sand Creek, Episode 14: Details inside the passenger car

In the latest episode of the Olympia & Sand Creek series, host David Popp resurrects a structure from the original iteration of the Olympia project, then moves on to detailing an Olympia & Sand Creek passenger car.



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.

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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!

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Integrating industries and railroading

You can't have a railroad without something to transport, so railroads and industry have been linked since the beginning of railroading as a commercial venture. Modeling railroads is improved by a bit of knowledge of industries and how they work, and this issue has a pair of stories that will help fill that gap.

We often build our first layouts with a hodgepodge of industries, choosing building kits that look interesting. As we rebuild, or start over, we may want to focus our interests. It may be in a particular industry, or a freight car type, or a region or era.

Of course, this is most important if we're interested in building models of railroads, as opposed to a place to enjoy running trains.

If we want to model railroading, we need to model

the industries being served as the two are intertwined.

Joe Green's story on page 42 shares how he built a model of the huge Westvaco paper mill as part of his layout, but he realized the operating potential was there for a single-industry layout. Paper mills use huge quantities of materials to produce paper, which is often shipped by rail because of its bulk and weight.

Joe explains how research into paper manufacturing helped him design the plant and choose the rolling stock that serves it, as well as how operations at the plant should work, all to create a more believable experience.

Many railroads exist because a product needed a route to market, and rails were the most practical solution. Logging and mining were early examples of

products that made sense to ship by rail, sometimes reaching right into the forests and to the mine heads.

Model Railroader has run many stories on logging and mining railroads. But those aren't the only industries tied tightly to railroads. Steel-making uses huge quantities of raw materials (most of it from mines), and ships products that are large and bulky – great for rail movements.

Learning more about these industries helps us to decide if they're what we really want to model, then helps us create something that will sustain a lasting interest.

Our other layout story this month deals with the industrial Northeast. Up into the 1960s, a great deal of manufacturing was centered in the northeastern part of the United States. If you'd rather build structures than



mountains, this might be the locale for you. Jim Leighty was inspired by childhood railfanning to create this layout. You can learn more on page 32.

No matter what you choose to do, you're going to need a place for freight cars to go on your railroad. What industries flip your switch?

Model Railroader

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HO scale



F59PHI diesel locomotive. This Athearn HO scale modern passenger locomotive is in hobby shops now. The Electro-Motive Division F59PHI is decorated for Metra (Chicago & North Western, Milwaukee Road, and Rock Island heritage schemes), Amtrak (Pacific Surfliner, "Be Track Smart," and Amtrak California schemes), Metrolink, and North Carolina Department of Transportation. The unit features see-through

window glazing, radiator fans, and dynamic brake fans as applicable. Factory-applied details include the air horn, wire grab irons, and Celcon handrails. Light-emitting diode lighting includes headlights and ditch lights. Direct-current models with a 21-pin NEM connector are priced at **\$174.99**. Versions with a dual-mode SoundTraxx Econami decoder sell for **\$244.99**. Athearn Trains, 800-338-4639, athearn.com

All Electronics has ceased operations

All Electronics announced earlier this year that it was going out of business. The company, which has sold new and surplus



electronic parts and supplies for 56 years, is located in Van Nuys, Calif. Many hobbyists have relied on the company for specialty parts and

equipment. As of press time, the company was having a clearance sale and expected to close its doors by the end of August 2023.

HO scale locomotives



- **Boston & Maine 2-8-4 Berkshire steam locomotive.** Boston & Maine and Atchison, Topeka & Santa Fe. One to four road numbers per scheme. Also available painted but unlettered. Road-specific details. Optional piping shroud. Factory-applied handrails, ladders, piping, brass bell, air tanks, and more. Direct-current model, \$599.99; with dual-mode Paragon4 sound decoder, \$699.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com



- **Electro-Motive Division MP15AC diesel locomotive.** New York & Atlantic, GMTX, Soo Line, Southern

Pacific, and Union Pacific. Two or three road numbers per scheme. Railroad-specific details, including horn, bell, number boards, fuel tank, and light package. See-through cab windows with detailed cab interior. Light-emitting diode headlights, ditch lights, ground lights, and beacon as appropriate. Direct-current model, \$234.99; with dual-mode SoundTraxx Tsunami2 sound decoder, \$334.99. Athearn Trains, 800-338-4639, athearn.com



- **General Electric C40-8M diesel locomotive.** Quebec, North Shore & Labrador; BC Rail; and Canadian National. Multiple road numbers per scheme. Prototype-specific details including bell position, horn, headlight and ditch light style, battery box location, and more. Factory-applied details including air filters, pipes, and

etched-metal see-through steps. Molded traction motor cabling. Direct-current model, \$239.95; with ESU LokSound 5 decoder, \$349.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com

HO scale freight cars



- **72-foot modern refrigerator car.** Burlington Northern Santa Fe, ARMN, Cedar Grove Logistics LLC, CIT Group/Capital Equipment Finance, and Trinity Industries Leasing. Three or six road numbers per paint scheme; also available undecorated. Revised plug doors, 100-ton trucks with 36" metal wheels, and smooth roof. Separate end-mounted refrigeration unit. Walther's Mainline, \$34.98. Wm. K. Walther's Inc., 414-527-0770, walther's.com



• **Milwaukee, Racine & Troy 40-foot single-sheathed boxcar kit.** Oxide Red with original square herald. One road number. Factory-installed brake wheel and running board casting. Molded stirrup steps, grab irons, ladders, and tack boards. Underbody with molded floorboard, crossmember, and lateral detail with modeler-installed fish-belly center sills and draft-gear box covers. Free-standing air reservoir, brake cylinder, and control valve. \$27.99. Produced by Accurail, available from the Kalmbach Hobby Store, KalmbachHobbyStore.com



• **National Steel Car 3294 mechanical reefer.** Canadian Pacific (script herald as-delivered, late script herald, and Multimark repaint scheme). Available in at least one single car and one six-pack per scheme; also offered painted silver but unlettered. Factory-applied grab irons and wire stirrup steps. Separate door posts, door latches, and uncoupling levers. Fully detailed underbody including piping and mechanical equipment. Optional sound unit available separately. Single car, \$54.95; six-pack, \$329.70; reefer sound board with speaker, \$19.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com



• **Pennsylvania RR N-8 caboose.** Penn Central, Conrail, and Pennsylvania RR (Central Region, Central Region with train-phone system antenna, Eastern Region, Lake Region, Pittsburgh Region, Philadelphia Region, plain Keystone, New York Region, and Western Region). Two road numbers per scheme. Factory-applied brake wheel, air tank, brake cylinder, triple valve, and grab irons. Without train-phone system antenna,

HO scale



Electro-Motive Division GP40 diesel locomotive. The latest run of the Atlas four-axle diesel locomotive includes units painted for CP Rail; Atchison, Topeka & Santa Fe; CSX ("Bright Future" and maintenance-of-way orange schemes); Maine Central; Missouri-Kansas-Texas; and Port Harbor. Each scheme is offered in one to three road numbers. The HO scale Master Line model features factory-applied windshield wipers, metal grab irons, fine scale handrails, uncoupling levers, snowplow, m.u. and trainline hoses, and drop steps. The cab interior is detailed with a crew. Modeler-installed parts include an electrical cabinet air filter box and cab sun shades. Direct-current versions retail for **\$189.95**, and models with a dual-mode ESU LokSound sound decoder sell for **\$299.95**. Add **\$10** for models with ditch lights. Atlas Model Railroad Co., 908-687-0880, shop.atlasrr.com

\$32.95; with antenna, \$39.95. Bowser Manufacturing Co. Inc., 570-368-2379, bowser-trains.com



• **Boston & Maine 50-foot wood milk car kit.** Boston & Maine (Thermo King, as-delivered, and rebuilt versions). Version-specific details such as vent and door placement and refrigeration equipment. Cast-resin kits include trucks and decals but no wheelsets or couplers. Funaro & Camerlengo, 570-224-4989, fandckits.com

HO scale passenger equipment



• **Southern Pacific 3/4 dome lounge.** Southern Pacific (*Daylight* scheme; general service, and *Overland* scheme), Amtrak, and Canadian Pacific. Two underbody arrangements. Two fully-detailed interior configurations with multi-color decoration. Light-emitting diode interior lighting. Conditional release. \$159.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com

HO scale structures



• **Vintage trackside structure kits.** All-new models. Includes blacksmith shop with coal box, small shed, pump house, water closet/outhouse, and engineering office with coal box. Plastic parts molded in tan, dark gray, and concrete colors. \$27.98. Walthers Cornerstone. Wm. K. Walthers Inc., 414-527-0770, walthers.com

N scale locomotives



• **General Electric AC4400CW diesel locomotive.** CSX, BNSF Ry., Canadian Pacific, Ferrosur, Southern Pacific, and Union Pacific. Multiple road numbers per scheme. Light-emitting diode directional headlights, ditch lights, and number boxes. Factory-installed wire grab irons, trainline hoses, m.u. clusters, and more. Detailed cab interior with floor, rear wall, seats, and controls. Rivet Counter line. ScaleTrains, 844-987-2467, scaletrains.com

Rapido Amtrak RTL Turboliner train set



Speeding passengers to their destinations on the Milwaukee, Racine & Troy, the new Amtrak RTL Turboliner from Rapido Trains makes quite the impression. The train set, offered with or without sound, features countless factory-installed details and five bags full of modeler-installed optional detail parts.

The RTL Turboliner, based on the earlier RTG Turboliners built by ANF Industrie in France, was built by Rohr Industries in Chula Vista, Calif., between 1976 and 1977. The trainsets entered service in 1976, operating on the Empire Corridor between New York City and Buffalo, and later on the *Adirondack* to Montreal.

In 1994, Amtrak rebuilt one RTL set into what the passenger carrier called an RTL-II. This set featured new, more efficient Turbomeca 1,600-horsepower turbines. Other work was done including transmission, truck, drive shaft, and brake overhauls. All of the train's coaches were refurbished at Amtrak's

Beech Grove, Ind. shops, and their interiors were remodeled.

The RTL-II was slated to be rebuilt into an RTL-III at the Super Steel Schenectady plant in New York, but the project was terminated before work had begun. Out of the original seven trainsets, only six power cars and nine coaches were completely rebuilt into RTL-III standards.

Rapido's RTL Turboliner sets each include two power coaches, and all except for the X2000 Demonstrator include three coaches. Each power coach features two trucks with the front being powered and the rear being a trailer. Both power coaches and the individual coaches have die-cast metal frames and injection-molded plastic shells. The front pilot includes a plow as well as a removable coupler cover. The set includes both dummy and magnetic couplers for the modeler to install if desired. Factory-installed windshield wipers, handrails,

"skate" antenna, horn, and exhaust stack with lift rings round out the body details on the cab end of the power coach. In addition, the power coach's cab interior, as well as the interior of the rest of the coach and three coach cars, are detailed and painted.

The underbody of the power coach features full detailing including the casing for the hydropneumatic, drive shaft, and fuel tank. The trucks are detailed and have third rail shoes for operation in and around New York's Grand Central Terminal and Penn Station.

Each end of the coaches and the rear of the power coaches feature plastic diaphragms, marker lights, and painted receptacles. All of the couplings between cars in the set feature swinging NEM-style draft gear boxes and dummy couplers. If desired, Kadee No. 17 NEM 362 short magnetic couplers (sold separately) can be used in place of the dummy couplers. A set of open nose coupler doors is also included.

Atlas N scale Trinity 3230 PD covered hopper



A Trinity 3,230-cubic-foot capacity Pressure Differential (PD) covered hopper has joined the Atlas N scale freight car fleet. The newly tooled Master Line model features a plastic body; etched-metal running boards; and many separate, factory-applied parts.

The 3230 PD covered hopper is based on a design developed by Thrall, which was acquired by Trinity in 2001. The full-size cars transport cement, fly ash, and other dry bulk ladings.

Our sample is decorated as Trinity Industries Leasing Co. 30116, part of the

TILX 30116 through 30137 series built by TrinityRail under Job 3070 in August 2006. These cars are still in service today.

The Atlas Master Line model has a multi-piece injection-molded plastic body. Up on top, the covered hopper has a one-piece etched-metal running board with plastic corner grab irons, three hatch covers with molded cam lever detail, and two molded safety vents.

The freestanding end cages have molded ladder rungs and grab irons; the crossover platforms are factory-applied see-through parts. There was flash on a few of the ladder rungs. This could easily be removed with a hobby knife blade.

The brake system had some high and low points. The formed wire lines



Our sample is neatly painted in Amtrak's red, white, and blue phase 3 early paint scheme. All of the lettering, markings, and stencils match prototype photos. The sequence of equipment road numbers matches a prototypical counterpart train set.

Rapido included multiple separate detail parts in resealable polybags to modify the equipment to certain time periods. These include air horses, door step protectors, mirrors, side intake grills, and late-style windshields.

I compared the HO scale power coaches and coaches to prototype drawings from Rohr, found in *Trail of the Turbo* by Dale A. Johnson. All of the model dimensions closely follow published data.

Both power coaches have their own ESU LokSound 5 decoders which are set to address 3 out of the box. The sounds are from real recordings of RTL Turboliners in operation. After verifying that

attached to the air reservoir and control valve matched prototype placement. However, the details on the plastic brake wheel lacked crisp definition.

An air line, molded in a gray similar to the body color, is attached to the bottom of the sill on the right side. A brake rod, which looks slightly oversized, runs the length of the sill on the left side.

The bottom of each hopper bay is fitted with an aerator assembly that's painted aluminum. The various pipes, hoses, laterals, compression couplings, dust caps, and other details are plastic parts molded in aluminum. The 3" pipe was a bit wavy on our sample.

The light gray paint on the covered hopper is smooth and evenly applied. The placement of the lettering and yellow FRA-224 stripes matches prototype photos of other cars from this class. A

Facts & features

Price: Direct-current five-unit set with 21-pin plug, \$749.95; direct-current two-unit set, \$449.95; five-unit set with dual-mode ESU LokSound 5 sound decoder, \$949.95; two-unit set with sound decoder, \$649.95; single coach, \$129.95

Manufacturer

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

Era: 1976 to 2001 (as decorated)

each function on the individual power coaches operate, it's recommended to either change each power coach to its own address or both to the same address. The DCC and sound equipped Turboliner can be operated in direct current, but the lighting and sound functions are limited.

Each power unit began moving at .4 scale mph at speed step 1. A speed test through Lake Beulah on the Milwaukee, Racine & Troy staff layout had the train reaching a top speed of 123 scale mph at speed step 28. The prototype RTL-I had a rated top speed of 125 mph. Though only one truck on each powered unit is geared and powered, with two units on the train, it had no problem hauling the three passenger cars at speed. The

Road names: Amtrak (phase 3 early, phase 3 late, phase 5, and X2000 demonstrator).

Features

- Detailed underbody
- Each power car has one powered truck
- Tinted windows and full interior details
- Light-emitting diode directional headlight, ditch lights, marker, emergency, class, and interior lights
- Factory-installed grab irons
- Extra modeler-installed detail parts
- Power unit weight: 1 pound, .7 ounces; coach weight: 8.2 ounces

consist effortlessly climbed the 3% grade between Bay Junction and Skyridge on our MR&T staff layout. Rapido offers separate passenger cars, which were used on the prototype, and I'm sure the engines would be up for the task of adding a fourth coach.

If phase 3 is too early for your taste, Rapido also offers the Turboliner in phase 5, which was the paint scheme for the Turboliner Modernization Project. A two-power coach set is available in the X2000 Demonstrator scheme, where the two units towed the Swedish X2000 across Amtrak's network.

If you have any interest in Amtrak equipment, check out this RTL-I train set. — *Bryson Sleppy, associate editor*

few small warning labels were omitted. The model's dimensions match or are within scale inches of prototype drawings published in TrinityRail literature.

At 0.9 ounce, the car matches National Model Railroad Association Recommended Practice 20.1. The Master Line car is fitted with body-mounted couplers that are at the correct height.

The bearing caps on the 100-ton trucks are painted blue to represent Brenco Class K 6½ x 9 bearings, commonly used on cars with a 286,000-pound Gross Rail Load. The reporting mark and road number on the side-frames is a nice touch.

I thought Atlas did a nice job on the Trinity 3230 PD covered hopper. If you model the modern era, you'll want to add a few of these cars to your freight car fleet. — *Cody Grivno, senior editor*

Facts & features

Price: \$47.95

Manufacturer

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

Era: August 2006 to present, as decorated
Road names: Trinity Industries Leasing, Chicago Freight Car, CIT Group, General American, Greenbrier Management Services, and Roanoke Cement. Four road numbers per paint scheme.

Features

- 36" metal wheelsets, in gauge
- Body-mounted couplers, at correct height
- Weight: .9 ounce, correct per National Model Railroad Association Recommended Practice 20.1

Aurora Miniatures HO Gunderson boxcar



A newly tooled Gunderson

6,276-cubic-foot capacity 50-foot hi-cube boxcar is the latest release from Aurora Miniatures North America. The HO scale model, offered in six road names, features injection-molded plastic construction, prototype-specific trucks, and many freestanding details.

The 6276 50-foot hi-cube boxcar has been a part of the Gunderson (Greenbrier) product lineup since 2004. The Plate F boxcar, fitted with a 12-foot plug door, has been produced at the car-builder's factories in the United States of America and Mexico.

Our sample is decorated as TTX Corp. 506729, part of the Chicago-based railcar pooling company's 506422 through 506921 series built by Greenbrier (Gunderson Concarill) under Lot R40975 between June 2016 and January 2017. Among the commodities handled in the 100-ton cars are aluminum billets, ingots, malt liquors, newsprint, printing paper, pulpboard, and wood pulp.

The boxcars are part of TTX's class XGH52A. To translate, X = boxcar, G = Gunderson/Greenbrier, H = hydraulic end-of-car cushioning, 52 = FBOX car with 6½ x 9 K bearings and 12-foot single plug doors, and A = subclass.

The Aurora Miniatures boxcar has a one-piece injection-molded plastic body with a separate roof. The roof accurately has diagonal panels in the middle and X panels on the ends.

A combination of molded and separate, factory-applied parts are found on the sides and ends. The ladders, door

rods, door levers, uncoupling levers, and brake wheel are plastic parts molded to match the body color. The stirrup steps are formed metal; the crossover platforms are see-through etched metal.

The Aurora cars are equipped with an Ellcon-National or New York Air Brake (NYAB)/Klasing vertical wheel hand-brake with release lever, handbrake chain, and Association of American Railroads 66 bell crank, as appropriate.

Underneath, the boxcar has molded laterals and nailable steel floor detail. The draft-gear boxes, center sills, cross-members, body bolsters, and bolster blocks are cast as a single unit.

Additional underbody details include a NYAB DB60 single-sided control valve, a two-sided release rod with mounts, an Ellcon-National type empty/load sensor, a diagonally mounted air reservoir, a brake cylinder, low-mounted brake rods, and piping detail connecting the various components.

Aurora offers the modern boxcar with prototype-specific 100-ton trucks, either American Steel Foundries (ASF) S-2-HD-9C or ASF Motion Control trucks. The trucks have bolster and center plate detail, side bearings, and brake beams. I used a flat-blade screwdriver to remove the plate covering the screw on each truck. The bearing caps, which rotate, are painted blue to replicate the Brenco Class K 6½ x 9 model.

The model we received is decorated in the TTX Corp. yellow-and-black as-delivered scheme. The paint and lettering match prototype images of other cars from this series. Dimensions closely follow data on the carbuilder's website.

At 4.4 ounces, the car is .1 ounce too light per National Model Railroad Association Recommended Practice 20.1. The 36" metal wheelsets are correctly gauged. The plastic AuroraJanney scale couplers are mounted at the correct height. The couplers do not have trip pins, so they will not work with magnetic uncouplers.

The Aurora Miniatures Gunderson 6276 hi-cube boxcar is a well-detailed and researched model. The full-size cars can be found on railroads throughout North America today. This is a must-have model if you model contemporary railroads in HO scale. — *Cody Grivno, senior editor*

Facts & features

Price: \$59.99

Manufacturer

Aurora Miniatures North America
na.auroraminatures.com

Era: June 2016 to present (as decorated)

Road names: TTX Corp. (12 road numbers), Arkansas & Oklahoma RR, Crab Orchard & Egyptian, Illinois Central, Utah Central Ry., and Union Pacific (BKTY reporting marks). Six numbers per scheme unless noted.

Features

- AuroraJanney scale couplers (without trip pins), at correct height
- Machined metal 36" wheelsets with .110" tread and RP-25 contour, in gauge
- Weight: 4.4 ounces (0.1 ounce too light per National Model Railroad Association Recommended Practice 20.1)

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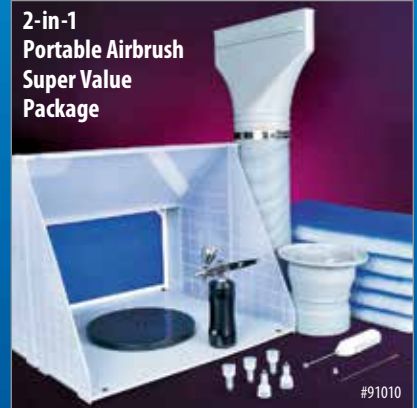


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QUICKLOOK

Athearn N scale ACF 4600 covered hopper

Price: Single car, \$37.99 (Primed for Grime, \$42.99); three-pack, \$94.99

Manufacturer

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

Era: September-October 1977 to present

Road names: Chicago & North Western; ACF Leasing; The Andersons; Detroit, Toledo & Ironton; Grand Trunk Western; and Gulf, Mobile & Ohio

Comments: Athearn is back with a new run of the American Car & Foundry 4,600-cubic-foot capacity three-bay Center Flow covered hopper. The N scale model, with a 9¾" minimum radius, is offered in three body styles (early, mid, and late) and has etched-metal running boards, screw-mounted trucks, and railroad-specific details.

Our sample is decorated as Chicago & North Western 180312, part of the railroad's 180000 through 180499 series built in September and October 1977 under Lot 11-01371.

The C&NW model has a late body, used on cars built between 1972 and 1981. Spotting features include a low brake wheel, short side ladders on both ends, and double side stiffeners.

Athearn's N scale model has a plastic body with a separate roof. The car is offered with round or trough hatches; the C&NW car has the latter. Factory-installed and painted wire grab irons are attached to the running boards on the corners with full-height ladders.

The end cages are separate plastic parts with etched-metal crossover platforms. The B end of the car has a free-standing air reservoir, brake cylinder, control valve, and related piping.

The hopper bays have molded shaker brackets and factory-applied gravity-pneumatic outlet gates. Formed metal stirrup steps are in the corners.

The lettering placement on our C&NW car matches prototype photos. The covered hopper's dimensions match or are within scale inches of published data.

The 100-ton trucks have properly gauged 36" machined metal wheelsets. The body-mounted McHenry couplers are at the correct height. At 1.1 ounces, the car meets NMRA Recommended Practice 20.1.

The ACF 4600 Center Flow covered hopper made its debut nearly 60 years ago, and some of the later cars can still be found in service today. Athearn's latest batch of road names will satisfy modelers from the mid-1960s through the 2000s. – *Cody Grivno, senior editor*








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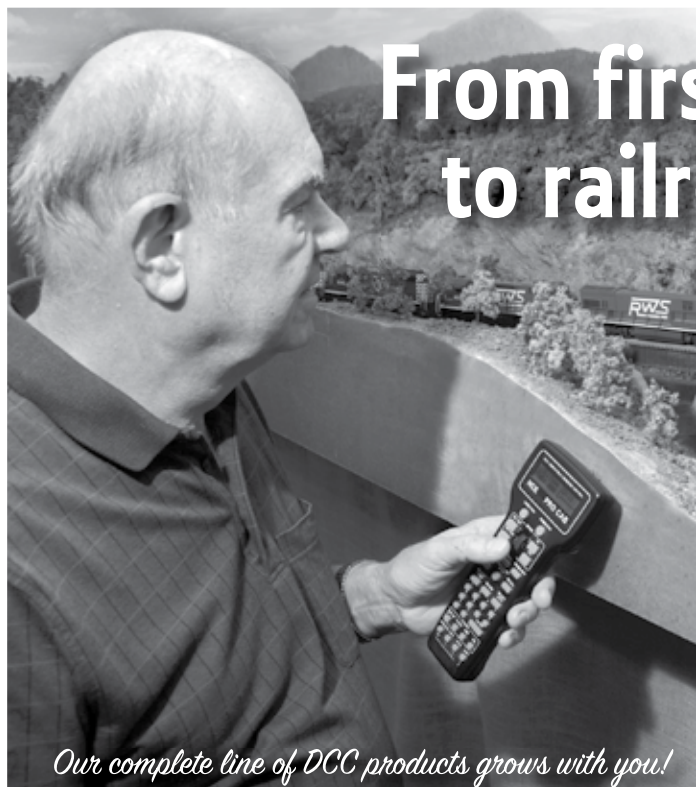
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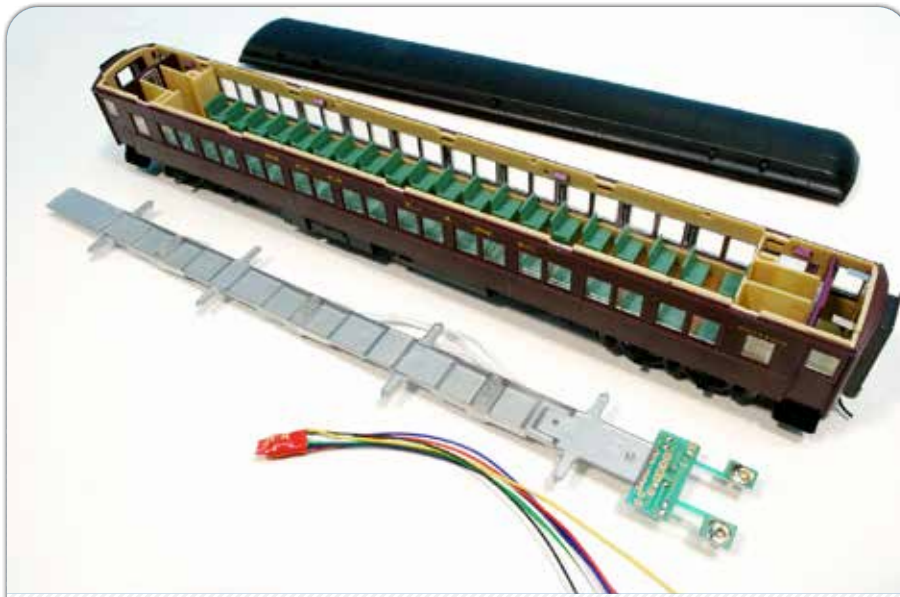
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Installing DCC-controlled passenger car interior lighting isn't complicated. A few components and a handful of wire connections will do it. Mike Polsgrove photo

How do I add DCC passenger car lighting?

Q I have some HO scale passenger cars that I would like to install LED lights into. I'm new to model railroading. I understand that I need decoders in each car, but after that, I'm lost.

Alex Laserson

A If you want to install passenger car interior lighting, you don't absolutely have to use a Digital Command Control (DCC) decoder. A bridge rectifier can convert the rails' alternating current (AC) to direct current (DC). You could even power the lights with batteries. But if you want to be able to control the lights in your passenger cars – turn them on and off with a DCC throttle command – you're right, you will need a decoder. Specifically, you need a lighting-only decoder.

This task won't be complicated. Starting at the bottom, you'll need to pick up the DCC power from the rails. Many passenger cars these days come with metal wheelsets and electrical pickups factory-installed. If yours don't have these, you can upgrade your car with aftermarket trucks that have pickups. Alternately, you can replace your wheelsets with insulated metal ones and craft pickups from wire. This is the best option if your car has trucks for which pre-wired replacements are not commercially offered.

Once you get current into the car, read the documentation that came with your decoder and figure out which wire does what. If your decoder follows National Model Railroad Association (NMRA) Standard 9.1.1, the wires for rail power will be red and black. Connect those to the truck pickups. The common wire for lighting functions will be blue, and the white wire is used for the front headlights in a locomotive. Since a passenger car doesn't have headlights, use this wire for the interior lights, so you can turn them on and off with a simple press of F0 on your DCC throttle.

Use a digital multimeter to test the output voltage between the blue and white wires, then calculate the size of resistor you need to drop that voltage to the level needed by your lighting kit. The formula for this is Ohm's Law: $V = I \times R$, where V is how much of a voltage drop you need, I is current in amps, and R is the resistance in ohms.

For a more detailed walkthrough of how to install passenger car interior lighting with a DCC decoder, check out Mike Polsgrove's "DCC Corner" columns in our April 2011 and November 2013 issues.

Q I've tried many methods to uncouple my (N scale) rolling stock automatically rather than use a manual tool.

Permanent magnets were far from satisfactory even when I devised a way to raise them at the appropriate time to a position closer to the couplers. I've modified an HOn3 electromagnet to fit between the rails, and this works when the couplers (Magne-Matic) are adjusted and aligned properly, but it's not reliable either. The failure rate is about 50%. Is there a better way? Do most modelers just use a manual tool?

Clint Lawrence

A If you're having problems trying to uncouple over a magnet, the trip pins might need adjustment. Your comment that you had to raise them closer to the couplers reinforces this assumption. Get an N scale coupler height gauge and check that all your couplers are mounted at the right height. Couplers that don't match up can uncouple accidentally or refuse to uncouple. You can add thin fiber washers to the cars' trucks to raise the body if the couplers need to be higher. Paper or styrene shims between the draft-gear boxes and the underbody can lower the coupler if needed.

Once you're confident the couplers are all at the correct height, check the trip pins. The bottom of an N scale coupler's trip pin should be .010" above the railhead. Micro-Trains sells a gauge to test this, but it's basically just a sliver of sheet metal. A piece of .010" sheet brass would do the job just as well. If you find any of the pins are too high or too low, adjust them with a coupler trip pin plier.

While you're at it, make sure your couplers pivot and open freely. Heavily applied weathering can give your N scale coupler problems. Replace any couplers that stick. And if you can afford it, pick one brand to standardize on and replace any oddballs. Couplers work better with others of the same kind.

While these steps may not eliminate all your N scale uncoupling problems, they certainly can't hurt. If you continue to have trouble, you may have to resort to manual uncoupling.

A lot of N scale modelers rely on manual uncoupling because of the same problems you lament. But this method has its advantages – specifically, the

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



Manual uncoupling may not be realistic, but it's one of the most reliable ways to uncouple. Jim Kelly wrote in his January 2015 N Scale Insight column about uncoupling with cocktail swizzle sticks. Jim Kelly photo

ability to uncouple cars anywhere on the layout, not just where magnets are installed. And it's cheaper than magnets! You can buy commercial uncoupling picks, but many modelers uncouple their N scale rolling stock by twirling the point of an inexpensive bamboo kitchen skewer between the knuckles. A thin dowel sharpened in a pencil sharpener would do the same job. Our former "N Scale Insight" columnist Jim Kelly wrote in our January 2015 issue about uncoupling with plastic swizzle sticks salvaged from cocktails.

Relying on the old 0-5-0 may not be the most realistic thing, but it might be more reliable than with magnets.

Q After reading multiple stories on making trees, I have two questions: When the author says use cheap hair spray to attach foliage, what kind? Water-base or solvent? Aerosol or pump sprayer? And has *Model Railroader* ever done a how-to on making your own ground foam?

Harry Heintzelman

A What you're looking for in a hair-spray is its adhesive properties, so forget about salon-quality products that include ingredients for hair conditioning, scent, color preserving, and the like. Just a basic spray will do. There are a lot of brands out there, so we can't recommend a specific brand. (The one I used to use isn't made any more, anyway.) Look for an extra-hold type that costs under \$10 and comes in a pump bottle rather than an aerosol. Not only will you be saving the environment (and your

lungs), but also some cash, since you get more in a pump.

As for making your own ground foam, it's been a long time since we've done that, since the commercial products are so widespread, varied, and cheap. The last mention I can find of this homebrew ground cover technique was in a scenery tips article in December 1985. Basically, you need foam rubber, water, acrylic paint, and a blender or food processor you really don't care about ruining. You can guess the rest.

And speaking of scenery techniques...

Q Cheryl Sassi's technique for modeling various vegetation continues to move the bar toward greater realism. Her article "Making tall field grass" (Feb. 2023) left me with one question. In the lead photo, the grasses have a "tip" on them. Was this detail added separately or was it the result of the painting process?

Dave Smith, Fort Mill, S.C.

A What looks like seed pods on Cheryl Sassi's tall grasses are actually individual seeds on the natural grass materials she used in her modeling. Though the photo is rather small, the bundle of whitish material second from the right in photo 2 in that article is the one with the seeds. Cheryl doesn't say where you can find it, since her husband, Lou, bought the materials she used at some point over the course of the last two decades. But you can probably find similar natural scenery materials at craft stores like Jo-Ann's or Michaels, at your local florist, or maybe even in your own backyard.

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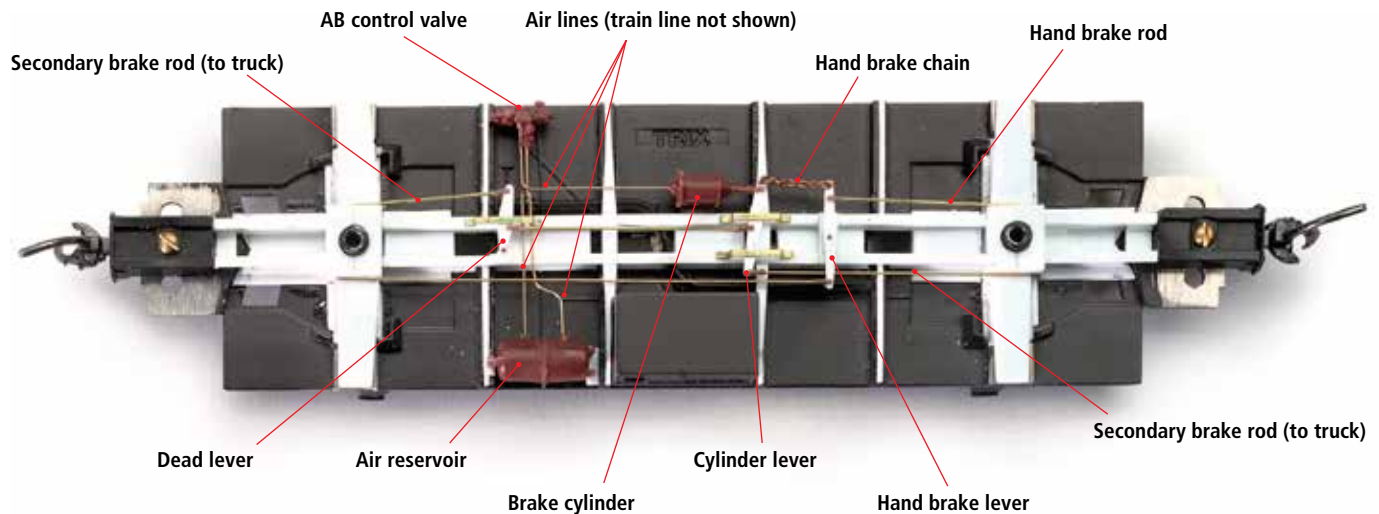


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Modeling transition-era railcar brakes can add a lot of realism to your car underframe. Knowing what those components, air lines, and brake rods do makes modeling them easier. *Jim Forbes photo*

Q I'm researching transition-era railcar brakes. Were there books written on the subject, and are they still available for purchase?

Ron Buddemeier

A The most complete and detailed reference for transition era rail car brakes is the one used by the railroads themselves – the *Car Builder's Cyclopedia of American Practice*. This weighty tome, updated and issued every few years, includes prototype car photos, dimensioned blueprints, advertisements from car makers, and diagrams of equipment from air conditioners to brake valves.

But even if you can find a copy from the year that you model, it will likely be pricey, and it might not even have the kind of information you're looking for. If what you want is information on modeling brake equipment, I can help you.

The first air brakes, applied and released by air pressure from a reservoir on the locomotive, were invented in 1869 by George Westinghouse. Though they were an improvement over manual brakes, they also had problems. The biggest was that if a car was separated from the engine's air supply, they didn't work.

A big improvement in safety came with the development of the automatic air brake in 1873. In this system, every car was equipped with its own air reservoir. If air pressure in the train line dropped, a device called a triple valve would automatically open, sending the air in the reservoir to the brake cylinder, applying the brakes. Now, if a coupler broke and part of the train separated

from the locomotive, it would come to a stop on its own. This was called a "K brake" after its type K triple valve.

After World War I, the railroads started looking for a replacement for Westinghouse's venerable K valve. The result was the AB valve, developed jointly by Westinghouse and New York Air Brake (NYAB) and adopted by the Association of American Railroads (AAR) in 1934. The AB braking system added more safety with a two-part reservoir consisting of an auxiliary tank and an emergency tank. If you have a detail part of a tapered tank with a bolted ring around the middle, that's an AB double reservoir. This is the kind of brake system you'll find on freight cars of the transition era you model, since the AAR banned K brake equipment from interchange service in the 1940s.

The National Model Railroad Association (NMRA) has a handy downloadable data sheet with more information about the history and operation of prototype brake systems. You can find it at nmra.org/sites/default/files/d9o.pdf.

Q I am building a shelf layout. I am thinking of covering the plywood tabletop with extruded-foam insulation board. Is there downside to this, as far as laying track and roadbed? I assume the foam will be dimensionally stable?

Dan Pearson

A Extruded-foam insulation board is more dimensionally stable than the lumber of your benchwork, although some can shrink with age.

The biggest drawbacks of foam are its cost and its availability. Scrap cardboard and plaster-soaked paper towels are cheaper than foam. And since it's intended to be used as home insulation, it's hard to find in warmer climates.

Laying track on foam isn't tricky, either. Use a foam-safe construction adhesive, like Liquid Nails for Projects or Loctite PL300, to glue the foam to your benchwork, your roadbed to your foam, and your flextrack to your roadbed, and you'll be all set.

Q I would value your feedback on how to approach creating a new HO scale layout. I'm approaching retirement, so I will have the time to get back into model railroading, which I've not pursued in more than 40 years. So much has changed that it's overwhelming. I have a lot of track and rolling stock that I packed away decades ago, but given all of the new technology, I'm uncertain how to approach it. I have a 9 x 9-foot space available but want to create a track plan that avoids tight curves that may cause derailments. What can you suggest regarding the best way to approach this project?

Bruce G. Heniken

A As you contemplate how to get back into the hobby after such a long hiatus, you have many choices to make. If you've ever heard the term "analysis paralysis," you know that too many choices can thwart your progress. So your first step is to start limiting your options.

One of the earliest decisions a model railroader must make is in what scale to model. Since you have a bunch of old model train stuff boxed up from decades ago, that decision might seem to have been made. But before you let your past dictate your future, unpack all those boxes, set up a track and power pack, and give your equipment a rigorous test run. If you would end up forced to repair or replace most of that equipment anyway, you shouldn't let it dictate your scale choice. A different (read: smaller) modeling scale might be better suited to your limited space.

Next, pick your favorite era, location, and prototype. Again, your vintage equipment might dictate these decisions, but even if you ditch the old stuff, you'll still have to make a choice. Settle on a time frame, region, and railroad that speaks to you and stick with it. This might seem overly restrictive, but it prevents you from making poor choices (and purchases) you'll regret later.

Then, get your feet wet. Figure out what it is about model railroading that

still holds fascination for you decades since you put it aside. Build some structure kits, weather some rolling stock, landscape a diorama or module, guest operate at a local train club or a friend's layout. If you're only now nearing retirement age, you could have decades of modeling ahead of you. You should plan your eventual model railroad so that it offers the most of what you like the most about the hobby.

Now for some specific recommendations. If you want to avoid sharp curves in a 9 x 9-foot space, you should build an around-the-walls shelf layout, with the operating pit in the middle. A minimum curve radius of 24" would give you almost 5 feet of straight track between corners where you can attach spurs and sidings. That curve radius would work for N, HO, and On30 scales.

Put a narrow liftout or swing bridge – not a duckunder, trust me on this – across the entrance to the layout so you can run trains in a loop for visitors.

I would recommend mounting the layout high enough so you can build a

staging yard of at least a few tracks at a convenient height under it.

Hidden staging might seem like a hard feature to include in such a small space, but being able to bring trains onto your railroad from the unmodeled “rest of the world” will make it seem much bigger operationally.

Finally, new retirees often find themselves feeling aimless without a work schedule to give their post-employment lives structure. Consider scheduling your time working on the layout. Set aside a particular block of time, one or several days a week, to work on your layout uninterrupted. It doesn't have to be a lot of time. But if it's a regular schedule, it will help you get your mind in the game. You'll find yourself far more focused, and get far more done, than if you make your hobby just a “whenever I feel like it” activity. And seeing regular progress on your layout is a sure antidote to getting bogged down in what can be a years- or even decades-long task.

And remember what we always say, “Model railroading is fun!” **MR**



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Since the 1960s, Harold Russell has contributed around 150 articles to *Model Railroader*. Dave Durr photo

This contributor of yore still going strong

Whither the contributors of yore? ["From the Editor," July.] Good question! Longtime readers of *Model Railroader* will undoubtedly recognize the name Harold Russell. Harold is one of the most prolific contributors to MR. His first article was published in the mid-1960s. The first editor with whom he worked was Linn Westcott.

Harold's early drawings were done with pen and ink; in 1993, he began using a computer. MR still has many of Harold's drawings yet to be published.

Harold is National Model Railroad Association Master Model Railroader No. 14, currently the longest serving MMR in the NMRA. In recognition of his service and dedication to the NMRA Lakeshores Division, the Harold Russell Award is given annually to the winner of the Structures Model Contest at the Northeastern Regional Convention.

Now in his 90s, Harold resides at the Episcopal Church Home in Rochester, N.Y. Mentally, he's as sharp as ever, and still an avid railroader.

*Dave Durr, Superintendent
NMRA Lakeshores Subdivision*

Missing Malcolm

I was saddened by the news of Malcolm Furlow's passing [June]. Malcolm was, together with his contemporary MR contributor John Olson, my first hero for modeling U.S. prototype railroads. Malcolm combined a unique artistic flair in his modeling and his photography with an easy-going and fun-to-read writing style. He was a source of constant inspiration and I always looked forward to his features in MR. My thoughts are with his family and friends.

John Planting, Uppsala, Sweden

Malcolm Furlow was a true Renaissance man, tackling and conquering a variety of pursuits and disciplines. His sojourn through the model railroading hobby was a delight, and I always looked forward to his next article or project.

His attention to detail and finishing touches sparked my interest in the hobby. The San Juan Central layout was my personal favorite, and I still periodically reread the book that collected the articles on its construction. RIP.

Roman Podolak, Baltimore, Md.

Kudos to columnists

While I'm not in the habit of regularly handing out kudos, I just received the July MR, and as usual, I read Jerry Dziedzic's and Tony Koester's columns first, before even looking at the rest of the magazine. Excellent job on both.

Your columns are consistently informative, thought-provoking, and more importantly, just downright entertaining. If I'm honest, they're ultimately what convinces me to continue to write that check to Kalmbach every year.

So very simply, thanks for your great work! I hope you both continue to do these columns for many more years!

Doug Elder, Olathe, Kan.

Correcting a correction

The letter "Fixing that formula" on page 10 of the August 2023 MR still contains an error. The semicolon in the formula should really be a comma. Excel does not accept semicolons in formulae.

Paul Barnes, Brentwood, Tenn.

Recipes vs. inspiration

Interesting juxtaposition between Mr. Keogh's letter in the August issue bemoaning the lack of sourcing information in construction articles with the editorial in that issue pointing out that ours has always been a hobby of tinkers and problem solvers.

There are two types of construction articles. The author either knows from the outset that he's writing for publication and documents each step, or he decides to do so after the project is completed. In the latter case an editor may need to ask the author to re-create some

of the steps in order to document and photograph them.

The editor has the Goldilocks challenge of turning "too much" or "too little" into "just right." In many cases "I used a widget I found in my scrap box" is the only right answer, when neither the author nor the editor can say definitively who manufactured the widget, let alone whether it's still available. Better to leave it up to the reader's initiative or imagination to find or substitute a part.

MR is not a cookbook, and the articles aren't recipes. They are meant to inspire as well as teach.

Tom Madden, Boulder, Colo.

Comments, suggestions, and additional information on *Model Railroader* articles and departments are welcome in this column. Every comment will be read, but not all can be printed or answered. Make your statement in 300 words or less, and send it to **Railway Post Office, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187**, or e-mail editor@modelrailroader.com. Please include your name, city, and state.

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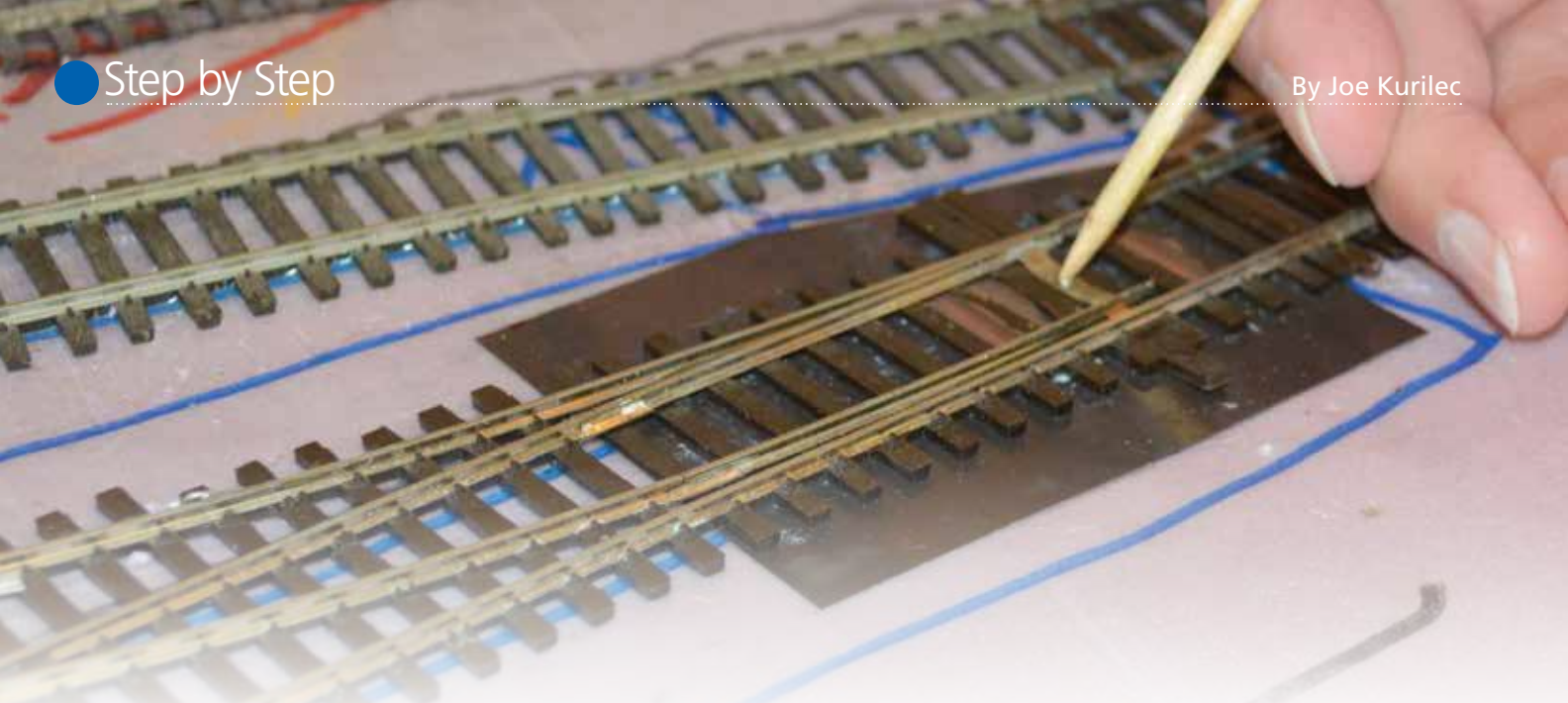
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There are many ways to manually operate a turnout. Joe Kurilec shares how he adapted a slide switch to line the points on some of the turnouts on his HO scale switching layout. Photos by the author

Control turnouts with slide switches

I needed No. 4 code 70 turnouts for my under-construction HO scale switching layout. After finding the turnouts, I pondered the best way to control them.

Elsewhere on my layout I've used a variety of products, including the Tortoise by Circuitron, Micro-Mark Switch Tender, and Proto:87 Mole switch machines. Since the code 70 turnouts are within easy reach, manual control seemed more appropriate.

I considered a few different options, including ground throws and push-pull

cables. Then I read Tony Koester's Trains of Thought column in the August 2016 *Model Railroader*. In his commentary "Having second thoughts first," Tony wrote about how his friend Perry Squier used modified micro single-pole double-throw slide switches to operate the turnouts on his HO scale layout.

What are the benefits of using slide switches for turnout control? First, turnouts can be placed just about anywhere on the layout without having to worry about benchwork or supports below.

Next, turnouts can be lined using a finger, pencil, or pointed wood dowel or skewer. If you use a double-pole double-throw (DPDT) slide switch, controlling frog polarity and signals is much easier.

Finally, slide switches can be used with any brand of HO scale turnouts, regardless of the rail code. Follow along as I share how I used slide switches to control turnouts on my layout.

Joe Kurilec lives in Berea, Ohio, with his wife, Barb.

STEP 1 MODIFYING THE SLIDE SWITCH



First, I placed a double-pole double-throw (DPDT) slide switch in a small vise. Then I carefully removed the metal mounting tabs 1.

Next, I modified the plastic handle. The top of the handle on the switch I used had a convex shape with ridges. I placed the handle in the vise (not too tight) and cut the plastic part flat 2. I wasn't worried about the parts being



symmetrical or pretty, as the slide switch will be mounted under the turnout. My main goal was to make sure all of the parts work.

If the handle is flat, simply file off the ridges. To keep the handle from moving during this process, place a small piece of square brass tube between the base of the handle and the metal frame 3 (page 26).



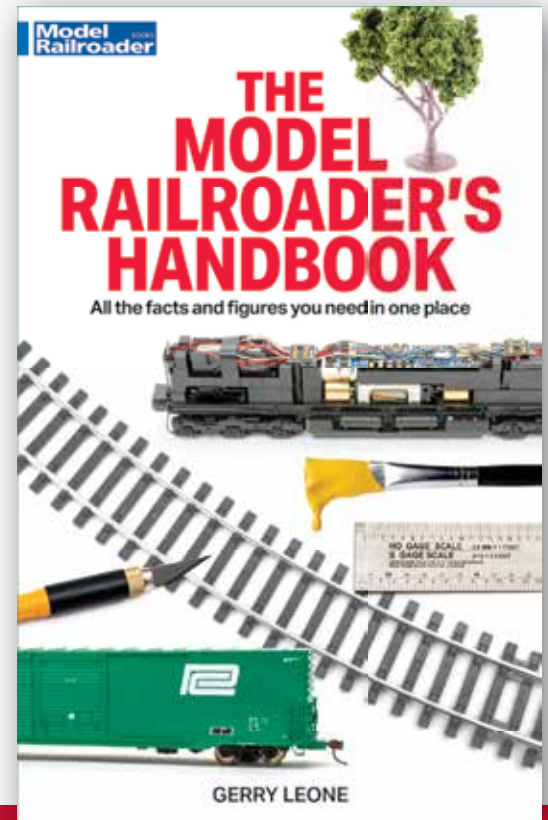
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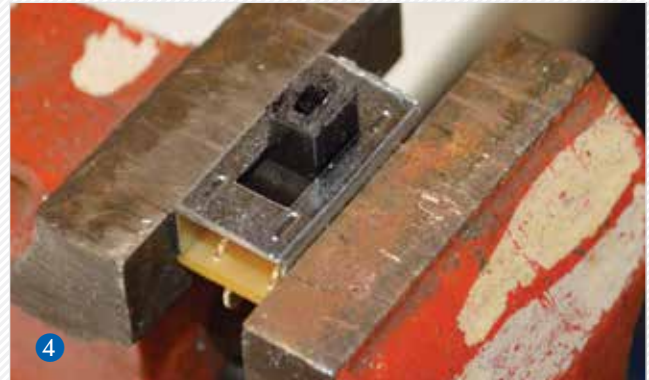
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STEP 1 MODIFYING THE SLIDE SWITCH (CONT'D)

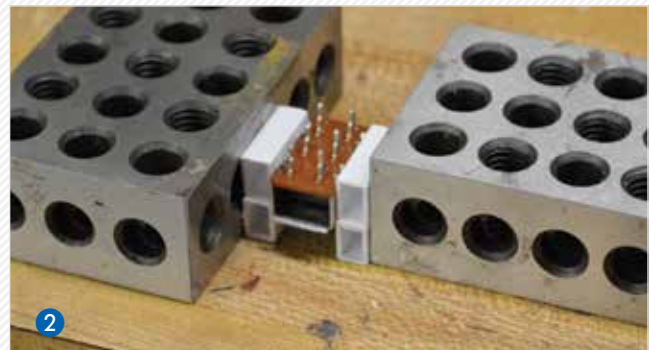
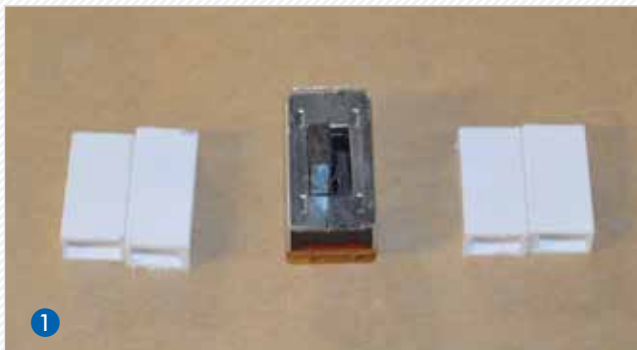


When the top of the handle is cut or filed flat, some may have a casting hole **4**. If the hole is larger than the wire to be inserted, use a piece of scrap plastic tube with an inside diameter to match the wire. You may have to enlarge the hole slightly to accept the tube. Make sure tube isn't rubbing against the contacts below, then secure it with cyanoacrylate adhesive (CA) **5**. After the CA has

cured, cut and file the tube flush with the top of the handle.

If the handle is solid, place the slide switch in a vise. Then drill a hole in the top of the handle, insert a piece of music wire (I used .040" music wire), and secure it with CA **6**. I left the wire oversized, as the excess would be cut off after installation.

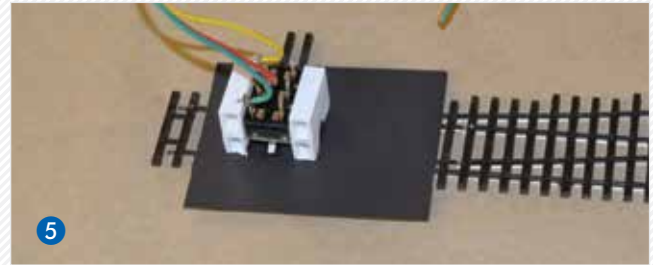
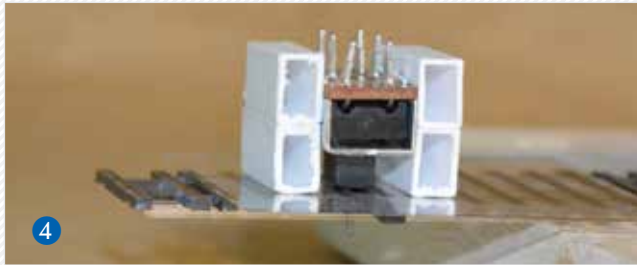
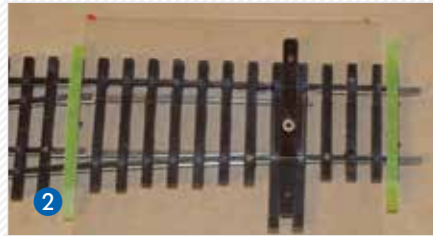
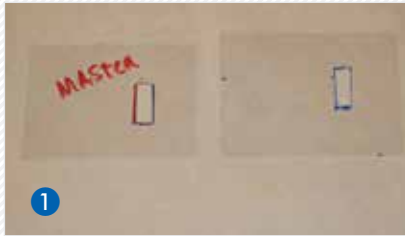
STEP 2 SLIDE SWITCH SUPPORTS



Next, I made supports for the DPDT slide switch using Evergreen .250" x .375" rectangular styrene tube (No. 259). I cut four approximately $\frac{7}{8}$ " lengths of tube, then glued them together in pairs with plastic solvent cement **1**, as shown at left.

With the styrene supports at the same height as the top of the handle, I attached the dissimilar materials with CA. I used 1-2-3 blocks to hold the parts together while the CA cured **2**. You can find the metal blocks at Micro-Mark (No. 84644).

STEP 3 ATTACHING THE SLIDE SWITCH



I used Evergreen .005" styrene sheet (No. 9005) under the point area of the turnout for mounting the slide switch. The styrene covers the mounting hole cut in the layout and prevents ballast from falling between the ties.

I cut the styrene $2\frac{1}{4}$ " wide x $2\frac{7}{8}$ " long. The opening for the slide switch handle is $\frac{1}{4}$ " x $\frac{3}{4}$ ". I made a master, as shown in 1, and used it to trace other pieces of styrene.

Then I placed the styrene sheet under the turnout, making sure the switch rod opening was positioned properly. I used masking tape to mark both ends of the piece (a permanent marker works better) and set the styrene aside.

Then I used a toothpick to apply a small amount of CA to the bottom of the ties between the marks. Once all of the ties were coated, I carefully placed the styrene between the marks, making sure the opening for the switch rod was correctly located 2.

Before attaching the slide switch, I centered the points on the turnout by placing scrap stripwood between the points and stock rails 3. The handle on the slide switch also needs to be centered.

I then placed the turnout upside down on a scrap block of wood. The centered points must overhang the block, as the stripwood isn't flush with the railheads.

I test fit the slide switch, making sure the music wire fit in the center of the switch rod. Then I applied CA to the top edges of the styrene supports and attached the assembly to the .005" styrene sheet, making sure the handle was parallel to the ties 4.

After the CA cured, I verified the points traveled through their full range of motion. Then I painted the styrene a flat, dark color. I also attached the three-conductor ribbon cable 5.

STEP 4 INSTALLATION AND FINISHING



Before I could install the turnout I had to cut a $1\frac{1}{4}$ " x $1\frac{1}{4}$ " hole in the foam with a razor saw. Then I placed the turnout and wires into the opening to see how everything fit, making adjustments as necessary 1.

Next, I laid out the track and marked the edges of the ties with a permanent marker 2. I then removed the track, spread white glue between the marks (keeping it out of the switch rod area), and set the track back in place.

Since white glue dries slowly, I was able to make any final adjustments. Then I placed weights on top of the track while the glue dried.

I used a wood skewer to test the turnout, making sure the points moved freely and seated tightly against the stock rails. Then I painted, ballasted, and weathered the turnout and added a non-operating Micro Engineering ground throw casting (No. 80-301) 3. **MR**



When a friend of his wanted a weed sprayer to run in a maintenance-of-way train on his layout, modeler Jim Providenza helped him out by building this car, starting with pieces of an old Roundhouse HO scale caboose kit. This is a fun project that can be completed in a couple of evenings.

Build an HO scale weed sprayer for fun

Kitbash a maintenance-of-way car from items laying around your workshop

By **Jim Providenza** • Photos by the author

Building a weed sprayer car was not just enjoyable; it was downright fun! It all started when my friend Paul Weiss declared that he was going to run a weed sprayer maintenance-of-way (MOW) train at an upcoming operating session on his Central Vermont Ry.

Five days before the session, Paul handed me two Bachmann boxes. Inside were tank cars with factory track

cleaning pads attached. The tanks were labeled “weed sprayer service only.” Paul asked me to run them through a standards check, and I agreed. (I’m a freight car guy!) I asked him where was the weed sprayer car that should accompany the tank cars. Paul, to his credit, just looked at me deadpan. I was on my own.

That was OK, because I quickly got an idea for building one – it would likely be an old house car, with operator’s

windows across the front, a horizontal pipe with nozzles for spraying herbicide along the bottom of the end, and booms tucked in along the sides that could be swung out over the right of way.

Starting the build

Later that evening, after scrounging my home hobby shelves, I located my quarry: a very old truss-rod, side-door

caboose from Roundhouse. A relic of the early days of my HO scale Santa Cruz Northern, it was retired years ago for newer “cabeese” that better fit my early 1970s railroad. Its cupola was missing, and I had salvaged its Fox trucks for another project. At least it still had its Kadee No. 5 couplers. It was just the sort of castoff that my SCN shops might repurpose for MOW work!

After more scrounging, I located a pair of plastic arch bar trucks painted boxcar red with Kadee wheel sets already installed. (Kadee wheels are standard on Paul’s CV layout.) I attached them to the car body and put it on the test track. Luckily, the couplers were still at the correct height.

Next, I discovered that three Tichy Train Group work car windows (No. 8068) could span the end of the car body opposite the hole in the roof from the missing cupola. I drew cut lines on the model, then drilled a $\frac{3}{16}$ " pilot hole inside them, followed by a $\frac{1}{4}$ " hole. A bit of work with a No. 11 blade enlarged this hole enough to insert a circuit board nibbler (Micro-Mark part No. 81477). Nibblers are excellent tools for making holes for doors and windows in plastic, and they make good square corners. I nibbled away the plastic, checking my progress with a window as I went.

I used Flex-I-File styrene glue to cement the Tichy windows in place. I spaced them apart with lengths of Evergreen Scale Models HO scale 4 x 12 styrene strip (No. 8212). I liberated the steps from a pair of Tichy work car doors (No. 8231) and glued them to the car body below the side doors in place of the missing steps.

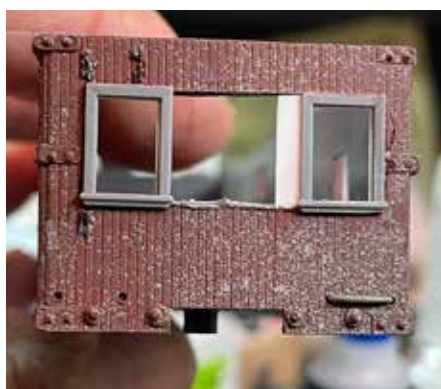
I reasoned the shop forces would put a small diesel engine powering a pump, compressor, and electric generator in the back half of the former caboose. It made sense (and was a quick and dirty solution) that they would install a metal roof above this new equipment space, which was the hole left by the missing cupola. I cut a rectangle of Evergreen corrugated siding (No. 4527) to fit and glued it in place. I added a length of Evergreen $\frac{3}{32}$ " tube (No. 223) as an exhaust stack.

I completed work on the roof by relocating the corner platforms to match the side ladders’ locations.

While the glue dried, I went looking for suitable piping and nozzles. I figured that plastic sprue of the “right” size would work. Looking through my detail parts, I found a set of freight car ladders attached to sprues that looked right. The sprues scaled out to 3" in diameter.



Back from the bone yard (Jim’s storage shelf), this Roundhouse HO scale side-door caboose body would make a perfect starting point for the weed sprayer car.



After using a nibbler tool to remove the material in the window opening, Jim tested the fit of the Tichy Train Group windows and the styrene spacers.



Jim installed arch bar trucks under the model and added steps salvaged from a work car under the side doors of the car.



Because the cupola was missing, Jim used that as the ideal location for the weed spraying pump, motor, and generator, filling in the hole in the roof with corrugated styrene roofing.



Jim used sections of sprue to represent the sprayer piping and nozzles. This view shows the piping on the front of the car.



Jim's weed sprayer car looked like this when it ran on its first operating session. Afterward, Jim took it back to his shop for a few more details.



Since the weed sprayer was a rush job to make a deadline, after its first appearance on Paul's layout, Jim took the model back and added some much-needed extra details, including a headlight, windshield wipers, grab irons, and a big air intake vent to equipment end of the car.

Clipping the ladders off with a sprue cutter left a pipe I could trim to span the width of the car. I made sure the nubs, representing nozzles, lined up in the right places. The second ladder sprue became the side booms. They are a little shorter than I would have liked, but such was the nature of this project.

I resized Tichy 18" grab irons (No. 305) to replace ones that had gone missing. I added a Cal Scale power brake wheel assembly (No. 190-351) to the B end of the car in place of the missing vertical brake staff and wheel.

I painted the new windows, brake gear, and grab irons with some boxcar red acrylic paint; the new roof panel and the sprayer piping got a coat of silver. I then painted the exhaust stack grimy black and, diluting some, used it to weather the new roof section and the window frames. The weed sprayer piping (and areas on Paul's pair of Bachmann track-cleaning tank cars) received Citadel Miniatures fluorescent green wash, which added an appropriately nasty chemical look to them.

The weed sprayer and tank cars went into service in time for Paul's operating session, but the model clearly needed a few more details.

Adding details

Back in the shops the following week, I added a Detail Associates dual headlight (No. LT1009) with MV Products lenses (No. LS 19), A-Line windshield wipers (No. 29201), and three Tichy roof corner grab irons (No. 3028). I built up a brake platform from Evergreen 2 x 12 styrene strip and added it below the power brake. Lastly, I applied some Archer resin decal louvers (No. 88038) onto a piece of .010" Evergreen styrene measuring 2.5 x 3 scale feet. I edged the styrene with a 1 x 2 Evergreen styrene strip and glued the resulting vent to the rear of the right side of the car.

After painting the new parts, the weed sprayer is ready for more work. Paul and I plan to share the MOW weed spray train for operating sessions on his Central Vermont and my Santa Cruz Northern layouts.

This project was just plain fun. Now those Bachmann tank cars, they could use some tweaking, but that's a project for another day. [MR](#)

Jim Providenza is a longtime model railroader who enjoys operating sessions both on his HO scale Santa Cruz Northern and on friends' layouts.

LGB® Garden Railroading

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20384 San Francisco Streetcar, Car No. 130

This is a model of the original 1914 San Francisco Muni streetcar the "Lucky 130." The four-axel streetcar got its nickname because it was saved from being scrapped in 1958 to tow broken down PCC type streetcars. The streetcar includes an mfx/DCC digital decoder with many light and sound functions, for the first time! Running sounds work in analog. The wheelsets are driven by two Bühler motors.



29911 Norfolk Southern Railroad Rescue Train

This is a model of a NS rescue and training train used to educate and train first responders. The train consists of a diesel locomotive, a tank car and boxcar. The locomotive includes an mfx/DCC decoder for many digitally controlled light and sound functions, and both trucks are driven by two powerful Bühler motors. Running sounds work in analog. The tank car can be filled with water and sprayed using the digitally controlled pump.



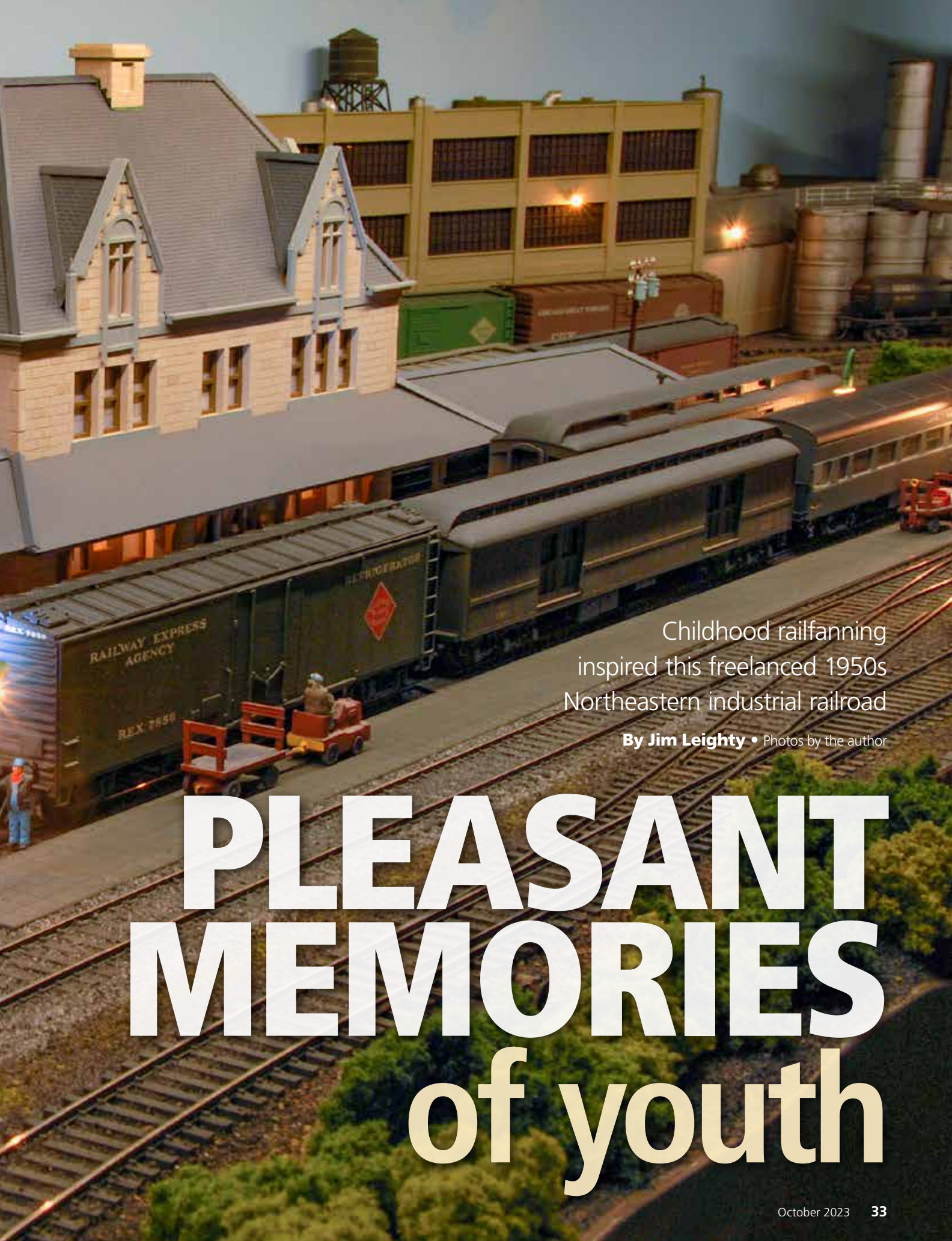
A portion of the proceeds from the sale of this product will be donated to First Responders Foundation.

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① On a cool fall morning, eastbound passenger train No. 4 arrives at Maywood Station on Jim Leighty's HO scale Central New York & New England. The double-deck freelanced model railroad, set in the mid-1950s, is inspired by Jim's early years of railfanning.





Childhood railfanning
inspired this freelanced 1950s
Northeastern industrial railroad

By **Jim Leighty** • Photos by the author

PLEASANT MEMORIES of youth

Like many hobbyists, I became hooked on trains as a child. I grew up within bicycle distance of the four-track New York, New Haven & Hartford's electrified main line, where I watched long passenger trains speed past and heavy freights make their way toward a distant place called Maybrook Gateway.

If I was very lucky, I got a chance to catch the normally nocturnal New Haven local freight switching cars during daylight hours right down the street from my house. I watched it switch cars at the Frito Corn Chip plant, the local lumberyard, and a freight house bustling with Railway Express Agency trucks being loaded and unloaded. All this nurtured an interest in trains and model railroads that lasts to this day.

My interests were further expanded by many trips to the New York Central's Harmon, N.Y., depot to drop off or pick up my older brother, who traveled to and from college in Troy, N.Y. Later we moved to northeastern Pennsylvania, which had a variety of railroads. I spent many years watching trains and operations in this area.

I also discovered the diminutive Middletown & New Jersey short line, and I couldn't help but shake my head and smile when viewing its grass-covered right-of-way. Today my interests include many Northeastern railroads.

Modeling the Maybrook Gateway

As I got older, I grew excited about building a prototype layout based on the Maybrook, N.Y., area. It was a terminal for lots of interesting railroads and a very busy place.



3 The Erie crew prepares to switch cars at the General Electric plant under the watchful eye of the JA Tower crew. The tower operator is kept very busy controlling the interlockings here, as the Erie Gravity and Jamestown branches both begin at this location.



2 The helix in Jim's workshop not only connects the two main decks to each other, but also connects to staging on multiple levels. The helix was constructed from $\frac{3}{4}$ " birch plywood and has a grade of 1.5%.

But as I did research on this concept, it dawned on me that I would be leaving out many of the railroads that I loved, such as the NYC, Erie, and Delaware & Hudson. Maybrook also didn't satisfy my wishes for heavy switching, transfer, and local freight operations; bigger industries; passenger and head-end traffic; port and freight car-float interchange; short-line connecting railroads; anthracite coal mining; and multiple junctions and interchanges. It became obvious that a proto-freelanced Maybrook layout was my best option.

Approximately 30 years ago I learned computer-aided drawing (CAD) and used it as a tool in my construction company to create more appealing houses and remodeling jobs. These skills proved invaluable in designing and constructing my layout by helping me visualize my ideas and overcome the challenges of my layout space.

Using the proto-freelance premise allowed me to include nearly all of the features that I wanted in my layout without sacrificing any of my interests. Northeast heavy industrial railroading in the mid-1950s was my goal, and I'm pleased to have achieved a pretty good representation of this in my rather small layout footprint.

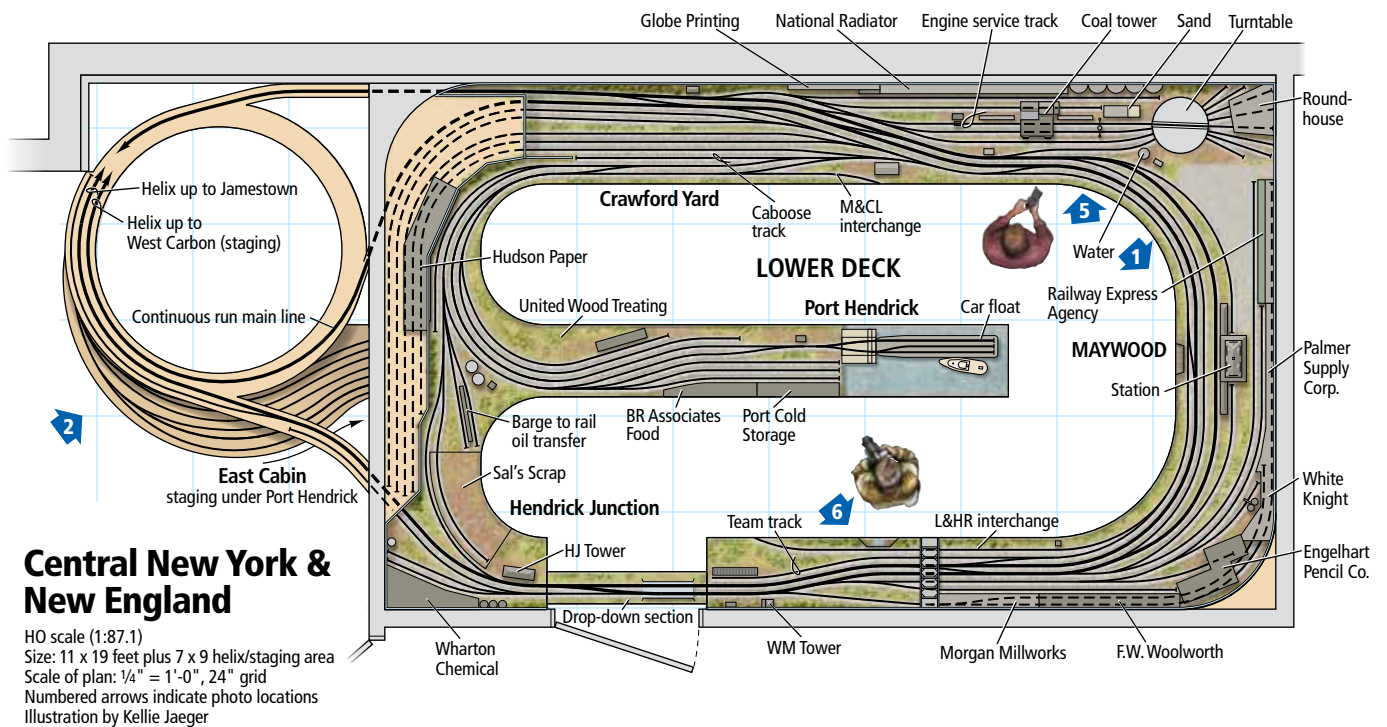
The CNY&NE is born

Because of the many changes that I made to the Maybrook area, I decided to name the main town Maywood, a town named for a small HO railroad that I had as a child. I designed the Central New York & New England RR as a fictitious bridge line jointly operated by the NYC, Erie, and D&H. Several short lines also operated in the region, attracted by many of the same reasons.

It runs from a large yard in Paterson, N.J., to Oneonta and Utica, N.Y. It also offered its owners access to the Maywood New England Gateway and to the many industries and resources in the area, including plentiful anthracite coal.

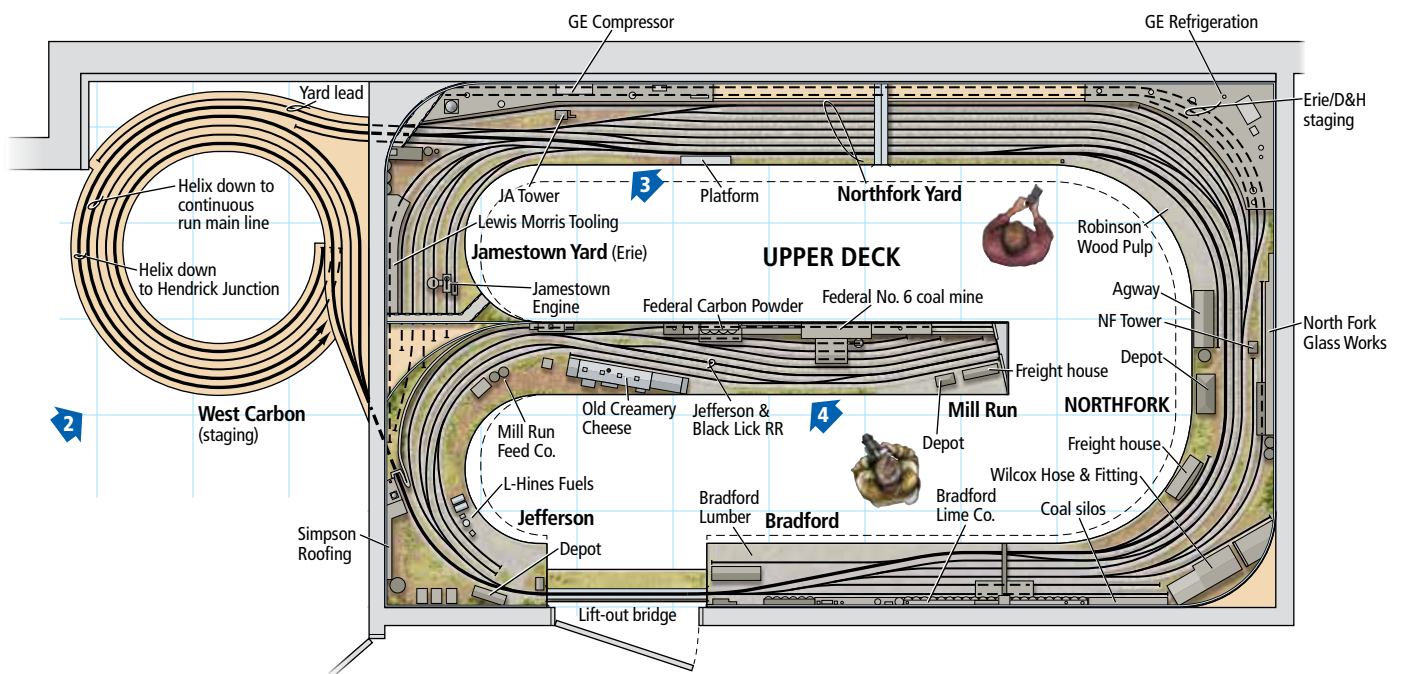
The Maywood Terminal car-float operation in Port Hendrick offered a competitive alternative to the New Haven's Poughkeepsie Bridge route and connected to Central New England across the Hudson River for direct access to Hartford, Conn., and other New England cities. (In reality, the Erie operated a significant cross-Hudson car-float operation using its Newburgh Branch until the Poughkeepsie Bridge was completed in the early 1900s.)

In Northfork (on the upper deck), an Erie/D&H line to Carbondale, Scranton,



HO scale (1:87.1)
Size: 11 x 19 feet plus 7 x 9 helix/staging area
Scale of plan: 1/4" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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



Name: Central New York & New England

4 A pair of Baldwin NYC switchers are working Federal No. 6 coal mine and Federal Carbon Power in Mill Run. They will take the loaded hoppers and covered hoppers to Northfork Yard.



5 Located on the lower deck adjacent to Crawford Yard is the Crawford Engine Facility, which includes a coal tower, sand house, ash dumping pit, sand towers, and fueling pad. The coal tippie is a kit by Wm. K. Walther's Inc.

and Wilkes-Barre known as the East Jefferson Branch offers additional connections to the west and south. The Lehigh & Hudson River ran into Maywood, and the Jersey Central also had trackage rights using this line to run a daily Maywood-to-Allentown Yard round-trip through freight.

Designing a multi-deck railroad

Although my finished cellar has a walk-out design and a large family room, I wanted to keep my layout confined to an approximately 11 x 19-foot room and an adjacent 7 x 9-foot space in my workshop for a helix and staging area. I didn't

want a huge design that was hard to build and maintain.

Fitting the railroad into a condensed footprint while maximizing my operational interests required that I use a multi-deck design. Tony Koester's book *Designing & Building Multi-Deck Model Railroads* quickly became my bible and blueprint for the layout design.

The advantages and pitfalls of multi-deck layouts are discussed thoroughly in this book, and without it, my layout would not be as good as it is today. Deciding on deck heights, depths, necessary lighting to avoid darkness between decks, construction details, staging options, and much more are outlined

there. It is an absolute must for anyone considering a multi-deck layout design.

The helix is constructed entirely of $\frac{3}{4}$ " birch plywood. A biscuit cutter and plenty of Titebond carpenter's glue was used to make strong joints. This type of construction eliminated any splice plates on the helix, which would have diminished the tight clearances needed between each rise. The 6-foot diameter helix has a 4" rise per turn, so the approximate grade is 1.5% throughout.

The helix performs two functions. It connects the two main decks, forming a continuous portion of the CNY&NE main line westward from East Cabin and Crawford Yard on the lower deck to Jefferson and West Carbon staging on the upper deck. It also contains staging for about 15 trains on the east and west ends of the railroad.

I tried radial or serial staging on the helix itself but quickly realized that it was too difficult to operate if I couldn't see the trains. So I constructed a seven-track East Cabin staging area from the bottom of the helix, which extends into the layout room as its bottom (third) deck. The dispatcher is located in the helix area and also serves as a "staging mole" to handle trains as they leave and enter staging.

There's also staging for about six trains on hidden staging tracks in the train room itself. In all, there's staging available for about 21 trains, and if you



add the switching jobs made up in the yards, we have the capacity to run a significant number of trains in an operating session.

Construction and control

Conventional 1 x 4 pine benchwork supports the lower deck. Heavy metal wall brackets hold the upper deck. The lowest staging deck is suspended from wood brackets about 7" below the main deck. All decks have 3/4" cabinet-grade birch plywood and 1/2" Homasote glued and screwed down. Expansion and contraction has been minimal.

I use NCE's Digital Command Control system with 10 radio throttles. The layout is divided into power districts using multiple PSX breakers.

I used a variety of "DCC-friendly" commercial turnouts along with a few handlaid ones. I line the turnouts using Caboose Industries N scale ground throws. Tam Valley Frog Juicer circuits power the frogs. Crew members can closely follow their trains around the layout lining switches as needed, just as on the prototype.

Operations

During an operating session, several through freights and a couple of passenger trains run east and west on the main line. The freights stop in the two main



6 A Maywood Terminal RR 0-6-0 steam switcher is shuffling cars on the West Maywood industrial track. Maywood Terminal is a short line railroad, which operates mainly out of Port Hendrick Yard connecting with the CNY&NE at Crawford Yard.

yards to interchange cars, and the passenger trains stop at Maywood and Northfork stations for passenger and head-end business.

The dispatcher uses timetable-and-train-order (TTTO) rules. He issues Clearance Form As and train orders to protect mainline trains. Much of the layout is operated by yard limit rules, however, with towers or manned cabins controlling the junctions and interlockings with working signals.

The layout has two major and several smaller yards to provide car classification and storage for the local freights, which service about 60 industries and interchanges. Visitors get the impression that the railroad is much bigger than it

really is because of several large industries. Bradford Lime Works, two General Electric plants, a large combination coal and powdered carbon mine, Wharton Chemical and Northfork Glassworks are fictitious but credible industries providing lots of switching opportunities.

Instead of using the typical four-cycle car-card and waybill system, I've developed a spreadsheet-based switch list concept that prints switch lists for yard and train operation. This avoids the many card boxes spread out around the layout, and the crews seem to like its simplicity.

Future goals and projects

My HO scale CNY&NE is about 80 percent complete. I plan to finish the few remaining structures and details in the very near future. I've been working on a plan to expand the model railroad into the family room on a narrow shelf along one 17-foot wall. The conceptual plan has two decks that have track connections through the wall into the main layout room.

The 1'-5" x 17'-0" upper deck will be a fictitious D&H branch line with some rural industries and switching. The 19" x 17-foot lower deck will be the heavily industrialized Seymour Branch of the CNY&NE. This will allow me to continue the layout design and construction process that I love so much.

Overall, I'm pleased with my modeling efforts with the Central New York & New England. I'm glad that I changed to the proto-freelance and multi-deck concepts, which have allowed me to use my creativity to include much of the operational interest that I've developed over the years. **MR**



Meet Jim Leighty

Jim Leighty lives in Milford in northeast Pennsylvania with his wife, Susan. Jim is a semi-retired owner of a home-building and remodeling company. He has been interested in trains and model railroading for the past 57 years. Jim and his family spend summers on a lake, enjoying swimming, fishing, and kayaking.



Simple weathering and a couple of details enhanced this Athearn HO scale Trinity 5,161-cubic-foot covered hopper. Pelle Søborg used just two colors of paint and three colors of weathering powders to achieve these results.

HOW TO WEATHER A COVERED HOPPER

Simple procedures makes this car a good first weathering project

By Pelle K. Søborg • Photos by the author

Weathering covered hoppers is fairly simple, so if you've never weathered rolling stock before, these are a good choice for a first project. I had a couple of Athearn HO scale Trinity 5,161-cubic-foot covered hoppers that needed weathering before they could enter service on my layout. I also applied uncoupling levers and North American Railcar Corp. magnetic brake lines to each car.

Over the years, I've developed a four-step method I use for weathering most of my rolling stock. The first step is fading the model's original paint to give it a sun-bleached or dusty look. Step two is applying the mud and grime stirred up by the wheels. The third step is applying

various degrees of rust, depending on how old and weather-beaten I want the model to look. Finally, I seal the weathering with a coat of flat clear varnish so my rolling stock can be handled without damaging the weathering.

You only need a few tools for this task, starting with an airbrush. Mine is a dual-action airbrush with a top-mounted paint cup. With a dual-action airbrush, you can control the airflow and color flow separately.

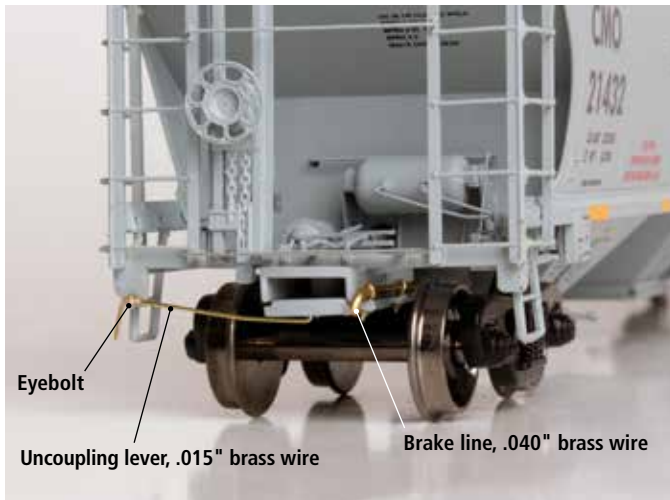
You also need fine and wide paintbrushes, paint, and powdered chalks. For this project I used two colors of paint, light gray and dark brown. I used three shades of powder: light gray, brown, and

rust. You also need a clear varnish of some kind for sealing the weathering.

The best results are achieved by building the weathering up in light layers, just like it does on full-size cars. Use prototype photos as a reference. I've accumulated an archive of reference photos I've taken on railfan trips. Prototype photos can also be found online.

We don't normally see the tops of the cars when we railfan trackside, but it's important to know how they weather, because we see the roofs of the cars on our layouts all the time. When I'm in the field, I never pass up a chance to take pictures of the rooftops on freight cars and locomotives.

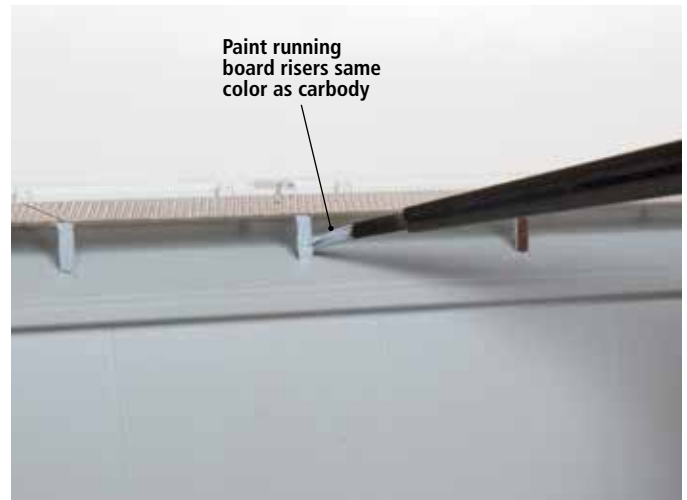
STEP 1 PREPARATION



I applied a few details before weathering the car. First, I made uncoupling levers from .015" brass wire. The levers are held in place at one end by an eyebolt attached to the bracket below the ladder. The other end is glued into a hole that I drilled in the bottom of the draft-gear box cover.

The brake line is made from .040" brass wire. It's attached to the side of the draft gear box with homemade eyebolts made from thin brass wire. I used cyanoacrylate adhesive (CA) to attach the metal parts to the plastic model.

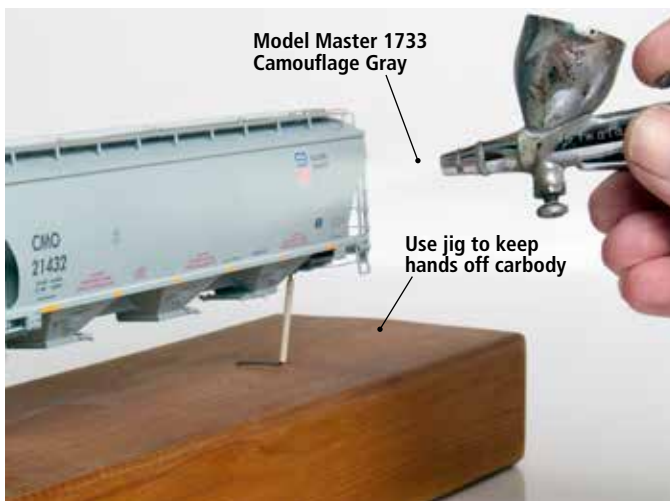
I later attached North American Railcar Corp. magnetic air hoses (available from Pacific Western Rail Systems as item



number 11-AIR-10H-run3) to the brake line. I find it best to wait until after all of the weathering is completed to add the air hoses.

On the prototype covered hoppers, the risers for the galvanized steel running boards normally are painted the same color as the body. I brush-painted the risers on mine with a custom-mixed color, as I didn't have an exact match among my paints. I started out with the now-discontinued Model Master Light Ghost Gray (No. 1728) to which I added a few drops of Light Blue (No. 1562), then lightened with Flat White (No. 1768).

STEP 2 TWO COLORS OF PAINT



Before starting on the weathering, I wiped the carbody clean of dust and fingerprints. Then I set the model in a homemade jig. It consists of a wood block and bent pieces of piano wire. I drilled a series of holes in the wood block so I can insert wires to fit the truck centers on freight cars of various lengths.

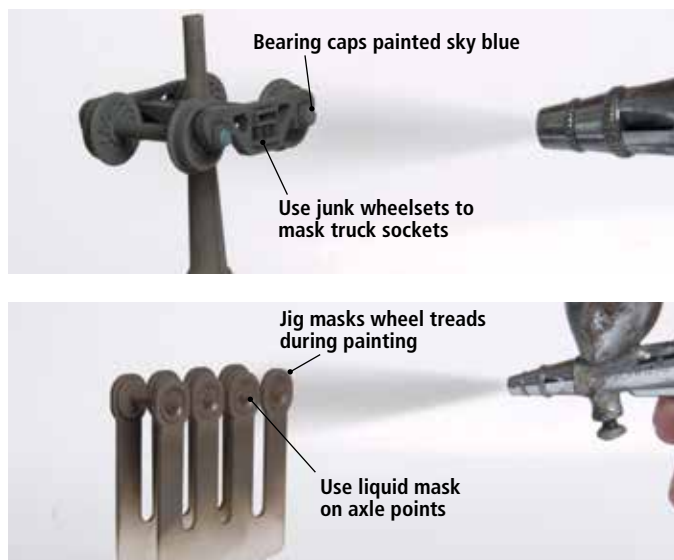
The first step in the weathering process was fading the original paint. I airbrushed the carbody with Model Master Camouflage Gray (No. 1733) thinned to a wash, 1 part paint



to 3 parts thinner. This gave the covered hopper a sun-bleached, dusty appearance.

Next, I applied mud and grime. On full-size cars, dirt is stirred up from below when the covered hopper is in motion, so it should be applied from beneath the model. To capture that look, I turned the car upside down before airbrushing the lower area with Model Master Skin Tone Dark Tint (No. 2002), again thinned to a wash using the same thinning ratio as before.

STEP 3 WHEELS AND TRUCKS

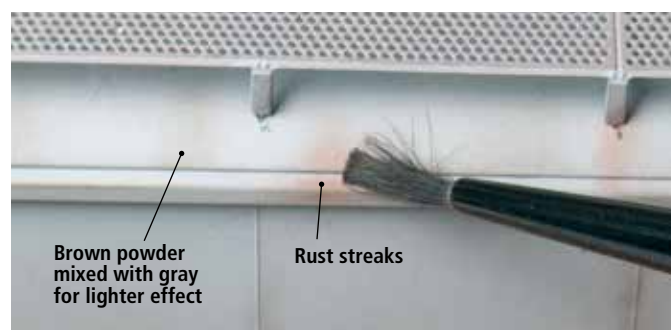
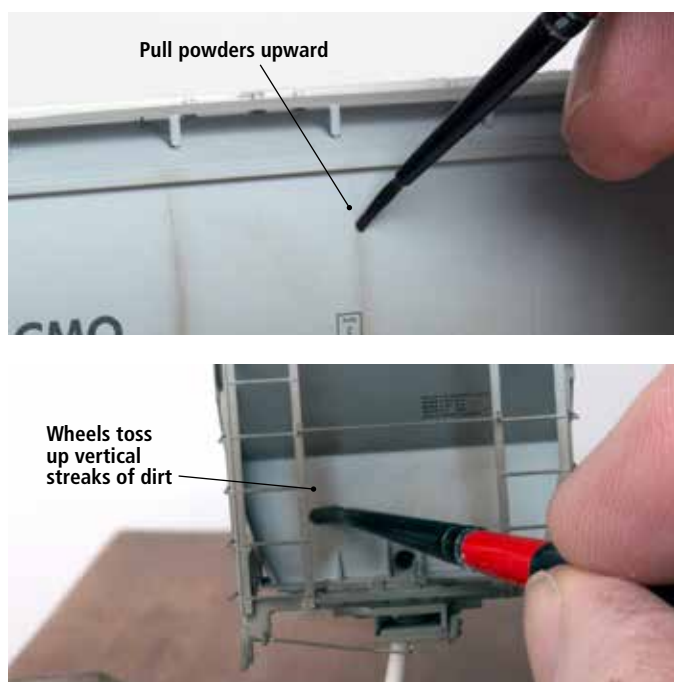


The plastic trucks and metal wheels also need to be weathered. I first brush-painted the roller bearing caps light blue. This simulates the look of Brenco Class K 6½ x 9 model bearings, which are commonly used on trucks with a 286,000-pound capacity.

To give the shiny plastic trucks a rusty metal look, I air-brushed them with the same Camouflage Gray wash I used on the carbody, followed by the Skin Tone Dark Tint wash. The wheels in the top photo are junk sets that I mounted in the trucks to keep paint from getting into the sockets. If you don't have junk wheelsets, you can cover the sockets with masking tape or apply a liquid mask. Examples of the latter include Acrylicos Vallejo Liquid Mask (70.523), Humbrol Maskol (AC5217), and Microscale Micro Mask (MI-7).

I placed the wheels in a laser-cut jig from American Model Builders. The jig holds the wheels and masks the treads at the same time. I covered the tips of the axles with a dab of liquid mask before I airbrushed them with Model Master Skin Tone Dark Tint.

STEP 4 TAKE A POWDER



With the airbrushing out of the way, it was time to apply the weathering powders. I started by applying brown powder along the vertical seams of the carbody with a fine, soft bush. I dragged the brush in an upward direction so the heaviest amount of powder would be at the bottom.

On the roof of covered hoppers, you'll also find streaks of dirt and grime. These are often lighter than the streaks on the sides, so I mixed the brown powder with gray before I applied it to the roof. As I'd done on the sides, I brushed from the edge toward the center so the heaviest buildup would be closest to the edge.

Depending on how many years the hopper has been in service, rust will begin to show. My hopper represents a car

that's been in service for some years, so I applied a few rust spots to the roof using rust-colored powder.

On the slope sheets of these hoppers, you'll often see two dark vertical streaks of mud and grime tossed up by the spinning wheels. I re-created the effect with brown powder applied with a soft brush.

With a wide, soft brush, I applied brown powder to the top of the end. The dark powder is very visible on a light gray surface like this, so be careful not to apply too much. Wipe the brush almost clean on a piece of paper first. I also applied a mix of brown and gray powders to the hatch covers.

I repeated this process with the brown and gray powder mix on the sides. This completed the weathering.

STEP 5 SEALING THE DEAL




Vallejo 27.651
Polyurethane
Matte Varnish



Pelle's weathered covered hopper now looks like it's seen years of service on the rails.

The final step was sealing the weathering on the carbody and trucks with a protective layer of Vallejo Polyurethane Matte Varnish (No. 27.651). Don't confuse this with Vallejo Matte Varnish (No. 70.520). The polyurethane varnish is more durable than the latter. However, it dries with a slight shine, while the ordinary Vallejo Matte Varnish dries dead flat.

If you don't like the silky look of the polyurethane, you can give the model a second coat with the matte varnish. I thinned the varnish with a few drops of Vallejo Airbrush Thinner to make it flow better.

Once I added the magnetic air hoses and a pair of Sergeant couplers, the covered hopper was ready to enter service on my layout. 

Materials list

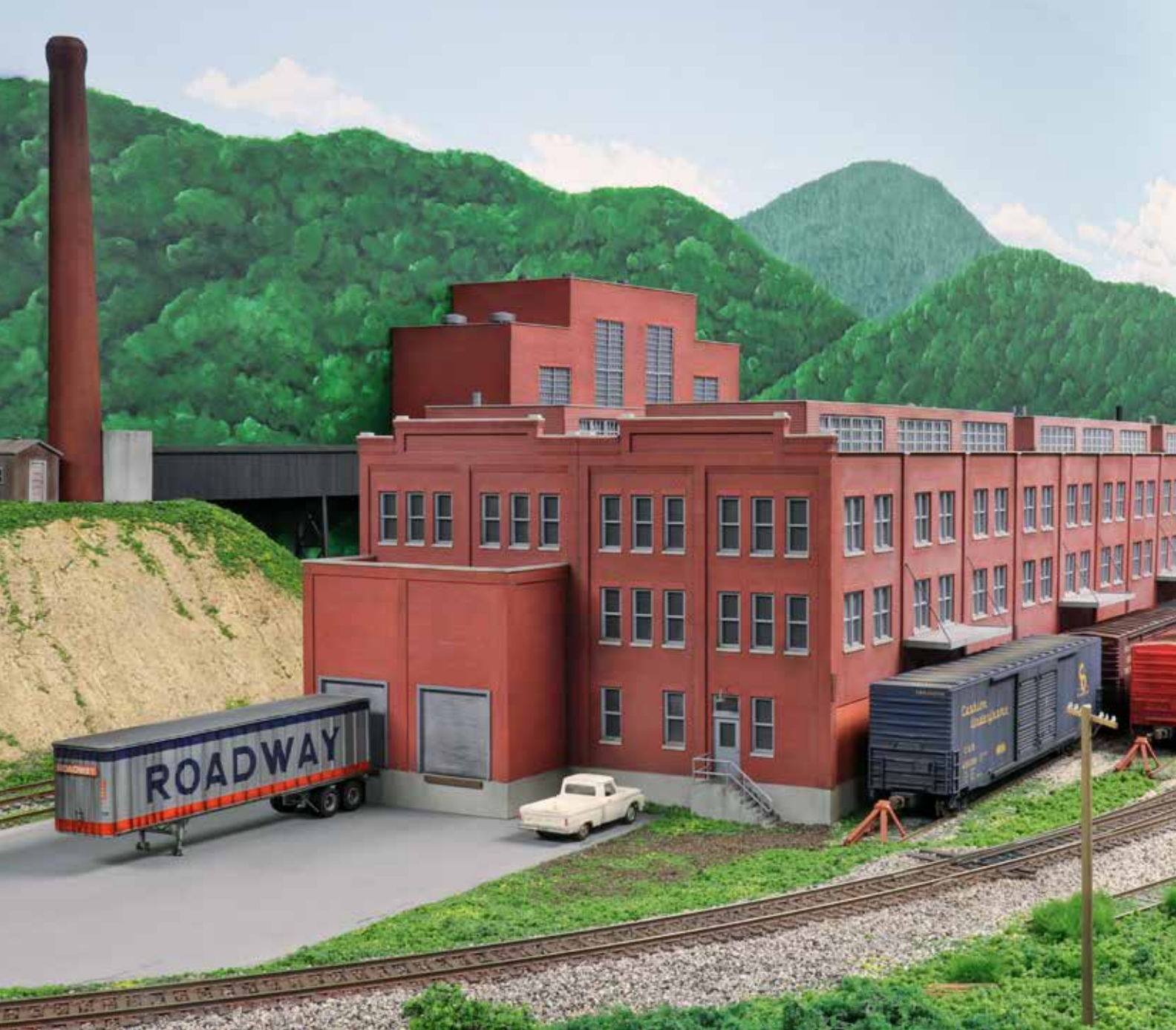
Acrylicos Vallejo
27.651 Polyurethane Matte Varnish
71.161 Airbrush Thinner

Testor's Model Master enamel paint
1733 Camouflage Gray
1739 Airbrush thinner

2002 Skin Tone Dark Tint

Miscellaneous

.015" brass wire
.040" brass wire
Brown, gray, and rust weathering powders
Light blue paint



A paper mill in a spare room

This track plan for a single-industry HO scale layout fits in a 10 x 14-foot space

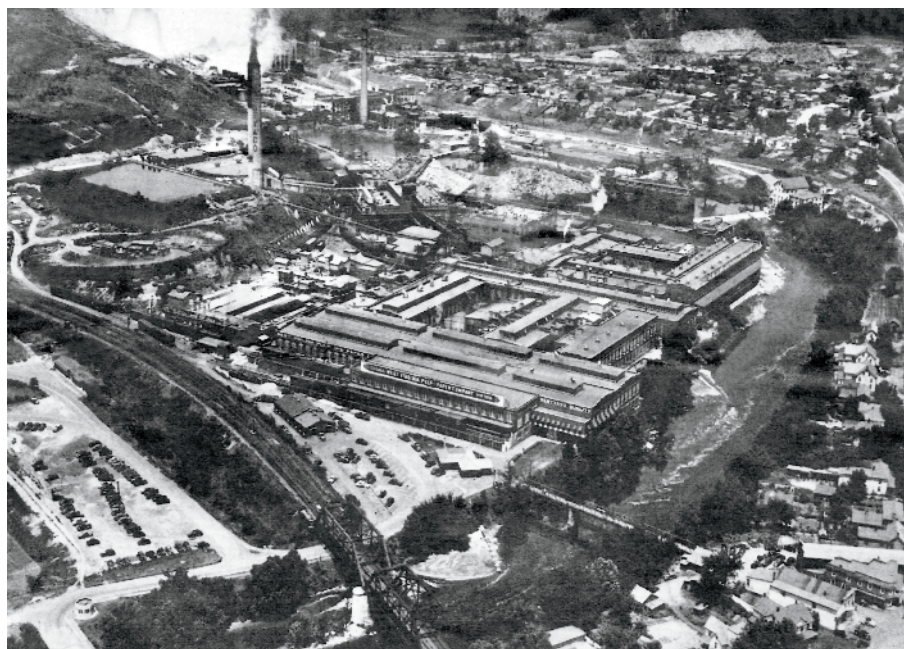
By Joe Green • Photos by the author unless noted

General Electric U23B No. 2300 rumbles past the Back Creek Paper warehouse on Joe Green's 30 x 31-foot HO scale Chesapeake & Ohio Ryder Gap Subdivision. Joe designed a track plan to see how the paper mill might look as a single-industry layout designed to fit in a spare room.



Modeling the Westvaco Pulp & Paper mill in Covington, Va., was an easy decision. It was by far the largest Chesapeake & Ohio customer in the region where my proto-freelanced HO scale C&O Ryder Gap Subdivision is based (see *Model Railroad Planning 2021*) and would create significant traffic for my 1974-era switching layout.

The Westvaco plant was huge, stretching out over more than three-quarters of a mile. I allocated the full length of one side of a 26-foot peninsula with the goal of designing an industry that captured its look and feel, while also keeping a crew busy switching for an entire operating session. A paper mill would help justify the existence of the Ryder Gap Sub in the turbulent 1970s.



This 1947 aerial photo of the sprawling West Virginia Pulp & Paper (Westvaco) paper mill at Covington, Va., clearly shows why Joe had to make his track plan much more linear and compact. The Chesapeake & Ohio main line is visible at left. Westvaco photo, author's collection

But what if I didn't have a 930-square-foot train room? Could the design of Back Creek Paper, the name I'd given my version of the prototype facility, be the basis for a single-industry layout in a 10 x 14-foot spare room? The goals for the new layout included:

- Reuse as much of the existing design as feasible
- Ensure the new plan retains its grounding in the full-size Westvaco mill
- Support a 2- to 3-hour operating session with a single crew.

Focusing on a large industry allowed the original layout to be less compressed and feel more realistic. It also encouraged me to research the paper industry in general and the Westvaco mill specifically so I could develop a credible representation of the overall business.

Researching the Westvaco mill

I started by looking for Westvaco's track plan in documents available from the Chesapeake & Ohio Historical Society (cohs.org). The prototype had 20 to 25 industrial sidings, which were accessed from the main lines of two separate subdivisions that joined in the Covington Yard less than a mile east of the plant. The track plan also indicated that a number of these sidings were located inside the mill a good distance away from the adjoining main line.

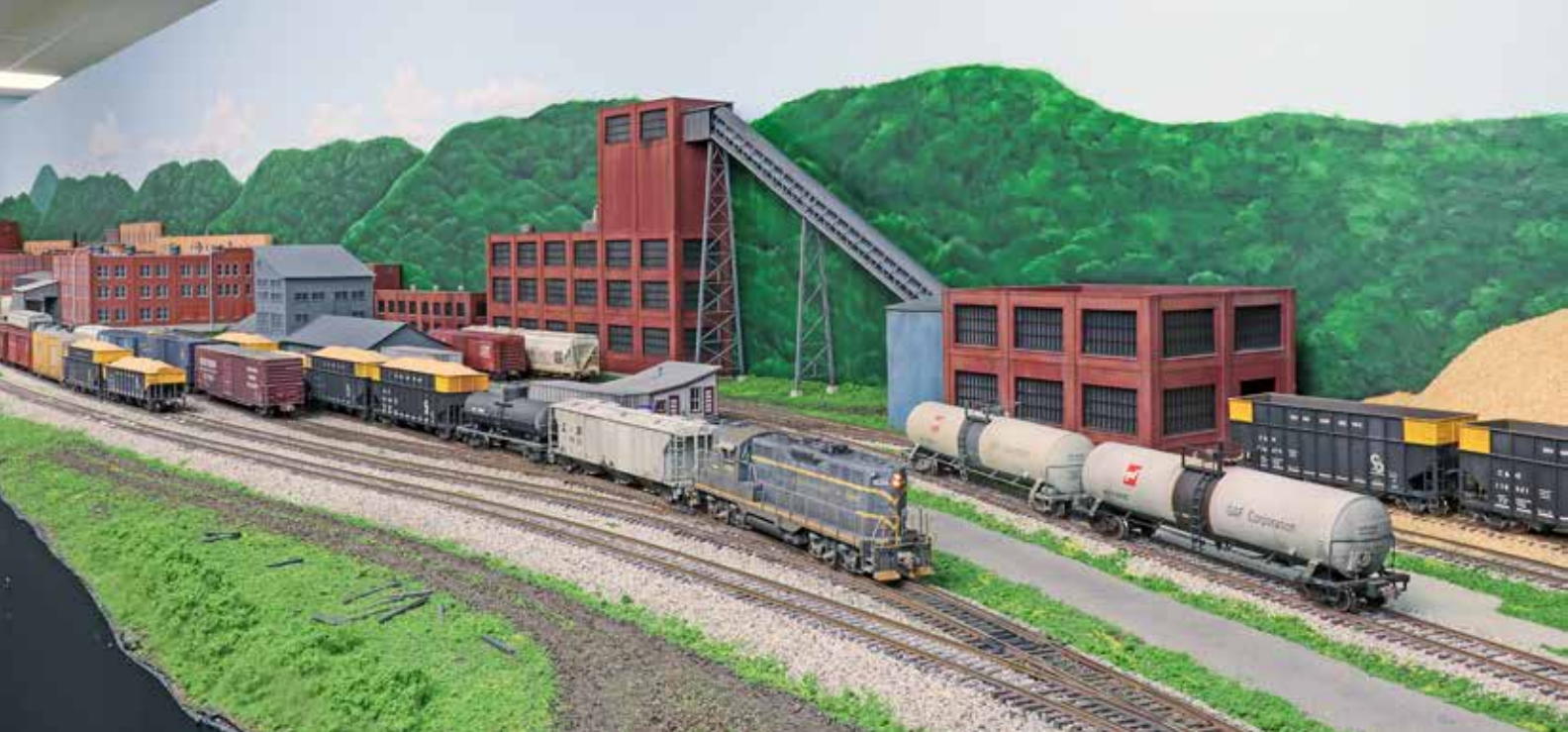
I have only a few personal photos of Westvaco taken well after the 1970s, so I

began searching online for additional pictures to use for my design and modeling. I stumbled into a gold mine, Steve Nicholson's website (freepages.rootsweb.com/~alleganyhighlands/history/) that contained hundreds of photos of the mill from the early 1900s into the 1990s.

The website also had two other treasures. The first was a series of site diagrams from 1929 with names for many of the industry's buildings like the Digester, the Beater Building, the Bleach Room, the Machine Room, the Calendering and Cutting Building, and the Finishing Building. I recognized the opportunity to include these structures within my design.

The second surprise was a 20-plus page history of the mill. After its original development in 1900, the industry was expanded several times, including major building programs in the 1920s and in the late 1940s. As source materials and architectural styles evolved over time, the subsequent building programs created a visible history throughout the complex. Structures built at the same time tended to have the same architecture and colors, while buildings constructed decades later often have a different construction style.

I wrote to Westvaco to ask whether they had any photographs of the plant. I was delighted to receive an envelope from the mill containing a few photos, including two large aerial shots from the 1940s and 1950s.



A view of the east end of the mill shows C&O GP9 6034 leading the Mill Job. Note the pile of woodchips at right and the conveyor that carries them up to the Digester building, where the pulping process begins. The gray structure is the activated carbon warehouse.



Over at the pulp mill, a C&O Geep pulls a boxcar loaded with activated carbon. The material, a byproduct of the pulp-making process, is used to purify water and other commercial products.

What's in those cars?

One advantage of modeling a pulp and paper mill is the wide variety of railroad cars they require [See "Car selection" on page 46. – Ed.] Pulpwood cars and wood-chip hoppers feed the pulp mill, coal hoppers go to the powerhouse, and boxcars are used to ship paper. There are also a sizable number of covered hoppers, tank cars, and boxcars of inbound chemicals used throughout the paper-making process.

But what are those chemicals? Early in my research, I found a document on the Operations Special Interest Group website (opsig.org) listing 15 chemicals that could be used in a pulp and paper

mill, what they would be used for, and what type of cars they would arrive in. Chemicals included kaolin, starch, chlorine, sodium chlorate, sodium hydroxide (caustic), sodium sulfate (salt cake), and lime. I chose a subset of these chemicals to be received at various sidings within Back Creek Paper. I also found that there are additional byproducts that can be shipped from a pulp mill, such as activated carbon, turpentine, and tall oil.

Deciding where to locate the sidings for each of the chemicals fluctuated from design to design. My curiosity finally got the better of me. How do you make pulp? How do you make paper? A Google search of these questions produced articles, videos, chemical

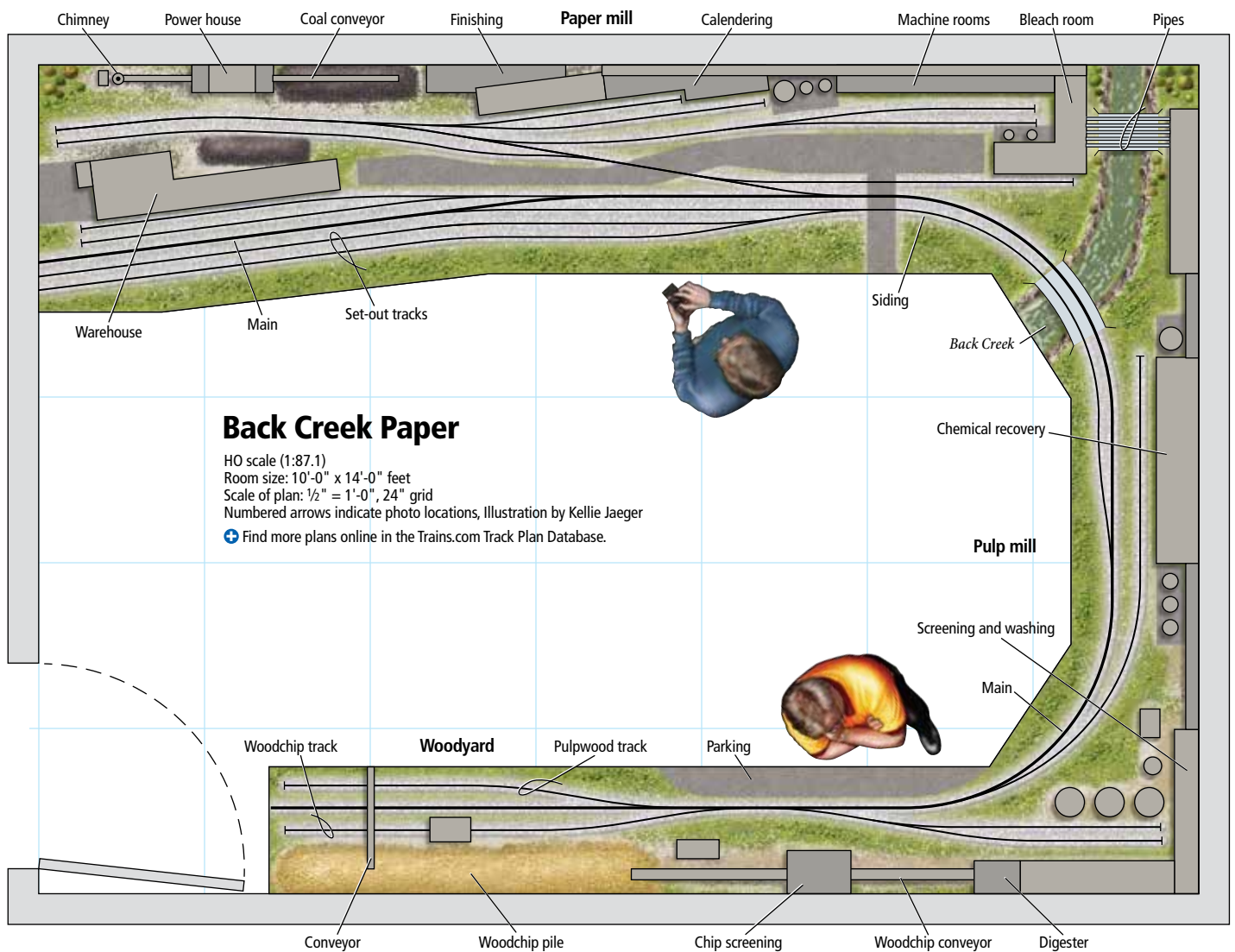
equations, and more. Although often more than what I needed, I better understood what I was trying to model.

One key learning point was that a sulfate, or kraft, pulp mill such as Westvaco was different than a sulfite mill, each using a different set of chemicals. Through this research I was able to better identify the flow of materials through the site and the location where specific chemicals would need to be unloaded.

Modifying the plan

My first decision to make was how to bend the existing linear track plan around a U-shaped area. The U-shaped approach would allow plenty of length for the industry while also providing a wide center aisle for easy access. The paper mill side of Back Creek Paper worked best, and I chose to keep it virtually intact along one 14-foot wall. The pulp mill was cramped, and the new design let me spread it out more realistically and for better operations.

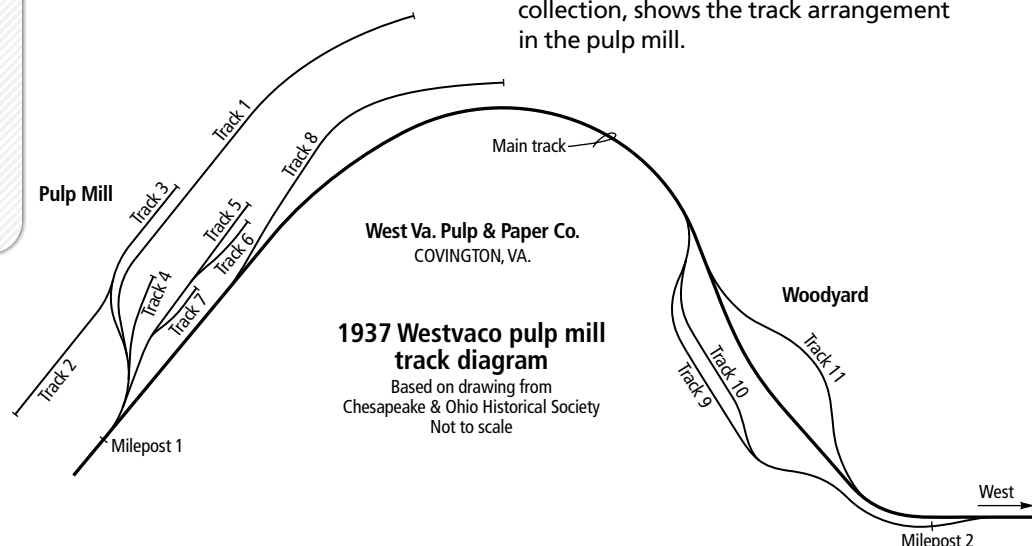
The next decision was how to adapt the siding and two set-out tracks by Back Creek Paper. A 1937 C&O track chart showed the two set-out tracks by the prototype Westvaco facility approximately three-quarters of a mile from the main body of the Covington, Va., yard. I don't know if the tracks still had this



The track plan at a glance

Name: Back Creek Paper
Scale: HO (1:87.1)
Size: 10 x 14 feet
Prototype: Westvaco Pulp & Paper mill
Locale: Covington, Va.
Era: 1974
Style: around-the-walls
Mainline run: 28 feet
Minimum radius: 30"
Minimum turnout: No. 6
Maximum grade: none

The Chesapeake & Ohio Historical Society proved a valuable resource for Joe when researching the Westvaco Pulp & Paper mill. This illustration, based on a drawing from the society's collection, shows the track arrangement in the pulp mill.





Back Creek separates the paper mill and pulp mill. Directly behind the Chesapeake & Ohio Electro-Motive Division GP9 diesel locomotives is the Beater Room, where pulp and water are combined (“beaten”) and prepared for the paper machine.

Car selection

It took me a while to recognize that the cars spotted at Back Creek Paper would become an important part of whether it looked prototypically accurate or not. This applied not only to the type of car, but also to the car ownership.

I initially collected a wide variety of cars, but when together, they didn’t look particularly realistic. Even a large mill is likely to have only a few suppliers for any one inbound commodity, so acquiring a car fleet with multiple cars from the same supplier looks more realistic than one that has too much variety.

– Joe Green



A Chesapeake & Ohio GP9 switches chlorine-filled tank cars on the Bleach Track. The Geep is an Athearn Genesis model equipped with a SoundTraxx Tsunami sound decoder; the tank cars are Atlas models.

purpose in the 1970s, but I kept them to enhance operations.

The new layout assumes that Back Creek Paper is on a lightly used branch line with one eastbound and one westbound freight that swap blocks of cars in the set-out tracks overnight. A local switcher works the mill during the day-time, spotting the inbound cars from the set-out tracks and pulling outbound cars that have been released.

It was essential that there be adequate track length for the switcher to pull a full cut of cars out of the set-out tracks and sort them. To do so, the tracks were retained on one end of the layout, but they were shortened significantly to give the switch engine sufficient clearance. Assuming a mix of 40- and 50-foot cars,

the two tracks will hold a maximum of 24 cars, enough for an interesting operating session. We will assume the tracks are double-ended with unmodeled turnouts past the west end of the layout.

Similarly, the siding also needed to be shortened, as we needed to be able to maneuver a cut of cars from each end. So it was located with adequate mainline length on both sides.

The paper mill

The Westvaco plant isn’t only long, but it’s also deep. The industrial sidings are often within brick canyons some distance from the main line. Re-creating this effect within the model paper mill started by having a row of buildings in

front of the industrial sidings and a row of flats behind them. To add to the sense of depth, there are two layers of flats where possible.

Because operating the layout is an important priority, the design has ample space for people to reach into the industry to uncouple cars where needed, foregoing some of the brick canyon effect.

The paper mill side of the plant features eight of the 10 prototype industrial sidings. Following the prototype, the paper warehouse spurs are accessed from the main, while the remaining tracks are reached via a long switchback. The switchback creates several long sidings that provide ample track length for storing cars temporarily while working within the paper mill.

This creates a couple of visual anomalies, however. The coal track is on the wrong side of the powerhouse and coal pile, while the paper warehouse is cut off from the main body of the facility (there must be a tunnel underneath the tracks).

The pulp mill and woodyard

In keeping with the theme of reusing the existing design, the reworked pulp mill and woodyard retain Back Creek Paper’s five industrial sidings, albeit spread out over a longer area. The benchwork is 18" wide; my increasingly cranky back has made me appreciate not having to lean over the layout quite so much. Wider benchwork, if desired, would allow for more depth in the scenes and possibly additional tracks. Westvaco had 11 sidings, so adding more would be in line with the prototype.



After working the Bleach Track, the morning crew switches covered hoppers carrying sodium chlorate, which is converted to chlorine dioxide as an additional bleaching agent. The main line, siding, and two setout tracks are visible in front of the engine.

The woodyard is split by the main line, just as the Hot Springs branch does at the Covington mill. The pulpwood track is intentionally set near the front edge of the layout, so the pulpwood piles don't need to be modeled. Creating a realistic wood-chip pile with screened sawdust over an underlying form is far easier than cutting hundreds if not thousands of pulpwood logs.

The Westvaco paper mill and pulp mill are separated by the Jackson River with an extensive set of pipes connecting the mills across the river. The layout uses Back Creek to separate the two mills. The creek curves around the buildings so that its transition to the backdrop is hidden from view.

Large-scale operations

A typical day starts with 20 cars in the eastbound and westbound set-out tracks. Back Creek Paper requires that the pulp mill and a specified part of the paper mill be worked in the morning, while the woodyard and the rest of the paper mill are worked in the afternoon. The AM Mill Job starts by sorting the necessary cars from the setout tracks into the siding. The crew then works the two mills, spotting inbound cars and pulling released cars. The cars they pull from the plant are sorted in the siding into eastbound and westbound blocks.

The PM Mill Job begins by swapping the remaining inbound cars in the set-out tracks with the outbound blocks in the siding. The crew next works the woodyard before servicing the second half of the paper mill. Once again, cars



Back Creek Paper generates its own power, consuming carloads of coal every day. Here, a pair of Chesapeake & Ohio GP9s pulls a cut of empty hoppers from the track in front of the powerhouse.

pulled from the plant are sorted into eastbound and westbound blocks in the appropriate set-out tracks.

Like their prototype counterparts, conductors can write switch lists to tell them where to spot the inbound cars. Back Creek Paper's traffic manager can provide switch lists and other documentation to specify what cars should be pulled from or re-spotted within the sprawling mill.

There's space for approximately 45 cars within the facility, although a session might normally start with 35 cars. In this scenario, 15 cars will not be pulled, taking a prototypical second day to be loaded or unloaded. Each crew, working with roughly 10 inbound and 10 outbound cars, will feel like they are

switching only a part of the large industry at any given time.

A new beginning

Back Creek Paper is a signature scene on my Chesapeake & Ohio Ryder Gap Subdivision model railroad. As shown here, it can also be the basis for an HO scale layout in an 10 x 14-foot spare room. The single-industry layout would be rewarding and fun to build and provide many hours of operating fun. [MR](#)

Joe Green is a retired computer software manager who lives in Sequim, Wash., with his wife, Janet. He also enjoys solving kakuro and sudoku puzzles, watching sports, and walking.



Dick Elwell relaxes on the stoop of his establishment in Kingfield as Sandy River & Rangeley Lakes Forney No. 10 passes by. Frank Baker scratchbuilt the structure for Lou's On30 layout based on photos of an HO scale model (opposite). Lou Sassi photo

Scratchbuilding Elwell's Bar

An O scale structure adapted from a discontinued HO scale kit

By Frank Baker • Photos by Frank Baker unless noted

During a photo shoot of my railroad for *Great Model Railroads 2019*, Lou Sassi remarked that he really liked my scratchbuilt structures. The next day, Lou asked me if I would be willing to build an O scale version of an HO building that he had seen on Dick Elwell's layout: Harrington's Bar, a discontinued HO scale kit by Fos Scale Models ❶. I asked him to send me some photos of the structure.

Lou's Sandy River & Rangeley Lakes RR is an On30 layout that's been in *Model Railroader* many times, and I told him I would be pleased to build a structure for it. After receiving the photos of the building on Dick's layout, I told Lou that I would love to build it.

Using the photos as a reference, I made a scale cardstock template of the building footprint along with some sketches and mailed them to Lou ❷.

The template was double-sided so he could test it in different orientations.

Upon reviewing the building design in relationship to the space on his layout, Lou gave me the green light to proceed with the next step, a mock-up.

The mock-up

I am a strong proponent of mock-ups, having used this technique in prior

construction of many scratchbuilt structures. The mock-up is made by gluing scale drawings of the structure to cardstock. This provides a quick and easy three-dimensional view of the structure. You get to visualize the structure in its environment at a very low cost. Any changes are also very easy to make at this stage.

I drew a set of scale plans of the structure showing front, back, left, right, and top elevations. A quick trip to the copy shop and I was ready to start. Many of the views had multiple components that needed to be duplicated, so I ordered three copies.

I cut each view from the drawing. I use two-ply cardstock purchased from a local hobby shop for the structure. I applied 3M Super 77 Spray Adhesive to the cardstock, then draped the print over it, smoothing the paper out with my finger to eliminate any bubbles.

Using a hobby knife with no. 11 blade, I cut each panel to the size of the desired building component. On some panels, I applied $\frac{1}{8}$ " basswood bracing for rigidity. I glued the panels together with Elmer's yellow wood glue, a fast-drying and very strong adhesive. It's my glue of choice. The rear porch was added in cardstock, as well. ③

I completed the mock-up and mailed it to Lou for final approval on his layout before starting the wood model. I also included color samples for his review. These allowed Lou to review and correct any issues before I started the actual structure build.

Building the walls

I used Northeastern Scale Lumber clapboard siding for my exterior structure walls. I started by cutting out all the walls, including all the window and door openings, on a flat surface. Then I braced the walls. This is probably the most important aspect of the build. This prevents warping and other structural issues. I use $\frac{1}{8}$ " x $\frac{1}{8}$ " basswood. I weighted the pieces down while the glue dried to ensure a good, tight bond and flat pieces.

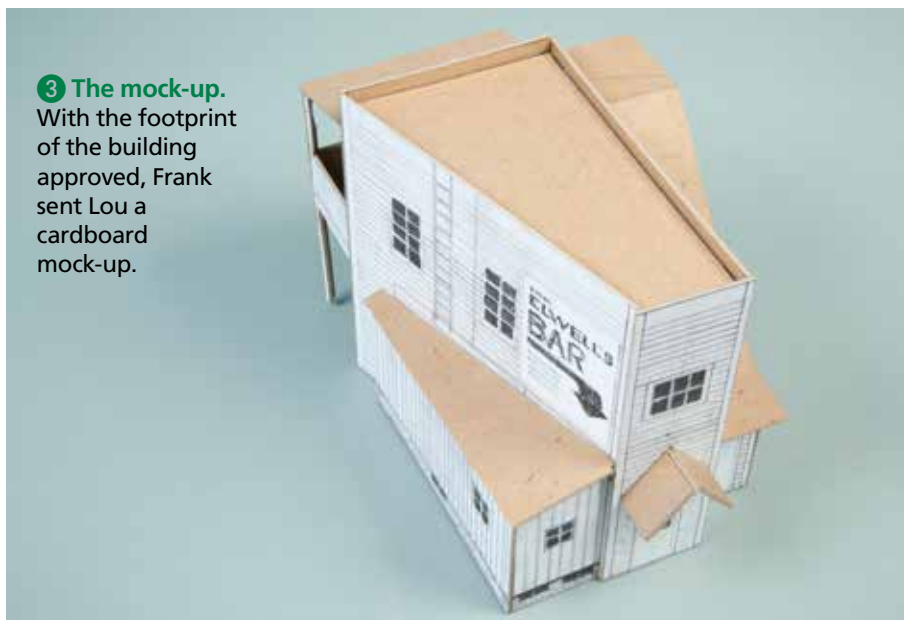
I braced all four corner joints and added several vertical and horizontal braces to the inside of each wall. I also braced around the windows and doors. Once the bracing was complete, I checked to see that the mating surfaces of the walls fit tightly. You may have to lightly sand along the joint using a sanding block in a rotary motion to ensure a nice, tight fit.



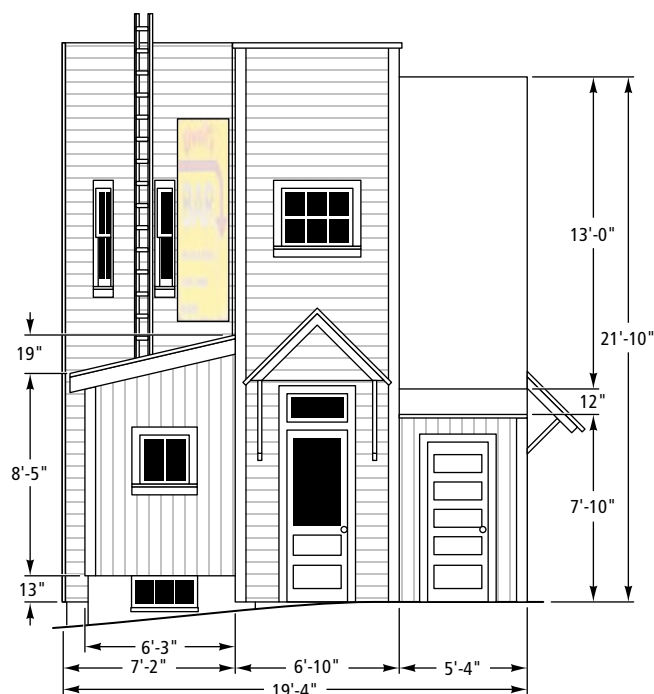
① The original. This is the HO scale model on Dick Elwell's layout. Lou Sassi photo



② The template. Frank sent Lou a cardboard template showing the footprint of the proposed structure so Lou could figure out a location for it.



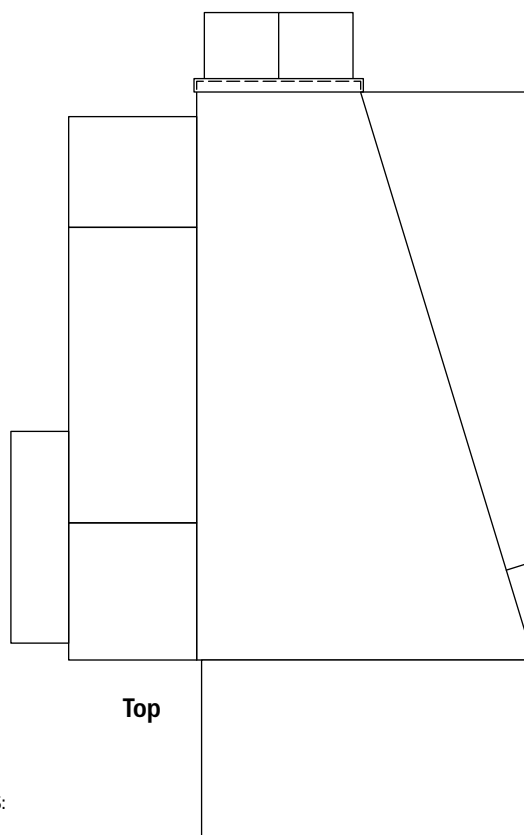
③ The mock-up. With the footprint of the building approved, Frank sent Lou a cardboard mock-up.



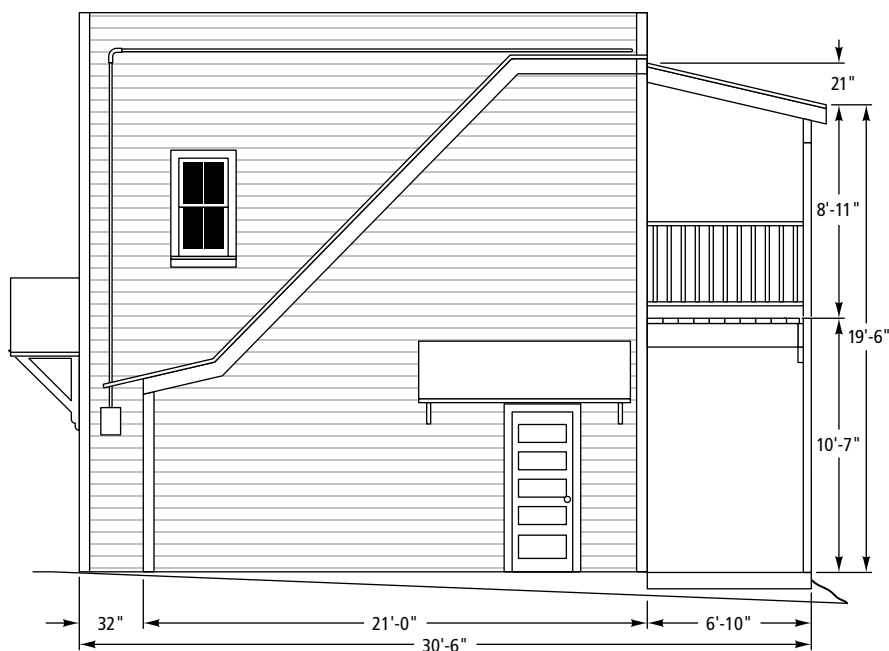
Front

Ratio 1:96, 1/2 O scale

TO CONVERT 1/2 O SCALE
DRAWINGS TO YOUR SCALE
COPY AT THESE PERCENTAGES:
N 60 percent
HO 110.2 percent
S 150 percent



Top



Right



Rear

Painting the walls

I use water-based acrylic paints. They are inexpensive, come in a wide variety of colors, and have superb quality control of the colors from bottle to bottle.

I put a fairly large amount of paint in a mixing cup. I use recycled yogurt cups for this. I put water into another cup and added water slowly to the paint until

I got the consistency I want. Finding the right consistency is one of the hardest things to determine, so I suggest you experiment before painting a structure.

Using a 1" brush, I quickly applied the color with horizontal strokes. When the color has been applied, I immediately use a clean rag to wipe the paint off, rubbing hard. Speed is the key here. If you wait too long, the color will be absorbed

into the wood, making the final color opaque. Larger surfaces are especially difficult. What you want to achieve is a colored wall that shows the texture of the wood beneath the paint. This will take a lot of practice, so I would advise practicing on small sample pieces of wood. You don't want a dense or opaque color.

Let the panels dry overnight. Put a weight on the walls to ensure flatness.



4 Close-up realism. Nail holes and distressed boards make the siding look more realistic. The ladder is scratchbuilt.



5 Hip to be square. Frank clamped his walls to rectangular metal slabs to ensure the joints would dry square.

Drawn for *Model Railroader* magazine by

RICK JOHNSON

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Signs of wear

On day two, I used a $\frac{7}{16}$ " diameter pounce wheel to create the nail holes. Typical spacing of wall studs in modern construction is 16" apart. The spacing of the nail holes may vary depending on the age of the structure you are modeling. I used a square to keep the nail holes straight and vertical. Since pounce

wheels are a bit wobbly, I sometimes had to hold the wheel against the square.

I also wanted to distress some of the boards. Using a hobby knife with a pointed no. 11 blade, I made a vertical cut in a board. Then I used a chisel-end blade to lift the cut edge away from the wall, creating the appearance of a loose or broken board **4**. A distressed wall on the north side of a wood building in an

environment that sees harsh winters is very common.

Weathering

Once all the walls had nail holes and distressed boards, I used my 1" brush to apply a medium mixture of alcohol and ink stain. Alternately, you could use a commercial stain product like Hunterline Driftwood. I applied stain quickly over the entire panel, working from top to bottom, then let it dry.

I let the board dry flat, since holding the panel at an angle would let the stain run down the board and puddle at the bottom. If this is your first time, I would recommend that you utilize a small color sample to see the effect of the stain before you take on an entire wall.

Let the stain on the walls dry overnight. Typically, the stain will highlight the pounce wheel holes, making them more visible and look more like rusty nail holes.

If you wish, you can paint or dry-brush the walls prior to assembly. I use an acrylic pigment color called White Wash. Before gluing the walls together, I painted and assembled the vertical corner trim boards.

Assembly

Now it's time to assemble the walls. I again used Elmer's yellow wood glue. I keep a rag handy to wipe up any excess glue that squeezes out of the joints when I press them together. I use a small engineer's square or a rectangular block of metal to ensure the joints are square and straight **5**. Remember that since the walls now occupy multiple planes, it's important to make sure they are square from every angle. I make interior braces from five layers of cardstock to keep my



6 Casting shadows. Frank used an ink stain on the plaster foundation. More ink on the top deepened the shadows.



7 Worse for wear. Frank pulled strips of rolled roofing material under a sanding block to distress and age it.



8 Like a brick. The chimney is made from HO scale brick material. He painted it white, then added red on the brick surfaces.

corners square. In our Arizona climate, I allow each wall about an hour to dry.

After assembling the four walls of the main building, I added the stairway on the right side, followed by the bar extension on the left. I cut cardstock roofs for the stairwell and the bar extension.

I primed all the windows and doors with Walmart HomeShades gray primer. It is inexpensive and covers well. I left the windows grey to match the trim color. After that dried, I added window glazing, leaving some windows open.

For curtains, I use one ply of toilet tissue, using only the layer which is not embossed. I used a toothpick to apply glue to hold them in place, then positioned them to give the appearance of drapes blowing in the wind **5**.

The foundation

I really like the cast plaster stonework from New England Brownstone

(nebrownstone.com). The quality of the stonework is fine and the panels are easy to work with. The plaster accepts paint, chalks, and inks very well. I used yellow glue to assemble the panels.

I applied medium-dark ink stain on the stone. The stone really absorbs the ink. I added an extra application near the top where the stone would meet the wood wall. This gives the impression of an area that's shadowed by the overhanging wall above **6**. The same thing applies to the application of weathering pastels: dark near the top of the wall, lighter near the bottom.

The rear porch

The base is plaster from C.C. Crow and is heavily braced underneath to keep it from snapping if bumped in shipping. The bracing runs under the entire building. This provides a very strong porch.

All the lumber for the porch was painted prior to cutting and installation. The main components are scale 6" x 6" posts and 6" x 10" beams. The upper porch floor is constructed of 2" x 10" lumber. The railings are made from 2" x 4" upper and lower railings and 2" x 2" vertical spindles. The porch roof rafters and a header were added later. Two-ply cardstock painted brown simulates the plywood subroof.

Roofing materials

This building has two different roofing materials. The first is used on the back porch, the stairwell, the bar extension, and the roof over the front door. I used brown kraft paper, painting it grimy black. After the paint dried, I cut the material into 3-scale-foot-wide pieces. To produce a worn appearance,

I drag each piece between the table surface and a sandpaper block **7**. The more times you drag the piece of paper through the abrasive, the more aged the roofing appears. I used two-ply cardstock for the subroofing. I applied the kraft paper over the cardstock.

The main roof uses the same kraft paper, but a different color. Micro-Mark produces a set of Rust N Dust weathering pigments (micromark.com, item no. 84625). I purchased a pint of the rust material. It works wonderful for a roofing pigment. Try to get some of the base material from the bottom of the bottle. It's dense, covers the cardstock very well, and provides a great appearance. I used the sanding procedure on this material, as well.

I cut several pieces into short segments that would be draped over the rear roof wall. I then cut additional pieces, working from the rear to front of the building. The more separate pieces used, the more interesting the roof becomes. I finished by adding roofing material parallel to the front of the building. I added a cap board on top of the front wall.

Details

I scratchbuilt the chimney from HO scale brick material from Monster Modelworks. I used four pieces of 1/4" brick corner columns. I sanded down two mating sides of each piece to reduce the overall footprint. After gluing the four pieces together, I used a small cutter bit in a rotary motor tool to grind out the chimney opening.

I painted the brick surface white, let it dry, and then painted the brick surfaces with several shades of red. A little black in the chimney opening finished it **8**.

The roof has pitch in both directions, so I had to sand the bottom of the chimney at an angle so it would stand vertical. After the chimney was glued to the roof, I mixed white glue and black paint. Using a toothpick, I applied the mixture to the base of the chimney to simulate roofing tar. I also put a bit of the grimy black glue at a few random roofing joints. This adds a bit of character to the roof.

The roof over the front door is constructed with two-ply cardstock covered with roofing material. I added a clapboard front panel and support brackets to this roof.

I constructed a ladder and glued it to the side of the building as a roof access (see 4 on page 51). A light-emitting diode was added to illuminate the large sign. A drainpipe from the roof down the back wall, an electrical box, and an electrical supply line were also added on the other side of the back wall.

Signage

There are two signs on this building, one over the front door and a larger one on the left side of the building. I made both on my computer in Adobe Photoshop. I printed the large sign on gloss paper for durability and resistance to fading.

Using a fine-grit sanding block, I sanded the surface to reduce the gloss. I then mounted the sign on cardstock and cut to size.

I painted the edge of the sign roof brown using an old brush. Holding the brush perpendicular to the edge, I let some of the brush tips touch the front of the sign. This helped create an aged, worn sign front. A little drybrushing on the sign face can also be applied to create an even more worn look.

The front sign is printed paper glued to cardstock. The edges are painted grimy black. It's mounted to the building with a piece of brass wire bent and glued to the sign. I cut small squares of roofing material to simulate metal mounting plates. I drilled two holes in the front of the building, installed the simulated metal plates, add a bit of glue to the wire ends, and poked them through the cardstock. I then wiped off any extra glue from the mounting plates. **MR**

Frank Baker and his wife, Phyllis, live in Scottsdale, Ariz. In addition to his activities with the National Model Railroad Association's Arizona Division, he enjoys traveling, gardening, and remodeling.



1 Lou supported the structure above a hole in the scenery on four T-headed pins so he could push its base into the terrain while keeping it level. Lou Sassi photos



2 After removing the structure, Lou filled the scenery up to the top of the pins with Woodland Scenics Foam Putty and painted it earth color.



3 Lou spread his "ground goop" ground cover mix around the edges of the hole and sprinkled it with fine dirt before seating the structure in it.

Planting the structure on the layout

While Frank worked on the bar structure, I prepared the location for the building. I had to remove a team track platform that already occupied the intended space. I soaked the ground around the platform with denatured alcohol, then carefully flexed the platform until it broke loose.

Once Frank's finished building arrived, I placed the cardboard footprint of Elwell's into position and marked the location. I used a utility knife to cut through the ground cover and expanded bead foam board base. After vacuuming up the loose material, I pushed four "foam nails" into the terrain and set the building on top of them. These T-shaped pins let me level the building while I gradually pushed it down into the terrain 1.

Once I was satisfied with its placement, I removed the building and back-filled the hole with Woodland Scenics Foam Putty up to the level of the top of the nails. When the foam putty had dried, I brush painted it with earth color latex paint 2.

I applied a thin layer of my "Ground Goop" ground cover mix around the edge of the opening and covered it with fine dirt 3. I pressed the building into the dirt-covered goop and worked more dirt around the perimeter of the structure. I wet the dirt with isopropyl alcohol followed by an application of white glue diluted 1:2 with water.

After everything had dried, Dick took his chair onto the front stoop and waited for thirsty customers to arrive. — Lou Sassi

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Scratchbuilding a 'lift-frog' turnout



Railroads use a multitude of turnout types. This lift-frog turnout allows for faster, smoother running on the main track.

Give your layout variety with this unusual turnout

By Gary Bothe • Photos by the author

When I first got into model railroading, I tried handlaying my own track and quickly discovered that it wasn't that hard. One benefit is that buying rail, spikes, and ties in

bulk is considerably cheaper than purchasing ready-made track. Handlaying also lets me to duplicate unusual track arrangements found on full-size railroads.

Several years ago, I experimented with building a

McPherson switch, an interesting turnout where the mainline is uninterrupted and the diverging track is elevated a few inches and crosses over the main by means of a movable, elevated frog segment. I went as far as

constructing a mock-up of the turnout before concluding that although I could build it, the linkage mechanism was more complex than I wanted to deal with.

Then, while perusing the April 2022 issue of *Model Railroader* magazine, I noticed a piece on lift frogs in the "Ask MR" section. That looked interesting, because it accomplished the same thing as a McPherson switch but with a lot less complexity. So after some additional internet research, I decided to build one. The finished result is shown in the photo at the top of this page.

If you're interested in trying your hand at building a lift-frog turnout so you can display an interesting bit of



❶ A piece of 1 x 4 softwood is covered with four layers of aluminum foil to dissipate heat during the soldering process.

craftsmanship on your layout, or if you'd like to learn more about handlaying turnouts in general, read on and give these techniques a try.

Laying the rails

I like to build the major parts of a turnout on my workbench and then transfer the finished components to the layout. Since one of the great advantages of handlaying track is the flexibility it allows in layout design, each turnout is pretty much a custom fit in its location on the layout.

As a result, I first do a combination of measuring and "eye-balling" to determine the angle of the frog (the frog number) and the distance between frog and the points. The idea is to create a smooth flow of the rails through the turnout and its connected trackwork.

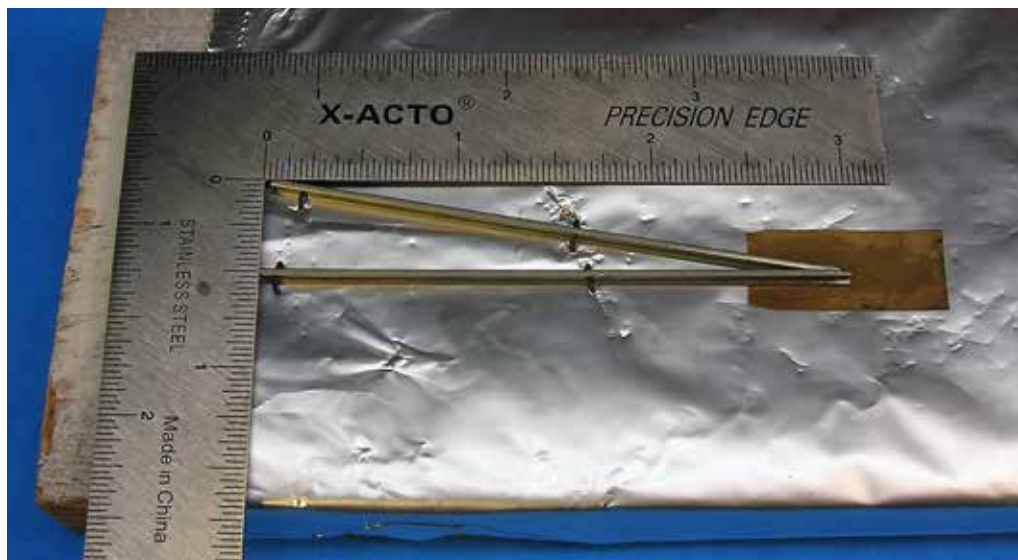
After constructing the turnout on the workbench, there's usually some tweaking required when installing the finished components. However, with good preparatory work, this is usually minimal in nature.

To begin actual construction, I select a piece of 1 x 4 softwood and cover it with four layers of aluminum foil. The wood allows me to easily spike the rails into position, while the four layers of foil protect the wood from the heat of soldering the components together **1**, opposite.

The first pieces of rail to go down are the frog rails **2**. Then I add the stock rails, as seen in **3**.

Next are the closure rails, which run uninterrupted from the switch point through the frog **4**. Later I'll cut a gap in these rails.

I then shape the curved point/closure rail on the diverging route. There are no hinges between the points and closure rails. I notch the point rails so they seat tight against the stock rails **5**, next page.



2 The frog rails shown here are spiked through the foil and into the softwood base at an angle to create a No. 6 turnout.



3 The stock rails are then spiked to the base to establish the outside shape of the turnout.



4 The points and closure rails are single pieces without hinges.

After that I soldered metal tabs with screw holes under the point rails for later attaching the switch rod **6**.

I next cut a piece of rail for the inside half of the diverging route beyond the frog, arranging it so the outside

edge of wheels passing on the main won't hit it.

The diverging route has to be elevated .025" at the point where it crosses the mainline rail. This is the depth of the flange on an RP-25 wheel. With this arrangement, as the

wheel approaches the frog, it leaves the railhead and runs on its flange. It then crosses the mainline rail on its flange before being lowered on the other side of the frog until the tread meets the railhead again. The short elevation of



5 The point rails are marked where they'll terminate, and the stock rails are marked where they'll be notched so the points will seat properly.



6 Metal tabs are soldered under the point rails to connect them to the turnout switch rod. They extend under the stock rails to prevent them from riding up and out of their position.



7 Guardrails are formed and spiked down on top of a .005" brass shim. The flangeways are carefully checked to be in compliance with an NMRA clearance gauge.



8 The frog, guardrail, and point tabs are soldered using a small propane torch. The four layers of foil help to dissipate the heat.

.025" for the diverging route is gentle enough to allow this to happen smoothly.

The frog components, with this rail height difference accounted for, are then soldered to a .005" brass shim, as seen in **7** above. This means shims gradually increasing to .030" thick under the side-track rails approaching the frog are necessary to give the desired .025" difference between the mainline and diverging railheads. The diverging rail must be precisely .025" higher where it crosses the main.

Preventing derailments

Both elevated side-track rails approaching the frog have to be far enough away from the mainline rail to

prevent fouling by passing wheels. This gap will be wider on a model than on the prototype because model wheels and flangeways are oversized. This means there's a gap that has to be filled at mainline railhead height so the wheels on the diverging route can cross the main on their flanges without dropping into the void.

I filled the gap with an appropriate length of brass channel .250" wide and .083" deep (for code 83 rail). The channel was cut diagonally, and half of it was soldered against the outside of the mainline rail.

On the other side of the main line, solder a piece of brass angle on the outside of the diverging rail in a position that helps guide the

outside of a passing wheel in order to keep the flange from crowding against the railhead.

After fitting the components of either type of turnout together and spiking the parts down on the foil-covered board, I use a small propane torch to solder everything together **8**. The foil dissipates the heat from the torch.

The finished parts are then removed from the board and cleaned up. This means removing flux and stray solder and trimming away excess shim brass from under the frog and guardrails. The point/closure rails are also detached from the frog to be installed separately, since they must be electrically isolated **9**.

Installation

The turnout components are now moved to their location on the layout and spiked down. A National Model Railroad Association clearance gauge is used to make sure everything is aligned properly. The point/closure rails are spiked in position, leaving enough rail unspiked to permit any final adjustments. Bits of styrene are used to insulate the gaps between them and the frog.

Jumper wires are then soldered between the frog rails and their adjacent stock rails. This, and the lack of a joint between points and closure rails, eliminates dependence on the points contacting the stock rails to maintain electrical continuity.



9 After unspiking the rails from the wood base, the point/closure rails are electrically isolated from the frog. The excess shim metal is removed with an abrasive bit in a motor tool.

Next, a styrene switch rod is installed beneath the points. Screws are used to secure it to the metal tabs.

I cut my own crossties from wood paint stir sticks, available for free or inexpensively from any hardware store. I glued the ties to the roadbed and spiked down the

rail before painting them, especially if the rail is bare.

Once the feeder wires are attached to the frog and the stock rails, I spray the rails and ties with Floquil Roof Brown. [Floquil paints were discontinued by Testor Corp. Solvent-based paints are available from other



10 Gary paints the rails and ties Floquil Roof Brown. After the ballast is added, the lift-frog turnout is ready for service.

companies. – Ed.] This gives everything, including the spike heads, a rusty brown appearance. Stains and/or paint can be applied to the ties later on if you want to give them a weathered look.

After the paint on the rail-heads is cleaned off and the switch machine or ground

throw of your choice is installed, your turnout is complete 10. [MR](#)

Gary Bothe is a retired professor of psychology at Pensacola State College. Having homes in both Florida and Wisconsin, he has a layout in each house.

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PSXX-AR and Block Watcher



❶ The PSXX-AR is a combination electronic circuit breaker, automatic reversing section controller, and block occupancy detector. It can also control switch machines for the reversing section. Photos by the author

This month I want to discuss the DCC Specialties Block Watcher block detector and the PSXX-AR electronic circuit breaker and auto reverser ❶. Most of the Block Watcher's capability is inherent in the PSXX-AR ❷. The Block Watcher is 2" x 3", draws its power from the DCC track bus, and can handle up to 20A.

The Block Watcher feature that caught my attention was that it has a threshold adjustment as opposed to a sensitivity adjustment. Think of it like this: Your spouse complains that your train is too loud. You turn it down, but now it's harder for you to enjoy. This is sensitivity. Now suppose you close the door to your train room without decreasing the volume. Your spouse is happy, and you are, too. This is threshold.

I like the threshold capability because I could "tune out" Frog Juicers that I was using to power turnout frogs. The Block Watcher threshold adjustment can be manually or automatically set up to 130mA. If set automatically, it can be set once or each time power is applied. If you opt for each time, be aware that if

a locomotive is in the block at power-on time, it is likely you won't get your desired result.

I set mine to automatically set itself once. I then ran a locomotive over it, and that worked. I then placed a 10KΩ resistor across the track to simulate a car with a resistor on an axle. It detected the car.

It has an output for an external LED; no additional resistor is required. It also has an optically isolated output that can drive a 1A output with up to 30V on it. If driving a relay, be sure to place a diode across the relay coil as directed in the instructions.

Note that the PSXX-AR block occupied output is a little different and can only drive a 5mA load. This is the main difference between the Block Watcher and the similar circuit in the PSXX-AR. The PSXX-AR output can also drive a small LED. Both can drive almost any digital input of a DCC accessory device, like a Digitrax DS74 or DS78 or an NCE AIU or Mini Panel ❸. See the DCC Currents October 2022 column for more information.

The outputs of the Block Watcher and the PSXX-AR do not come with screw terminals. You can buy screw

terminal kits from Tony's Train Exchange (p/n screw terminalkitspsxx1) or get them for pennies apiece from eBay. You need the 3.5mm pitch screw terminals for this application. Buy plenty of the two-terminal ones so you always have them on hand.

The PSXX was first discussed in the October 2022 DCC Currents column. However, I'll briefly review it here. You need electronic circuit breakers (ECB) because such devices in a booster are designed to protect the booster, not your locomotives or layout. ECBs, like PSXXs, protect your locomotives.

Rather than simply shutting down, a PSXX briefly limits current. It tries to determine whether there is an actual short or an uncharged capacitor, stay-alive circuit, or lighting circuit. Other trains will not see a short and the booster will not shut down. For more on the technical aspects of the PSXX ECB, visit the Tony's Trains Exchange website and see Tony's Tips at: tonystrains.com/news/search/psxx/ and click on "New PSXX Current Limit Performance."

The PSXX-AR is a combination automatic reversing section controller (ARSC) and an ECB. A combination device is the way to go because separate units can compete with each other and can be tricky to set up. Of course, the PSXX-AR has a Block Watcher built in, so it is a nice all-in-one package. While it may not be small at 4.5" x 7", it only draws 0.04A from your DCC track bus to power itself.

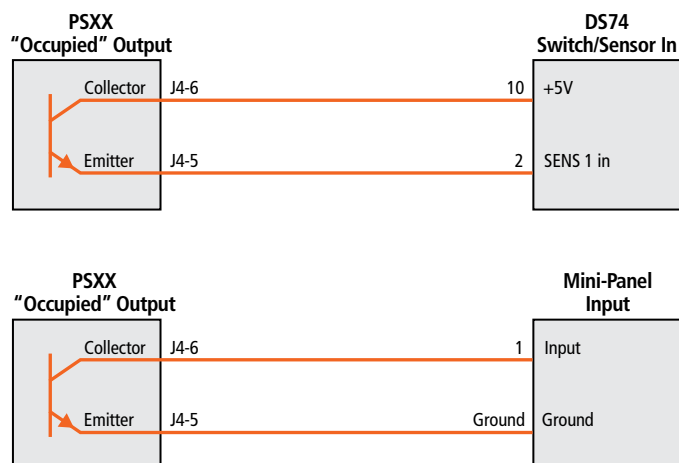
The PSXX-AR, like the PSXX, can be used with the optional sounder (p/n comp-sonalert) to audibly alert you of a short. This leaves no doubt for people who think that their train may have stopped due to dirty track. I find this a valuable option. I do like that there is only one red LED on the PSXX-AR and it is also used to indicate a short.

As if the PSXX-AR did not have enough capability, it can also drive a slow motion switch machine or two on a reversing track. These must be operated as a pair if both are used. Two machines might be used in a wye.

They can be controlled either by an accessory address



❷ The Block Watcher is a block occupancy detector that features a threshold detector that can be automatically set. This can be used to ignore Frog Juicers or any other device.



3 This diagram shows the open collector outputs of the PSXX-AR and Block Watcher and how to hook them up to Digitrax and NCE devices. This will send the signals into your DCC system's control bus. Illustration by Kellie Jaeger

within the PSXX-AR or by being automatically controlled when the track polarity is being reversed by the ARSC section of the PSXX-AR. Figure 4 shows a simple way of flipping a turnout and reversing the ARSC. This and other accessory addresses can be used as default or changed as needed.

Two other accessory addresses are provided. If you have other PSXX products, you could set them all to the same accessory address and enable a global track power-off feature.

The optically isolated outputs can be used to interface to the inputs of pretty much any other DCC system that has switch inputs: Digitrax Loconet, NCE Cab Bus, ESU ECoS, and Lenz XpressNet. You will need one of their interface modules.

The PSXX-AR has about 15 pairs of holes that you could equip with screw terminals. The pairs of screw terminals lock together when you need more than two.

You can set the trip current through jumpers or CV 49, but not both. Using jumpers, you only have four choices; 0.9A to 3.6A. The

default (no jumper) is 1.8A. Using CV 49, you have 10 choices; 0.9A up to 9A. Using the jumpers, you can choose 0.9, 1.8, 2.7, or 3.6A.

In general, I do not recommend making connections directly to the Block Watcher or PSXX-AR if you think you will need to remove the connection in the future. Invest in the screw terminals.

Here are some of the connections on the PSXX-AR for which you may want to install screw terminals. There is no one right recommendation. It depends on your application. Note that the LED outputs do not require resistors.

J4-1,2: Manual off
 J4-3,4: Block shorted
 J4-5,6: Block occupied
 J5-1,2: Remote D23 (shorted) red LED
 J5-3,4: photocell input – to indicate block occupied or stop a train
 J6: trip current settings
 J7-1,2: +5, GND for powering LEDs (see documentation for details)
 J7-3,4: auto, manual reset
 J7-5,6: remote (over current indication) blue D24
 J10-1,2: remote (power in) green D12
 J11-1,2: remote (reverse phase output) green D20

J11-3,4: remote (normal phase output) green D11

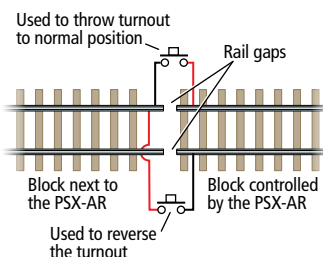
J12-1,2: Stall motor outputs No. 1. (Also available are outputs for stall motor No. 2 and optional pulse coil switch machine.)

To download the full manual, go to the Tony's Trains Exchange website and find the PSXX-AR or Block Watcher product. Underneath "Details," you will find the manual.

The DCC Specialties Digitrax programming instructions have not been updated for the DT602 throttle. Consult their specific product for the position of their programming jumper.

To set PSXX addresses:

1. Disconnect from DCC track bus power
2. Move jumper to program position
3. Turn on DCC power. Press the lower left throttle button, then press "A" button (Track On)
4. After 30 seconds, reconnect DCC power to PSXX-AR
5. Press the switch shaped key to enter switch mode
6. Select the switch number to be set using the keypad
7. Press "A" (Thrown) or "B" (Closed)
8. Repeat steps 6 and 7 until all addresses are set
9. Press "Exit" (lower right key) to return to locomotive mode
10. Turn off DCC power. Press the lower left throttle button, then press "B" button (track power off)
11. Move jumper to the "run" position
12. Turn on DCC power
13. Test the switch address setting by using the switch key and switch addresses.



Parts list:
 2 normal open pushbutton switches

4 This simple setup will allow you to manually control the direction of a turnout connected to a PSXX and PSX automatic reverser.

Illustration by Kellie Jaeger, used with permission of Tony's Train Exchange

To program CVs using a Digitrax DT602 throttle:

1. Disconnect from DCC power. Press lower left throttle button, then press "B" button (track power off)
2. Move jumper to program position
3. Turn on DCC power
4. After 30 seconds, reconnect DCC power
5. Select an unused locomotive address
6. Press Menu key
7. Press "2" (2-CV Programmer)
8. Press "1" (1-Po, Ops on Mainline)
9. Press "A" (CV Number) and enter CV number to program.
10. Press "B" (CV Data)

and enter value to program into CV

11. Press "A" (Write) to store value in CV
12. Press "C" (Back) to complete
13. Press "C" (Done) when finished
14. Turn off DCC power
15. Move the jumper back to the run position
16. Finally, turn on DCC power. **MR**



I LIKED THE THRESHOLD CAPABILITY BECAUSE I COULD "TUNE OUT" FROG JUICERS THAT I WAS USING TO POWER TURNOUT FROGS. — ALLAN

Hat tricks and the "iron mike"

Jim Providenza, well known for his Santa Cruz Northern layout, has long been a friend of mine. We share a fascination with cement mills and the covered hoppers in their service. Jim and I chatted recently, and he described how he wrote about virtual operators in his column in the Pacific Coast Region quarterly newsletter. A smart aleck might jump in and ask if a virtual operator goes to virtual operating sessions. Not so fast.

He conceived the SCN as a freelanced line joining Santa Cruz, Calif., with San Jose, but Santa Cruz does not physically exist on the layout. Trains from staging enter the layout at Fallon, a station staffed by an operator. However, Jim's timetable shows times at Santa Cruz. His crew suggested a new twist: why not address orders, write clearances, and report times from there? The Fallon operator now wears two hats. He holds down regular duty there, but doubles as a virtual operator at Santa Cruz.

My Susquehanna layout has similar circumstances. Some Hanford Branch trains originate in staging that represents Middletown. However, Middletown is reached over the Middletown & Unionville, a connecting line over which Susquehanna has trackage rights. A train departing from staging enters the layout and Susquehanna trackage at Unionville. How, then, does the train receive orders and clearances?

To save my dispatcher from wearing two hats, I assign the M&U duties to a virtual dispatcher who controls all movements between staging and Unionville. "Control," too, is a virtual term because there's only a



The Lehigh & New England order atop the stack completes a train order hat trick. It was copied by the New York, Susquehanna & Western operator at Hainesburg Jct. and authorized train movements on a distant Erie branch. Collections of Doug Barberio and Jerry Dziedzic

wall and 3 feet that separates staging and Unionville. My real-bodied Susquehanna dispatcher takes over there, dictating orders to and taking clearances from a real-bodied, human operator.

All this may sound "model-railroady," or tricked up. However, it resembles some real-world prototype practices. An "iron mike" was a wayside microphone that transmitted the sound of a passing train to a distant dispatcher's or operator's office. This OS'd the train, in effect, making the mike a virtual operator. Their use was common: I can list Rock Island, Milwaukee Road, Northwestern, and Katy.

The train order in the above photo comes from another real-world example. Lehigh & New England trains between Pen Argyl, Pa., and New Haven's sprawling classification yard at Maybrook, N.Y., used their own line and trackage rights over Susquehanna and two Erie branches, its Pine Island Branch between Pine Island Jct. and Goshen, N.Y., and its Montgomery Branch between

Goshen and MQ Crossing. The route stretched almost 75 miles: Pen Argyl-L&NE-Hainesburg Jct.-NYS&W-Swartswood Jct.-L&NE-Pine Island Jct.-Erie-Goshen-Erie-MQ. An agreement that had L&NE dispatch Erie's Pine Island Branch helped move extra trains between Pen Argyl and MQ. Operators on the lines switched hats frequently, copying orders from all three roads' dispatchers.

Imagine the Susquehanna block line ringing at Hainesburg Jct. and the operator copying an order to an L&NE train. Minutes later, the L&NE DS reaches him and completes an order to the same train, seen atop the stack in the photo. It's a train order hat trick, the L&NE DS authorizing movements on Erie trackage far distant from the Susquehanna operator copying it. Another L&NE

order I examined, copied by the Erie operator at Goshen, authorized an L&NE movement from Hainesburg Jct. to Pen Argyl.

I suppose few layouts will see so complicated a scenario as this. However, many may have staging that represents off-line terminals like Santa Cruz. Does one then dispatch trains to a station on the layout like Fallon or a virtual destination beyond, like Santa Cruz? Where trackage rights are involved, as

between Middletown and Unionville, do virtual orders bring foreign road trains to and from the host road? Using a virtual operator or virtual dispatcher might be the hat trick that ties everything together. Making an iron mike circuit would be fun, too, adding a special instruction of a whistle signal at the location so the train could be heard. **MR**



IT'S A TRAIN ORDER HAT TRICK, THE L&NE DS AUTHORIZING MOVEMENTS ON ERIE TRACKAGE FAR FROM THE SUSQUEHANNA OPERATOR COPYING IT. - JERRY

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The towerman watches as Central Vermont GP9 No. 4928 leads a passenger train through Essex Junction. Don Janes of Sarnia, Ont., photographed the scene on his Green Mountain Division layout. The locomotive is a Proto 2000 GP18 that was detailed and painted to represent a GP9. The interlocking tower is by Monster Modelworks. Don used Helicon Focus to improve the depth of field.



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Bay Colony RR No. 1706, an Electro-Motive Division GP9, rounds the bend with the “trash train,” a train of garbage cars from Cape Cod to a waste-to-energy plant in Rochester, Mass. Ben Converse’s HO scale model railroad depicts the Bay Colony RR’s operations on Cape Cod in the late 1990s to early 2000s. The locomotive is a customized Walther’s Mainline model with decals from Highball Graphics. Ben, from Boulder, Colo., also shot the photo.





Heat shimmers off the Mojave Desert

as a Union Pacific freight rolls by the highway near Cima, Calif. Roddy Hyduk of Boulder, Colo., built and photographed this 18" x 48" N scale diorama to reproduce a sight he saw on a vacation to California with his fiancée. The General Electric C45AH locomotive is from ScaleTrains and was weathered by Roddy's friend Rob Arsenault. The scenery was done with a mix of products from Arizona Rock & Mineral, Woodland Scenics, and Silflor.


Gondolas loaded with Colorado coal

wait for the Denver & Rio Grande Western mine job to pick them up and haul them through Moffat Tunnel to Denver. Jim Petro built Pierce Mining Co. from a Walthers kit for his HO scale D&RGW layout. Russ Weis photo




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Schedule of Events Rate: \$45 per issue (55 word maximum). Ads will contain the following information about the event: state, city, sponsoring organization and name of event, meet, auction or show, dates, location, times, admission fee, name and/or telephone number and/or email of person to contact for information. Name, daytime telephone number and street address of the person providing the information is also required but need not be included in the ad. Unless otherwise requested, ads will be published in the issue month that the event occurs in. Please specify issue date(s). **Word Ad Rates;** per issue: 1 insertion — \$2.03 per word, 6 insertions — \$1.89 per word, 12 insertions — \$1.77 per word. **\$40.00 MINIMUM** per ad. To receive the discount you must order and prepay for all ads at one time. Count all initials, single numbers, groups of numbers (i.e. 4-6-0 or K-27), names, address number, street number, street name, city, state, zip, phone numbers each as one word. Example: John A. Jones, 2102 South Post St., Waukesha, WI 53187 would count as 10 words. For MR's private records, please furnish: a telephone number and, when using a P.O. Box in your ad, a street address. **Model Railroad** reserves the right to refuse listing. **All Copy:** Set in standard 6 point type. First several words only set in bold face. If possible, ads should be sent typewritten and categorized to ensure accuracy.

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

Schedule of Events

AL, HELENA: Smokey City Rails Show & Sale. October 27-28, 2023. Helena Sports Complex, 110 Sports Complex Dr., Helena, AL 35080. Friday 4pm-8pm, Saturday 9am-3pm. Admission: Adults \$6, Children 8-12 \$2, Under 8 Free. \$10 Two-Day available. For additional information, contact: 205-864-7769 or email: scrmc029@gmail.com

CA, CARMICHAEL: TTOS-Sacramento Valley Division River City Toy Train Show. Elks Lodge, 5631 Cypress Ave., Carmichael, CA 95608. Saturday, September 30, 2023, 10am-3pm. Admission \$10.00, children 12 and under FREE w/paid adult. Buy/Sell/Trade, operating layouts, free parking, food. Free train set drawing for 17 and under (must be present to win). Contact: Bryan Stanton at brsta@comcast.net

CA, SACRAMENTO: 45th International Railfair. November 11-12, 2023. Cal Expo, Building C, 1600 Exposition Blvd., Sacramento, CA 95815. Saturday 10am-5pm and Sunday 10am-4pm. Layouts, Vendors, Clinics. Admission: \$12 on Saturday, \$10 on Sunday. Under 12 free. Info: tom.c.irf@gmail.com or internationalrailfair.com

CA, TULARE: TRAIN, TOY, & MODEL KIT SHOW. November 18-19, 2023, 10am-4pm. International Agri-Center, 4500 S. Laspina St., Tulare, CA 93274 (off Route 99). Admission: \$10/person; \$15/family. FREE parking. Up to 400 vendor tables plus operating train layouts, live steam displays, a parts dealer. Vendor information: send SASE to TTOS-Tulare Show, PO Box 6710, Fullerton, CA 92834

CO, LOVELAND: Rocky Mountain Train Show, November 25 & 26, 2023. The Ranch Complex, 5280 Arena Circle, Loveland, CO 80538. Saturday, 10am-5pm, Sunday 9am-3pm. 200+ sales tables, 50+ vendors, operating layouts, model trains of all scales. Admission \$10.00, 12 and under free. Free parking. 303-364-0274 www.RockyMountainTrainShow.com Information@RockyMountainTrainShow.com

CO, PUEBLO: Rail Fair Model Train Show, sponsored by the Pueblo Model Railroad Association and TECO. October 14-15, 2023, Saturday 9am-4:30pm & Sunday 10am-3pm. Livestock Pavilion-Colorado State Fairgrounds, 1001 Beulah Ave., Zip: 81004. Admission: \$10, 12 and under free. All scales, operating model railroad layouts, vendor tables, instructional clinics. Free parking. More info: www.pueblomodelrailroadassoc.org or www.tecoshow.org

CT, VERNON: Model Train Show, October 29, 2023, 10:00am-4:00pm. Vernon Center Middle School, 777 Hartford Turnpike, Vernon CT 06066. Adults - \$8, children 12 and under - free, family max - \$20. Operating model railroads, vendors. Proceeds benefit the Rockville High School band and choir programs. Sponsored by the Amherst Railway Society - amherstrail.org

FL, PINELLAS PARK: Suncoast Model Railroad Club Train Show/Open House. Saturday, October 7, 2023. SHOW: New venue! Pinellas Performing Arts Center, 4951 78th Avenue N., Zip: 33781. 9am-3pm. Admission: \$7.00, Children \$2.00, under 11-free. Free parking. Food/snacks. Tables: Hugo Sacco: saccohugo459@gmail.com OPEN CLUB HOUSE: 12355 62nd Street North, Suite A, Largo, FL 33773. Admission: FREE. Visit: www.suncoastmrrc.com

FL, PINELLAS PARK: HR Trains & Toys, Inc., presents the 75th (Original) Train Show. October 14 & 15, 2023. Both days, 10am-5pm. 7900 49th St. N., Zip: 33781. Pinellas Park Performing Arts Center, free parking next to our store. Bachmann-Marklin-LGB, more! 5 seminars/day. For kids—wood box car painting, race and take. Best layout prizes! 727-526-4682, www.HRTrains.com

GA, SAVANNAH: Coastal Rail Buffs 34th Annual Model Railroad and Train Show at Cottonwood Suites, 301 Governor Treutlen Dr., Pooler, GA 31322. November 11-12, 2023, Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Adults 2-day admission \$7.00; Students/Seniors \$5.00, Active-Duty Military/under 12 FREE. Dealer tables, operating layouts in O, HO, N. Visit: www.coastalrailbuffs.com

IA, DAVENPORT: Model Train Show. October 27-28, 2023. Friday 10am-6pm and Saturday 10am-4pm. N, HO, O27, O & American Flyer...NEW & USED. Buying trains, pay in cash. FREE admission & parking! Cash and credit cards only. American Legion, 702 West 35th Street, Davenport, IA 52806. Questions, call John at 563-349-0134 or email: JohnTrainsHobby@aol.com

IA, DELMAR: Delmar Train Show & Swap Meet. October 7-8, 2023. Saturday 10am-4pm and Sunday 10am-2pm. Delwood School Gym, 311 Delmar Avenue, Delmar, IA 52037. Admission: Free Will Donation. Free tours of Delmar Railroad Museum. Vendor tables: \$15 each (limit 10 tables per vendor). Food & drink available. Free parking/handicap accessible. Information: sjebsen@fbfcom.net

IA, IOWA CITY: 3rd Annual Iowa City Train Show. Sunday, October 22, 2023. 9am-3pm. 4261 Oakcrest Rd. SE, Iowa City, IA 52246. Admission: \$5, children 10 and under free w/adult. New club building open house! All different scales! Displays and layouts to see! Sponsored by the Hawkeye Model Railroad Club. iowacitytrainshow@gmail.com or visit: www.hawkeyemodellclub.com

IL, ORLAND PARK: Fall S-Fest 2023. November 3-5, 2023. CASG, Inc. Be part of the greatest S, 1/64 event! Registration \$35. Georgios Quality Inn & Suites, 8800 W. 159th St., Orland Park, IL, 60462. 110 tables! Clinics! S-Fest cars! www.trainweb.org/CASG or call Joel at 847-212-3541

IL, ST. CHARLES: 32nd Annual Chicago Railroadiana and Model Train Show. Kane County Fairgrounds, (Front Building), 525 South Randall Rd., St. Charles, IL 60174. Sunday, October 15, 2023, 10:00am-3:00pm. Admission: \$6.00 (includes tax). Children under 12 FREE. Tables starting at \$65.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

IN, DANVILLE: Central Indiana Division-NMRA 16th annual Danville Train Show. Saturday, November 18, 2023. 10:00am-3:00pm, Hendricks County Fair Grounds, 1900 E. Main St., Danville, IN. Operating layouts, displays, door prizes, vendors, food. Free parking. Admission: \$3.00/adult, 16 and under free. Dealer Tables \$16.00 each. Contact: Dave Mashino at danvilletrainshow@gmail.com or 765-860-1560. More info at http://cidnmra.org

IN, PERU: Miami County Model Train Show and Swap Meet. Saturday, September 30, 2023, 10:00am-3:00pm EST. Miami County Fairgrounds, 4-H Project Building, 1029 W 200 N, Zip: 46970. All scale trains, books, and memorabilia. \$3.00/person. 6 and under free. Free parking! Vendor tables \$25. Questions, contact Paul Forman at 765-432-1052

IN, TIPTON: Antique Toy & Train Show. Tipton 4-H Fairgrounds, 1200 S. Main St., (State Rd 19), Tipton, IN 46072. Saturday, October 14, 2023, 11:00am-3:00pm. Adults \$4.00, 13-18 \$1.00, 12 and under free. 100+ tables, all gauges, kits, free parking, food/drink available, handicap accessible. Contact: David Moree, 4402 East 100 South, Kokomo, IN 46902, 765-457-1044 or 765-860-8062

KS, TOPEKA: TMRR Club 2nd Annual Show. Great Overland Historic Station, 701 N. Kansas Ave., Topeka, KS 66608. September 30-October 1, 2023. Saturday 10am-5pm, Sunday 10am-3pm. Over 10,000 sq.ft. of operational layouts, displays, dioramas, railroad history and vendors. Admission: Adults \$7, Children \$5, under 6 free. Food on site, free parking. Contact info: philskow@yahoo.com or 785-221-2174

MA, MARLBOROUGH: Hub Division NER/NMRA. Royal Plaza Trade Center, 181 Boston Post Road West (Rte. 20 West), Marlborough, MA. Saturday December 2, 2023, 10am-4pm and Sunday December 3, 2023, 10am-4pm. Admission: \$15.00; Children under 12 and Scouts in Uniform FREE. Admission good both days. Information: Mark 508-528-8587; E-mail: TE.info@hubdiv.org; website: www.hubdiv.org

MA, TAUNTON: OLD COLONY MODEL RAILROAD CLUB 23rd ANNUAL MODEL RAILROAD SHOW. Clarion Hotel (former Holiday Inn), 700 Myles Standish Blvd., Taunton, MA 02780. Route 495, Exit 25, Sunday, September 17, 2023, 10:00am-3:30pm. Adults \$5.00, children under 12 & scouts in uniform FREE. Contact Dennis Ingalls, 508-558-9883, email: dingalls@comcast.net

MI, EAST LANSING: Lansing Model Railroad Club Show and Sale. Michigan State University Pavilion. Sunday, November 5, 2023, 10:00am-4:00pm. Admission \$8.00, under 12 free. Michigan's largest train show: layouts, demonstrations, and 500+ tables. Free parking. Flyer, table forms and map, visit: www.lmrc.org or call Ron St-Laurent 517-256-3588

MN, WOODBURY: Newport Model RR Club Train Flea Market. All scales, model railroad equipment, collectibles, antique toys, books/magazines, and much more! Woodbury High School, 2665 Woodlane Drive, Woodbury, MN 55125. Saturday, October 14, 2023, 9:00am-2:00pm. Admission \$5.00. Club Address: Greater East Area Model RR Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Don, 763-257-5443

NC, FLETCHER: Autumn Rails 2023 Model Railroad Show. September 29-30, 2023. Friday noon-6pm, Saturday 10am-4pm. WNC Agricultural Center, Expo Building, 785 Boylston Hwy., Gate 5. Admission: \$8 (covers both days), under 12/scouts in uniform FREE. Boy Scout Merit Badge clinic. Dozens of vendors, plus operating layouts. Dealer tables \$35 (covers both days.) Free parking. Door prizes. www.fbmodelr.org

NC, RALEIGH: Neuse River Valley Model Railroad Club Annual Show: Jim Graham Building, NC Fairgrounds, 4825 Trinity Road; November 4th-5th, 9am-5pm; admission: \$10, children 12 and under free w/adult, \$1 off coupon on club website. The largest, oldest train show in NC, 95,000 SF with 300+ tables, multiple layouts. Contact George Lasley, email: gwlasley52@gmail.com, visit www.nrvclub.net

NJ, TOMS RIVER: ECTP and Collectibles LLC presents the Toms River Toy & Train Show. Elks Lodge, 600 Washington St., Toms River, NJ 08753. Sunday, October 1, 2023, 9:00am-2:00pm. Admission: \$7.00; under 12 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on Toms River Show.

NY, HAMBURG: TCA Upstate NY Chapter Toy Train Show! St. Mary's of the Lake Church Hall, 4737 Lakeshore Rd. (Rt. 5), Hamburg, NY 14075. Saturday, September 30, 2023. TCA Members: 9:00am. General Public: 9:30am-2:30pm. Admission: TCA Members, free. Adults, \$5.00, children 12-17, \$3.00, under 12 free w/paid adult. Contact: Mike 716-913-4195 or Dave 716-208-5842, Email: tca.upstatenychapter.events@gmail.com

OH, MT. HOPE: CJ Trains Fall Train and Toy Show. Mt. Hope Event Center, 8076 St. Rt. 241, Zip 44660. Saturday, November 4, 2023, 10:00am-4:00pm. Admission: \$5.00, under 12/FREE. \$30/dealer table, 600+ 8' dealer tables. Contact: Jon Ulbright, PO Box 446, Wooster, OH 44691. 330-262-7488, cathijon@ssnnet.com, www.cjtrains.com (GPS info: 8076 St. Rt. 241, Millersburg, OH 44654)

OK, CHICKASHA: Fall Train Show. Saturday, October 14, 2023, 9am-3pm. NEW LOCATION! Grady County Fairgrounds, 500 E. Choctaw Ave., Chickasha, OK 73018. Across the tracks from Rock Island Depot. BUY/SELL/TRADE. Table sales, operating train layouts of all scales, door prizes. Admission: \$5.00 per adult, kids under 18 free w/paid adult. For info: John 405-409-7006 or visit: www.ttos-soonerdiv.org

PA, CHESWICK: "TRAINS, TRAINS, TRAINS: SHOW!" Pittsburgh Shrine Center, 1877 Shriners Way, Cheswick, PA 15024. Saturday, September 30, 2023 and Sunday, December 17, 2023. 10am-3pm. Sponsored by the Fort Pitt Division of the Train Collectors Association. 200+ tables; new & used trains: all gauges. Please enjoy our event for \$5. All are welcome! Info at: www.HobbyTrainCollectors.org

PA, HAWLEY: Model Train Show & Sale. Hawley Fire Department, 17 Columbus Ave., Hawley, PA 18428. Sunday, October 1, 2023, 9:00am-2:00pm. Admission \$3.00, under 12 free with adult. Only 88 tables available. Bill Delling, 618 Fern St., Hawley, PA 18428, 570-226-3206

PA, YORK: All Gauge Train Show. October 16-18, 2023. Monday 8am-5pm, Tuesday 8am-5pm, Wednesday 8am-2pm. Wyndham Garden Hotel, 2000 Loucks Rd., York, PA 17408. 175 indoor tables, with an additional 150 outdoor vendor spaces available. Free admission (rain or shine). Vendor info, contact: Chuck Janiga, 716-390-8216, chuckstrainroom@live.com

TX, HOUSTON: Houston Area Model Train Show, November 18-19, 2023. Saturday 10am-5pm, Sunday 10am-4pm. Adults \$7, 17 and under free. All scales, operating layouts, club/museum displays, table sales and more. Pearlard Knights of Columbus Hall, 2320 Hatfield Rd., Pearland TX 77581. More information at http://houstontrakk.org or by email info@houstontrakk.org. Sponsored by Houston Area T-TRAK Association, Inc.

TX, PLANO: Dallas Area Fall Train Show. Plano Event Center, 2000 E. Spring Creek Parkway, September 30-October 1, 2023. Saturday 10am-5pm; Sunday 10am-4pm. Adults \$10.00 (for both days), 12 and under free w/adult. 80,000 sq.ft. of model railroading with numerous operating layouts on display. Dealers, layout tours, and drawings. Information: Chris Atkins, chris@railroadmodelers.com 469-438-0741. Visit: www.dfwtrainshow.com

TX, TEMPLE: 41st Annual Temple Model Train & RPM Show by CentraMod Inc. Central Texas Area Model Railroaders. Frank W. Mayborn Convention Center, 3303 North 3rd St., Temple, TX 76701. September 16-17, 2023, Saturday 10am-5pm and Sunday 10am-4pm. Admission: \$10, Seniors & Military w/ID \$9, 12 and under free w/adult. FREE Parking! Additional information: 254-760-3761 or www.centramodrr.com

WA, BATTLE GROUND: Southwest Washington Model Railroaders, Great Train Swap Meet. Battle Ground High School Gymnasium, 300 W. Main St., Battle Ground, WA 98604. Saturday, September 30th, 9:30am-2:30pm. \$10.00 Beat-the-Crowd (9:00am), Adults \$5.00, Students \$3.00, under 6 FREE with adult. Take N. Parkway Avenue to Free Parking. Vendor tables \$25.00. Contact Larry: 360-619-8899, Larry.sprekel@gmail.com

WA, SPOKANE: River City Modelers Fall Model Train Show. Spokane Fairgrounds, 404 N. Havana. Sunday, October 15, 2023, 9:30am-3:30pm. Admission: adults \$6, 12 & under free. 200+ tables of Railroad related items for sale, operating layouts, Free-MO, Operation Lifesaver & more. Free Parking. For table rental or general info, contact: Shirley Sample, 509-991-2317 or shirleysample13@gmail.com

WI, MONROE: Green County Model Railroaders 45th Annual Model Train Show & Swap Meet. The Stetline Ice and Community Expo, 1632 4th Avenue West, Monroe, WI 53566. September 23-24, 2023. Saturday & Sunday, 10am-4pm. For information contact Kevin Johnson, 608-558-9332, or visit www.gcmrinc.org

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

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Depot grounds landscaping

I had seen examples of well-manicured station grounds that were the handiwork of the resident station agent, but I don't recall being aware of a railroad making a major effort in that direction. So when Larry DeYoung shared an email he received from Richard Palmer including a postcard showing the station grounds at Batavia, New York, I got curious and read more about the background behind this old hand-colored image.

The March 23, 1905, Batavia Daily News reported that the New York Central RR had corporate greenhouses in Batavia. Some 50,000 plants and 8,000 ornamental shrubs would soon be sent to beautify hundreds of NYC depots, the newspaper reported.

Locally, "Thomas W. McGuire, the expert florist who has charge of the New York Central's greenhouses on Evans Street, is now engaged in preparing for the annual beautifying of the depot yards along the company's road. He will use 62,000 plants this year, and every one will be from the Batavia greenhouse, raised under his personal supervision."

The paper further reported that the Central had two of those plant-propagating facilities. The other was at Poughkeepsie, N.Y., but the Batavia house is larger, having 100 more feet of glass than the former.

"The Batavia greenhouses supply all the stations on the Western Division and the

Rome, Watertown & Ogdensburg line east of Charlotte," Mr. McGuire said.

"The Western Division takes in the main line from Buffalo to Syracuse, and the Falls and Auburn branches. Plants are used at 33 stations on the division, at four on the Falls branch, 27 on the Auburn branch, and at about 23 on the RW&O.

We also set out plants on the West Shore at Elba and Newark, at five stations along the Buffalo Belt line, in the yard of the Depew car shops, and at East Buffalo.

"Work will commence in earnest about May 25th," Mr. McGuire concluded, "when I will start to ship and oversee the planting. I am allowed a special engine with two baggage cars and four assistants besides the regular train crew. Over 50 varieties of plants are raised here, kindling eight different varieties of geraniums."

On July 14, 1910, the *Batavia Daily News* reported that A.M. Clough of the New York Central said that plans were under way for the erection in Batavia of additional extensive greenhouses to furnish lawn decorations, palms, and cut flowers for depots, etc., for a large section of the road. The



This hand-tinted postcard shows how the New York Central's grounds surrounding the depot at Batavia, N.Y., near one of the railroad's two greenhouses, appeared in the early 1900s.

Photo from Richard Palmer collection

greenhouses were going to be from 100 to 150 feet long.

But as the Depression years loomed, the railroad's priorities changed. On August 23, 1929, an article in the *Rochester Democrat & Chronicle* was headlined "Railroad to Abandon Batavia Greenhouse."

It reported that the New York Central greenhouse on Evans Street between the Erie and New York Central railroads would be abandoned because the company had found that the season was so short in New York State that perennial shrubs and trees could be used at a considerable saving over annual plants and flowers. "Workmen have begun to take out the heating plant from the structure, and it will be torn down," the newspaper reported.

The greenhouse was erected in 1894, and plants had been raised there since that time. "The Batavia station grounds will be maintained," the paper assured readers, "but flowers required will be purchased from private greenhouses."

There was more good news: "Nearly 500 ornamental trees, including spruces and maples, from four to 15 feet high, are grown at the company's nursery on Cedar Street, south of the tracks. This nursery will not be abandoned but will be enlarged for the growth of ornamental plants and shrubs. Twenty-four varieties now are growing there, about 15,000 plants in all, including spirea, privet, barber, bridal wreath, forsythia, and many other varieties."

So those of you who enjoy superdetailing your station grounds with plants now have a better understanding of how one railroad went about accomplishing this monumental task, and how that changed over the years. **MR**



SOME 50,000 PLANTS AND 8,000 ORNAMENTAL SHRUBS WOULD SOON BE SENT TO BEAUTIFY HUNDREDS OF NYC DEPOTS, THE BATAVIA DAILY NEWS REPORTED.
—TONY

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BIG THINGS in small packages

The Union Pacific 4014 Big Boy is the newest model in Kato's world class lineup and represents the pinnacle of Kato Engineering! Modeled after the 2021 UP Excursion Train, this locomotive features dual coreless motors with brass flywheels for twice the pulling power and is able to navigate 11" radius curves with minimum overhang for double track running with other large locos like our FEF-3!

The Kato Big Boy will be fully ready-to-run with all details fit as well as options for pre-installed DCC or factory installed DCC + Sound. To complete the Union Pacific Excursion train, Kato also produces the SD70M #4015, a 2-Car Water Tender Set, and the 7-Car Excursion Train Set! For the best prices, check, your local or online hobby retailer!



Item #	Description	MSRP
126-4014	N Union Pacific 4-8-8-4 Big Boy #4014	\$399
126-4014-DCC	N Union Pacific 4-8-8-4 Big Boy #4014 -w/Digitrax DCC (Fall 2023)	\$499
126-4014-S	N Union Pacific 4-8-8-4 Big Boy #4014 -w/Soundtraxx Sound+DCC (Fall 2023)	\$599
176-4015	SD70M UP #4015 Excursion Paint	\$135
106-086	N UP Excursion Train 7-Car Set	\$265
106-085	N UP Water Tender 2-Car Set	\$85

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