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reviewed** p.62

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A San Francisco
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Mike Tricker photo



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In August, M.R. Snell shares a quick trick for patchouts, associate editor Cody Grivno offers tips for building die-cast metal models, we visit a New York Central coal mining and steel industry layout, and more!

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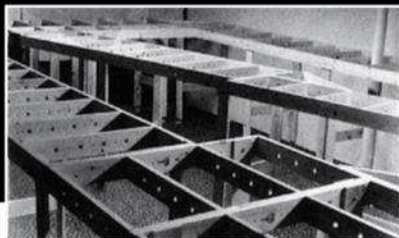
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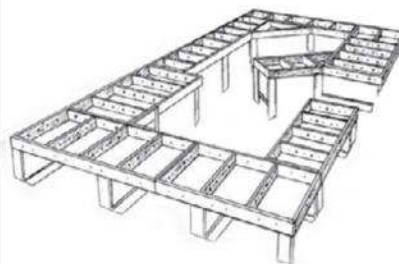
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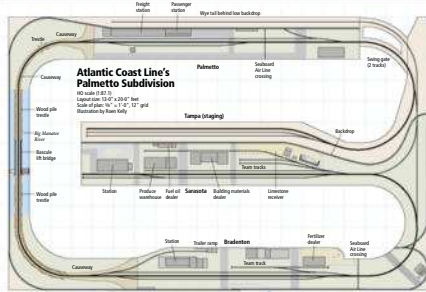
COVER STORY ONLINE EXTRA



More from the triple-deck Paquettin Division

Don't miss Mike Tricker's HO scale Paquettin Division on page 42. It's truly amazing how much operations-oriented railroading he packed into a compact space. For a look at just how much Mike has enhanced his railroad, check out his June 2013 article. It's available as a free download under Online Extras at www.ModelRailroader.com.

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There's a lot of great work being done by your fellow modelers, including *Model Railroader* author Bruce Kingsley's kitbashed HO scale Aerotrain shown above. Click on User Videos under the Videos tab on the MR home page to tour more layouts or share videos of your model railroad.

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There will always be shiny things

I use the term “shiny thing” a lot, meaning something that pops up, looks neat, and distracts you from your conversation, point you’re trying to make, or goal.

Model railroading has been full of shiny things for me. When I was 10, my dad helped me build a layout – really just a piece of plywood covered with sawdust-grass mat for my HO scale train set and oval of track.

Trips to local stores revealed lots of shiny things. A high-hood Norfolk & Western diesel locomotive that I thought looked very smart and businesslike because it was black with white lettering. A kit for a shortline fuel tank on stilts. A modernish Exxon gas station. A Rico station kit. Piers to make that figure-8 of track that looped over itself.

None of them really went together and yet they all had

to come home with me and take their place on my budding empire.

A little more than a decade later, I was out of college, working my first “real” job, and got the itch to model again. I had some of my HO scale stuff, and in the interim my brother had an interest in N scale that had come and gone. While home one weekend I boxed all of his stuff and mine up and took it back to where I lived.

Thus began my second collection of random model railroad items. I acquired an undecorated HO GP30 that I worked at detailing and painting for the Atchison, Topeka & Santa Fe. Then I bought an Electro-Motive Division SW7 with thoughts of modeling the local short line. A bay-window caboose I wanted to convert to look like the Missouri Pacific one I saw

frequently on a Union Pacific local. Finally, for some reason, I came home from a train show with a pair of N scale Delaware & Hudson GP38s. Shiny things all.

After working at a few jobs that helped me learn a lot more about how railroads worked, and exposed me to a lot of pictures and history of many prototypes, a plan coalesced for a layout.

I considered the lessons learned from my previous ventures. My fingers and dexterity weren’t well-suited for detailing in HO scale, much less N. So O scale would be the way to go.

Mainline O scale takes up a lot of room that I didn’t have, so I’d have to build something small, maybe a switching layout. And the prototype modeled should have some character as well as some history.



Now, about halfway through my layout, I still see shiny things – other railroads and track plans. Most I entertain in my head and dismiss.

I’m glad I gave into some of the earlier ones, though. It’s hard to pick a path you want to go down without exploring at least a few you don’t. They all teach you a little something.

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<p>GREAT TRAIN SHOW</p> <p>Saturday & Sunday 10am - 4pm</p> <p>July 14-15 Pomona, CA Fairplex</p> <p>July 28-29 Belleville, IL Belle Clair Fairgrounds</p>	<p>DuPage County Fairgrounds 9am-3pm</p> <p>County Farm & Manchester, Wheaton, IL 60187</p> <p>Largest Monthly Train Show in the US</p> <table border="1"> <tr> <td>June 3</td> <td>August 12</td> </tr> <tr> <td>September 9</td> <td>October 14</td> </tr> </table>	June 3	August 12	September 9	October 14	<p>GREAT TRAIN AND TOY SHOW</p> <p>Saturday & Sunday 10am - 4pm</p> <p>July 21-22 • Monroeville, PA Monroeville Convention Center August 4-5 • Oaks, PA Greater Philadelphia Expo Center August 11-12 • Edison, NJ New Jersey Expo Center August 18-19 • Chantilly, VA Dulles Expo Center</p>
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Electro-Motive Division E8A diesel locomotives. Walther's offers these Pennsylvania RR class EP-22 units for use with the 1960s *Broadway Limited*. The HO scale Proto-series models have a train-phone antenna, de-skirted fuel tanks, Leslie S3J air horn, and nose-mounted grab irons. Direct-current A units

(two road numbers) are **\$229.98**; A-A sets (two differently numbered sets) sell for **\$399.98**. A units with a dual-mode SoundTraxx Tsunami sound decoder are priced at **\$329.98**; A-A sets list for **\$598.98**. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

HO scale locomotives

- **Electro-Motive Division SD40-2 diesel locomotive.** Norfolk Southern (Maersk Sealand, Operation Lifesaver, and horsehead silhouette, one road number each), Rock Island (red and yellow with italic lettering, four numbers), and Union Pacific (Desert Victory, one number). Vinyl m.u. hoses, bi-directional light-emitting-diode headlights, and positionable cab windows. Direct-current model with 21-pin NEM Digital Command Control decoder plug,

\$139.98; with dual-mode Econami sound decoder, \$199.98. February 2019. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com



- **Alco C-420 diesel locomotive.** New paint schemes. Phase II: Ohio Central (one road number), Delaware & Hudson (Lehigh & Hudson River patchout, one number), and Long Island Rail Road

(high short hood in as-delivered and retro schemes, three numbers each). Phase I: Delaware & Hudson and Delaware-Lackawanna (Lehigh Valley heritage scheme), one number each. New numbers. Phase I: Lehigh & Hudson River (two numbers) and Lehigh Valley (three numbers). Phase II: Lehigh & Hudson River (one number) and Monon (three numbers). Re-issue. Phase I: Delaware-Lackawanna no. 405. Undecorated models also available (phase I with low short hood, phase II with high and low short hoods). Prototype-specific details and golden white light-emitting-diode headlights. Direct-current model, \$169.95; with dual-mode ESU LokSound Select sound decoder, \$279.95. Fourth quarter 2018. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **Southern Pacific class AC-4 and AC-5 Cab-Forward steam**

International Toy Train Expo

Kalmbach Media, publisher of *Model Railroader*, *Trains*, *Garden Railways*, *Classic Trains*, and *Classic Toy Trains*, is proud to be the official media sponsor of the International Toy Train Expo, which will be held July 7-8 at the Chippewa Valley Expo Center (5150 Old Mill Plaza) in Eau Claire, Wis. Show hours are 10 a.m. to 5 p.m.

The two-day show will feature vintage toy trains, operating layouts, vendors, and railroad clubs. Admission is \$5, children 17 and under are free. Discount tickets (\$2.50) can be purchased at participating Menards stores or online at www.menards.com/trains.

For more information, visit www.internationaltoytrainexpo.org.

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Conducted by Cody Grivno



locomotives. Black boiler in two road numbers, *Daylight* scheme in one number (AC-4 only), and gray boiler with "Southern Pacific Lines" lettering on tender in one number. Also available painted black with black boiler (AC-4) or gray boiler (AC-5) but unlettered. Dual-mode Paragon3 sound decoder featuring Rolling Thunder, plastic and die-cast metal construction, and smoke unit. \$499.99. Broadway Limited Imports, 386-673-8900, www.broadway-limited.com



• **General Electric B36-7 diesel locomotive.** Pre-production samples shown. Atchison, Topeka & Santa Fe; British Columbia Ry. (red, white, and blue "lightning stripe"); Conrail (as delivered, CSX patched numbers, and Norfolk Southern patched numbers); CSX (blue, yellow, and gray); Minnesota Commercial; Seaboard System (as delivered); Southern Ry. (tuxedo scheme); Southern Pacific (as delivered); and TransKentucky Transportation. British Columbia Ry., Minnesota Commercial, and TransKentucky road names are

conditional announcements and will not be produced unless sufficient quantities are ordered. Also available undecorated (ATSF, Conrail, Seaboard System/CSX, SOU/NS, and SP body styles). Railroad-specific details, detailed cab interior, and metal side handrails with plastic stanchions. Direct-current model, \$229.95; with dual-mode ESU LokSound Select sound decoder, \$339.95. Early 2019. Rapido Trains, 905-474-3314, www.rapidotrains.com



• **Electro-Motive Division SD90/43MAC diesel locomotive.** New paint scheme: San Luis & Rio Grande (Iowa Pacific Holdings scheme). One road number. Factory-assembled model with painted safety railings. \$330. Kobo Custom line. Kato USA Inc., 847-781-9574, www.katousa.com

• **Electro-Motive Division SD9 diesel locomotive.** Chicago, Burlington & Quincy (Chinese Red); Elgin, Joliet & Eastern (orange); Milwaukee Road (orange and black with "The Milwaukee Road" herald); Nickel Plate Road (as-delivered black-and-yellow scheme); and Southern Pacific ("black widow" and scarlet and gray schemes). Four road numbers per scheme (two each in direct

In Memoriam

John Flann, 1930-2018

John Flann, a noted British and North American model railroader, died in March.

A native of England, John was an award-winning modeler and author. When he retired in 1990, he emigrated to the United States with his wife, Jeanne, to be closer to their sons, Christopher and Nicholas, and their families.

John's HO Clark Fork RR was featured in *Great Model Railroads 2000*. His byline also appeared in three issues of *Model Railroad Planning*.



current and dual-mode ESU LokSound Select sound decoder). Railroad-specific details, light-emitting-diode headlights, and die-cast metal underframe. Direct-current model, \$199.98; with dual-mode ESU LokSound Select sound decoder, \$299.98. March 2019. WalthersProto.

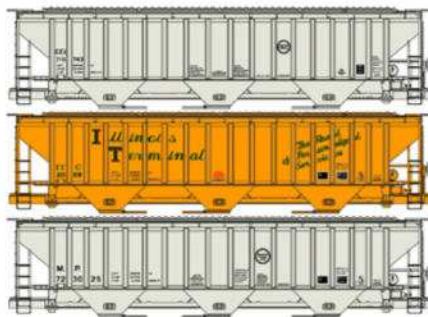
O scale



Old weathered barn. This factory-painted and weathered Woodland Scenics structure features a fieldstone foundation, shake-shingle roof, and weather vane atop slatted cupola. The barn (\$169.99) also includes light-emitting-diode lights (compatible with Just Plug Lighting System) and a printed interior. Woodland Scenics, 573-346-5555, www.woodlandscenics.com

Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

H0 scale freight cars



• **Assorted freight car kits.** Chicago & Eastern Illinois, Illinois Terminal, and Missouri Pacific Pullman-Standard 4,750-cubic-foot-capacity three-bay covered hoppers (\$19.98 each; three-pack, \$58.98). Delaware, Lackawanna & Western 36-foot double-sheathed boxcar with steel ends and straight underframe, \$17.98. Monon 40-foot boxcar, \$17.98. Nickel Plate Road 36-foot Fowler single-sheathed boxcar, \$17.98. Wheeling & Lake Erie United States Railroad Administration two-bay hopper (single car, \$16.98; three-pack, \$49.98). Injection-molded plastic kits with plastic wheelsets

and Accumate couplers. Accurail, 630-365-6400, www.accurail.com

• **50-foot single-sheathed boxcar.** Des Moines & Central Iowa, Illinois Central, Milwaukee Road, Southern Pacific, St. Johnsbury & Lamoille County, and Texas Southeastern RR. Three road numbers per scheme. Separately applied running board, 33" machined metal RP-25 contour wheels, and body-mounted McHenry scale couplers. \$29.98. February 2019. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com



• **17,600-gallon corn syrup tank cars.** New paint schemes: Archer Daniels Midland (molecule logo), Cargill Foods ("Corn sweeteners" lettering), and General American Transportation. New road numbers: Minnesota Corn Processors Bulk Products Division (SYRX reporting marks), NJ Transit ("Non potable water only" lettering in two numbers), and Union Tank Car Co. ("Corn Products" lettering). Four numbers per scheme unless noted;

also available undecorated (three body styles). Separately applied brake detail, 100-ton roller-bearing trucks, and Accumate couplers. \$46.95 (undecorated, \$39.95). Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

• **Pullman-Standard 60-foot PS-1 boxcar.** New paint schemes: Chicago Great Western ("Lucky Strike" herald in one road number), Grand Trunk Western (Boxcar Red and Blue schemes), Illinois Central Gulf (five numbers), and Rock Island. New road numbers: Atchison, Topeka & Santa Fe ("Super Shock Control" lettering); Baltimore & Ohio ("Cushioned Underframe" lettering and capitol dome herald); Chesapeake & Ohio ("Cushioned Underframe" lettering and "C&O for Progress" herald); Milwaukee Road (billboard lettering); Southern Ry. ("Southern Serves the South" slogan); and Union Pacific (yellow). Six numbers per scheme unless noted; also available undecorated. Metal wheels and Kadee couplers. \$42.95. October/November 2018. InterMountain Railway Co., 800-472-2530, www.intermountain-railway.com



• **Assorted freight cars.** Gem Automatic Gas Co. American Car & Foundry 11,000-gallon insulated tank car (two road numbers), \$44.95. Seaboard Coast Line Pullman-Standard 50-foot PS-1 boxcar, \$38.95. Factory-painted and assembled models with two-piece self-centering trucks and scale couplers. Kadee Quality Products Co., 541-826-3883, www.kadee.com

• **60-foot high-cube Plate F boxcar.** Arkansas-Oklahoma (reporting marks only), BNSF Ry. (post-2005 scheme), Canadian National ("wet noodle" herald with website and DWC reporting marks), Canadian Pacific Ry. (Golden Beaver herald), CSX, and TTX (new and old TTX heralds). Three road numbers per scheme; also available undecorated. Separately applied latch bars, 100-ton roller-bearing trucks with 36" turned-metal wheelsets, and Proto-Max couplers. \$27.98. Walther's Mainline. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

Showcase



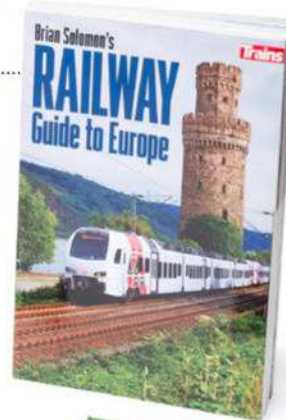
1



3



4



2



5

1 American Car & Foundry Hart ballast cars. Atlas offers these HO Master Line models decorated for Chicago, Burlington & Quincy. A three-pack has a manufacturer's suggested retail price of **\$104.95**. Atlas Model Railroad Co., www.atlasrr.com

2 Brian Solomon's Railway Guide to Europe. Get inside

information and useful travel tips for your next European rail adventure. The 416-page book is priced at **\$24.99**. Kalmbach Books, KalmbachHobbyStore.com

3 Union Pacific Steam Excursion pre-2006 water tender set. These HO scale Rivert Counter line models (two-pack, **\$134.99**) have body-mounted die-cast

metal semi-scale Type E couplers and directional light-emitting-diode headlights. ScaleTrains.com Inc., www.scaletrains.com

4 70-foot heavyweight baggage car. Micro-Trains offers this N scale model decorated for Chicago, Burlington & Quincy. The model (**\$29.95**) has plastic wheels and Magne-Matic

couplers. Micro-Trains Line Co., www.micro-trains.com

5 53-foot Singamas corrugated intermodal container. New schemes on this Walther's SceneMaster line HO scale model (**\$12.98**) are EMP, APL Logistics, Axsun, CSX Intermodal, Dart, and XPO Logistics. Wm. K. Walther's Inc., www.walthers.com

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HO scale



Greenbrier (Gunderson) 5,188-cubic-foot-capacity three-bay covered hopper. ScaleTrains.com offers this modern-era freight car decorated for BNSF Ry., Arkansas-Oklahoma Ry., and Union Pacific in multiple road numbers per scheme. The



HO scale Rivet Counter line covered hopper is offered in four body styles with two hatch types and factory-applied grab irons. The car retails for **\$39.99**. ScaleTrains.com Inc., 844-987-2467, www.scaletrains.com



• **Southern Pacific class B-50-15 single-sheathed boxcar with steel sheathing.** One-piece cast-resin body, Murphy radial roof, AB brakes, Hi-Tech Models vinyl air hoses, Yarmouth etched-bronze corner steps and Carmer uncoupling levers, and proprietary decals covering all freight versions of the car. Kit without trucks or couplers, \$45; with Tahoe Model Works no. 109 trucks and code 110 wheels or Tahoe Model Works no. 209 trucks with semi-scale wheels, \$51 each. Westerfield Models LLC, 303-658-9343, www.westerfieldmodels.com

HO scale passenger cars

• **Amtrak Superliner cars.** Coach, diner, sleeper, and transition sleeper (\$90). All cars in phase 6 paint scheme. Factory-installed details; tinted, flush-fitting window glazing; and free-rolling trucks with rotating bearing caps. \$87 each unless noted. Kato USA Inc., 847-781-9500, www.katousa.com

HO scale structures

• **Silo in Luçon.** Low-relief laser-cut cardboard kit. Based on prototype in Luçon area of Vendée, France. Measures 10.43" x 3.74" x 9.64". \$83.16. Price may vary based on exchange rate. Minifer, www.minifer.fr/en



• **Walmart Supercenter.** Low-relief milled styrene and laser-cut acrylic kit with street sign. Parking lot base not included. Measures 35" x 5" x 3 3/8". \$99.95. Summit USA, 337-436-8481, www.summit-customcuts.com

• **Company houses.** Injection-molded plastic kit with detailed front and back porches, tar paper roof, and clear window glazing. Each house measures 6 7/16" x 2 13/16" x 3 3/4". Two-pack, \$39.98. Cornerstone Series. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

HO scale details and accessories



• **1950s farm tractors.** Green and red. Factory-assembled models. Two-pack, \$14.98. Scene Master line. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

• **Detail kit for Alco PA and PB diesel locomotives.** For Walther's Mainline models. Includes two pilot grab irons for PA, two right rear grab irons for PA or PB, two left rear grab irons for PA or PB, and eight Alco-style lift rings. Formed stainless steel wire. Completes one PA or PB. \$9.98. Walther's Mainline.

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• **RailCrew switch machines and remote uncouplers.** Switch machine features three switch stand styles with rotating targets, single-pole double-throw auxiliary contacts to power frogs and signals, and momentary 12V DC power. Measures 1 1/8" x 1". RailCrew On-Off Remote Uncoupler features momentary 12V DC power and light-emitting diode between and below the rails. Compatible with all major brands of magnetic couplers. Measures 1 3/4" x 7/8". \$19.95 each; six-pack, \$109.95; and 12-pack, \$209.95. Rapido Trains, 905-474-3314, www.rapidotrains.com

N scale locomotives



• **Alco C-420 diesel locomotive.** New paint schemes. Phase I: Delaware & Hudson and Delaware-Lackawanna (Lehigh Valley heritage scheme), one road number each. Phase II: Delaware & Hudson (Lehigh & Hudson River patchout, one number), Long Island Rail Road (high short hood in as-delivered and retro schemes, three numbers each), and Ohio Central (one number each). New numbers. Phase I: Lehigh & Hudson River (two numbers) and Lehigh Valley (three numbers). Phase II: Lehigh & Hudson River (one number) and Monon (three numbers). Re-issue. Phase

I: Delaware-Lackawanna no. 405. Undecorated models also available (phase I with low short hood, phase II with high and low short hoods). Prototype-specific details, painted safety rails, and Scale Speed motor with dual flywheels. Direct-current model, \$139.95; with ESU LokSound Digital Command Control sound decoder, \$249.95. Fourth quarter 2018. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **Electro-Motive Division SD70MAC diesel locomotive.** BNSF Ry. (post-2005 herald) and Alaska RR. Two road numbers per scheme. Directional headlights, illuminated number boxes, all-wheel electrical pickup, blackened metal wheels, Kato couplers, and walkway-mounted illuminated ditch lights. Direct-current models accept Train Control Systems K1D4 Digital

Command Control decoder (sold separately). Direct-current model, \$120; with Digital Command Control motor decoder, \$170. Kato USA Inc., 847-781-9500, www.katousa.com

N scale freight cars

- **American Car & Foundry 4,600-cubic-foot-capacity three-bay Center Flow covered hopper.** New paint schemes: Burlington Northern (single cars in 1991 scheme, three-pack in original scheme); BNSF Ry. (Mineral Red with circle-cross herald); Chicago, Burlington & Quincy (gray with "Burlington" lettering and Burlington Route herald); Pennsylvania RR (gray with black keystone herald); and Union Pacific (gray with billboard lettering). Single car, \$29.98; three-pack, \$84.98. February 2019. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com
- **TTX 53-foot three- and five-unit articulated spine cars.** Three-unit set in six road numbers, five-unit set in four numbers; both sets also available

undecorated. Die-cast metal and plastic construction, etched-metal walkways, and BLMA 70-ton American Steel Foundries Ride-Control trucks with metal wheels. Can be used with 40-, 45-, 48-, and 53-foot intermodal containers. Three-unit set, \$119.95 (undecorated, \$99.95); five-unit set, \$199.95 (undecorated, \$164.95). Third quarter 2018. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **CSX 70-foot Husky Stack well car.** Two road numbers. Plastic and die-cast metal construction with plastic wheelsets and Magne-Matic couplers. \$29.90. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com
- **Thrall 52'-6" gondola.** Denver & Rio Grande Western (orange or black with Flying Grande lettering and "The Action Road" slogan), Missouri Pacific

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Pennsylvania RR class FF1 heavy-duty alternating-current mainline locomotive. This limited-edition brass model is available from Eisenbahn Canada. The HO scale model is offered painted Brunswick Green and Tuscan (1930 to 1940),

Brunswick Green (1918 to 1930), and photo gray (1917). The direct-current model (**\$2,250**) features directional headlights and marker lights and two Swiss-made Escap ball-bearing can motors. Eisenbahn Canada, www.eisenbahncanada.com

(buzzsaw herald), Union Pacific (Missouri Pacific reporting marks or yellow with "Cushioned Load" lettering), and Rock Island (Oxide Red with speed lettering and blue with "The Rock" lettering). Six road numbers per scheme. Die-cast metal underframe, 100-ton trucks with Fox Valley Models metal wheels, and body-mounted couplers. \$28.95. Fourth quarter 2018. Trainworx, 970-874-9747, www.train-worx.com

N scale passenger cars



- **70-foot heavyweight baggage-mail car.** New paint scheme: Norfolk & Western. Injection-molded plastic model with plastic wheelsets, clear window glazing, and Magne-Matic couplers. \$32.90. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

N scale details and accessories

- **Fruehauf 40-foot Z-van trailer.** Atchison, Topeka & Santa Fe; Burlington Northern; Clinchfield ("TraileRail Service" lettering); Rock Island ("Rock Island Lines Trailer Service" lettering);

Union Pacific ("We Can Handle It" slogan); and Vermont Ry. Two trailer numbers per scheme. Injection-molded plastic with vinyl tires and separately applied mudflaps. \$21.98. February 2019. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com

- **Flexi-Van trailers.** Chicago, Burlington & Quincy; Illinois Central (orange and brown with "Mainline of Mid-America" slogan or green diamond herald); New York Central (four versions); Milwaukee Road (four versions); and Southern Ry. ("Containerized Freight Rail-Highway Service" lettering). Three trailer numbers per scheme. Injection-molded plastic models. \$21.95. Trainworx, 970-874-9747, www.train-worx.com

O scale freight cars



- **70-ton nine-panel three-bay hopper.** New paint schemes: Alaska RR (billboard lettering) and Canadian National ("wet noodle" herald). New road numbers: Chesapeake & Ohio ("C&O for Progress" herald, four numbers), Norfolk & Western (large N&W), Peabody Coal Co. (yellow, four

numbers), and Southern Ry. (Roman lettering). Two numbers per scheme unless noted, also available undecorated. Removable coal load, flat or arched ends as appropriate, and die-cast metal trucks. \$64.95 (undecorated, \$55.95). Third quarter 2018. Trainman line. Atlas O, 908-687-0880, www.atlasrr.com

O scale details and accessories

- **45-foot intermodal container.** Cronos, Evergreen, Lykes, and Maersk. Six container numbers per scheme; also available undecorated. Injection-molded plastic with positionable doors. \$29.95 (undecorated, \$19.95); eight-pack (two numbers from each scheme), \$239.60. Atlas O, 908-687-0880, www.atlasrr.com

S scale passenger equipment

- **American Car & Foundry steel welded-side express refrigerator cars.** Atlantic Coast Line (as-built purple and aluminum with yellow stripes and white lettering) and Railway Express Agency (as-built dark green and aluminum with red stripes and Dulux Gold lettering, mid-1950s dark green repaint with Dulux Gold lettering, and modernized 1962 car with Apple Green paint and white speed lettering). Factory-painted

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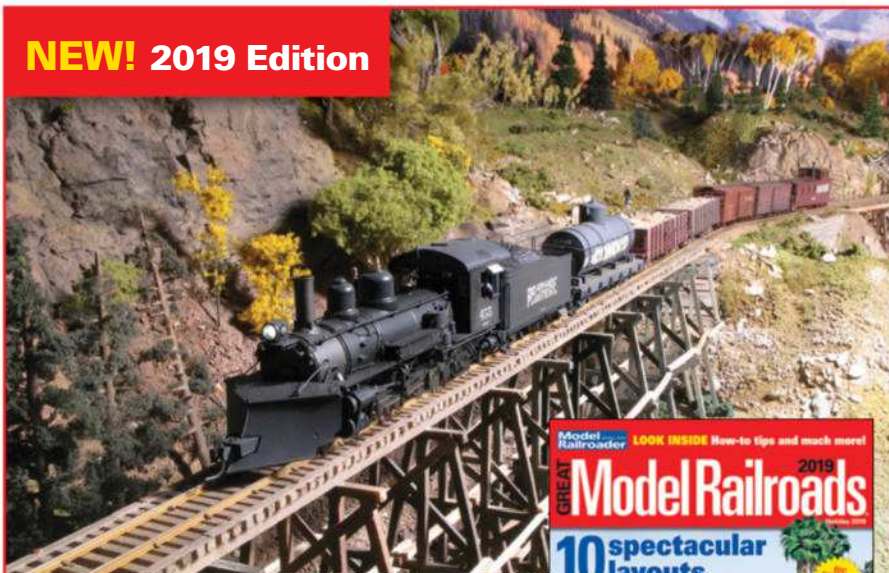
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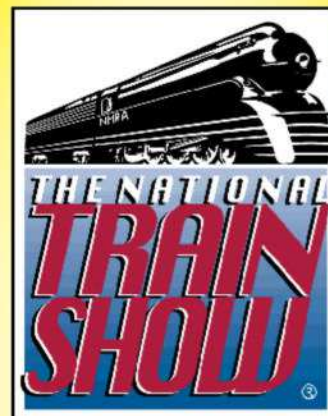
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HO scale



Assorted freight cars. New HO scale freight car kits from Accurail include a St. Louis-San Francisco Pullman-Standard 4,750-cubic-foot-capacity three-bay covered hopper, **\$19.98**. BNSF Ry. American Car & Foundry 4,600-cubic-foot-capacity three-bay Center Flow covered hopper, **\$18.98**. Atlantic Coast

Line 40-foot plug-door boxcar, **\$17.98**. Dubuque Packing 40-foot plug-door refrigerator car, **\$18.98**. Great Northern 50-foot combination-door welded-side boxcar, **\$17.98**. The injection-molded plastic kits include plastic wheelsets and Accumate couplers. Accurail, 630-365-6400, www.accurail.com

and lettered brass models. \$429. River Raisin Models, 248-366-9621, www.riverraisinmodels.com

Z scale locomotives



• **Budd Rail Diesel Car.** New paint scheme: Jersey Central Lines. Two road numbers. Directional light-emitting-diode headlights, separately applied single-chime air horns, and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

Z scale freight cars



• **40-foot single-sheathed boxcar.** New paint scheme: Pennsylvania RR.

Seven road numbers (single car, two-pack, and four-pack). Etched-metal running boards, positionable doors, blackened metal wheels, and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

Electronics/controls



• **Just Plug Lighting System accessories.** Battery case (provides power without electrical access), \$5.99. Extension cable kit (use with extension wire to create custom lengths of Just Plug cables), \$6.99. Extension wire (50-foot rolls of color-coded wire for proper connection with linker plugs and Splicer plugs), \$8.99. Linker plugs (use to plug in remotely located street and wall-mount lights), \$8.99. Port sharing device (use with a Light Hub to add

up to four light-emitting diodes per light), \$8.99. Sequence lighting hub (add up to four Just Plug lights that automatically turn on and off in sequence), \$24.99. Splicer plugs (customize wire connections for any length), \$3.99. Woodland Scenics, 573-346-5555, www.woodlandscenics.com

Books

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The middle standpipe in this photo is a fueling stand that used to serve oil-burning steam locomotives in Union Pacific's yard in Cheyenne, Wyo. The far standpipe is a water column. David P. Morgan Memorial Library collection

How were oil-burning steamers refueled?

Q We've looked everywhere online but can't find any photos of oil fueling facilities (tanks, filling pipes, etc.) for oil-burning steam locomotives. We would appreciate your help. Thank you.

Juan José Rodriguez, Lanesville, Ind.

A We would be glad to help. While Eastern roads had access to cheap and plentiful Appalachian coal, Western roads like the Union Pacific, Southern Pacific, and Atchison, Topeka & Santa Fe often turned to oil to fuel their steam locomotives. You might have better luck inquiring with the historical and modeling societies of the above railroads, at www.uphs.org, www.sphts.org, and www.sfrhms.org. I found the photo above in our David P. Morgan Memorial Library's file of UP photos.

The fuel filler shown in that photo has a pivoting connection just above the base that allows the spout to swivel. The elbow joint is also flexible, letting the engine's fireman pull the nozzle down into the tender's fuel hatch before turning the wheel to start the flow. The lever-like extensions off the back of the nozzle are linked to a heavy metal ring around the standpipe that acts as a counterweight to the nozzle. When fueling was finished, the pipe would be swung back over the adjacent funnel-topped catch pipe to reclaim any drips.

Tichy Train Group and Durango Press make oil (and water) columns in HO scale; Showcase Miniatures' Century Foundry line offers them in HO and N scale. As for the oil tanks, those weren't anything unique to the railroads. Any model oil tank appropriate to the era you're modeling would be correct for your engine terminal.

Q I'm an HO scale modeler running direct-current locomotives. I'm not changing to Digital Command Control. Is there any way to add sound to a diesel or steam direct-current locomotive? I could just play a recording of train sounds while the trains go around the layout, but I'd rather have something more realistic.

Bill Cahal, Surprise, Ariz.

A Sure there is, Bill. Install a dual-mode DCC sound decoder in your locomotive. Dual-mode decoders (which most decoders made these days are) work both on DCC and direct-current layouts. Though you won't have access to as many sound effects and options as a DCC operator, you will enjoy automatic sounds on DC, such as hearing the prime mover (or steam chuffs) ramp up and down according to the engine's speed. Some sound decoders let you trigger other sounds with a conventional DC power pack, such as sounding a grade crossing whistle when the direction switch is quickly toggled. And adding a DC sound controller like MRC's Tech 6 will give you access to more of your sound decoder's features without converting your layout to DCC.

Another option is the Kato Sound Box, which is a stand-alone sound system that uses a built-in speaker to play appropriate train sounds from a sound card. Check out our review in the June 2015 *Model Railroader*.

Q Any ideas on how to extend the life of a bottle of glue once you open it?

David Bushee, Holliston, Mass.

A Always keep bottles securely capped when not in use. Store them upright, at room temperature, in a dark cabinet. Cyanoacrylate adhesive (CA) needs to be protected from moisture. And don't use one brush or applicator for multiple kinds of adhesives.

These are basics you probably already knew, but all you can really do is delay the inevitable. Once a glue (or paint, or solvent) container is opened, you've started a ticking clock. I've even had CA go bad in an unopened bottle. The ultimate answer is simply to build enough models that you use the glue up before it goes bad.

Send questions and tips to associate editor Steven Otte at AskMR@MRmag.com.

Q I've recently moved to Montana and haven't had a chance to set up the new layout, as the planned location is unfinished. The room is insulated, but as of yet it has neither heat nor air conditioning. Can I safely store my trains in there? I have dozens of locomotives and hundreds of cars, not top-of-the-line stuff, but I can ill afford to replace it. Will extreme cold or heat cause damage? What temperature range can they safely withstand?

Dean Sipe, Laurel, Mont.

A I don't think anyone has tested the lower limit of railroad models' thermal tolerance, but I would worry more about heat than cold. A non-climate-controlled room can't get colder than its surroundings, but it can easily get much hotter under the summer sun.

A locomotive might perform poorly if its metal frames, gears, and axles contracted in the cold, and lubrication might thicken. Parts like gears and driver tires could loosen or split if they expand or shrink at different rates than

the driveshafts or wheel centers they surround. And even mild heat can do permanent damage to plastics, causing them to sag and warp, even if securely packed away in boxes. So it's a good idea to protect railroad models from temperature extremes in either direction. Off the top of my head, I would estimate that a temperature range of 40 to 80 degrees F is safest for your model railroad. Basically, if you're uncomfortable, so are your trains.

Q I've bought some used freight cars and want to change out their plastic wheelsets for metal ones. What size do I use, 33" or 36"? When for both sizes?

Clarus Nelson, Hansen, Idaho

A You should use the size wheels that your car originally came equipped with. It's important because the wheel diameter will affect how high your cars ride, which affects how high the couplers sit above the rail. So make sure to figure out what size wheels the car came with before you buy replacements.



If you want to replace your plastic wheelsets with metal ones, be sure you buy the same diameter wheels as the originals. Jim Forbes photo

Replacement wheelsets come in those two sizes because full-size train cars use both size wheels. In the old days, 33" wheels were commonly used on freight cars and 36" on passenger cars, because the larger wheels gave a smoother ride over rail gaps such as on turnout frogs. These days, heavier-capacity freight cars

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READER TIP

Store your decoder wire

I use sewing machine bobbins to keep my 30AWG decoder wire organized. These bobbins, available at sewing or crafts stores, are used in the compartment under the needle in sewing machines. They're made of steel and look like mini cable spools. Each one holds about 10 feet of 30AWG wire. They have holes in the sides to tuck in the end of the wire so it doesn't unroll in storage, as well as a center hole that could be used to hang on a pegboard organizer. – Jim Jimenez, Alma, Colo.

also use 36" wheels, though there are some specialty cars (like multi-unit intermodal well cars) that use two sizes of wheels on the same car, or even 28" wheels on some trucks.

Q I'm looking to model a railroad based on the Pennsylvania RR's Schuylkill Branch, which ran through Spring City, Pa. I'm having a hard time finding information about it – pictures of industries, the track, the canal. I've tried to find maps without too much luck. I found a blog that talks about the railroad and how it served the industries, but the author is also looking for information. Do you have any ideas on how to get information and get a plan started?

Mark Zimmerman, Spring City, Pa.

A Luckily, the Pennsy is one of the best-documented and most thoroughly researched railroads in history. Look for a copy of *Pennsylvania Railroad in the Schuylkill River Valley* by Benjamin L. Bernhart. It's out of print, but you may find a copy at Amazon.com, eBay, train shows, hobby shops, antique book dealers, or your local library. The book has hundreds of photos of Schuylkill Branch stations, bridges, facilities, and trains, as well as some track diagrams and maps.

As for how to translate that information into a track plan, I can recommend no source more highly than John Armstrong's *Track Planning for Realistic Operation: Third Edition* (Kalmbach Books), available from Kalmbach at www.kalmbachhobbystore.com.

My final recommendation would be to join the Pennsylvania RR Technical & Historical Society (www.prrths.com). Any research you might want to do, they've probably already done. Good luck on your project!

Q In a recent MR video, a building was shown in the background named Kelly Appliance. I need a building like that. Can you give me some info on it?

Lynn Finch, Port Crane, N.Y.

A Kelly Appliance Co. was kitbashed from a pair of Walthers machine shop kits (item no. 933-2902). It was built as part of our Bay Junction project layout and described in our April 2011 issue. If you don't have that issue in your stash, call Customer Service at 877-246-4879.

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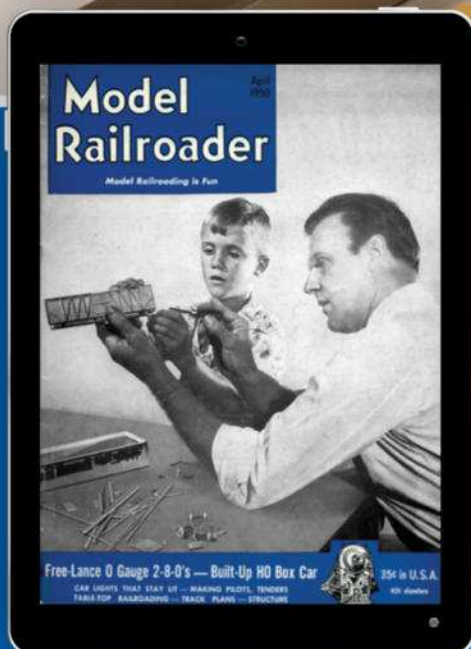
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Jim didn't need a water tank. He needed *this* water tank, and Shapeways came to the rescue. Bill Zuback photos

In the heart of Tehachapi, Calif., near the Union Pacific's double-track main line, stands a steam-era Southern Pacific 65,000-gallon water tank. It was brought to the town from another location on the railroad after a major earthquake destroyed its predecessor on April 21, 1952. Without it, Tehachapi had a big problem, as the tank doubled as the town's water supply.

After the SP stopped running steam, the railroad donated the tank to the town, and today it stands in Railroad Park, an uncharacteristic patch of green grass and large trees in this high desert mountain town.

This water tank is of special interest to me because a model of it belongs on my N scale railroad,

set in the mid-1980s. I was figuring I'd have to scratch-build the model and wasn't looking forward to it, as I've got plenty of other projects to keep me busy.

First I'd need some plans. Finding those shouldn't be tough. The SP is an extremely well-documented railroad. I was hoping I might even find a kit, and much to my surprise found something way better, a ready-built model – paint it and I'd be done. The photo shows the out-of-the-box model from Shapeways (www.shapeways.com), a 3-D printing service.

A whole new way. This is a 3-D printed model, that is to say, a model that was printed by a machine that lays down thin layer upon thin layer of plastic as a nozzle sweeps back and forth, following instructions from a computer-aided drawing (CAD) program. Think of a laser ink printer that keeps going back and forth over the paper instead of moving on.

Shapeways is a company that serves as a facilitator between the person who provides the drawings and the end product. Associate editor Eric White explained all about it in his freight house article in the September 2015

Model Railroader.

What is wondrous about this for someone like me, who has no desire to learn CAD, nor perhaps even the smarts, is that Shapeways provides a marketplace for those who wish to make

the products they draw available to the general public.

I was able to buy this tower, manufactured with data supplied by Chris Kilroy of SP Stuff in N Scale, for \$80.19 plus \$4 shipping. Some of my friends thought that was a lot to pay for an N scale water tank. After all, good plastic water tank kits are available for considerably less, but the whole point is that this is not just a water tank. It's the specific water tank I wanted.

Some modelers may wonder why the model has no spout, but that's because the prototype didn't. Water stored in the tank was delivered via underground piping to water columns beside the track.

An opportunity for N scale.

N scale prototype-specific structures are hard to come by, just because of market size. Modelers in HO outnumber those in N by about five to one. Not only do commercial manufacturers make more HO prototypical offerings, but more individuals, small manufacturers, and the railroad historical societies often help fill the gaps.

Looking over the Shapeways online catalog pages, I'm surprised to see how many N scale models are offered, especially for locomotive body shells, rolling stock, and vehicles. I don't see that much in prototype structures, but it seems to me that opportunities are ripe for getting more models that are exactly what we want.

N scale's small size gives it an advantage in 3-D printed models. The company prices its offerings by the volume of the material used to make them, which means that our small 1:160 models are going to be relatively inexpensive.

The same object in HO has nearly eight times the volume



Details include the piping to carry the water to the trackside water column or to the town of Tehachapi.



See-through detail such as the joists supporting the tank are possible in one piece with 3-D printing.

of its N scale equivalent. This doesn't necessarily mean that it will cost eight times as much, as walls and other components can be proportionately thinner. Still, I'd guess that an HO model would cost five or six times as much as the same model in N.

It seems to me then that structures like this water tower, signal towers, coaling stations, sanding towers, and other small structures can be produced at viable prices for those of us who like our models on the smaller side.

And modelers who have the CAD skills and moxie can make enough money to pay for their own model and perhaps buy another thing or two down at the hobby shop. **MR**



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Car shortages in the 1970s led Burlington Northern to press stockcars into grain service. Cody Grivno shares how he turned this HO Central Valley stockcar into a grain hauler. Bill Zuback photos



How to model an emergency grain car

Backdating the focus of my HO scale modeling to the Burlington Northern (BN) in the 1970s has opened some interesting opportunities. One of them is modeling stockcars from predecessor roads Northern Pacific; Chicago, Burlington & Quincy; and Great Northern, modified for grain service.

Starting in 1973, BN created a 2-for-1 program where elevators could ship two stockcars (or in some cases modified 40-foot ice refrigerator cars) for the price of one covered hopper. The cars were in captive service, meaning they could only run on BN rails. Destinations for the converted stockcars included Duluth, Minn.; Grand Forks N.D.; Minneapolis; and Superior, Wis.

In most cases, it was up to the elevators to make the conversions, attaching plywood on the interior to the sides,

ends, and sometimes the doors. The cars were then assigned to those elevators.

Though elevators did most of the conversions, BN modified some stockcars at its shops in Brainerd and St. Cloud, Minn.

Because the conversions were most often handled locally, there were variations between cars. I've seen photos of cars with plastic film between the plywood and the car sides to keep the wood dry. The assignment signs were attached to the car sides, doors, or data boards.

If you model the BN in the upper Midwest during the mid- to late 1970s, a few modified stockcars hauling grain will add variety to your freight trains.

I'd like to thank Dan Holbrook and William Phalen for providing prototype information for this article.



The new plywood attached from the inside stands out against the weather-beaten slats on Northern Pacific stockcar no. 83034. Bill Bedell photo, Bob Wazniak collection

WATCH THIS ON MRVP



▶ Watch Cody Grivno demonstrate how he weathered the roof and sides of the stockcar on "Cody's Workshop." MRVP subscribers can view the video at MRVidéoPlus.com.

STEP 1 MAKING PLASTIC LOOK LIKE WOOD

I started by partially assembling the Central Valley stockcar kit (no. 1001). First, I attached the letterboards and data boards to the sides with liquid plastic cement. Then I secured the sides and ends to the roof.

Once the glue had dried, I spray-painted the car with Rust-Oleum Painter's Touch 2X Flat Gray Primer (no. 249088).

The biggest trick on this model was making the plastic slats look like wood. The solution came from an unlikely source, Lifecolor's Hemp, Ropes, and Tarps acrylic paint set no. CS28, available from Walther's.

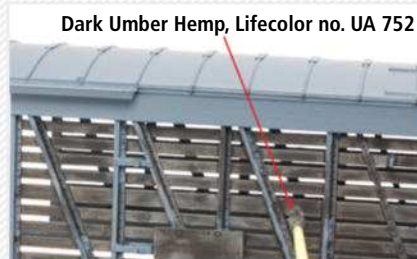
I applied full-strength Dirty Hemp (UA 754) to individual slats with a Microbrush. Then I dipped the brush in water and moved it with the grain over the wet paint. This thinned the paint, allowing some of the Primer Gray to show through.

I let the thinned Dirty Hemp dry and then applied Dark Umber Hemp (UA 752) using the same techniques.

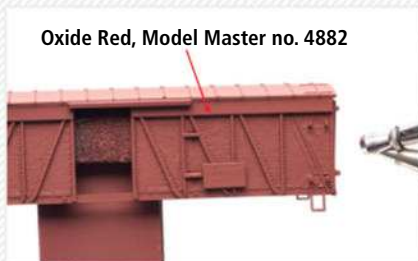
With the weathering completed, I masked the wood parts of the sides and ends (yes, this was as time consuming as you think). Then



Dirty Hemp, Lifecolor no. UA 754



Dark Umber Hemp, Lifecolor no. UA 752



Oxide Red, Model Master no. 4882



Randomly drybrush Oxide Red on boards

I airbrushed the model with Model Master Oxide Red Flat (no. 4882). There are a lot of nooks and crannies on this car. Make sure you rotate it while airbrushing to get even coverage on the exterior posts, under the letterboards, around the data boards, and on the door stop brackets.

Next, I drybrushed the slats and end boards Oxide Red, as seen in the

lower right photo. Drybrushing is the process of dipping a brush in paint and wiping off all but a trace amount before touching the brush to the model.

As you can see in the lower right photo, I didn't drybrush every single slat. Instead, I referred to a variety of prototype photos to see how NP stockcars weathered.

STEP 2 GOING UP TOP



Light Ghost Gray, Model Master no. 4762



Drybrush Light Ghost Gray with 1/4"-wide paintbrush



Corner grab irons, Detail Associates no. 6205

I masked the sides and ends and airbrushed the roof Model Master Light Ghost Gray (no. 4762). I used gray instead of a metallic color because it provided a nice base for the subsequent weathering.

I weathered the roof using a multi-step process. First, I applied Vallejo Dark Rust Model Wash (no. 76.507) with a paintbrush. I let the wash dry until there were no damp spots visible, and then brushed on the same com-

pany's Oiled Earth (no. 76.521). I then added a Gray wash (no. 76.516) to act as a control coat. The washes blended together well, creating a realistic, variegated, rusty metal look.

I let the washes dry for about an hour before using a 1/4"-wide brush to drybrush Light Ghost Gray over the washes. I started at the center of the roof and pulled toward the edges.

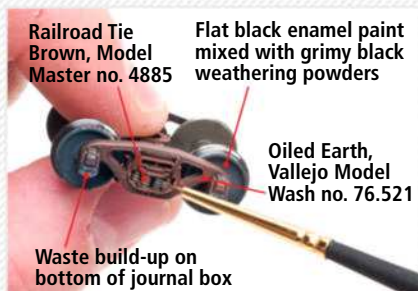
I then applied Vallejo European Dust Model Wash (no. 76.523) to the

roof. The wash toned down the gray and gave the roof a dusty look.

I painted the running boards and laterals Rust-Oleum Painter's Touch 2X Flat Primer Gray and weathered them with thinned Lifecolor Dirty Hemp.

The laterals have drill starter points for the eyebolt, but none for the legs. I used a no. 80 bit in a pin vise to clear the eyebolt hole. I trimmed the legs to .030" tall and secured them with cyanoacrylate adhesive (CA).

STEP 3 TRUCKS, COUPLERS, AND WEIGHT



The Central Valley kit does not include trucks or couplers. I used Tahoe Model Works Dalman 50-ton two-level trucks with lateral-motion detail (no. 102). After removing the metal wheelsets and putting in plastic wheelsets to mask the axle sockets, I spray-painted the trucks with Rust-Oleum Painter's Touch 2X Flat Red Primer (no. 249086).

I used a cotton swab dipped in 70 percent isopropyl alcohol to clean the metal wheels included with the Tahoe Model Works trucks. Then I painted the wheel faces with a mixture of flat black enamel paint and grimy black weathering powders. This simulates



the look of caked-on oil and grease found on the wheel faces of cars with solid-bearing trucks. I painted the backs and axles Model Master Dark Earth (no. 2054).

After the Flat Red Primer had dried, I applied Vallejo Oiled Earth Model Wash to the sideframes. Then I painted the springs Model Master Railroad Tie Brown (no. 4885).

The waste packed in the journals would build up on the bottom of the boxes. To capture that look, I brushed the flat black enamel mixed with grimy black weathering powders under each journal box. Then I applied clear satin to those areas so they'd



stand out against the otherwise flat finish on the sideframes.

I used Kadee no. 148 whisker couplers on the stockcar. After spraying the couplers with Testor's Dullcote, I applied Monroe Models Rusty Brown Scenery Solutions wash (no. 110-975).

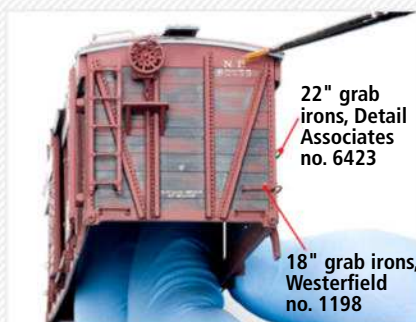
I weighed the model with the trucks and couplers installed, and it was 1.9 ounces too light based on National Model Railroad Association Recommended Practice 20.1. To add the necessary weight, I used Woodland Scenics adjustable stick-on weights (no. P738). The weights are designed for Pinewood Derby cars but work well for freight cars.

STEP 4 DECALS, WEATHERING, AND DETAILS



I airbrushed the stockcar with Model Master Clear Gloss (no. 4638). Then I decaled the car with set no. N3204 from the Northern Pacific Ry. Historical Society Company Store. I used Microscale Micro-Sol and Micro-Set when applying the decals.

Once I was satisfied with the appearance of the decals (no trapped air bubbles), I wiped the surface of the model with a damp cotton swab dipped in distilled water. This removes any residue from the decals and the



setting solution. Then I applied a final coat of clear gloss to seal the decals.

After the clear gloss had dried, I drybrushed over the decals on the wood portions of the car with Dirty Hemp, Dark Umber Hemp, and Oxide Red. As you can see in the prototype photo, the road number on the end of the car is almost worn off.

Northern Pacific no. 82655 and 82616 were both assigned to the grain elevator in Hansboro, N.D., a small town in the north central part of the



state near the Canadian border. Both cars had white rectangular signs lettered HANSBORO N DAK on the doors.

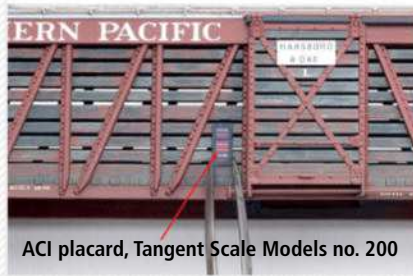
I re-created the signs with a $\frac{3}{8}$ " piece of .010" x .156" styrene strip. After painting it white and applying a gloss finish, I lettered the sign with decals from Microscale set no. 60-1325. I attached the sign with medium-viscosity CA. Plastic cement would melt the thin styrene.

I weathered the lower portion of the stockcar with thinned Railroad Tie

STEP 4 DECALS, WEATHERING, AND DETAILS (CONT'D)

Door guide, .020" phosphor bronze wire

Weather sill



ACI placard, Tangent Scale Models no. 200

1/32" basswood



Brown. I put in enough paint to cover the bottom of a 1 ounce paint jar and filled the rest with 70 percent isopropyl alcohol. The weathering toned down the bright white lettering on the sills; I drybrushed the data boards. The road name and road number were fairly clean in prototype photos, so I didn't weather those areas.

With the weathering complete, I applied Model Master Clear Flat (no. 4636) to the entire model. This gave the car a uniform, flat finish.

The full-size NP no. 82655 had an Automatic Car Identification (ACI) placard to the left of the door. I added that detail using ACI placards from Tangent Scale Models (no. 200). I secured the painted brass part with medium viscosity CA.

Finally, I added 1/32" basswood to the car's interior to simulate plywood (a manila file folder would also work). After sealing the basswood with Testor's Dullcote, I attached it to the model with Pacer Formula 560 canopy

glue (no. PT-56). I used the glue for this application because it's flexible and dries clear.

I then put the shell on the underbody and put NP no. 82655 into service. The modified NP stockcar stands out next to 40-foot boxcars and large-capacity covered hoppers, but all three car types played the same role on the Burlington Northern in the mid and late 1970s – moving grain from small towns to mills and export elevators. **MR**



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THE STREETCARS OF SAN FRANCISCO

A colorful cadre of vintage trolleys serves this
HO scale modern-era traction layout

By Harvey Simon

Photos by the author



① A scratchbuilt Milan streetcar passes the Castro Theatre on Market Street in San Francisco on Harvey Simon's HO scale F Line traction layout. Harvey used photos of the neighborhood to build accurate models of the buildings there.

It had been more than 15 years since I actively worked on a new layout. After completing the Boston MTA (the subject of a six-part series that appeared in *Model Railroader* from October 1999 through March 2000) and a coffee table layout (profiled in the September 2001 MR), I finally got the inspiration to try something new when my son and daughter-in-law moved to San Francisco.

San Francisco is the home of a sophisticated rapid transit system, the San Francisco Municipal Transportation



② A New Orleans streetcar rounds the corner past the Twin Peaks bar, headed toward the Castro Theatre. Harvey printed the pride flags from digital photos he took. The prototype F Line runs refurbished vintage streetcars in regular service.

The Twin Peaks bar, right, which shares its name with an area park, is adjacent to Orphan Andy's and Castro Tattoo, just as it is on the layout.



Agency, or Muni (www.sfmta.com), of which the F Line trolleys are an integral part. This line takes passengers between the Castro District and Fisherman's Wharf. Vintage Presidents Conference Committee (PCC) cars and other streetcars, brought in and refurbished from cities around the world, provide the service.

Bowser Manufacturing Co. Inc., with a big assist from George Huckaby of CustomTraxx (www.customtraxx.com), introduced a line of HO scale streetcars in the same livery as their full-size F Line counterparts, and that provided me with the needed spark to begin a new layout.

These cars are my first equipment with Digital Command Control (DCC), and the effects are great. The sounds and lighting add so much to the overall enjoyment of watching the trolleys move around the layout.

My roster includes two PCCs, Boston Elevated Ry. no. 1059 and Brooklyn, Board of Transportation of the City of New York no. 1053; car 952, a model of the New Orleans-style streetcar, also by Bowser; and a Milan (Italy) style streetcar I scratchbuilt using parts obtained from several suppliers.

The yellow-and-white Milan car is my first attempt at installing lights and a decoder. Though it was a bit stressful working with the small parts and getting

everything wired correctly – not to mention trying to fit the components into such a small space – the car runs quietly and smoothly around the layout. I'm planning on adding another Milan car in a different paint scheme, but this time with sound. I hope I don't go batty trying to squeeze a speaker inside the car.

My layout is tucked into a corner in a guest bedroom and occupies less than 35 square feet. The track plan is simple – an out-and-back oval, like the prototype.

I enjoy small layouts, as they enable me to get into the little details that make a big difference in the overall look.

Besides, having just retired, I'd like to finish the layout while I'm still around to enjoy it. The Castro section of my layout, the subject of this article, has a footprint of about 8 square feet. The unfinished sections will eventually include downtown San Francisco and Fisherman's Wharf. The actual F Line is about a 12-mile round trip, so a small layout can still look right.

I used many of the techniques and materials I described in the Boston layout series. Fortunately, HO scale Orr girder rail is still available from Custom Traxx, which I used exclusively on the new layout. And although my hands aren't as steady as they used to be, I was able to erect and solder a web of



The prototype kiosk, above, offers plenty of information for riders, many of whom are tourists. Note the toilet on the right side.

3 A passenger, left, checks the F Line transit map at the CASTRO stop on Harvey's layout, left. The prototype is labeled SAN FRANCISCO, but Harvey couldn't fit all the letters, so he opted for CASTRO instead.

overhead wire that reliably provides power to the cars.

What's new this time

With this layout I wanted to try new things. In looking back, I wasn't happy with the roads and sidewalks of the Boston layout. The sidewalk curbs ($\frac{1}{4}$ " plywood) were too high, and I didn't have markings on the roads. For the new layout, I used styrene at the correct thickness (.080") for the sidewalks and also scribed in the sidewalk and curb sections.

Additionally, I added markings to the streets. With the amount of modeled space devoted to the roads, including markings adds a nice effect that contributes to the overall realism. One more comment on the roads – they're wider than my old layout's streets and crowned in the middle, and look better as a result (See "A crowning touch" on page 37).

Another difference on this layout are the line poles. The Boston layout had plain $\frac{1}{8}$ " brass poles, which looked a little oversized. Here, I used three-part telescoping poles, which are thinner at the top and accordingly look more realistic. Jason's Brass Poles (www.jasonsbrasspoles.com) supplied them, and the service was terrific. The company made the F Line poles to my specifications and couldn't have been more accommodating.

Aside from the structures, the last significant difference between the two layouts is the benchwork. It's more refined on the F Line layout. Since it resides in a bedroom, I wanted to make sure it looked presentable. Instead of

2 x 4s for the legs, I used 2 x 2s and stained them. Also, whereas the Boston layout was trimmed with $\frac{1}{8}$ " hardboard and had an unsightly cloth skirt to hide junk under the layout, here I chose $\frac{1}{4}$ " medium-density fiberboard (MDF) for the fascia with nothing stored under the layout. I also countersunk the screws and filled the holes with putty before painting so it would have a cleaner look. I believe these little upgrades make for a better appearance.

Structures

The biggest change in my approach for the F Line layout is with the structures. The actual buildings in or near the Castro District are colorful and distinctive, reflecting the vibrancy of the area. Here I went for more realism, as I'm trying to replicate the structures as best as I can without losing my sanity in the process.

The layout's Castro area features kit-bashed and scratchbuilt structures using common materials and techniques. Although it was a bit painful, I began to repurpose the buildings from the Boston layout using walls from Magnuson kits that have been out of production for many years. I also, finally, learned to use an airbrush. Mixing custom colors to match the prototypes and then applying them with this tool is fun and rewarding.

The two large buildings that firmly set the layout's location and era are the Castro Theatre and Chevron station.

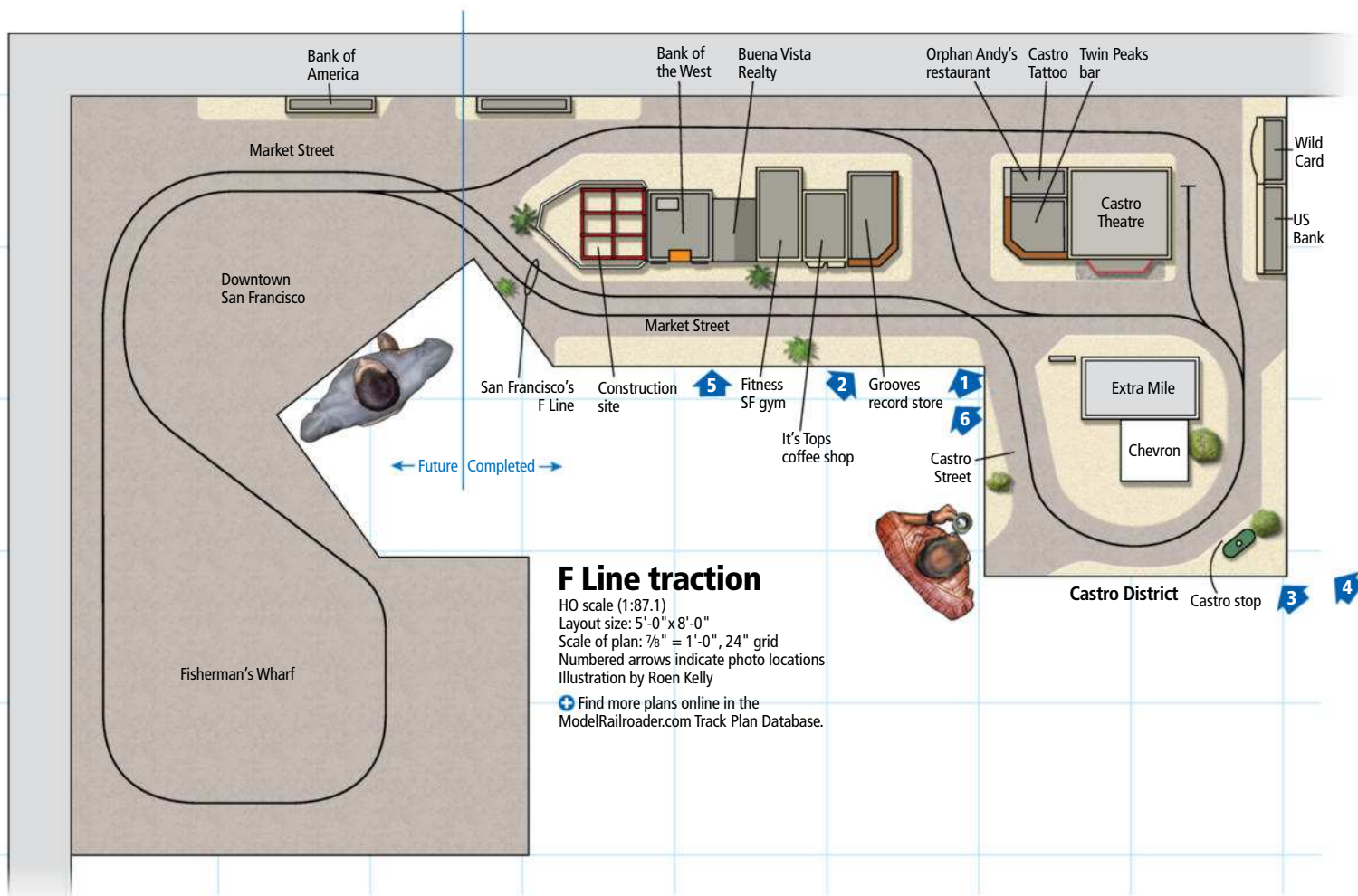
The theater is a Magnuson Art Deco kit I was able to find on eBay. I completely changed the look of the front of

the kit by adding the large center window and two smaller windows of the prototype. I cut the openings with a Dremel scroll saw. This is a wonderful tool I highly recommend adding to your workshop, especially if you're doing much kitbashing or scratchbuilding. I couldn't have made these changes (or for that matter shaped the styrene sidewalks) without this saw.

The parts for the large arched window are Grandt Line no. 5010 roundhouse windows cut and trimmed to fit. Sharp-eyed readers may also note how I eliminated a couple of the Art Deco columns from the kit's front to better replicate the look of the prototype. I didn't mess with the intricate stone work of the full-sized building, but did apply patching plaster over the bricks of the kit walls to represent stucco.

Matching the colors closely helps convey the realism of the structure. One other small detail that helped is the two movie posters on either side of the entrance. I found two posters of films that ran at the Castro and resized them using my computer. Note also the pride flags on a few of the line poles, which, like the prototype, add color to the scene.

The Chevron station is a Summit USA (www.summit-customcuts.com) Exxon kit. I worked with Summit on getting the Chevron letters I needed for the model. Summit also worked with me on the gas pumps, as Exxon gas pumps at a Chevron station just wouldn't cut it. For a small fee Summit did the work I needed.



4 This overall view of the layout shows how much modeling can be packed into about 30 square feet in a spare bedroom. Note the TransAmerica Pyramid office tower on the backdrop behind the planned downtown San Francisco scene.

The area across from the gas station where folks board the trolley for a trip to Fisherman's Wharf is a favorite scene. This stop was another opportunity to take the prototype and bring it onto the layout. The obvious difference, aside from its location, is the CASTRO lettering.

The actual lettering indicates SAN FRANCISCO, but I didn't have enough

space, so I labeled it CASTRO instead. The stop also helps fill a large corner on the layout that would've looked odd if there was nothing there. The stop, tree, street-light, and people waiting for the trolley to swing by create an interesting vignette. You'll notice on the theater and gas station, and other buildings on the layout, how the storefront signage makes

The layout at a glance

Name: F Line traction
Scale: HO (1:87.1)
Size: 5 x 8 feet
Prototype: San Francisco Municipal Transportation Agency's F Line
Locale: San Francisco, between Castro District and Fisherman's Wharf
Era: modern
Style: modified walk-in
Mainline run: 40 feet
Minimum radius: 6 1/4"
Minimum turnout: single point, equivalent to no. 2
Maximum grade: none
Benchwork: open grid
Height: 37"
Roadbed: 1/2" plywood covered by 1/2" Homasote
Track: Orr girder rail, crossings, and turnouts
Scenery: patching plaster roads and styrene sidewalks
Backdrop: commercial backdrop and custom-printed photographs
Control: Model Rectifier Corp. Prodigy Express DCC powering live overhead



The prototypes are around the corner from Market Street, but Harvey thought the interesting architecture helped convey the flavor of the neighborhood.

5 Continuing down Market Street are Buena Vista Realty, Bank of the West, and a construction site. The building housing the bank with apartments above is scratchbuilt. Buena Vista Realty is a modified DPM Stone Bakery kit.

all the difference in the believability of the models. The Castro Theatre isn't the Castro Theatre without that wonderful marquee and vertical blade sign.

To get these signs I first took photos of the prototypes with my iPhone, then worked with a graphic designer who did the rest using Photoshop or other illustrator tools. Without his help, the buildings simply wouldn't look the same. Here again, by building a smaller layout, I was able to put my resources toward elements that matter most in conveying both time and place.

Other buildings, adjacent to the Castro Theatre just as they are in real life, are the Twin Peaks Bar, Castro Tattoo, and Orphan Andy's, a small restaurant. The bar features a curved front created using the same hot water technique I described in the October 1992 issue of MR.

The technique is simple. I dipped the resin wall (I don't know if other materials will work) into almost boiling water for about 30 seconds. The material softened, allowing me to curve the wall to my desired bend.

There are two small buildings across from the theater – the WildCard greeting card shop and US Bank. Again, these closely resemble the prototypes. They weren't difficult to make – perhaps a couple of evenings each. Also across from the theater and bar, on the other side, are the Grooves record shop, the It's Tops coffee shop, and Fitness SF.

Grooves is a vinyl record store, and for this building I used the Woodland Scenics DPM Landmark Structures (formerly Design Preservation Miniatures) no. 30162 20th Century Window storefront modular set. Above the storefront windows I added styrene trim in the transom windows to better match the prototype.

I also added the prototypical Spanish tile roof. This type of roof is popular in California, and luckily for me, Plastruct offers Spanish tile roofing in HO scale.

What sets this building apart are the records in the windows, giving the building a colorful appearance. I made them with the help of a Micro-Mark hole punch tool.

I first applied color to paper with different Sharpie markers, then added a little white dot to represent the record label using the tip of a toothpick, and finally cut the records out using the punch kit. This isn't hard, as the white label dot can be eyeballed easily enough as the center

of the record, and then the surrounding record can be cut with the punch.

I finished the windows by cementing the records to clear acetate, then covering that with another layer of acetate, and gluing the finished windows in place. It's the first time I've ever created double-pane windows on a model railroad.

The coffee shop adjacent to Grooves is like the prototype. I used the DPM 12300 Stone Bakery as the basis for the structure. This kit comes with fire escape detail, but instead of applying it to the back of the building as instructed, I added it to the front to better match the prototype. The arrangement of Grooves and It's Tops on the layout is reversed from the prototype.

One last point on these two buildings is that I moved them closer to the heart of the Castro District on the layout. Grooves is just the type of building that looks right at home in the center of the Castro District, so instead of its prototype location somewhat away from the Castro, I decided it deserved its street-corner location across from the theater.

The next building is Fitness SF, which again closely resembles the prototype. I used styrene sheet, scribed to create the stone block effect. I took some license by adding the large circular Fitness SF signs in the two storefront windows on either side of the front door. I also added a Preiser table and chairs set in front of the building, as the actual building has a spot for folks to enjoy their lattes or smoothies after a workout.

Heading down Market Street are Buena Vista Realty, Bank of the West,

Meet Harvey Simon

Harvey retired from his full-time career in December 2015 and is a part-time instructor at Appalachian State University in Boone, N.C.



Harvey and his wife, Lisa, have two grown children, a grandchild (with a second on the way) and Lucy, their fifth miniature poodle. This is Harvey's 11th article in *Model Railroader*.

A crowning touch

After I've finished laying all the track, I take a piece of .080" strip styrene, a little less than the rail height, and cement that to the Homasote layout surface to form the outer boundary of the street. This then creates the "form" for the street itself.

I trowel this area with patching plaster (several passes are necessary, as you don't want to use too much plaster initially). Once everything hardens, I sand the surface smooth. I take care not to damage the track in the center. The sanding sometimes takes longer than I expect it will, similar to taping dry-wall if you're inexperienced. Then I paint the shaped surface.

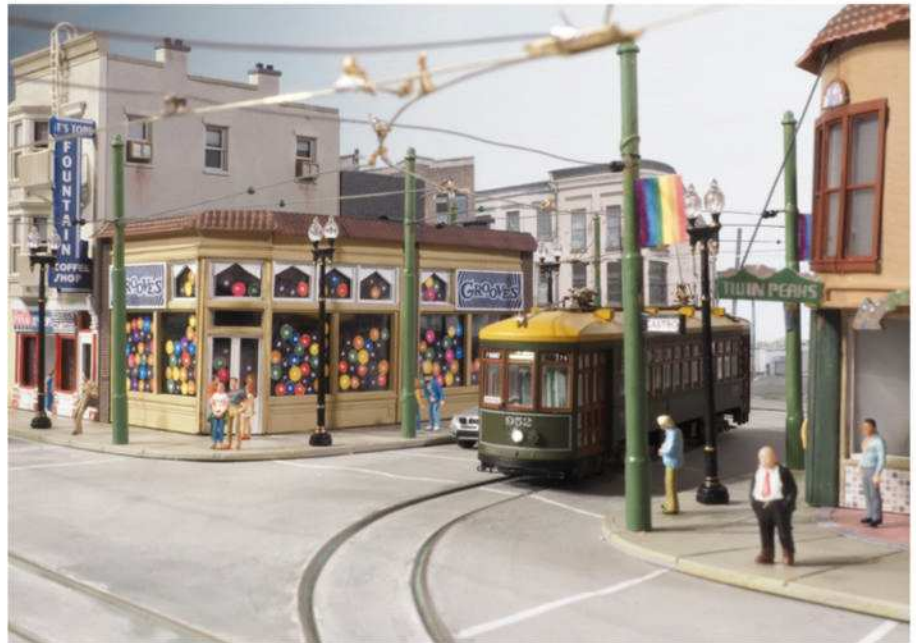
Since the Orr girder rail is soldered to copper-clad ties and is a little higher than the plastic strip I used at the curb, a natural crown is formed. I cement the sidewalk on top of the styrene and then fill any gaps between the sidewalk and street with plaster. — *Harvey Simon*

and a building under construction. For Buena Vista Realty, like the coffee shop, I used the DPM Stone Bakery, but with more significant modifications.

I cut the bay window in half horizontally and glued the top half next to the bottom half. I cut the sides of the building to create a level wall to support the peaked roof, which is scratchbuilt from styrene. This kitbash really disguises the original structure, and it's gratifying to be able to use the same kit to achieve two different outcomes. Buena Vista Realty is actually on Noe Street, but because of its proximity to Market Street (and its adjacency to Bank of the West) I moved it onto Market Street.

The architecture of the prototype Bank of the West is distinctive, so I took a stab at including it on the layout. The colorful windows are its identifying feature. Although it took awhile to build the structure from styrene, I'm happy with the overall look.

The next structure is the building under construction. Nothing special here; it's found a home on my last three layouts. But note how the fence around the building site is papered with Trinity Real Estate signs. I found these signs on an actual Market Street building site, so



6 The It's Tops coffee shop and Grooves record store are made from modified Woodland Scenics DPM kits and modules. The records in the Grooves windows were punched out of colored paper. The Spanish tile roofing is from Plastruct.

The records in the window, Spanish tile roofing, and distinctive sign were elements that drew Harvey to the Grooves record store.



although it's a bit cheesy, the fence became the prototypical element.

The last building, so far, is the Bank of America building. It's the first to be built for the downtown section of the layout, and it, too, reflects the prototype. I built the model using Evergreen styrene. The windows took the most time, but with the help of a simple jig, construction moved along at a reasonable clip. I used 60 grit sandpaper for the stone panels on the model. I was pleased to be able to add this technique to my bag of tricks for modeling prototypical elements. The entrance sign and ATMs, were both created by the same graphic artist who did the rest of the signs.

I didn't weather the buildings nearly as much as I did the Boston structures. I added a light India ink wash, and some light chalk weathering here and there, but that's the extent of it. In looking back at the Boston layout, I think I was a little heavy-handed with weathering.

The future

At the rate I'm going it'll be another three years before the layout is complete,

but that's OK. I'm having a ball taking my time and not making too many compromises along the way. My plan is to finish Market Street as it moves through the downtown area. Here I'll continue with the tall buildings typical of the San Francisco downtown shopping and financial district.

Once downtown San Francisco is finished, I'll then move to Fisherman's Wharf, where the F Line cars turn around to begin their journey back to the Castro neighborhood. There are many colorful spots here to model – chowder restaurants and touristy joints – which are quite different than those in the Castro District. My plan is to finish the layout with a waterfront scene at Fisherman's Wharf.

I consider myself so fortunate to be able to continue to enjoy our wonderful hobby as I approach my seventh decade. And I'm delighted to be able to share my new layout with you. So far, it's been a blast. And the next time you're in San Francisco, hop aboard one of those vintage F Line trolleys and enjoy the sights. I guarantee you'll have a great time. **MR**

How to model a 1950s semi-tractor



A McLean Trucking Co. GMC Cannonball semi-tractor stands in the foreground of Mont Switzer's HO layout. Learn about the details Mont added to better match his 1950s prototype (inset). Prototype photo Fred Gruin Jr. Collection

Extra detailing enhances a Sylvan HO scale GMC Cannonball resin kit

By Mont Switzer • Photos by the author

When it came time to add vehicles to my 1950s-era HO scale Monon RR, acquiring models of General Motors Corp. cab-over-engine (COE) semi-tractors topped the list. Sylvan Scale Models sells an accurate cast-resin kit of a GMC COE "Cannonball" single-drive axle tractor. With a few extra details, paint, and custom decals, I built the Sylvan kit to match a common 1950s trucking company prototype.

Cannonball

The GMC snub-nose tractors proved popular with carriers across North America. The shorter tractors could pull long trailers and still meet overall truck length restrictions imposed in the 1950s.

Their nickname came from a 1950s TV show called "Cannonball" that followed the adventures of truck driver Mike Malone and his co-driver, Jerry, as they hauled cargo in their GMC semi.

The snub-nose trucks were also a common sight along U.S. Highway 40 in eastern Indiana. During the 1950s, the

most prominent carrier along that route was the McLean Trucking Co., based in Winston-Salem, N.C.

McLean was known for its sleeper-team operation, where a lead driver would be paired with a junior co-driver. The trucks were equipped with sleeper cabs that had a bunk compartment where the off-duty driver could rest.

I didn't use the exhaust stack provided with the kit. McLean trucks in the 1950s had lower-mounted exhaust systems similar to those on automobiles. I also didn't use the included mud flaps. Tractors weren't required to use them when hauling a trailer.

Some notes on paint

After using a hobby knife and files to remove flash from the resin parts, I washed them in warm, soapy water to remove any leftover mold release. I also airbrushed the parts with gray primer.

With constant exposure to the elements, paint colors could vary widely. Red paint could darken to an almost

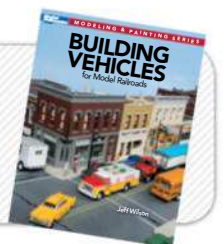
purple shade or lighten to an orangish hue. Although I used a Caboose Red, any similar shade would work for a McLean truck. Since I used now-discontinued Floquil paint, the online materials list includes currently available equivalent colors in Testor's Model Master line.

Readers will note from the photos that I painted all the parts prior to assembly. In hindsight I think it may be easier to do some of the painting and decaling after assembly.

From the tires up, I'll describe the key techniques that I used to build and detail this 1950s semi tractor.

The owner of an Indiana-based trucking company, Mont Switzer is a frequent contributor to Model Railroader.

Find more projects in this new book from the Kalmbach Hobby Store!



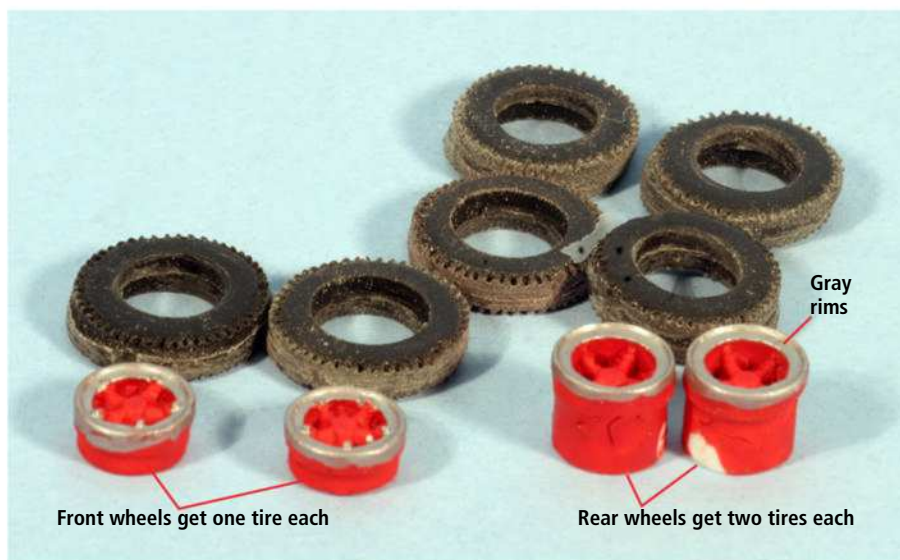
Wheels, rims, and tires

Sylvan makes this kit with either disc or spoke wheels. I used the latter for this project, since the McLean tractors of my modeled era had cast-metal spoke wheels painted red. The tires were mounted on separate metal rims painted gray. These rims were then attached to the ends of the spokes.

On the Sylvan model, each rim and wheel is represented by a single casting. I first painted the castings red. After the paint dried completely, I painted the outer edges of the rims with a silver Sharpie permanent marker, which looks close enough to the prototype's gray rims.

The tires provided with the kit are made of vinyl with realistic tread detail. However, these parts have a lot of flash that needs to be removed. The tires are also not uniform in size.

To deal with these issues, I followed the recommendation included with the kit instructions. I screwed all the tires onto a 2½" long ¼" bolt, then secured the bolt into the chuck of my electric drill. While using the drill to turn the bolt, I held a coarse fingernail file to the surface of the tires until all the flash was gone and the tires were uniform in



diameter. After removing the tires from the bolt, I installed them onto the wheel/rim castings from the back. The tires were still somewhat inconsistent in appearance, so I placed the best-looking pair on the front steering wheel axles and the worst looking pair on the inside of the dual-wheel drive axles.

Following the kit's instructions, I attached the drive shaft to the rear end, then mounted the wheels to the axles. Sylvan has cleverly cast the steering axle ends so that the front wheels can be mounted at an angle to model the truck as if it were turning.

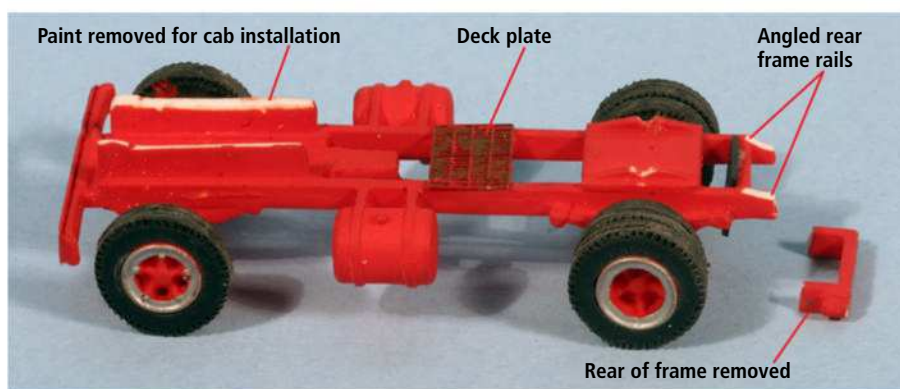
The drive (rear) axle ends are cast to resemble brake drums, which also provide mounting points for the wheels. The resin axle ends are a weak point, and can easily break off. I reinforced each rear axle end by first drilling a hole into the end of the axle using a no. 75 bit and a pin vise. Then I dipped one end of a short length of .015" wire into cyanoacrylate adhesive (CA) and inserted the wire into the hole. After test fitting the wheel, I trimmed any excess wire and mounted the wheel with CA. I then repeated the process for the other drive axle end.

Frame

The model has a one-piece frame that includes the fuel tanks, fifth wheel plate, and pedestals. Truck manufacturers and fleet owners in the era I model often angled the rear frame rails, which made it easier for a tractor to slide under a trailer. I modeled this detail by trimming the rear frame rails, leaving 2 scale feet behind the fifth-wheel plate. I then tapered the top of each rail to 4 scale inches tall at the ends.

Following the prototype, I painted the frame red. Note that I scraped the paint off of the front frame rails where the cab would be installed for a stronger adhesive bond.

Most prototype trucking companies installed a deck plate to the frame behind the tractor's cab, providing a safe place for the driver to stand while he connected air hoses. The deck plate on my model is a scale 3-foot section of see-through running board that I had leftover from a freight car project.



I attached this etched-metal part to the tops of the resin frame rails with CA.

To better match the McLean trucks in my prototype photos. I made a larger bumper by laminating an 8 scale foot long and 12 scale inch wide strip of .010" styrene to the stock bumper molded as part of the frame.

After painting the bumper red, I applied several era-appropriate Micro Scale license plate decals to it. Back in the 1950s, several license plates were required for the semi-tractor and trailer

to travel through all of the states where McLean operated.

I cut two scale 4" squares of black decal film to model openings for the towing adapters and two scale 4" x 6" rectangles to model the footholds. Both of these details are easily seen in prototype photos.

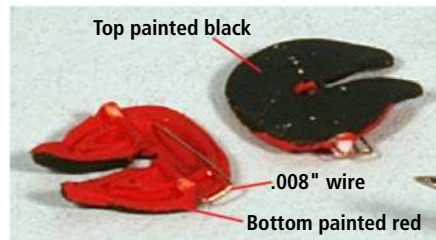
Once the decals dried, I applied Testor's Dullcote to seal them and add a more weathered appearance. These details are shown in the photo of the finished model on the previous page.

Fifth wheel

The **fifth wheel** is the flexible yet solid point of attachment for a semi-trailer on a semi-tractor. The trailer's fifth pin couples to the fifth wheel slot.

The fifth wheel is a separate part in the Sylvan kit. After painting the bottom of the fifth wheel red, I painted the top with Engine Black paint to simulate grease. I also added the fifth pin release handle that allows the tractor to uncouple from the trailer. The lever could be mounted on either side, but most operators installed the lever on the left (driver's) side.

To make the pin release handle, I bent a length of .008" wire into a "U"



so the bottom of the U is 6 scale inches wide. Next I trimmed the legs of the U so one leg was 1 scale foot long and the other was 2 scale feet long.

I drilled a no. 78 hole in the side of the fifth-wheel casting just ahead of the pivot point. After applying a drop of CA to the shorter leg of the handle, I inserted it into the hole until the bottom of the handle was 6 scale inches

away from the casting. I used CA to secure the longer leg of the handle to the underside of the fifth wheel.

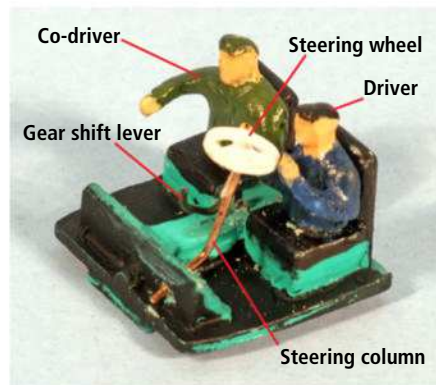
When it's not coupled to a trailer, the V-shaped rear of the fifth wheel falls to frame level. Those modeling the tractor without a trailer should make sure to position the fifth wheel on the frame so that its rear is lower than its front. Those planning to add a trailer should make sure the fifth wheel is level so it will be flat against the trailer's upper coupler.

To install the fifth wheel, I added a drop of thick CA on each of the fifth wheel pedestals located on the truck frame. This slow-curing CA gave me enough working time to adjust the fifth wheel to the proper angle.

Cab interior

The Sylvan model includes two interior castings. The smaller casting is the bunk and the larger casting with seats is the cab interior. I carefully removed all flash and test fit both parts, making sure they slid into the cab without binding. If the parts are tight, sand or file as needed. It's important that the parts go all the way into the cab for a proper fit on the frame.

After washing the interior parts in warm soapy water and letting them dry thoroughly, I airbrushed them with Floquil gray primer. During the time period I model, the GMC cab interiors were painted a turquoise color. I airbrushed both the sleeper and cab interiors with Floquil New York Central Jade Green as a close-enough match.



Once the first coat of paint dried, I brush-painted the bottom of the casting and the floor black. I also painted the seats in a dark brown color.

The driver casting included with the model doesn't have any legs, which makes him easy to position on the seat. This won't be noticeable in the finished

model. I painted the driver using flesh tone and dark blue for his shirt and cap.

The kit also includes a steering wheel and a length of wire for the steering column. I drilled a no. 75 hole, added a drop of CA, and then inserted the steering column. After painting the steering wheel white, I slid it over the column. I made sure the top of the steering wheel would be visible through the cab windshield. After securing the steering wheel with CA, I trimmed off the excess wire.

I used this excess wire to model the gear-shift lever. On snub-nose tractors the gear shift should be mounted even with the driver in the center console between the seats.

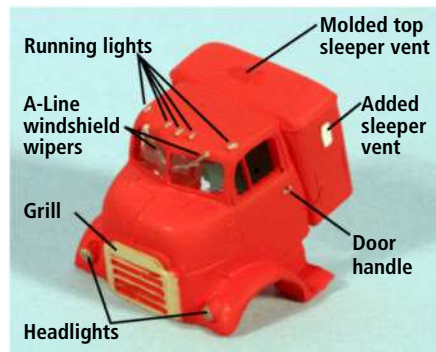
Since I was modeling a McLean Trucking Co. sleeper team, I added a Bachmann seated figure to represent the co-driver.

Sleeper cab

The cab, sleeper berth, snub nose, and fenders are a single casting.

The McLean trucks had grills painted white. On the model I found it difficult to paint the grill neatly with a brush. Instead, I used a single-edge razor blade to scrape away the red paint from the grill, revealing the white resin underneath. Then I colored the headlights, clearance lights, and door handles with my silver Sharpie marker.

I used separate pieces of the included clear window glazing to fit each side of the windshield, rear window, passenger side and vent windows, and driver vent, but not the driver's side window.



Before air conditioning, most drivers kept the window open when it wasn't cold. I used clear parts cement to attach the glazing.

The kit includes etched-metal windshield wipers, but I didn't notice

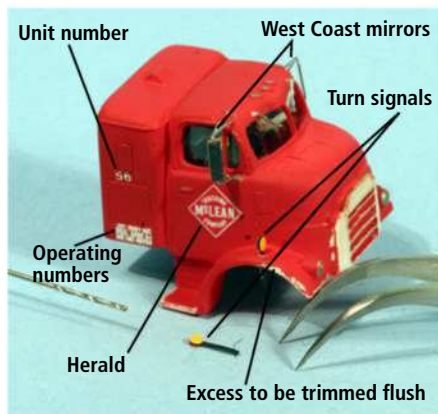
them until I'd already installed short windshield wipers from A-Line. After drilling no. 78 mounting holes above the windshield, I secured each wiper with a drop of CA.

The cab casting has an air vent molded on top of the sleeper and one on each side of the cab. McLean sleeper cabs had additional vents on each side of the sleeper compartment. I modeled each additional vent cover by cutting .070" x .150" rectangles from .010" styrene. I rounded the corners of each rectangle with a file, then attached them with CA. I made sure each vent was .050" from the drip strip around the top of the sleeper compartment. This left enough room for decaling the tractor's unit numbers.

Decals, turn signals, and mirrors

I purchased the McLean Trucking Co. HO scale decals from Ken Goudy Decals. [The firm is no longer in business, but decals for McLean Trucking Co. and other fallen flags are available online from Graphics on Demand at store.graphicsdemand.com. – Ed.] Decals are also provided for the large McLean diamond herald and lettering found on the firm's semi-trailers.

I followed prototype photos to position the decals on the cab. In addition to the red diamond herald on the doors and unit numbers under the sleeper vents, there are three lines of operating authority numbers applied to both sides below the sleeper side doors. After applying the decals, I sealed them with a light spray of Testor's Dullcote.



McLean was an early adopter of electric turn signals. Mounted at the top and outermost point of each tractor fender, these signals could be seen from the front and rear of the tractor.

I made the turn signals from Tichy Train Group HO scale eyebolts that I painted black. The turn signal lenses are made from Chartpak self-adhesive dots, no. 834 orange dots on the front and no. 853 red dots to the rear.

[Chartpak no longer sells these dots, but an internet search for "map dots" will provide a list of similar products. – Ed.] I attached the dots with CA.

To install the turn signals, I drilled a no. 72 hole on the top of each fender and inserted the turn signals. Making sure that the orange and red lenses were oriented correctly, I applied CA from underneath the cab to each eyebolt shaft. Once the CA dried, I trimmed the excess material.

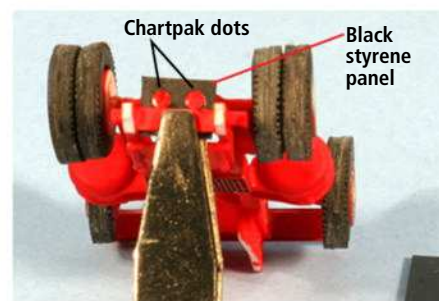
McLean was also one of the first trucking companies to use "West Coast" mirrors on its trucks. Legend has it that these large mirrors got their nickname after an eastbound driver commented that the mirrors were so big he could see the West Coast. Whether its true or not, the mirrors were a vast improvement over the small rearview mirrors common on semis at the time. After installing the mirrors on the cab, I matched the McLean prototype by painting the mirror fronts and supports white.

Taillights

I couldn't find prototype photos of the Cannonball's taillights, so I made an educated representation. Taillights were required when a tractor was "bobtailing," or running without a trailer, at night. Since my semi-tractor would be hauling a trailer, the taillights

wouldn't be visible from most viewing angles on the layout.

I made the taillight panel by cutting a scale 18 x 20 inch rectangle from Evergreen .010" black styrene sheet. Then I cemented two red Chartpak dots on the panel to model the taillight lenses. Next I used CA to secure the taillight panel to the front of the rear frame crossmember.



Weathering

I weathered my Cannonball to have an in-service but well-maintained look. In addition to sealing the decals, the Testor's Dullcote applied in earlier steps helped tone down the shine of the fresh red paint. [Be sure to avoid getting Dullcote or any matte finish on clear window glazing to avoid frosting its surface. – Ed.]

I rubbed the tip of a sharp no. 2 pencil along the molded detail on the cab and fuel tanks. These are places where dirt would naturally accumulate. This step also adds definition to molded details such as the door, hood, and vent seams.

On the prototype, as the sun warmed the interiors of the fuel tanks, the fuel would expand and seep out of vented fuel caps. A careless trucker may also dribble fuel when removing a



nozzle from the tank during refueling. I brushed a black paint wash down the sides of the tanks to simulate fuel spills. I also used a black paint wash to represent dribbles of gear lube on the rear-end differential.

By law, leaf springs weren't painted to make it easier to spot fatigue cracks. These parts should be dark brown to model old surface rust. Although I used Floquil Railroad Brown, any dark brown or rust shade would be appropriate. MR

EXPAND

a triple-deck layout



The updated HO scale Baltimore & Ohio Paquetin Division features a new switching district

By Mike Tricker • Photos by the author

Plenty of research and careful planning went into filling my modest 16'-6" square garage train room with a triple deck HO scale layout that features two helixes and a partial mushroom design. My Baltimore & Ohio Paquetin Division may be familiar to some readers, as it first appeared in the June 2013 *Model Railroader*. From that story, the layout may have appeared nearly complete, but with our great hobby there's always something to learn. And with any model railroad, there's always room for improvement.

The name Paquetin refers to an imaginary river that runs from the Appalachian Mountains to the New Jersey

ING

① A Baltimore & Ohio class EM-1 2-8-8-4 departs Port Trenton on the HO scale Paquetin Division with a hotshot manifest freight in tow. Mike Tricker modified his layout to better suit timetable-and-train-order operation.

waterfront, which is also the setting of my freelanced track plan. My layout is inspired by the Baltimore & Ohio RR, the Pennsylvania RR, and the Reading Co. I model the 1950s, so I can plausibly run both steam and diesel-electric locomotives.

When I first designed my model railroad, I'd made a list of requirements that included no restrictions to the size of equipment that could run on the main line. This meant a 30" minimum curve radius and no sharper than no. 6 turnouts. As I started hosting more and more operating sessions on the layout, I realized that I wanted to add more operating potential, which meant more switching opportunities. I needed to find room for more rail-served industries.

By relaxing some of my original requirements, I was able to meet those goals and make my layout even better.

The original design

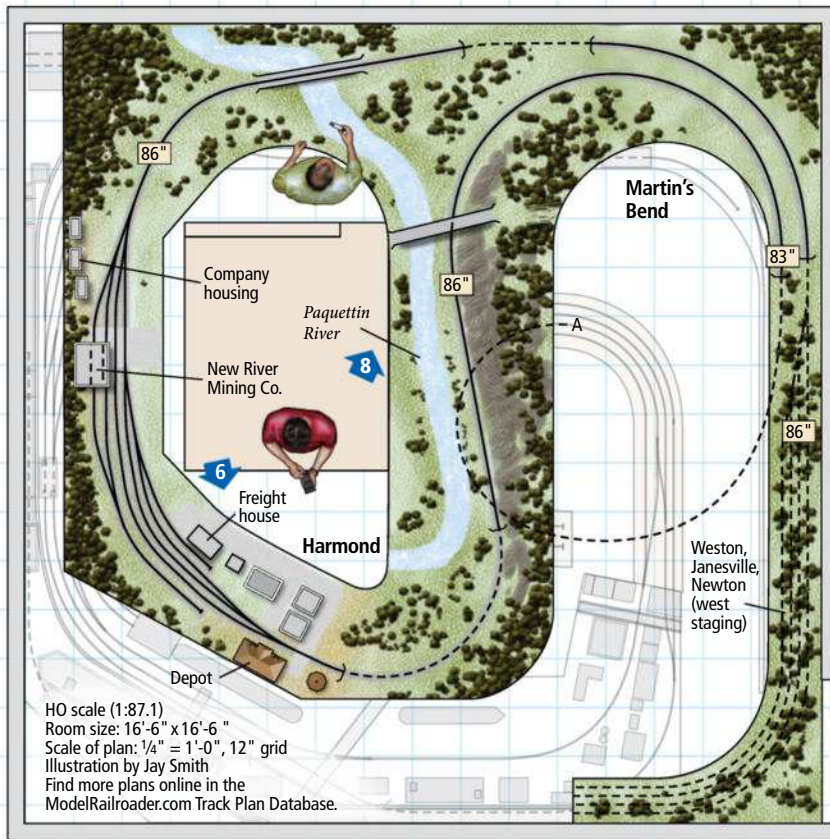
When I first began work on my layout, I only planned for and built two decks. The upper Appalachian level and the Port Trenton level beneath it were connected with a 30" radius helix.

Using car cards and four-turn waybills, cars were classified at the large yard in Port Trenton and dispatched to their destinations. The main line could handle 15- to 20-car freight trains as well as long passenger consists. Traffic flowed into Port Trenton from B&O and PRR staging and interchange tracks, as well as westbound and eastbound freights. I could easily operate the layout alone or with one or two friends.

Apart from the coal mine, freight house, and team track at Harmond, this original plan had no industries to be switched. To resolve this, I added a new lower deck, the joint B&O/PRR Bay End Subdivision.

To connect the lower deck with the middle deck, I abandoned my original 30" minimum radius

Upper level



requirement and built a 22" radius helix below the original helix. For the lower helix benchwork, I used medium-density fiberboard (MDF) to form a continuously rising shape. I installed Hornby 22"-radius curved sectional track to avoid kinks in the rails.

I also added more yard tracks to Port Trenton so that trains could be classified there prior to being dispatched down to Bay End. The town of Petersport on the lower level has enough rail-served industries to warrant its own switcher, usually a B&O 0-6-0. There's also an interchange track in Petersport and a Reading interchange near the helix. A Reading 0-6-0 Camelback usually works the latter.

The Bay End Subdivision was shown in my 2013 track plan, but was still largely under construction. The scenery has now been completed, and this line has been integrated into the operating scheme.

Adding Upton

After my 2013 story was published, I decided the layout needed even more industries. I found some room on the middle level, as shown in the updated track plan on the left.

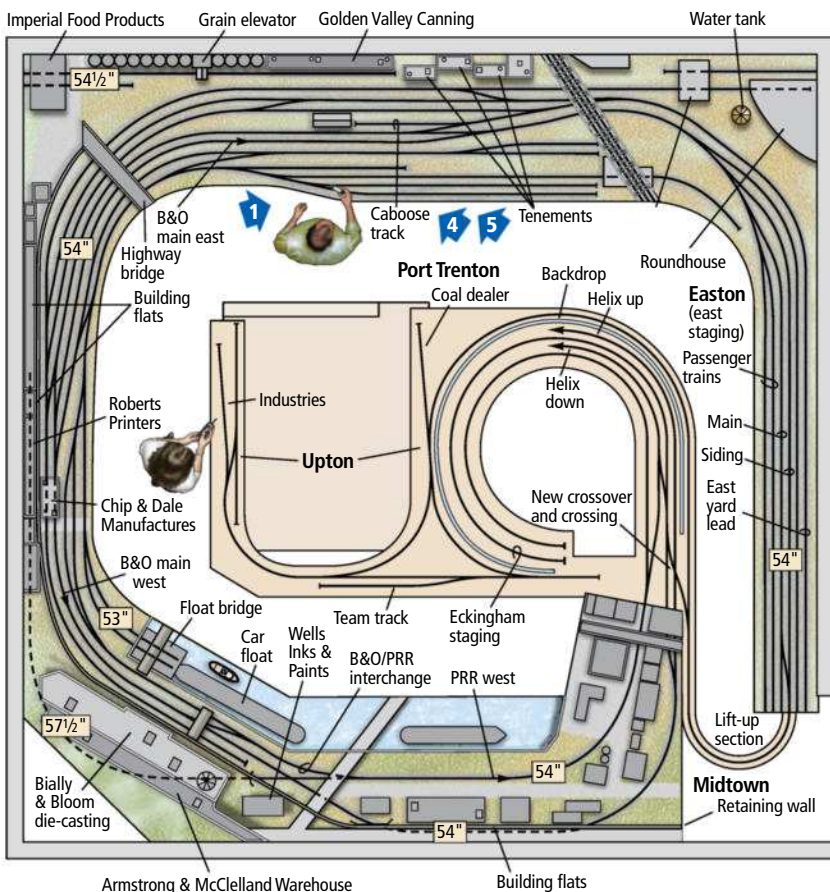
After successfully testing an HO scale Fairbanks-Morse H-16-44 four-axle diesel locomotive and a few cars on an 18"-radius curve, I built an industrial district named Upton around three sides of the raised upper level access platform. Following the "mushroom" concept, crews work Upton from outside the platform, so they don't interfere with crews working the upper level.

The Upton Turn consists of the aforementioned FM switcher, four freight cars, and a caboose. Initially I set up the train to head west out of Port Trenton to follow the new line along the outside of the original helix to Upton. The town features a coal dealer, team track, and space for other yet-unnamed industries. A wye allows the locomotive to be turned for the trip back to Port Trenton.

At this point I'm still finalizing the industries and scenery. My operators don't seem to mind, as the Upton Turn is a favorite job during operating sessions.

The Upton Turn job became so popular with my operators that I added a Harmond Turn that also runs out of Port Trenton. This train consists of 10 cars, including empty coal hoppers that are exchanged for loads at the coal mine on the upper level. A B&O class E-27 2-8-0 leads the train, but since there's no turntable or wye at Harmond, the steam

Middle level



The layout at a glance

Name: B&O Paquetin Division

Scale: HO (1:87.1)

Size: 16'-6" x 16'-6"

Prototype: inspired by Baltimore & Ohio

Locale: Appalachia to New Jersey

Style: partial mushroom

Era: early to mid-1950s

Mainline run: 78 feet (excluding helix)

Minimum radius: 18", 15" (waterfront)

Minimum turnout: no. 6 (main), no. 4 (waterfront)

Maximum grade: 2 percent (main)

Benchwork: L-girder and open-grid

Height: 36" to 86"

Roadbed: Woodland Scenics Track-Bed

Track: Peco code 83

Scenery: Plaster cloth over cardboard

Backdrop: painted tempered hardboard and MDF

Control: Digitrax Digital Command Control

locomotive must run tender-first on the return trip.

Making the connection

A big disadvantage of the layout as it appeared in 2013 was that it wasn't possible to run a train from Bay End staging on the lower level to Weston, Newton, and Janesville staging on the upper level without reversing the train at Port Trenton. Relaxing my minimum radius requirement brought about a solution.

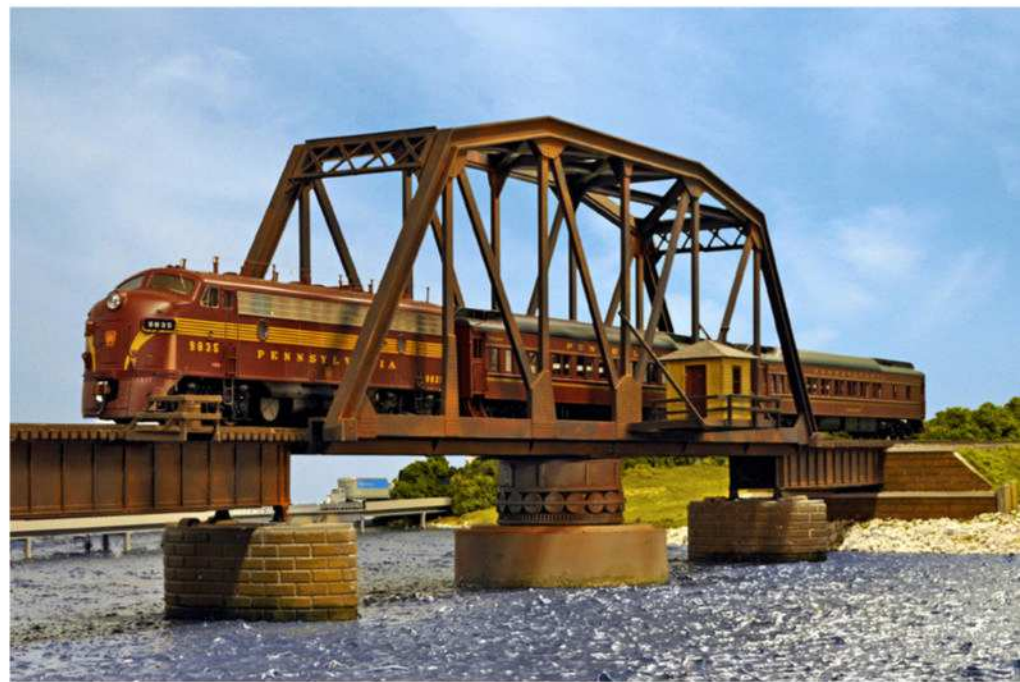
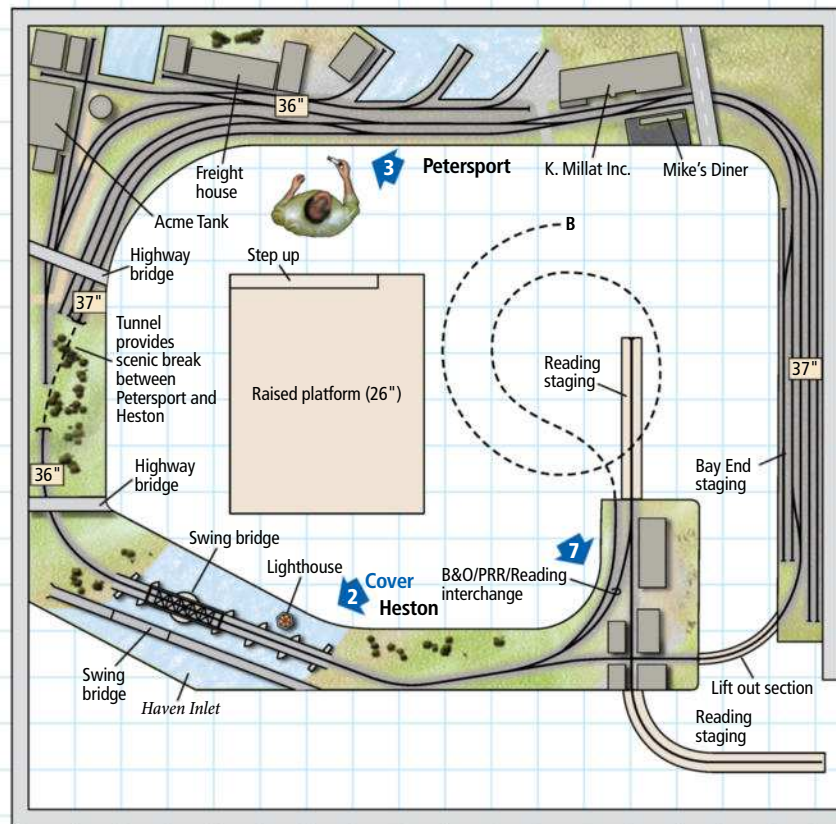
I connected the top of the lower helix to one of the east staging tracks with a 15" radius curve. I also had to add a diamond crossing over the B&O main and another crossover. Despite the tight curve, all my locomotives, even A-B-A diesel consists, can negotiate this connection. Although the junction is a bit complex, trains could now continuously run from Bay End all the way to west staging. This also allowed the Upton Turn to depart eastbound out of Port Trenton, which is the arrangement shown in the updated track plan.

Because the new curve is at the entrance to the layout, I made it a lift-out section. When it's in the raised position, the section is 6'-3" above the ground and easy for my operators to walk under without ducking.

TTTO operation

All the layout modifications made it easier to implement timetable-and-train-order (TTTO) operation on the

Lower level



② A Pennsylvania RR FP7 leads varnish over the swing bridge at Haven Inlet on the layout's lower level. This train was inspired by a photo of passenger service on the jointly owned PRR/Central RR of New Jersey New York & Long Branch.

Paquetin Division. After reading articles about this type of operation, I thought it would be appropriate for my layout's 1950s era.

Initially we ran the railroad using only train orders, with every train running as an extra (non-scheduled) train.

However, we quickly realized that in order to add operating interest, it was essential to develop a timetable with scheduled trains.

For the timetable to work, the layout needed more passing sidings so inferior trains could more easily clear the main



③ At Petersport on the lower level, a United States Railroad Administration 0-6-0 spots a boxcar at Reliable Warehouse & Storage. The industries on the lower level made it possible for Mike to add local freights to his operating scheme.

for superior trains. In addition to the passing sidings at Harmond and Port Trenton, I added two more at the bottom of the lower helix at Heston and at Easton (east staging).

To add variety to the possible destinations, west staging has become the towns of Weston, Newton, and Janesville. For example, a local Janesville freight will pick up cars bound only for that location, which usually results in some extra switching moves.

Scheduled trains

The first scheduled trains we ran were first-class passenger trains. The stub-ended B&O east staging yard can now accommodate two passenger consists, including locomotive. First-class passenger trains usually consist of six 85-foot cars hauled either by B&O 4-8-2 Mountain steam locomotives or Electro-Motive Division diesels. These trains run between Eckingham and Easton staging tracks via Port Trenton. The Port Trenton yardmaster must frequently check the timetable before moving cars along the main between the north and south yards. Adding to the mix, a B&O local – made up of Railway Post Office cars, a baggage car, and a coach led by a United States Railway Administration light 4-6-2 Pacific – runs daily from Weston to Easton and back.

Inspired by a photo of a Tuscan-and-gold-pinstriped Pennsylvania RR EMD

diesel pulling three coaches on the New York & Long Branch, we now run a Heston-to-Bay End PRR passenger train. This train consists of two 85-foot coaches. We may also add a baggage car. A PRR class K4s 4-6-2 leads the train outbound, while a PRR EMD FP7 brings it back to Heston.

Once we got used to the passenger traffic, we scheduled two second-class manifest freights between Weston and Easton, one running westbound and the other eastbound. The two trains meet at Port Trenton. Some smart switching by both train crews, as well as the Port Trenton switcher crew under the direction of the yardmaster, is required to ensure the trains depart on time.

Operating in real time

My operators and I found no need for fast clocks. Instead, we operate in real time. Each session lasts about 2½ hours, and it takes about three operating sessions for us to run through all the trains.

Travel times between stations may be only a few minutes, but crews of scheduled trains must never run faster than the timetable. Crews of inferior trains must judge whether or not they can proceed to their destination and clear the main 5 minutes before the arrival of a scheduled superior train.

The timetable has helped lengthen operations. A local freight can take up to



1½ hours to travel from Bay End to Weston. Since it runs as an extra, the local will often have to wait at all four passing sidings to clear the main for superior, scheduled trains.

Running trains

We use two-man crews for operating sessions. One person is the engineer, responsible for running the locomotive, and the other is the conductor, responsible for handling paperwork and deciding switching moves.

When they pass each station, all train crews verbally “OS” [This term comes from old railroad telegraph shorthand



④ Electro-Motive Division E units speed a passenger train through Port Trenton. After his operators got used to running with these scheduled first-class trains, Mike added other trains to the timetable, including manifest freight traffic.

⑤ One of the most popular jobs on the railroad, the Upton Turn arrives in Port Trenton. Led by a Fairbanks-Morse H-16-44 diesel, this local freight works the recently added Upton industrial district.



6 A B&O local passenger train departs Harmond on the upper level bound for Weston. With a USRA 4-6-2 Pacific on point, the train consists of a Railway Post Office, baggage car, and coach.



7 Interchanges provide a lot of traffic flow on the Paquetin Division. At Heston on the lower level, an 0-6-0 Camelback works the Reading interchange.

for “On Sheet.” – Ed.] the dispatcher with their train number and the time. The dispatcher then notes this information on the train sheet, which helps him issue train orders as needed.

In addition to the “OS,” crews of scheduled trains must register that they’ve passed a station by filling out and placing a card in a fascia-mounted box. For example, the card would read something like “Train 100 by Harmond.” Although different than prototype practice, we find this technique useful,

especially given the short travel times between stations. A quick inspection of a station box lets train crews keep track of where the scheduled trains are. Currently we run all the scheduled trains on time, but we plan to introduce some delays to create more work for the dispatcher and keep the extra crews on their toes.

Extra crews double as switchmen, as they align

turnouts to make switching moves. They must also make sure turnouts are returned to the non-diverging (normal) position once the work is complete. The dispatcher doubles as the towerman, as he controls the B&O/PRR interlockings at Port Trenton and Midtown.

More to come

By holding regular operating sessions we’re building up a cadre of experienced crews. I issue a rule book and





8 Appalachian scenery and coal mining are the focus of the layout's upper level. Here, a B&O class EL-3a 2-8-8-0 hauls coal hoppers along the Paquetin River.

timetable, compiled by one of our regulars, Keith Webb, to each operator.

The dispatcher works in a corner of the layout room. Eventually, we plan to set up the dispatcher in a remote location where he can dictate train orders to a station agent via some sort of wireless system. The station agent will then issue the orders to the crews.

Another future project is installing train order signals at Harmond, Port

Trenton, and Heston. Phase one of this project will be installing fascia-mounted lights to indicate to crews when they must stop to pick up their orders.

My operators and I still enjoy the attributes of the Paquetin Division's original design, including running long mainline freight and passenger trains and the intense classification work at Port Trenton Yard. The modified plan has now added locals, industrial switching, and TTTO operation to the mix. Adjusting my design requirements to meet my evolving goals has made my model railroad better than ever. **MR**

Meet Mike Tricker

Mike Tricker began modeling North American prototypes after spotting an HO scale B&O E6 in a hobby shop. A retired chemist and research manager, Mike lives just west of London, England.





A trough hatch left open on a prototype covered hopper (inset) that author M.R. Snell photographed while railfanning gave him the idea to model an open hatch on a model covered hopper. The unique detail makes the car a focus of attention on his HO scale layout.

This simple detail change makes rolling stock look more realistic

By M.R. Snell • Photos by the author

Though most modelers would agree that an eye-level model railroad provides the most realistic viewing angle for our trains, the truth is our work is most often viewed from above. Weathering the roofs of our rolling stock helps preserve the realism of our miniature worlds, but what if we could make the overhead view more interesting, too?

One evening while watching a rail crew shove a string of railcars, my eye was drawn to one particular car, a covered hopper with an open hatch. My attention focused on this car. Was it empty? What did the inside look like? What had it been carrying?

As it moved closer, I realized none of my questions would be answered, because the interior was

in shadow. All I could see was a small, dark opening. That hadn't prevented this car from capturing my imagination. I realized I could easily replicate it in miniature to create the same effect, bringing viewer interest to either a unit train or a single random car.

From car to kit

To begin my project, I studied the photos I'd taken from the bridge, then set out to select an appropriate covered hopper model. I settled on a car with a trough-style roof, in which a long, narrow opening is covered by multiple rectangular hatches, like on my prototype. I decided it would be easier to "open" a hatch on this kind of car than the kind with round hatches.

Next I studied how the hatch was formed both on the prototype and on prospective models, with an eye toward easier modeling. I chose a Roundhouse (now Athearn) grain hopper, as it had a lip forming the trough on the car roof and a single separate casting for the hatches. ①

While it might have been easier to modify a kit car, the modern-day prevalence of ready-to-run (RTR) cars need not stand in the way of the determined kitbasher. In most cases, it simply adds a few steps to convert an RTR car back into a kit by partially or entirely disassembling it.

I began by removing the single-piece hatch from the roof by working a chisel-bladed hobby knife between the hatch and roof and rocking it slightly ②. Once I'd snapped off each of the four

MODEL A HOPPER W

mounting pins from the underside of the hatch casting, it fell away from the roof. Next I inserted the blade between the car sides and the lower hopper casting, breaking the glue bond and giving me what amounted to a three-part kit ③.

Opening the trough

The next step was to establish the location of the four individual hatches within the long, one-piece molding in relation to the trough. This was accomplished by holding the casting alongside the trough and marking the divides between the hatches with a fine-tipped marker. Then I chose which hatch I would open and marked this on the trough as well ④.

Now I could cut through the solid roof to form an opening in the trough. Using a hobby knife with a new, sharp blade, I scored along the inside edge of the trough lip repeatedly, each pass cutting a little deeper than the previous one. Soon I'd cut through the styrene on each side of the lip, leaving the lip itself undamaged ⑤. To finish removing this section, I drilled small holes at each end of the section to be removed, then used the hobby knife to "connect the dots" and cut the material left between the holes (⑥ on the next page). I could then push the center piece into the car, breaking it away from the carbody ⑦.

To make the opening look like an intentional feature of the carbody, I'd have to clean



① The author started with this Roundhouse outside-post covered hopper because its trough hatch resembled the prototype he had photographed.



② M.R. used a chisel-bladed utility knife to carefully pry off the separately molded trough hatch cover.



③ After separating the hatch and hopper bottoms from the body shell, the car essentially became a three-part kit.



④ M.R. marked both the hatch and the trough underneath it to indicate the area he wanted to open.



⑤ Several light passes of the hobby knife separated the edges of the area to be opened without damaging the sides of the trough.

WITH AN OPEN HATCH



6 M.R. drilled out the ends of the trough area he intended to open, then used a hobby knife to scribe the sides of the opening.



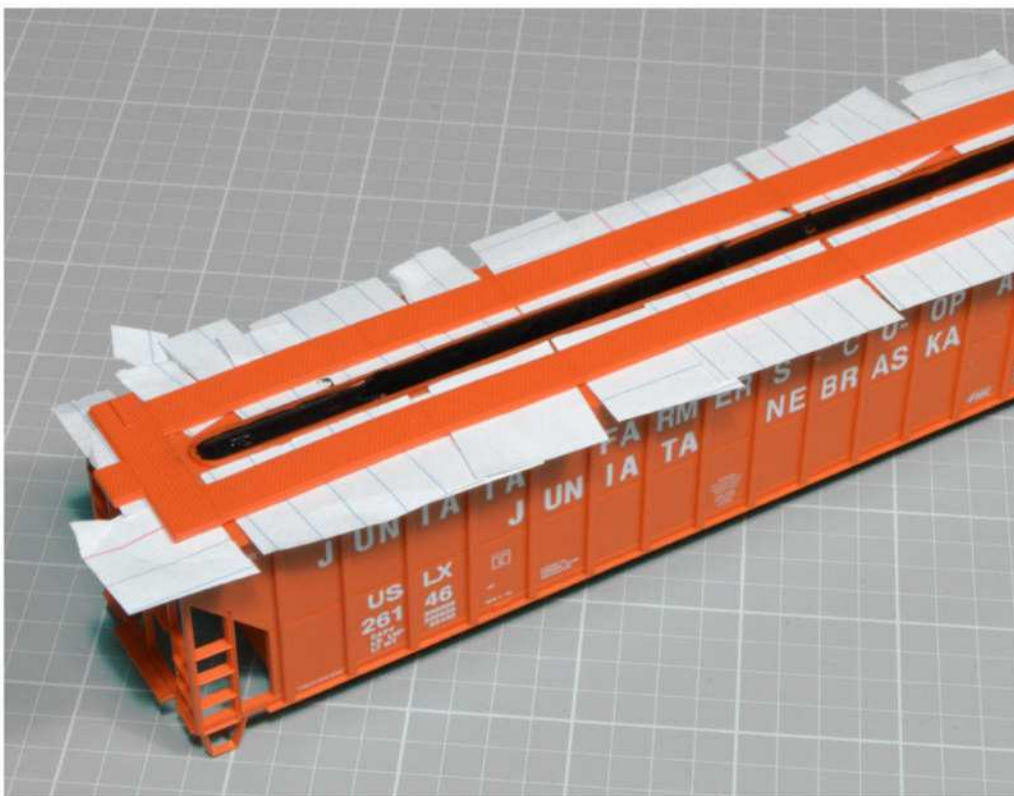
7 The hobby knife and drill M.R. used to remove a section of the trough floor left a rough opening.



8 M.R. used a succession of increasingly finer-grit files and sanding sticks to clean up and square off the opening.



9 Painting the interior of the hopper body black would keep viewers from seeing the brightly colored plastic within.



10 M.R. inserted paper under the running boards to mask the car while he painted them.

it up. I started with a 400-grit nail file to remove any jagged styrene from the edge, then graduated to 800- and 1,200-grit sanding sticks to smooth the edge and remove any fuzz from earlier filing 8.

Paint

Though my cuts now had smooth edges, I was still faced with a common modeling problem – the thickness of the molded shell was unrealistic. To disguise this, I'd rely on an old theater trick and disguise both the edge and the interior with black paint. I painted the entire interior of the plastic shell, as well as the weights and the interior of the under-frame, with Floquil Engine Black 9. [Floquil paint has been discontinued by the manufacturer. Testor's Model Master Engine Black Flat 4888 is an acceptable substitute. – Ed.]

Next I carefully masked the roof with small slips of paper, slotted to fit between the running board mounting pins and butt up against the outer edge of the trough 10.

Using an angled brush, I painted the inner area of the trough black. Then, using a finer brush, I concentrated on the cut inner edges of the opening, leaving the upper lip of the trough its original color 11.

To complete the roof of the car, I painted the running board a steel color, making it both look more realistic and stand out better against the orange of the carbody.

Opening the hatch

Having completed the carbody, I now turned to the hatch casting I'd removed earlier. The hatch I chose to open was the third out of

four, so I would need to cut it from the long casting on both ends. Using a chisel-bladed utility knife, I pressed down carefully at the joint between hatches no. 2 and 3 **12**. I then did the same at the joint between hatches 3 and 4, giving me three separate hatch castings **13**.

Now, it came time to model the hatch itself. Since the prototype has stamped-metal hatches, the corrugations visible on top of the hatch should be visible on the bottom, as well **14**. I could have scratchbuilt a new hatch, but after examining the prototype photos and the Roundhouse hatch casting, I realized I could simply flip the casting around, using the top to represent the bottom.

I cut the molded-on nubs representing hinges from the edge of the hatch, then built up the sides using strips of .015" x .060" Evergreen styrene strip. With the sides of the hatch in place, I could now add new "hinges," small blocks of .060" square styrene cemented in place on the side of the hatch **15**.

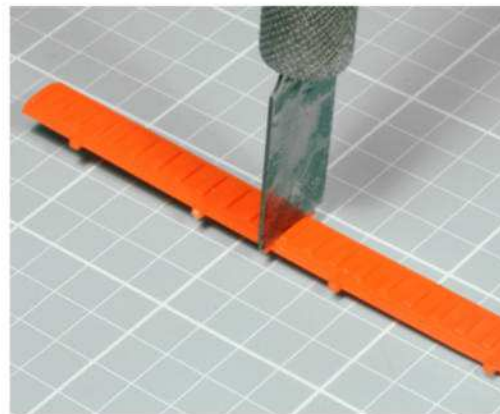
Having completed the plastic work, all that was left was to paint the new sides and hinges to match the carbody, then paint the interior an epoxy primer color. Once the paint dried, I simulated a rubber gasket by drawing a rectangle around all four sides with a fine-point permanent marker **16**.

Now the open hatch could be permanently affixed next to the open trough, creating a unique covered hopper. **MR**

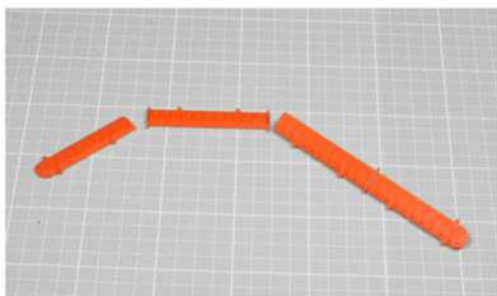
M.R. Snell is a frequent contributor to Model Railroader. He lives in Milford, Ohio.



11 M.R. painted the molded plastic running boards silver and painted the trough black to disguise the car body's thickness.



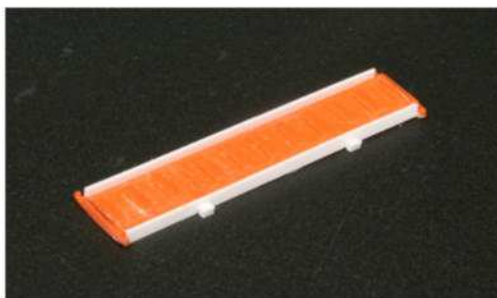
12 M.R. used a chisel-bladed hobby knife to separate the hatch he wanted to open from the rest of the plastic casting.



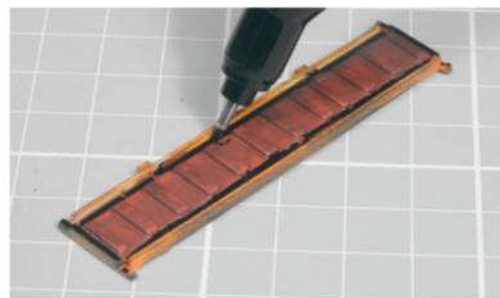
13 Another cut separated the hatch casting into three parts. The middle section is the one that will be opened.



14 A close-up shot of the prototype shows that the corrugated metal hatch has ridges on the inside and a gasket around the rim.

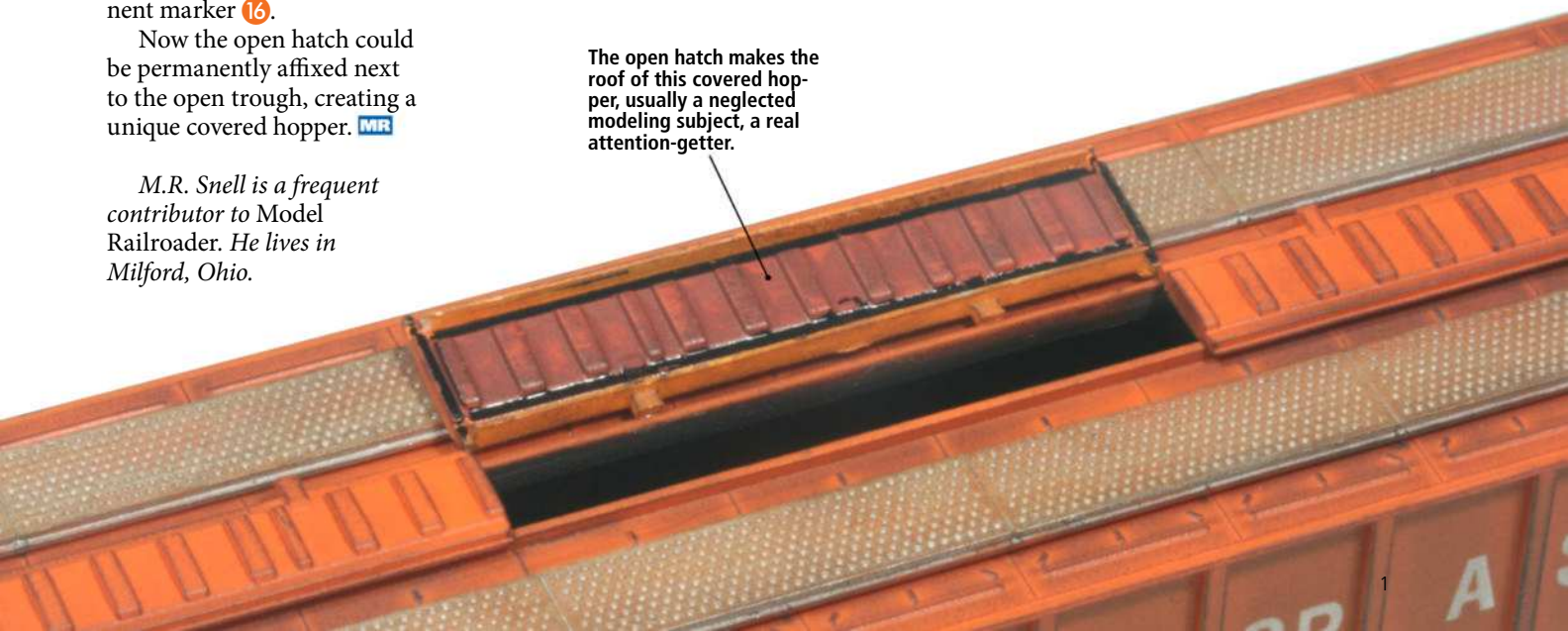


15 The bottom of the model hatch is smooth, but M.R. simulated the interior corrugations by flipping it over and building a styrene rim.



16 After painting and staining the interior of the hatch, M.R. simulated the gasket by marking the rim with a black marker pen.

The open hatch makes the roof of this covered hopper, usually a neglected modeling subject, a real attention-getter.





The fascia marred the look Douglas Kirkpatrick was after when he first shot this photo of a Norfolk & Western passenger train traversing the steel bridge on his Virginia & Western RR HO scale layout. Instead of resorting to hours of work with photo-editing software, Douglas turned to wood, paint, and ground foam to get the look he wanted.

VISUALLY EXTENDING THE LAYOUT

A simple method to improve photos taken at the edge of a model railroad

By Douglas Kirkpatrick • Photos by the author

EVERY RAILROAD, NO MATTER THE SIZE,

always has that special place where we like to take photographs of our trains in action. On my Virginia & Western RR, many of these places just happen to be very close to the edge of the layout.

I took several photographs of my heavyweight passenger train with double-headed steam engines for power crossing the valley on a high, open-deck steel bridge. The photo takes you back to the heyday of passenger service. No matter how I changed the camera's field of view, though, the layout fascia was always in the photo.

One solution is to use a digital photo editing program to "paste" scenery on top of the fascia. But I found it can take considerable time to come up with an acceptable result.

I took a different approach by building a small, temporary addition on the side of the layout to hide the unwanted fascia in photographs.

Temporary shelf fabrication

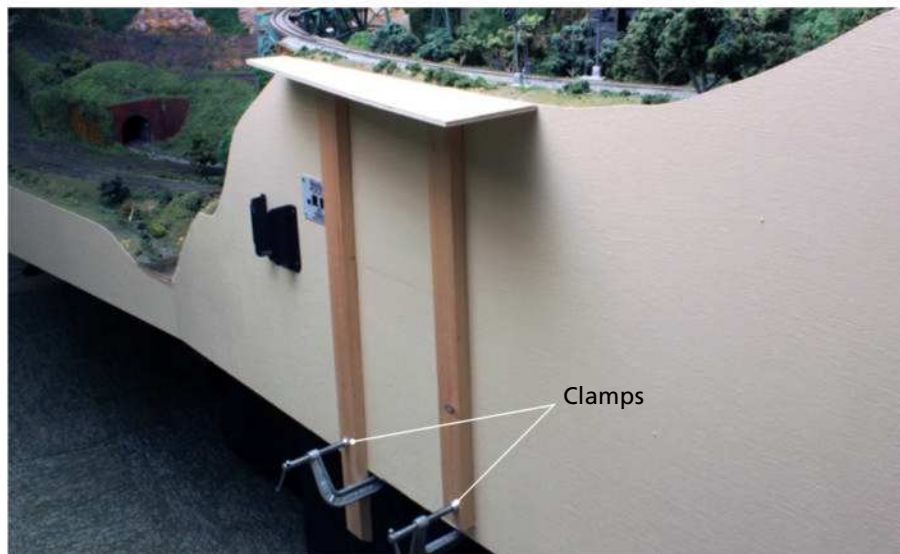
After studying the original photograph, I determined an extension of less than 6 inches would do the trick. I also wanted a design that didn't damage the fascia, and was quick and easy to make and remove.

I found a few pieces of 1 x 2 pine along with a scrap of 1/4" plywood. I used C-clamps to hold the 1 x 2s to the fascia and attached the plywood to the 1 x 2s with 3/4" flathead screws ①.

I painted the plywood in earth tones using acrylic craft paints ②. I then sprinkled ground foam on the plywood, but I didn't use any glue since the scene is temporary. I blended the ground foam into the original scenery ③.

In less than hour, I was ready to retake the photo with my newly extended layout. With this simple technique, you can have a professional photograph of your train without any unwanted benchwork or aisle space spoiling the image. **MR**

Douglas Kirkpatrick has been an HO scale modeler since 1965 and a member of the Northern Virginia Model Railroaders for 40 years. His HO scale Virginia & Western layout was featured in the May 2008 MR. He's retired from NASA and lives in Falls Church, Va., with his wife, Lorraine.



① **On your mark.** Douglas attached 1 x 2 pine scraps to the fascia with C-clamps and then attached a piece of plywood with flathead screws to the top of the 1 x 2s.



② **Get set.** Acrylic craft paints gave the plywood earth tones.



③ **Go!** Finally, Douglas sprinkled ground foam on the plywood and blended it into the scenery on the layout. The whole process took less than an hour.

Modeling the ACL'S PALMETTO SUB



This room-sized HO scale track plan handles passenger and freight traffic in the late 1950s

By Christian Javier

Prototype photos by Mike Woodruff

Florida was especially important to the Atlantic Coast Line RR (ACL). At its peak, the state was home to nearly a third of the railroad's route miles.

Rapid expansion projects were undertaken into southwest Florida during the 1920s land boom to provide more destinations for passenger travel, as well as to tap the rich agricultural and mineral resources of the region. One such expansion was the Tampa Southern RR, constructed between ACL's Uceta Yard and Sarasota, both on the state's west coast. This subsidiary was the predecessor to what eventually became the Palmetto Subdivision of the ACL.

The track plan for this line captures how it appeared in the late 1950s and early 1960s, when black-and-yellow displaced purple-and-silver on ACL diesels.

The flagship *West Coast Champion* connection out of Tampa became more colorful, with the combination of foreign-road through cars from the Illinois Central's *City of Miami* and the Pennsylvania RR's *South Wind* services. A striking balance between freight and passenger operations gives this layout a mainline feel in a branchline setting.

About the plan

The layout models the portion of the Palmetto Subdivision from milepost 38.8 to 52.2, with the rest of the line north, as well as Tampa's Uceta Yard, represented by open staging. From staging, the layout runs from the subdivision's namesake town of Palmetto, across the Big Manatee River, through Bradenton, and finally to the terminus at Sarasota.



Belching smoke, a Seaboard Coast Line Alco diesel leads the local freight past the ornate former Atlantic Coast Line depot in Bradenton, Fla. The Big Manatee River is visible in the background.

The layout occupies a 13 x 20-foot space with ample aisles for comfortable operating. The shelves the layout is built on never exceed 2 feet wide for easy access to all tracks and scenery.

In order to create a continuous run connection, as well as to provide plenty of linear space for passenger consists to turn on the wye, a swing-out section is necessary at the entrance of the layout. This would likely be the trickiest portion to construct due to the curving tracks. The rest of the layout, however, consists of simple flat-top benchwork.

Passenger operations

I designed this layout with two trains in mind: passenger train No. 91/92, and class 3 local freight No. 565/564. Train 91 was the southbound *West Coast*



The ACL's mile-long Big Manatee River bridge and causeway, with its bascule lift section in the middle, is a prominent feature on this HO scale track plan.

Champion connection out of Tampa, and was essentially a direct extension of the train's mainline run.

Improvements in air travel in the late 1950s diminished through traffic to Sarasota on the *West Coast Champion* and eliminated the need for trains No. 32/33, the *Southland*, and No. 75/76, the *Havana Special*. After 1957, the *Havana Special* and its Sarasota connection were discontinued, leading to train 91/92 taking over handling Midwest through cars from the *City of Miami* and the *South Wind* on alternate days.

This led to some interesting-looking consists. Cars painted for the IC; PRR; ACL; Richmond, Fredericksburg & Potomac; Chesapeake & Ohio; and Union Pacific could all be found making their way down the Palmetto Subdivision. During peak "snowbird" season, the train could reach a respectable length of eight cars, though the average was six cars most of the year.

Head-end traffic on this train was minimal during the period modeled. A single combine was all that was needed to handle express, baggage, and local passengers, although the occasional baggage car was spotted in Sarasota for special express shipments. This would usually be one of ACL's purple "turtle-back" combines rebuilt for *Vacationer* service, or a Pullman Green 32-seat combine that retained its original clerestory roof.

From staging, No. 91 would head south into Palmetto, where only a brief station stop would be made. The train would then begin its crossing of the nearby Big Manatee River on a long wood-pile trestle with a bascule drawbridge in the central navigation channel. On the south bank of the Big Manatee River lies Bradenton, where the next stop

would be made before continuing to the line's terminus in Sarasota.

In a few southwest Florida locations, the ACL had enough space to construct a wye large enough to turn entire passenger consists for the return trip north. Fort Myers, Naples, and Sarasota all had this feature. Because the tail track needed to turn an eight-car passenger train must be lengthy, I used it to create an optional continuous-run connection.

The tail of the wye runs through the backdrop at the Sarasota scene and behind the scene of Palmetto. The tail track behind Palmetto is hidden by a low backdrop so any derailments can be reached by hand.

Operationally, it's important to note that No. 91/92 discharged its southbound passengers at the Sarasota station first before turning on the wye and boarding northbound passengers for the trip back to Tampa.

Freight service

The local freight, No. 465, worked out of ACL's Ucita Yard in Tampa with a single GP7. Typical ACL traffic moved over this line included lumber, agricultural products, mineral resources, and general merchandise, though there was also a minor presence of trailer-on-flatcar (TOFC) traffic on this line. Bradenton was advertised as one of 22 Florida locations on the ACL where this type of freight was handled.

At Palmetto, the local served the imposingly long ACL freight house. The huge size of this building, which rarely if ever served more than one or two cars at a time, is an example of ACL's "overbuilding" into southwest Florida during the 1920s boom.

In Bradenton, the local freight has four different industries to switch. The

A BALANCE
BETWEEN
FREIGHT AND
PASSENGER
OPERATIONS
GIVES THIS
LAYOUT A MAIN
LINE FEEL IN A
BRANCH LINE
SETTING.
— CHRISTIAN
JAVIER

Swing gate
(2 tracks)

HO scale (1:87.1)
Layout size: 13 x 20 feet
Scale of plan: 1/2" = 1'-0", 12" grid
Illustration by Roen Kelly
Find more track plans online in the
ModelRailroader.com Track Plan Database.

Seaboard Air Line crossing

Fertilizer dealer

Backdrop

Wye tail behind low backdrop

Seaboard Air Line crossing

Limestone receiver

Team tracks

Team track

Bradenton

Trailer ramp

Building materials dealer

Palmetto

Tampa
(staging)

Sarasota

Passenger station

Fuel oil dealer

Station

Freight station

Produce warehouse

Station

Causeway

Causeway

Trestle

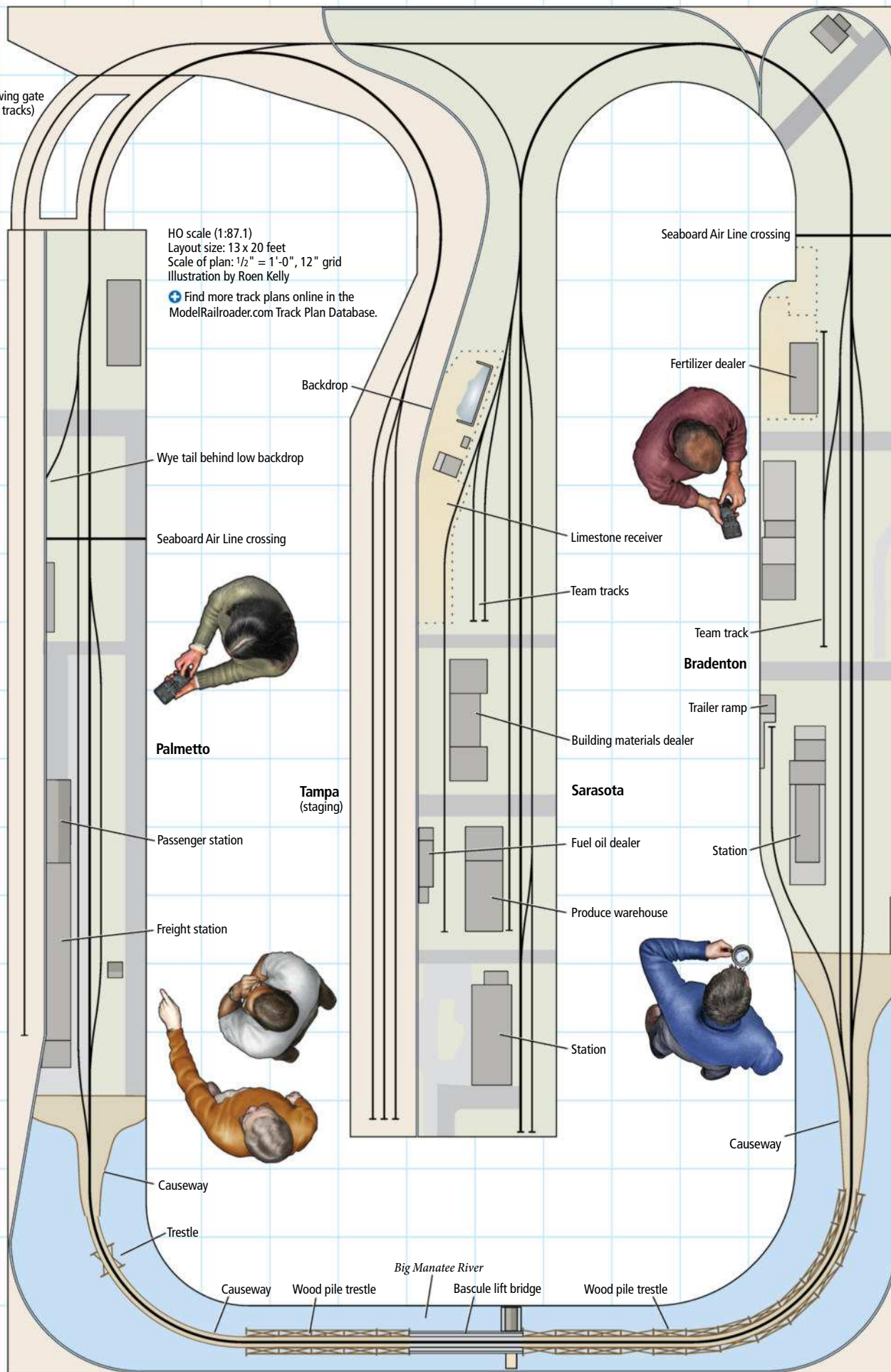
Big Manatee River

Causeway

Wood pile trestle

Bascule lift bridge

Wood pile trestle



The track plan at a glance

Name: The Palmetto Subdivision
Scale: HO (1:87.1)
Size: 13 x 20 feet
Prototype: Atlantic Coast Line
Locale: southwest Florida
Era: 1958-1959
Style: walkaround
Mainline run: 93 feet
Minimum radius: 28"
Minimum turnout: no. 6
Maximum grade: none (flat)

first is the TOFC ramp just behind the station. This ramp was commonly used to bring in truckloads of oranges from more distant groves for the Fruit Industries (Tropicana after 1964) orange juice facility. Atlantic Coast Line was part of the Trailer Train pool, and this access to pooled TOFC equipment meant it didn't have to maintain a large fleet of TOFC flatcars for non-captive service. The railroad had only 50 such cars of its own, which appear to have been modified from an Association of American Railroads 52'-6" design. In addition to TOFC traffic, boxcars of lumber were spotted on the team track.

The second spur to work is the house track for the Bradenton freight depot. Even in the early '60s, less-than-carload (LCL) freight could still be seen shipping on the ACL. A single boxcar, or one of ACL's O-17 class ventilated "watermelon" produce cars, could often be seen here.

Adjacent to the Bradenton station was a switchback track that has been photographed receiving boxcars. According to older Sanborn Insurance maps, a fertilizer shed used to occupy this spot. Whether this was still the identity of the industry on this spur in the '60s is unknown, but it's not unlikely.




The Atlantic Coast Line's Palmetto, Fla., passenger station was a utilitarian brick structure, attached to a long, single-story freight depot. Walthers' Water Street Freight Terminal kit would be a good starting point for a kitbashed model.

In Sarasota, I was able to create a prototypical track alignment, but was unable to find information on the industries. The only building I'm certain of in Sarasota is the passenger station. However, by using 1950s aerial photography from the University of Florida's archives, as well as photographs of rolling stock in the local freight, I was able to make some educated guesses about what types of industries were served.

I included a pair of team tracks, a building materials dealer, a lime rock receiver, a produce warehouse, and a fuel oil dealer. The produce warehouse would handle 40-foot Fruit Growers Express, Western Fruit Express, and Burlington Refrigerator Express reefers shipping out everything from celery to grapefruit. The lime rock receiver shipped its products in open hoppers and gondolas, according to prototype photos.

The building materials facility would receive boxcars of bagged cement, plus the occasional covered hopper of the same product for ready-mixing. The fuel oil dealer would receive Union Tank Car Co. 10,000-gallon tank cars. The Sarasota station itself also handled its share of freight, taking boxcar deliveries similar to Bradenton.

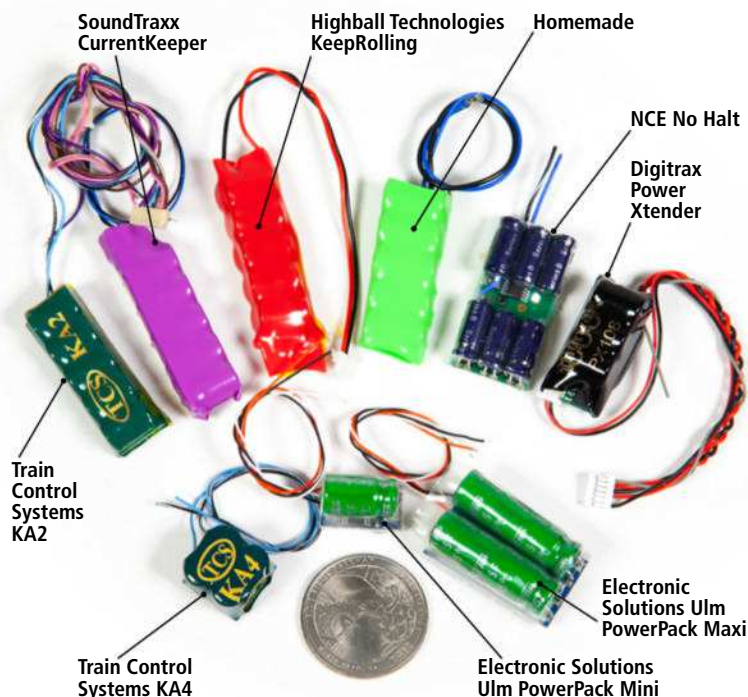
Overall, I feel this track plan provides a simple balance between passenger operations and freight switching. While it may not suit a modeler who prefers busy main lines, those of us who like to take things slow can appreciate the opportunity to capture every detail in the Southwest Florida scenes represented on this layout. 

Christian Javier lives in Hernando, Fla. The state is a frequent subject of his track-planning articles.



The Palmetto Subdivision's Sarasota terminal was a mission-style structure with a long colonnade. Passenger trains terminating here would disembark their passengers and turn on the nearby wye before loading return passengers.

Keep locomotives running with a stay-alive



1 Lots of options. Stay-alive devices come in a variety of shapes and sizes, but most consist of four to five capacitors rated at 2.5V to 2.7V each, giving a potential total voltage of 10V to 13.5V.

Stay-alive devices have been a part of Digital Command Control (DCC) since about 2005, when Lenz released the first ones. However, these devices didn't really begin to get much attention until Train Control Systems (TCS) introduced its version in 2013. Since then, most manufacturers have released one or more versions of their own device.

"Stay alive" and "keep alive" are commonly interchanged terms. Train Control Systems copyrighted its stay-alive device the "Keep Alive" first, and everyone else had to come up with different names like CurrentKeeper, Power Xtender, No Halt, PowerPack, and the newest addition, KeepRolling, shown in **1** and **2**.

So just what are stay-alives and how do they work? To begin with, a stay-alive is a

small electronic device designed to help keep your locomotive rolling over electrically dead frogs and dirty sections of track. They have become more important as sound decoders have grown in popularity, because it kills the illusion of reality if the locomotive's sound keeps cutting out.

In order to understand how a stay-alive works, you first need to understand something about how a decoder works. Decoders operate on direct-current (DC) power. However, DCC track power is a form of alternating current (AC).

A bridge rectifier – usually made up of four diodes in a specific orientation – is required to convert the AC to DC. Track power goes in and positive and negative DC power comes out, powering the mobile and sound circuits of the decoder.

Stay-alives are wired to the positive and negative outputs of the bridge rectifier **3**. When the decoder is receiving track power, the bridge rectifier charges capacitors in the stay-alive. Then, when power is interrupted, power flows back out of the stay-alive capacitors and powers the motor control, lighting, and sound circuits.

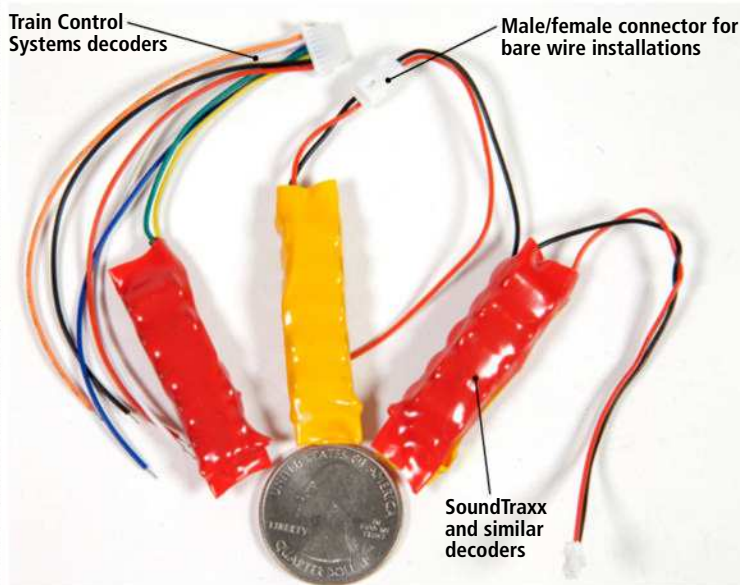
On most modern decoders, there are sockets where the stay-alive can be plugged in, making installation easy. However, on decoders that were manufactured before stay-alives became common (2013), you have to make the connection yourself. This means finding the positive and negative contacts on the bridge rectifier diodes.

The positive connection is easy; just use the blue wire that serves as the positive common connection for all

your functions. Finding the negative or ground contact is a little trickier.

First, you must locate the four diodes that comprise the bridge rectifier **3**. Usually the negative ground will be one of the two sides of the diodes comprising the bridge rectifier. In **3** the arrow points to the negative contact on an older Lenz LE080 decoder. You can test for this location on a powered decoder using a voltmeter by placing one probe tip on the blue wire and the other probe tip on one of the diode contacts. If you get it right, the meter should read as much as 1.5V less than your DCC track voltage.

Once you find this contact, the blue wire from the stay-alive should be soldered to the blue common wire on the decoder and the other wire (usually black/white) to the negative contact point. The



2 Different connections. The new guy in town, Highball Technologies, offers several stay-alives, called KeepRolling, rated at 13.5V. They differ in the types of connectors. The bare wire device has a male and female connector in the middle of the wires to allow it to be easily removed for programming. These are available from Railmaster Hobbies (www.railmasterhobbies.com), and Bob the Train Guy (www.bobthetrainguy.com).

National Model Railroad Association (NMRA) has designated blue as the positive wire and black/white as the negative wire. However, these colors may vary on some devices.

One of the best resources for determining these contacts on other decoders is Marcus Amman's website (www.members.optusnet.com.au/mainnorth/alive.htm). He has numerous photos of decoders showing the positive and negative contacts. Another great source of detailed technical information is Mark Gurries' website (search "Mark Gurries" on Google to find his Google page).

Now let's look under the wrapper at what's inside a stay-alive **4**. First, there are anywhere from one to six capacitors – most now have four to five. Each of these super-capacitors is rated at 2.5V to 3V and 1F (Farad is a measure of how much current it can store). By connecting four to five of these in series, the device can store and release a total of 10V to 15V.

However, the voltage is controlled by the protection circuit in the stay-alive. If it's set at 13V, that's all you'll get out, even if you have a potential maximum of 15V. Also, if the decoder's bridge rectifier only puts out 12V, then your

capacitors will only charge to that voltage, assuming the protection circuit allows it.

There are exceptions to these voltage limits. The Electronic Solutions Ulm (ESU) devices have one or two capacitors, yet still drive 12V motors with complex circuitry that boosts the voltage from the capacitor(s), but that comes at a price – shorter stay-alive run times.

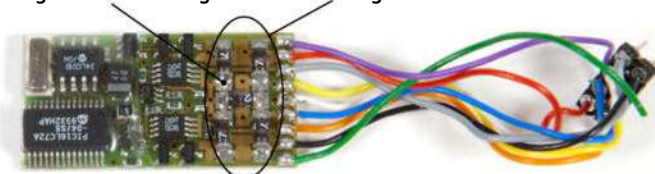
Folks ask me, why can't you use just one or two capacitors? After all, you don't really need 10- to 20-second run times. Well, you need a minimum of 5V to 7V just to power the motor control, lighting, and sound circuits on the decoder. That means you need at least three of the 2.5V super capacitors if you don't have ESU's complex circuitry. Plus, you want a little extra to give you a little run time.

With the new 3V super capacitors (Mouser 581-SCCR12E105SRB), you could probably get by with three of them in the circuit, but that would require a more complex protection circuit. The downside is they're a little bigger than the 2.5V to 2.7V super capacitors.

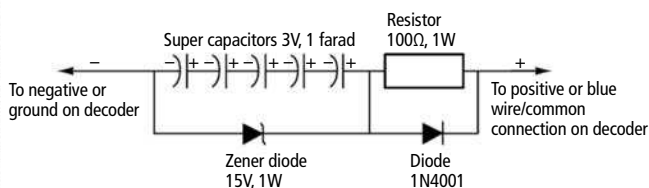
So what else goes into a stay-alive? First, there's a resistor – about 100Ω, 1W – that prevents the inrush current from shutting down your booster when first powered up **4**. There's a diode (1N4001) in parallel with the resistor that allows current to bypass the resistor when it's supplying power to the decoder. Most circuit diagrams also include a Zener diode (13.5V to 16V, 1W) that protects the capacitors if the input voltage exceeds a specific level.

Most commercial stay-alives include other components, but the one I described, and as shown in **4**, is a basic, stripped-down version. I don't have room in this column to show you the step-by-step process for making your

Negative side of bridge rectifier Bridge rectifier diodes



3 Crossing the bridge. Four diodes on this Lenz LE080 mobile decoder form the bridge rectifier. The negative wire from a stay-alive should be connected to the negative output of the bridge rectifier and the positive wire to the blue common positive wire or connection point in the decoder.



4 Basic stay-alive. This diagram shows the layout of components for a basic, stripped-down stay-alive circuit. Using third-party accessories may void the decoder warranty.

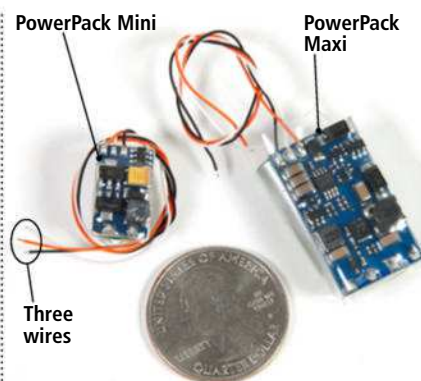
own stay-alive. However, I do have a video on my website (www.dccguy.com).

The circuit boards on the ESU PowerPacks **5** are clearly more complex than the circuit in **4**, which allows them to boost the voltage from only one or two 2.7V capacitors to the required level. These devices also have a circuit that bypasses the PowerPack during programming.

Another nice feature is the ability to determine the run time using CV113 in the LokSound decoder. A default value of 3 seconds gives more than enough power to get over most dirty spots and dead frogs. Electronic Solutions Ulm recommends limiting the run time to prevent locomotives from coasting through stopping blocks.

The one downside to stay-alives is they can interfere with programming, especially on a service-mode programming track. Most manufacturers recommend doing most programming before installing the stay-alive.

Another option is to use a quick connect plug so the



5 PowerPacks. These ESU PowerPacks have regulated circuits that allow them to use only one to two capacitors. Note that they also have three wires instead of the usual two.

stay-alive can be removed when programming. You can also try allowing the capacitors to charge on a powered track for a couple minutes before placing the locomotive on the programming track. I've never had problems when programming on the main.

Stay-alives provide a major improvement for DCC locomotive performance, but they're not a wholesale replacement for reliable track-work, powered frogs, and clean track. **MR**



POWER FLOWS BACK OUT OF THE STAY-ALIVE CAPACITORS AND POWERS THE MOTOR CONTROL, LIGHTING, AND SOUND CIRCUITS.

— LARRY



Atlas HO scale AEM-7 electric locomotive

The **AEM-7** may have been retired by Amtrak, but Atlas has brought back its HO model, with a new Electronic Solutions Ulm LokSound Select dual-mode decoder, for another run. Since *Model Railroader* last reviewed this model in the March 2000 issue, sound-equipped locomotives have proliferated. Bringing the model back with factory sound adds a whole new dimension.

The prototype. Amtrak began offering passenger service with a hodgepodge of equipment inherited from participating railroads. In the electrified territory, now known as the Northeast Corridor, locomotives were mostly Pennsylvania RR-heritage GG1 electrics. These venerable locomotives were becoming vulnerable as years of wear took their toll.

Amtrak's first attempt to replace the GG1 was the General Electric E60CP and E60CH, but a derailment at high

speed during testing resulted in them being limited to 85 mph in service.

Unsatisfied with this performance, Amtrak imported engines from France and Sweden for testing. The Swedish locomotive impressed the most, and a deal was made to assemble similar locomotives under license in the United States at the Electro-Motive Division La Grange, Ill., plant using components from ASEA of Sweden. The carbodies were built by the Budd Co. in Philadelphia for the first two orders, then Simmering-Graz-Parker in Austria for a third.

The AEM-7 name comes from combining the initials of ASEA, EMD, and 7,000 hp. Railfans came up with their own names for the locomotives – “toast-ers” for their shape or “meatballs” due to their Swedish heritage.

That horsepower propelled the AEM-7 and about 10 Amfleet cars at 125 mph up

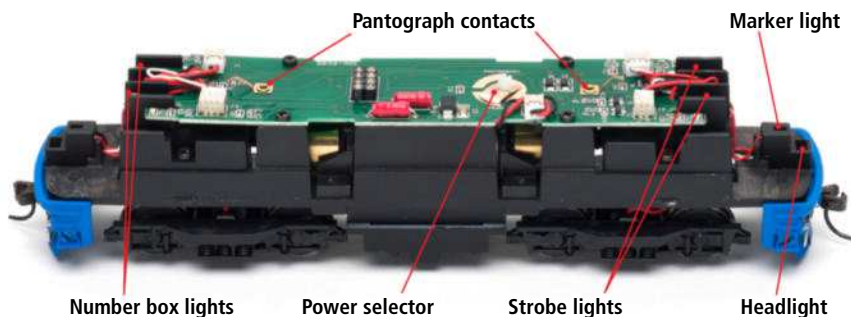
and down the Northeast Corridor for nearly 40 years. Amtrak purchased a total of 54 locomotives in its three orders. The first locomotive, no. 900, was delivered in November 1979. The last, no. 953, was built in December 1988. Two locomotives were lost in a wreck in Maryland in January 1986, and fire claimed two more in 2003 and 2011.

Train length was limited not by the locomotives' pulling power but by their head-end power (HEP) supply. Amtrak rebuilt 29 AEM-7s with AC traction motors starting in 1999. This rebuild also doubled HEP capacity. Around this time, Amtrak installed ditch lights on the locomotives as well, and repainted the engines in the phase 5 scheme.

Other owners were the Maryland State Railroad Administration (MARC), with four, and the Southeastern Pennsylvania Transportation Authority (SEPTA), with seven. These locomotives also had Austrian carbodies.

After EMD stopped building AEM-7s, NJ Transit placed an order for the similar ALP-44. These locomotives have larger grills along the roofline and were built in Sweden by ASEA Brown Boveri. NJ Transit owned 15 ALP-44s, which were retired by 2012. SEPTA also purchased a single ALP-44, which is the last of its type in revenue operation.

The Amtrak and MARC fleets have also been retired. SEPTA plans to retire its AEM-7s and ALP-44 as replacement ACS-64s arrive between March and



The Atlas AEM-7 has a die-cast metal frame supporting a center-mounted, flywheel-equipped can motor. A rotary switch selects pantograph or truck power.

November 2018. Two Amtrak locomotives have been preserved, one at the Railroad Museum of Pennsylvania in Strasburg, Pa., and one at the Illinois Railway Museum in Union, Ill.

The model. Atlas' AEM-7 is little changed from its 2000 release, and that's a good thing. It was an excellent model then, and remains so today. Dimensions match drawings in the June 1993 *Model Railroader* within scale inches, including the 51 scale-inch diameter drivers with their distinctive bolt-head detail.

Roof details are abundant, including metal pantographs that can be used to collect power from overhead catenary. There's a switch on the motherboard inside the locomotive to select truck or pantograph power.

As these locomotives had long lives, exterior details, especially on the roofs, changed over time. Depicting the prototype from its delivery until the late 1990s, the Atlas model has rooftop equipment similar to, but not exactly the same as, the locomotive shown in the MR drawings. It also has the smooth face of a pre-ditchlight locomotive.

In addition to the rooftop details, the numerous metal grab irons and hand-rails are separately applied, as are windshield wipers, steps, and placards. The steps to the cab doors are mounted on the trucks to allow for tight model railroad curves, but operators with wider radius curves could pop these off and mount them to the body shell.

The Amtrak phase 3 paint scheme is well done, with sharp separations between the stripes on the sides and the black panels around the windshields and up over the roof. The lettering is crisply printed and conforms well to the corrugations on the model's sides.

The locomotive's can motor drives all wheels on both trucks, and all wheels pick up electrical power. Metal weights mounted at each end support a printed-circuit (PC) motherboard over the motor. The ESU LokSound Select dual-mode decoder is plugged into the bottom of the motherboard over the rear truck. A sugarcube speaker is mounted in an enclosure over the front truck.

Surface-mount light-emitting diodes (LEDs) illuminate the number boxes, rooftop strobe lights, headlights and rear marker lights. (AEM-7s were used in push-pull service at times.)

On the test track. I wanted to find out how fast this model ran, as the prototypes were built for speed. At speed step 28 on our NCE PowerCab Digital Command Control (DCC) test setup, our sample reached 98 scale mph. This is a bit short of the top speed of the prototype, but still fast for a model railroad.

In direct-current testing, the model reached 113 scale mph at about 13V, the maximum output of our Model Rectifier Corp. Tech 4 power pack. Further testing in DC revealed a starting voltage of 5.5V for sound, 7V for movement at 2 scale mph. Sounds were automatic, and the lights, including headlights, marker lights, and rooftop strobes, operated depending on direction.

I could control many of these functions independently in DCC. In addition to the lighting functions, the horn and bell sounds can be triggered, a coupler crash on function 3, and HEP fan on F5. This decoder has ESU's Full Throttle package, so I was able to set and release the independent brake with F10.

The sound package doesn't make any discernible change as the locomotive accelerates or brakes, except for a brake squeal sound at the end of a quick stop.

I easily changed the decoder address to match the locomotive's road number, but ESU's indexed configuration variables (CVs) can make more advanced changes complicated when programming with a DCC throttle. One way around this is to download the free LokProgrammer software from ESU's website.

Make your intended changes using the menus on your computer, then print out the CV values and enter them manually with your programming throttle. Electronic Solutions Ulm also sells a LokProgrammer interface that allows you to write your changes directly to the locomotive from your computer through a connected section of track. DCC Corner columnist Larry Puckett offers more tips for programming ESU decoders in the May 2018 *Model Railroader*.

Our pull force meter indicated 2.56 ounces of drawbar pull, equivalent to 36 HO scale freight cars or 18 passenger cars. On our staff layout, the Milwaukee, Racine & Troy, I tested the locomotive with a variety of Amfleet models we've collected over the years. Because of the inside-bearing design of the trucks on these cars, they don't roll very freely, and the locomotive struggled with six cars

Facts & features

Price: \$289.95 (DCC and sound), \$179.95 (DC)

Manufacturer

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

Era: 1980 to early 2000s, as decorated

Roadnames: Amtrak phase 3, as delivered; Amtrak phase 5; NJ Transit. Fantasy schemes: Milwaukee Road, Pennsylvania RR, and Reading Co.

Also available undecorated

Features:

- Accurate knuckle couplers, at correct height
- Die-cast metal chassis
- Dual flywheels
- Full cab interior with painted crew members
- Gold version equipped with dual-mode ESU LokSound Select decoder
- Operating headlights and marker lights, which are directional
- Operating pantographs
- Weight: 13 ounces

PERFORMANCE TESTS

DRAWBAR PULL 2.56 ounces
18 passenger cars

SCALE SPEED (DC)

VOLTS	SCALE MPH
7 (start)	2
8	6
9	32
10	57
11	83
12	96
13	113 (Max. output)

SCALE SPEED (DCC)

SPEED STEP	SCALE MPH
1	2
7	25
14	64
21	96
28	98

up a 1.5 percent grade. However, with free-rolling freight cars, the same grade was no problem with 11 cars, and the engine pulled nine cars up our 3 percent stress test grade.

As a fan of Northeastern railroading, it's good to see these models back in stores after almost 20 years. If you're hankering to operate passenger trains under wire, either real or simulated, these locomotives could be just the ticket. — Eric White, associate editor



Rapido Trains HO Budd Rail Diesel Car

The car that revived branchline passenger operations for many railroads after World War II stands ready to do the same for HO scale railroads. Rapido Trains has released a highly accurate model of the Budd Rail Diesel Car, or RDC, in three body styles. Available equipped with an ESU LokSound Digital Command Control (DCC) decoder, Rapido's RDC-1, RDC-2, and RDC-3 boast accurate modeling, smooth operation, and a high level of detail.

Everything old is new again. Budd's RDCs were an immediate hit, which seemed to baffle rail watchers of the day. In the few years after the first RDCs hit the rails, *Trains* magazine (then called *Trains & Travel*) ran four articles on them, all asking some variation of the question, "Just what are these things?"

After all, as one of the articles observed, self-propelled gas-electric cars – then called "doodlebugs" – had been tried and discarded years earlier as impractical and underpowered. Yet, here was this audacious (and fairly new) car builder, trying to bring the concept back, and improbably succeeding.

The reason for Budd's success was in part due to its technological innovation,

including the company's "Shotweld" technique for welding stainless steel without damaging its anti-corrosive properties. The car's performance was also impressive, outpacing the Pennsylvania RR's M.U. cars in acceleration tests and beating Denver & Rio Grande Western's *California Zephyr* on a test run from Denver to Moffat Tunnel.

But the biggest factor in its success may have simply been timing. As automobile sales and highway construction both skyrocketed in the years following World War II, passenger demand on the railroads fell. For many roads, it became too expensive to run a diesel locomotive with only one or two passenger cars in tow. A single Budd RDC-1, on the other hand, could carry 90 passengers and cost about 50 percent less to operate than a locomotive-hauled passenger train.

Between 1949 and 1962, Budd built 398 Rail Diesel Cars, some of which are in revenue operation today. Railroads employed them on branch lines and other little-traveled routes, and in urban commuter service. The cars came in four configurations: the all-passenger RDC-1; the RDC-2, with a baggage compartment and seats for 70; the RDC-3, with 48 seats, a baggage compartment, and a Railway Post Office; and the RDC-4, an

RPO-baggage car with no passenger space. Rapido offers HO scale models of the first three. We tested its RDC-1.

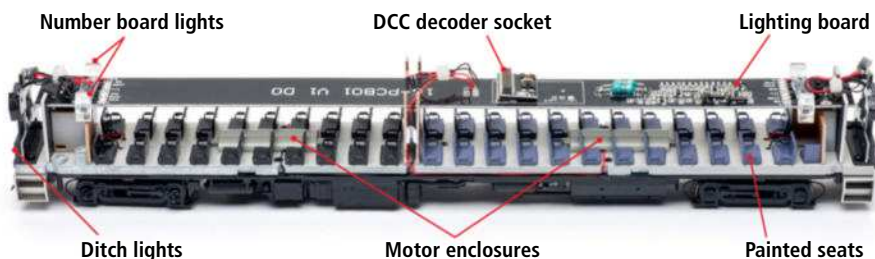
A dashing figure. Rapido's model looks sharp, with its factory-applied wire grab irons, etched-metal grills, crisp graphics, and smooth simulated stainless-steel finish. The underbody is likewise impressive, with the array of tanks, pipes, reservoirs, brake lines, and other equipment Rapido is known for.

The interior is just as impressive, with constant lighting and painted seats. The twin motors are hidden in enclosures between the rows of seats, below window level, offering an unobstructed view.

The models bear truck sideframes, Gyalights, and other details specific to their prototypes. But to ensure modelers can accurately reproduce every variant of the prototype at any point during its life, Rapido's RDC includes a sheet of decals and a packet of optional, user-applied details, including a pilot, a pilot cover, window grills, alternate roof grills, exhaust stacks, antennas, horns, diaphragms, and a Gyalite housing.

Model Railroader published drawings of the RDCs in its September 1953 issue. Rapido's model matched every dimension I measured and checked against that drawing. The model RDC-1 also matched prototype photos in appearance and placement of details.

Test run. The prototype RDC wasn't designed to pull unpowered cars; its couplers were intended solely to link up with other RDCs. Such is the case with Rapido's version. The manual says that the motors and drivetrain were designed to be small enough to not be visible through the car's windows, not for



The twin motors and drivetrains are concealed in enclosures between the seats, to give an unobstructed view through the windows. A socket accepts a DCC decoder.

PERFORMANCE TESTS	
DRAWBAR PULL	2.7 ounces not applicable, see main text
SCALE SPEED (DC)	
VOLTS	SCALE MPH
3 (start)	.6
6	28
9	67
12	100

power, and that towing another car will void the warranty. Nonetheless, we used our workbench force meter to test the model's pulling power, and it mustered enough to theoretically pull 19 HO scale passenger cars on straight and level track. Just don't do so, OK?

Though the RDCs are offered with an ESU LokSound Select sound decoder, our sample RDC-1 is direct-current only. I tested it on our workbench using an MRC Tech 4 power pack.

The car started moving at 3V, rolling at a stately .6 scale mph. (The lights were fairly dim at that voltage.) Though the RDC was famed for its quick acceleration and braking speeds, and would never be caught switching a freight yard, it's good to know the slow-speed capability is there if you want it. At 12V, the RDC reached a top speed of 100 scale mph, a bit higher than the 87 mph top speed of the prototype. The interior and exterior lights shone brightly at that voltage. The headlights and red marker lights on each end were directional. Rapido's manual says that working ditch lights are installed, but hidden inside the shell, for the user to mount if his prototype of choice had them.

Since Rapido's documentation says the RDC can handle a minimum curve radius of 18", I decided to run the model through the 18" curves and no. 4 turn-outs of our Virginian Ry. project layout. Though it handled the curves and turn-outs adequately, the car's length and overhang caused problems on the layout's close-quarters tunnels and with trackside details like ground throws and signs along curves. If you're planning on running this car on tight curves, give it wide clearance. It would look better on broad curves, anyway.

The avenue to better railroading.

When Budd's Rail Diesel Cars came out, they were just what the railroads needed to make branchline passenger and commuter routes profitable again. Since so many hobbyists model transition-era

Facts & features

Price: \$225 (direct current, no sound), \$325 (Digital Command Control sound)

Manufacturer

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

Era: 1949 to present

Road names: (see website for RDC-1, -2, -3 versions) Canadian National; Alaska RR; Atchison, Topeka & Santa Fe; Baltimore & Ohio; Boston & Maine (Minuteman or McGinnis schemes); BC Rail (blue band); Chesapeake & Ohio; Chicago & North Western; Chicago, Rock Island & Pacific; Great Northern; Lehigh Valley; Long Island Rail Road; New York, New Haven & Hartford (script herald or McGinnis scheme); New York Central (early scheme); Northern Pacific; Reading Co.; VIA Rail (original blue-and-yellow stripes and with Rapido decals); and Western Pacific (Zephyrette). Also available painted silver but unlettered.

Features

- 33" blackened metal wheels, in gauge
- All-wheel drive and electrical pickup
- Detailed and lighted interior
- Dual five-pole, skew-wound motors
- Etched-metal roof grills and fan covers
- Kadee metal knuckle couplers (A end mounted .01" too low)
- Illuminated number boxes
- Minimum radius: 18"
- Optional user-applied details and decals
- Prototype-specific details
- Separately applied grab irons, door chains, windshield wipers, horns, and underbody details
- Simulated stainless-steel finish
- Weight: 10.8 ounces
- Working nose door Gyalite, where appropriate

branch lines, with compressed main lines and station platforms, Rapido's RDCs likewise fill a vital niche.

Trains & Travel justified its unabashed RDC boosterism thusly: "We believe [Budd's Rail Diesel Car] is one of the brightest, most practical avenues to better railroading. ... It is an instance in which we feel objectivity and enthusiasm are not incompatible." I feel the same about Rapido's version. – *Steven Otte, associate editor*

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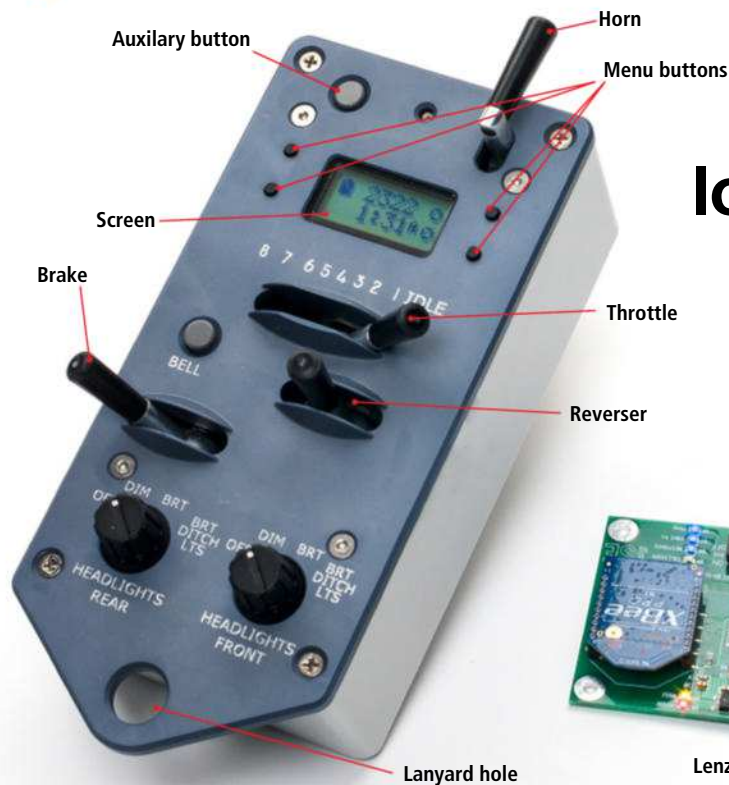
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Special sneak preview: Iowa Scaled Engineering ProtoThrottle

Facts & features

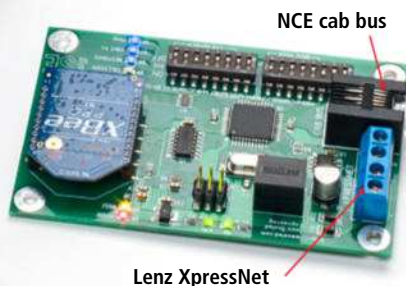
Price: \$482 (throttle), \$99 (receiver)

Manufacturer

Iowa Scaled Engineering
22750 County Road 37
Elbert, CO 80106
www.iascaled.com

Features

- Wireless operation
- Works with any DCC decoder
- Requires two AA batteries (alkaline or rechargeable NiMH)



Recently I tested a pre-production

sample of the Iowa Scaled Engineering ProtoThrottle. This wireless Digital Command Control cab is designed to mimic a diesel-electric locomotive control stand in looks and operation. In both cases, the ProtoThrottle delivers.

The receiver. The ProtoThrottle isn't a standalone DCC system and doesn't program decoders. The unit also requires a receiver (sold separately) to operate.

One receiver is designed for DCC systems that use WiFi control. These include a Digitrax system connected to an LNWI LocoNet WiFi module, an ESU CabControl system, or DCC systems that use Java Model Railroad Interface (JMRI)-based WiFi control.

The other version has interfaces for an NCE cab bus and a Lenz or Digikeijs (www.digikeijs.com) DR5000 through an XpressNet bus. This is the receiver that I used with an NCE system.

After setting the board's DIP switches according to an instruction sheet, I connected the board to an open cab bus plug port with a short RJ12 cable.

Controls. The ProtoThrottle measures 3" x 3.2" x 7.6" and weighs 14 ounces. A strap on the back of the case kept the hefty throttle in my hand. There's also a lanyard hole on the front of the case.

The controls include an 8-detent throttle, a reverser handle with center

position, and a brake handle with optional emergency brake functionality. There's also a spring-loaded horn handle and a bell on/off button. Two knobs control the front and rear lighting functions, including ditch lights and dimmers.

Pressing any key turns the unit on. If left undisturbed, the throttle goes to "sleep" after a time duration that can be set by the user.

An easy-to-read backlit liquid-crystal display (LCD) screen shows the locomotive number, battery indicator, and whether the reverser or emergency brake is engaged. It can also show the fast-clock time when linked to an ISE wireless fast clock or NCE cab bus.

The four buttons around the screen are used to maneuver through easy-to-use configuration menus. These buttons, as well as an auxiliary button in the upper left corner, can also be programmed to trigger decoder functions.

Operation. To work with the ProtoThrottle, a locomotive decoder should be programmed for prototypical operation, including a lot of acceleration and deceleration momentum and manual, non-directional headlight control with a separate dimmer function.

The ProtoThrottle brake lever can be set for ON/OFF or variable control. For the latter to work, the decoder must support function-controlled braking and be programmed accordingly.

With the decoder programmed, I assigned functions to the throttle controls using the Configure Functions menu. The controls can be fine-tuned, including the throttle and braking response. Then I saved the locomotive information in the Load Configuration menu, which acts like a recall stack in a conventional DCC throttle. For more information, download a free copy of the user manual at www.iascaled.com.

I used the ProtoThrottle to run HO and N scale diesels equipped with non-sound and sound decoders, including products from NCE, Model Rectifier Corp., ESU, SoundTraxx, and Train Control Systems. For the Tsunami2 decoder, I programmed the auxiliary button to toggle between independent and train brakes. For the LokSound decoder, I used this button for the DRIVE/HOLD feature.

I ran various trains on the MR staff layout, the Milwaukee, Racine & Troy, including switch jobs and trains led by multiple-unit diesels. There's a learning curve, as operations must be done in a specific sequence, just like with a real diesel. For example, the throttle wouldn't respond until I'd set the reverser.

The ProtoThrottle represents an exciting new direction in train control. I found the experience more akin to a locomotive simulator than simply running model trains on a layout. — Dana Kawala, senior editor

QUICKLOOK

Bachmann HO scale bay window caboose

Price: \$59

Manufacturer

Bachmann Trains
1400 E. Erie Ave.
Philadelphia, PA 19124
www.bachmanntrains.com

Era: 1952 to 1964 (as decorated)

Comments: For those who want to add variety to their caboose fleets, these HO scale bay-window cabooses from Bachmann Trains are worth a look. The plastic models are built with new and existing tooling.

Although I couldn't find an exact prototype for the model, it resembles a design built by the International Car Co. and several railroads. Window arrangements and other details varied from road to road.

Our review sample is decorated as Nickel Plate Road no. 425, one of 100 steel bay-window cabooses built for

NKP between 1952 and 1962 by International and the road's own shops.

Most of the model's major dimensions are within inches of a drawing published in *Cabooses of the Nickel Plate Road* (Nickel Plate Road Historical & Technical Society, 1992). However, the trucks are spaced a foot farther apart than shown on the drawing and the window arrangement is different. This also caused the top stripe to be narrower than the prototype.

The paint coverage is smooth with sharp color separation. Bachmann did a good job reproducing the different lettering fonts.

The Bachmann caboose's plastic body features well-defined weld seams, roof corrugations, and other modeled detail. Separate plastic parts include the ends, side handrails, and smokejack. A rooftop bathroom vent is included as a user-installed part.



The model has some molded underbody detail. The air reservoir, brake cylinder, and brake rigging are separately applied plastic parts.

The model rides on well-detailed Bettendorf caboose trucks with correct 5'-6" axle spacing. The chemically blackened metal wheels are in gauge. The trucks swivel freely, and the model easily negotiated 18" radius curves.

The Bachmann caboose weighs 3.2 ounces, which is .3 ounce lighter than National Model Railroad Association Recommended Practice 20.1. The plastic E-Z Mate Mark II knuckle couplers are mounted at the correct height.

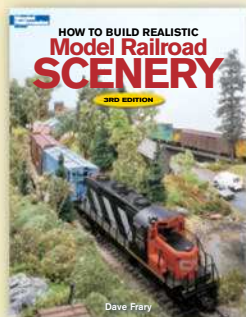
In addition to NKP, the caboose is available decorated for Baltimore & Ohio, Erie, and Union Pacific. A New York Central version features a small window bay to better match that prototype. — Dana Kawala

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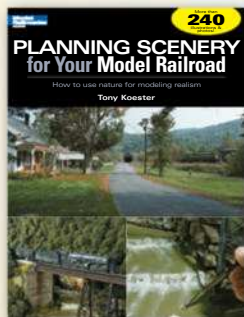
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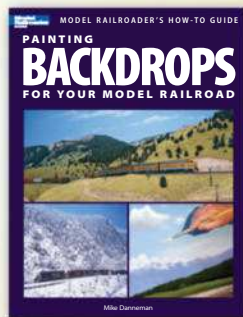
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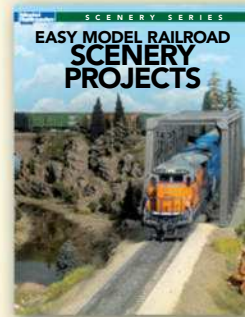
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QUICKLOOK

Eastern Seaboard Models N scale boxcar

Price: \$42.95

Manufacturer

Eastern Seaboard Models Corp.

P.O. Box 301

Waldwick, NJ 07463-0301

www.esmc.com

Road names: New York Central, Pittsburgh & Lake Erie (original and modern schemes, one number each), and Lehigh Valley. Two numbers per scheme unless noted.

Era: 1966 to 2000s

Comments: Eastern Seaboard Models has released an N scale New York Central class X65 50-foot insulated boxcar based on a prototype built by Despatch Shops Inc. The plastic model features a one-piece body with a separately applied brake wheel and etched-metal crossover platforms. The underbody is also plastic with molded crosstie detail and a one-piece casting that

includes the center sills, crossbearers, and simulated cushioned underframe.

Despatch Shops was a subsidiary of New York Central (NYC) and later Penn Central (PC). It produced the class X65 boxcar from 1966 to 1969 for the NYC, Lehigh Valley (LV), and Pittsburgh & Lake Erie. Boxcars from the NYC, PC, and LV wound up on Conrail when it was formed in 1976. Examples of X65 boxcars survived into the 2000s on CSX and Norfolk Southern, the two roads that divided Conrail's assets in 1999.

Our sample is decorated as NYC no. 78722, part of the railroad's 78700 through 78749 series. The full-size 4,620-cubic-foot-capacity boxcar was built under lot 976-B in 1966.

The model's dimensions closely follow a prototype drawing I found in the New York Central Freight Car Roster section of the website www.canadasouthern.com.

The 33" metal wheelsets are correctly gauged. The Micro-Trains Line Co. no. 1015 body-mounted couplers are at the correct height. At 1.1 ounces, the model is at the proper weight per National Model Railroad Association Recommended Practice 20.1.

I tested the model on our Red Oak project layout. The model performed flawlessly while being pushed and pulled through Peco no. 6 medium turnouts and around the 13" radius curves. The manufacturer doesn't recommend operating the boxcar on curves under 10".

Eastern Seaboard Models Corp. has done a great job re-creating the Despatch Shops X65 boxcar in N scale. The model has a good mix of molded and separately applied details, allowing it to stand up to normal handling on a model railroad. – *Cody Grivno, associate editor*



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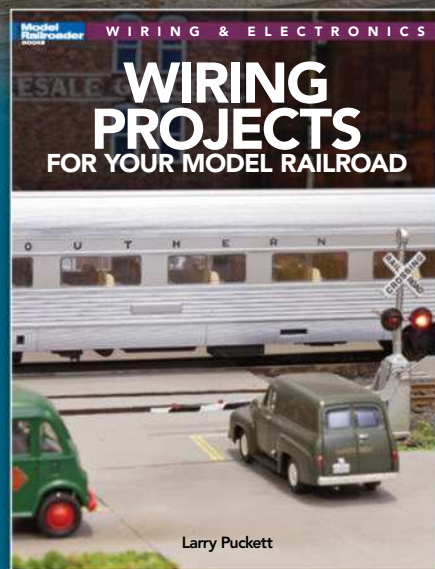
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Larry Puckett



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An elephant in the room

A recent question on the Operations Special Interest Group (OPSIG) mailing list sparked a lively exchange about waybills vs. switch lists. This reminded me of the fable about describing an elephant by touch. One person described a tusk, another an ear, and yet another the tail. Each described their part accurately, but they did not describe the whole. When and how to use waybills and switch lists seems to be our own elephant in the room.

The most critical information model railroaders need at an operating session includes a car's reporting marks and number, its destination, and its receiver's name. The paperwork with this information could take the form of a stack of waybills, a computer printout, or a handwritten switch list.

Many modelers represent prototype waybills with car cards and four-cycle waybills, a versatile way to deliver all this information. Others choose database methods. It's time-consuming to set up such a database, but they simplify switch-list generation afterward. Handwritten lists also work. However, the more lists an operating session needs, the more exhausting it can be to make them.

The North River & Hudson's

Dutchess Local makes a good example. *The Flying Dutchman*, as it's known, is a busy job that switches Mad River and Port Hudson. Mad River has only a feed mill and team track. Port Hudson has

complicated pulp and paper mill trackage that sees many inbound materials like chemicals, clay, and pulpwood. It also needs empties to ship finished paper products.

Today, you're the crew of *The Flying Dutchman*. Inspecting the train and its paperwork shows three cars for Mad River and 12 for Port Hudson Paper. Mad River's work looks easy enough. Do you feel comfortable switching Port Hudson on the same trip?

Knowing your car's contents helps. The Port Hudson cars include five pulpwood flats. There are also three tank cars – two of kaolin (clay slurry) and one of liquid chlorine – and four empty boxcars for loading at the warehouse. The contents determine where to spot the cars: pulpwood to the wood yard, clay at the paper mill, chlorine at the pulp mill, and empties to the warehouse.

Pulpwood can load in boxcars, too. So can machinery and other operating supplies, destined to the store-room. If the crew ignores the contents, a boxcar of pulpwood might end up at the warehouse. They'll soon hear from a trainmaster, looking to unload the tongue-lashing an angry mill manager just delivered to them.

A waybill shows a car's destination and receiver, but usually doesn't indicate the exact place to spot the car. To avoid situations like the



Car cards and multi-position waybills are a convenient way to keep track of car destinations, but handling a large pile of them can be less than convenient. Jerry Dziedzic photo

boxcar error above, prototype railroads developed forms that carried additional information for the train crew.

Often, an agent prepared a "drill slip" with detailed instructions. Some railroads used "work messages" sent by a dispatcher. I enjoy sprinkling my own operating sessions with variations of each.

The Flying Dutchman's train has 15 cars, making its bundle of waybills an unwieldy 1" thick. Rather than keeping track of such a fistful, I make a switch list when I'm working a car-card-and-waybill layout. Single-sheet printouts or handwritten lists are easier to handle.

Draw a few columns for each town on a piece of paper and fill them with reporting marks, car number, and car spot. I use short abbreviations for the roadnames (like "AT" for Atchison, Topeka & Santa Fe, "E" for Erie, and "P" for Pennsylvania RR), and add only the last three numerals of the car's number. One or two more abbreviated words show a spot: "Whse" for warehouse, and "Sto Rm"

for store room. A switch list doesn't need to show the cars' contents, since the spot is already determined.

Pickups are easy to manage because their destination is the train itself. Grabbing outbound waybills from the bill box is all it takes. Sometimes a drill slip details special handling. A switch list can also note where cars that stay must be re-spotted if they are moved.

Often, there's time to kill before a train can leave the yard. Fast clock or not, a crew needs real time to plan its moves. It takes only a few minutes more to summarize the plan by writing a switch list. I like this better than shuffling car cards over and over, though I know some who need only a single pass through the deck to keep all the moves in their heads.

Many professional railroaders contribute to the OPSIG list, making it a good source of prototype information like that discussed here. Explore the mailing list; you might discover other elephants in the room. **MR**



IT TAKES ONLY A FEW MINUTES TO WRITE A SWITCH LIST. I LIKE THIS BETTER THAN SHUFFLING CAR CARDS OVER AND OVER.
— JERRY

Trackside Photos

Pennsylvania RR class I1 no. 4471 switches the Atlas Coal tippie at Atlasburg, Pa. The action takes place on Curt LaRue's HO scale Burgetts Branch, PRR Panhandle Division layout. The Decapod is a Broadway Limited Imports model; the coal tippie was kitbashed from a Walthers kit. Lou Sassi shot the photo.



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In late summer of 1935, a Delaware & Hudson 2-8-0 Consolidation drifts into Rutland, Vt., with a coal delivery for Burditt Bros. Distributors. Greg Wiggins of Plymouth Meeting, Pa., shot the photo on his HO scale Rutland layout. The locomotive and caboose are both 3-D printed models from Accurate Custom Finishing.

Send us your photos

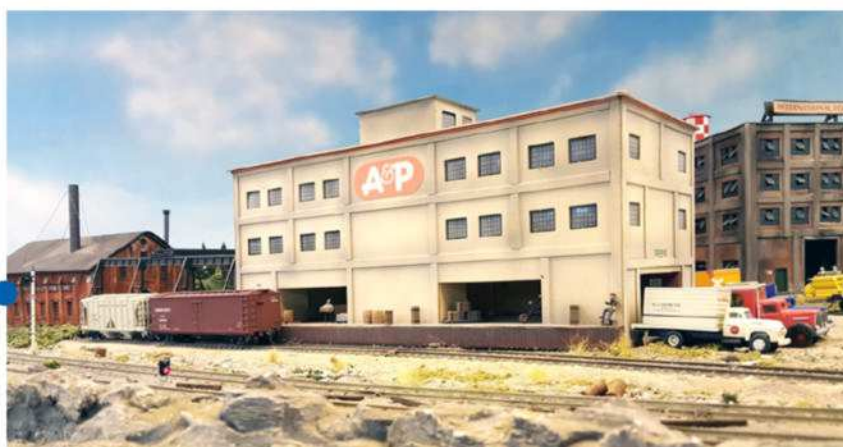
Trackside Photos is a showcase for the work of *Model Railroader* readers. Send photos (digital images 5 megapixels or larger) to: *Model Railroader*, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612; or upload them to <http://fileupload.kalmbach.com/Submission/contribute>. For a copy of our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



It's high noon in summer 1992, and while a truck waits at the crossing for an approaching freight, the D Train rumbles by overhead on its way to Coney Island. David Gale of Matthews, N.C., built and photographed the scene on his O scale layout. The hardware store is from Woodland Scenics. Some of the other structures were scratchbuilt by David's friend, Harry Heike.



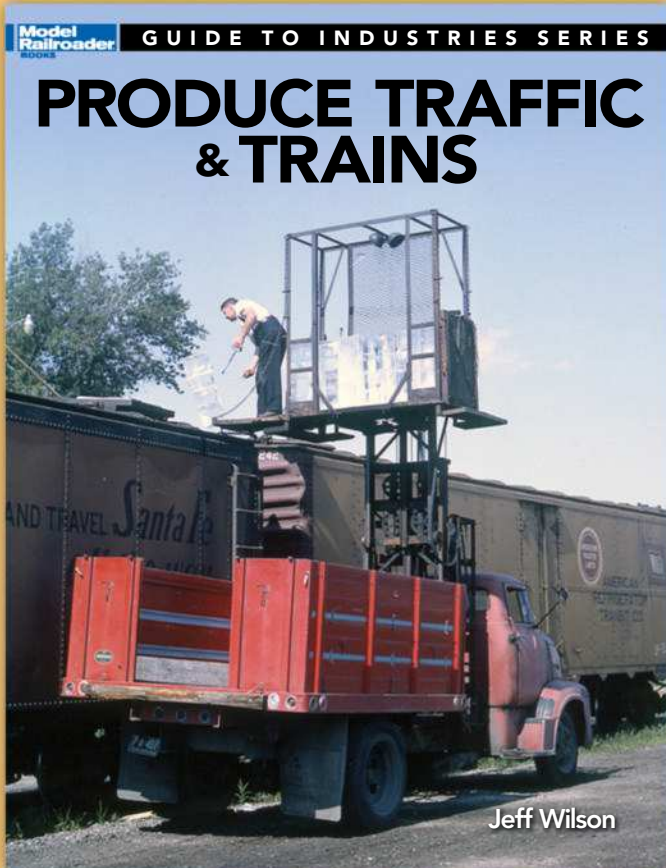
A pair of rail cars bake in the summer heat as they wait to be picked up from the A&P warehouse siding in Henway. Vince Pugliese of Toronto photographed the scene on the HO scale layout built by the Scarborough Model Railroaders Club in Toronto. The structure was scratchbuilt in the 1970s from balsa with styrene window castings.



**NEW BOOK BY
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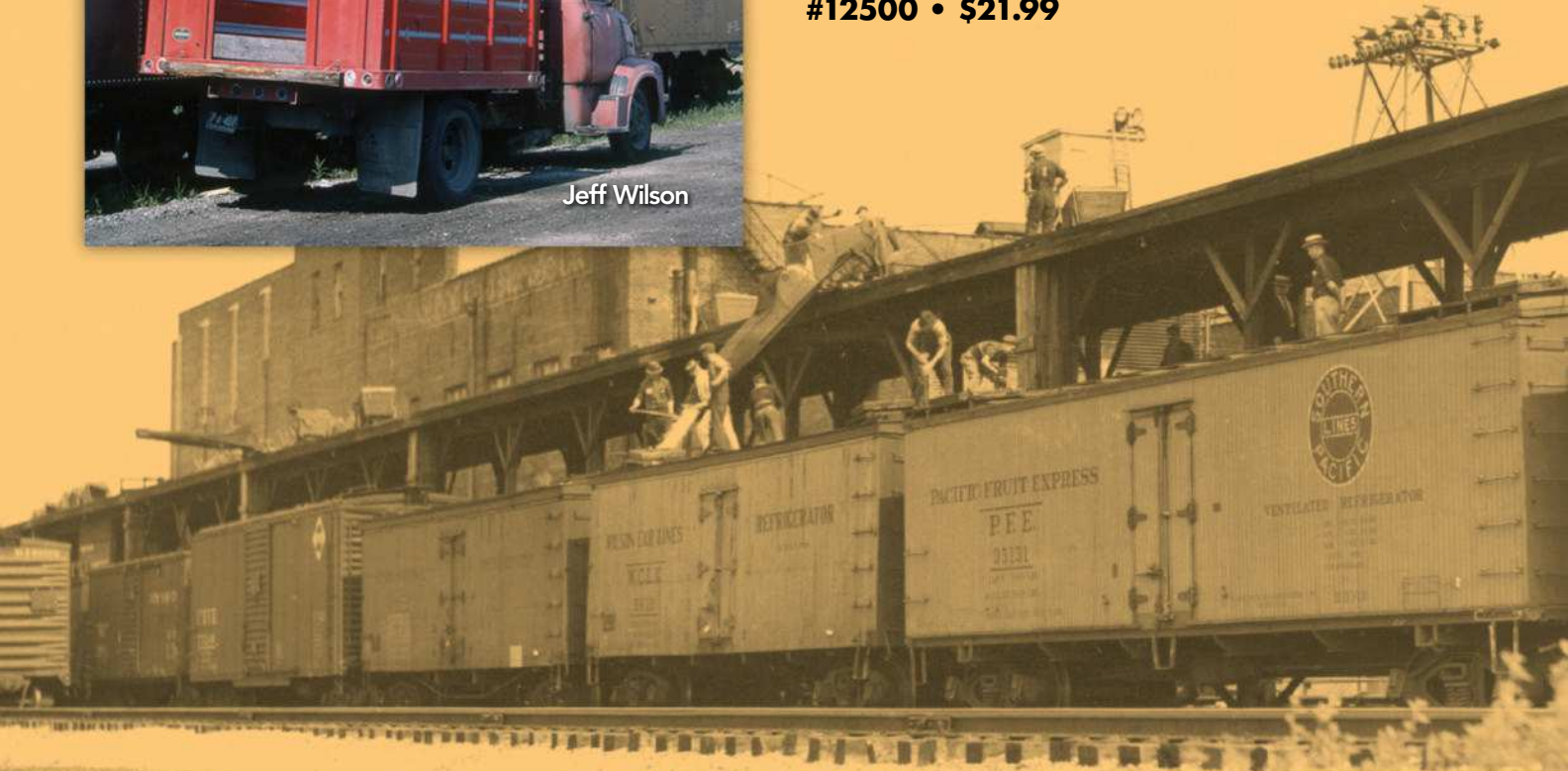
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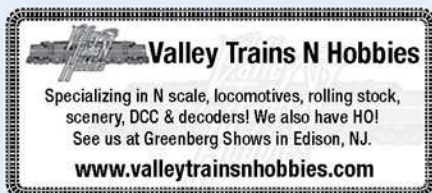
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CLOSING DATES: Jan 2018 closes Oct. 20, Feb. closes Nov. 13, March closes Dec. 19, April closes Jan. 22, May closes Feb. 19, June closes Mar. 19, July closes Apr. 23, Aug. closes May 18, Sept. closes June 22, Oct. closes July 23, Nov. closes Aug. 17, Dec. closes Sept. 24.

Schedule of Events

AZ, PRESCOTT AREA: Beat the Heat Model Trains Swap Meet. Liberty Traditional School, 3300 N. Lake Valley Rd., Prescott Valley, Saturday, August 18, 2018, 9:00am-1:00pm. Adults \$5.00, children 12 and under free. Presented by: The Central Arizona Model Railroad Club. Contact: Dick Gage, 802-272-1352

CA, SAN CARLOS: European Train Enthusiasts (<http://www.ete.org>) EUROWEST at Hiller Aviation Museum, San Carlos Airport, 601 Skyway Road, Zip: 94070. July 21-22, 2018, Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Layouts, clinics, vendors, raffle. Admission (<http://www.hiller.org>) includes Air Museum, free parking. Contact Dave Cowl: eurowest@ete.org

CA, SAN DIEGO: 2018 NMRA/PSR Convention hosted by San Diego Division, at PSR at the Marriott Courtyard, 575 Hotel Circle South. Convention dates: September 12th thru September 16th, 2018, from 8:00am-10:00pm. Includes clinics, layouts, tours, prototype tours, actions, swap-meet and banquet. Information: sandiegodivision.org or email: registrar2018@sandiegodivision.org

CO, DENVER: Rocky Mountain Train Show July 28-29, 2018. Forney Museum of Transportation, 4303 Brighton Blvd. Denver. Saturday, 10:00am-5:00pm, Sunday 10:00am-3:00pm. 80 sales tables, 30 vendors, operating layouts, trains of all scales. Other shows: Loveland Nov. 24-25, 2018, Denver Mar. 2-3, 2019, www.RockyMountainTrainShow.com, Email: information@RockyMountainTrainShow.com

FL, DELAND: 67th FLORIDA RAIL FAIR. Volusia County Fairgrounds (Tommy Lawrence Arena), 3150 E. New York Ave. (SR44 and I-4). Saturday, July 14, 2018, 9:00am-4:00pm. Adults: \$7.00 under 12 free. Operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954. E-mail: rrshows@aol.com

FL, TALLAHASSEE: 27th Annual Big Bend Model Railroad Association's Show & Sale. North Florida Fairgrounds, 441 Paul Russell, Buildings 2 (Thomas) & 4. Saturday, June 23, 2018, 9:00am-4:00pm; Admission \$6.00, children 12 & under & scouts in uniform free. Information: Andy Zimmerman, 850-524-4399, E-mail: GNTrainman@comcast.net

IL, GALESBURG: Galesburg Railroad Train Show. Returning to new location: Galesburg High School Fieldhouse, 1242 W. Dayton St. June 23-24, 2018, Saturday 9:00am-4:00pm and Sunday 10:00am-3:00pm. Admission \$5.00, under 12 free. Free parking and shuttle bus to depot museum area. Food & drinks available. Info: 309-221-3909 E-mail: cobra@grics.net

IL, ST. CHARLES: 42nd Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd. Sunday, June 10, 2018, 10:00am-3:00pm. Admission: \$6.00 w/tax. Tables \$60.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

MN, TWIN CITIES: 38th-National Narrow Gauge Convention, DoubleTree by Hilton Hotel, Bloomington, Minneapolis South. September 5-8, 2018. Register before June 1st for \$99.00, after \$125.00. Incredible value: 100 clinics, model and photography contest, 55 layouts on display, huge vendor show, live auction. Information: www.nngc-2018

MO, BRANSON: The Roark Valley Model Railroad Sixth Annual Open House Event. June 1-2, 2018, 10:00am-5:00pm. Admission is FREE for children and adults. Visit and operate Southwest Missouri's Largest HO Modular Layout. 3609 W 76 Country Blvd., 65616. Information at www.vrrtrains.com

WA, BREMERTON: Bremerton Northern Model Railroad Club Annual All Scale Swap Meet. West Side Improvement Club, 4109 West "E" Street. June 16, 2018, 9:00am-3:00pm. General \$5.00, children under 12 free. POC: Bill Hupe, 360-621-5041, whopay@tsnet.com

WI, LA CROSSE: Rail Fair, Copeland Park, Rose & Clinton Streets. July 28, 2018, 10:00am-4:00pm. Admission \$5.00, under 12 free. Railroad Show, Sale & Exhibition. Model Toy & Antique Trains & Memorabilia, Railroad Exhibits & Displays. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-781-9383

WI, WAUPACA: WAMR 28th Strawberry Fest Model Railroad Show & Model Contest. Waupaca Recreation Center, School/State/Badger Sts. June 16-17, 2018, Saturday 10:00am-5:00pm and Sunday 10:00am-3:00pm. FREE. Many layouts/vendors/swap tables. Roger Hildebrandt, 7693 Evergreen Dr. East, Waupaca, WI 54981, 715-258-8218 or check club website: www.wamrtd.com

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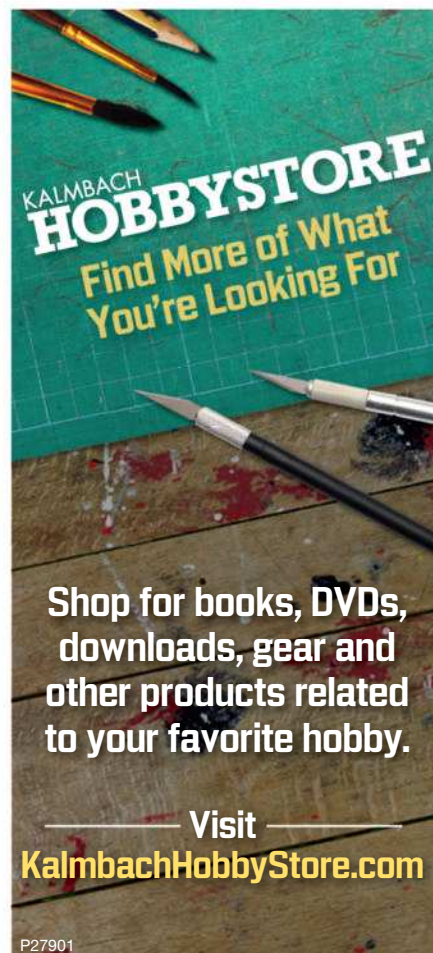
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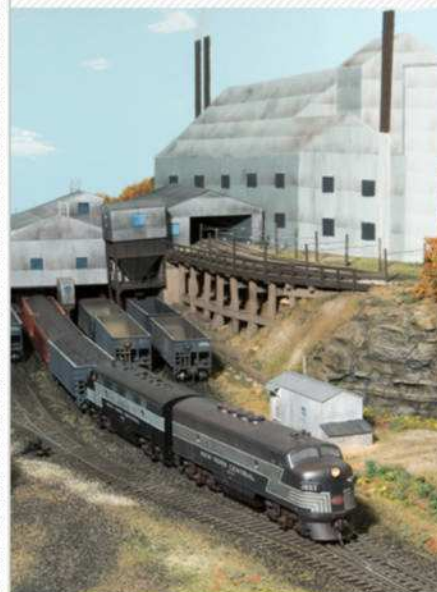
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There's plenty to do on a milk run

I recently had the pleasure of once again operating on Mike Burgett's superbly executed Chesapeake & Ohio Clifton Forge Division. Mike's work has been featured in *Model Railroader* and *Model Railroad Planning*.

He models the early diesel era, when Electro-Motive Division (EMD) cab units and General Purpose locomotives (Geeps) ruled the roost. Mike's ample basement, which he recently enlarged, allows long runs between staging yards representing Gladstone, Va., and Hinton, W.Va. That he's a professional railroader – indeed, one of the top signaling experts in the country – no doubt adds to the accuracy and excellence of his railroad.

This division in 1:1 was dispatched by a Centralized Train Control (CTC) system built by Union Switch & Signal. The 1:87.1 version also utilizes a US&S CTC machine, but it was built by Mike, who does business in the model railroad field as Control Train Components (www.CTCParts.com).

Rather than studying the schedule in an employee timetable and any amendments in the form of train orders, a road crew simply watches for a signal that allows them to proceed. Anything better than red-over-red is usually good news. Assuming they have the mandatory clearance card from the local operator, they're good to go.

This leads us to a chat about the road crew's involvement in the railroad's operation. In a timetable-and-train-order (TTTO) environment, much of the onus for making a safe trip over the railroad falls on the train crew. Unless they're running a first-class (usually passenger) train in



Chesapeake & Ohio EMD FP7 8001 leads an F7B, a GP9, and a string of hoppers past an old canal lock on Mike Burgett's HO tribute to the C&O's Clifton Forge Division. Craig Wilson photo

the superior direction (usually east), they may have to make way for opposing trains.

Under CTC rules, most of that burden falls on the dispatcher. If he or she gives you a green signal, you can go. The interlocked CTC machine won't allow the dispatcher to set up conflicting routes, and the idea of train superiority recedes into the background. The dispatcher, not the train crews, is tasked with making sure the main line is clear for, say, the *George Washington*.

Operating on a fully signaled model railroad like Mike's is a treat. The main chore is to check the aspect of the next signal ahead and be prepared to do its bidding. Knowing what a few key aspects indicate is sufficient to safely make your way over the railroad.

Running the local freight in a CTC environment can be challenging. If a move involves using the main line, you have to get the dispatcher's permission to occupy the main for a set period of time. He may taketh away what he giveth, so this switch-then-wait scenario may be repeated

several times at each town or major industry.

So we have this interesting dichotomy: A run over the main line is often easier than in a TTTO environment, but doing the local's work at various stops along the line may be more difficult.

I'm a horsepower guy: I like to see big power running at full throttle on the main line, a carryover from my railfan experiences. But I suspect the average model railroader is more interested in switching moves, either in a yard or when honchoing a way freight.

Mike's railroad certainly offers a lot of both.

Yet I doubt the switch-car folks will be happy with a series of main-line runs. They may see the latter as offering "nothing to do." But there's *lots* to do!

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The James River line passes through some historic places, and Mike has included hints of the past – a canal lock, for example. There are numerous grade crossings to blow for, bells to ring passing through congested

areas, perhaps cars to pick up or set out, signals to decipher and obey. Down-grade, on some railroads you may need to activate the dynamic brakes or set retainers. On the "varnish," there are schedules to keep. If you're in a passing track for a meet, look for defects on the other train.

Bottom line: Milk your run for all it's worth! **MR**



I SUSPECT THE AVERAGE MODEL RAILROADER IS MORE INTERESTED IN SWITCHING MOVES, EITHER IN A YARD OR WHEN HONCHOING A WAY FREIGHT.
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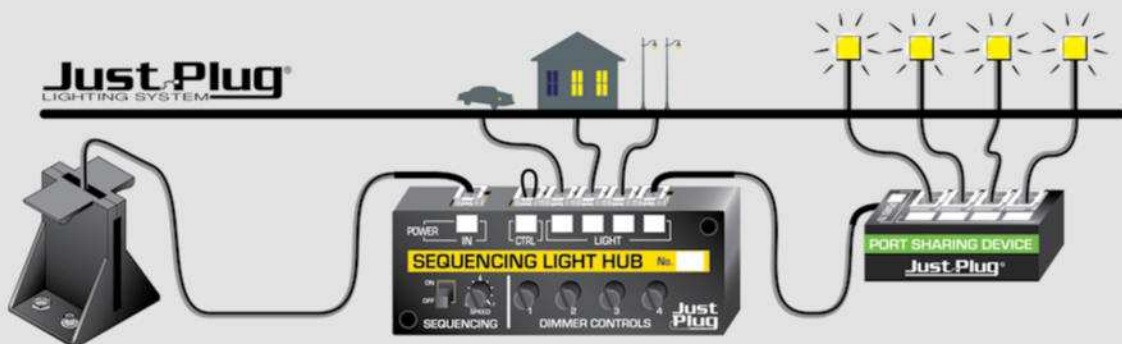
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