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reviewed** p.62

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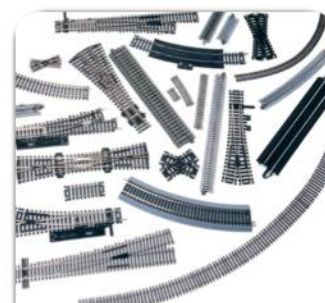
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"Are you Tony?"



On the cover: Rod Stewart's Grand Street & Three Rivers HO model railroad is complete. Steve Crise photo



Next issue

In July, it's track, track, and more track! From the basics, through ballasting, and on to scratch-built turnouts, we cover it all. Plus, visit a waterfront layout, and more!

MREXTRA

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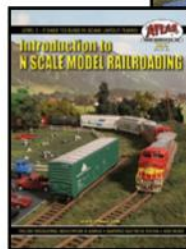
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Pacific Northwest Empire

Gary Randall's Oregon Middle Division is a freelanced N scale layout featuring the green forests and busy waterfronts of the Pacific Northwest. Read about Gary's railroad on page 28, then click on the link under Online Extras at the MR home page to watch a video tour of trains running along the main line.

ONLINE EXTRAS



See new locomotives in action

MREXTRA

This month subscribers will find videos of Walther's HO scale Plymouth ML-8 switcher as well as Athearn's HO scale sound-equipped Ready-to-Roll SD40 diesel.



Watch Cody's Office

MREXTRA

Associate editor Cody Grivno shares some of the latest new products and a modeling tip or two. Find a link to each month's episode at www.ModelRailroader.com.



Get inspired each month

Pat Ryan's trackside photo on page 70 is available as a free computer screen wallpaper. Visit the MR home page to download the image.

OPERATE THE BEER LINE EPISODE 4: THE SNAKE TRACK JOB

Featuring Jenny and David



Operating the Beer Line



The June issue marks the end of our Beer Line series. Be sure to check out the video tour and track plan on the MR home page. In addition, Model Railroader Video Plus has produced a multi-part How-To Library series all about building and operating the Beer Line layout. As a special online bonus, visitors to www.ModelRailroader.com can watch a free preview episode.

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Circles, figure numbers, and our buddy Lou

Thanks for the feedback so many of you gave us after reading our 1,000th issue.

Comments were made about favorite issues; our story about the Milwaukee, Racine & Troy layout; and the pros and cons of author Lance Mindheim's vision of the future of our hobby. If you missed Lance's story, go back to the April issue and read it, starting on page 52.

Only one reader I know of commented on the design changes we also made in April's issue. He thought we made the magazine logo too "blue and white."

To me, art director Tom Danneman and his staff made a smooth transition, as we had hoped.

A relatively minor design change, however, has led to many staff discussions, which I'll share with you.

With our new look, we have moved beyond the use of

figure numbers (fig. 1, fig. 2, etc.) in the text to refer to photos and drawings elsewhere on the page. We are using colored circles instead.

Figure numbers have been part of *Model Railroader* since the 1930s, so we didn't take this change lightly. If you haven't noticed, that's good – the circles are supposed to be useful and unobtrusive.

But, being editors, we debated the finer points of the change.

For example, should we start a sentence with a colored circle? (We decided we shouldn't.)

Should we use the word "photo" before a circle, or just use a circle? (We decided that using "photo" depends on the wording of the sentence.)

Our list went on and on.

If you have any thoughts about our new colored circles, just let us know.

Lou Sassi has been added to our staff as a contributing editor. Lou – that's him looking uncharacteristically stern in the photo below – is a prolific author and photographer, having written dozens of how-to stories for *Model Railroader* in the past 35-plus years.

Lou also is our busiest freelance photographer. I've honestly lost count of how many layouts he has photographed for *Model Railroader*, and he'll be out on the road later this year visiting even more layouts.

Lou's byline also has appeared in *Great Model Railroads* and *Model Railroad Planning*, and he has written



five hobby books. Long-time readers will recall Lou's Boston & Maine RR West Hoosic Division layout.

These days Lou, along with his wife Cheryl, keeps busy working on an On30 version of Maine's Sandy River & Rangeley Lakes RR.

I think you'll agree that Lou has earned the title of contributing editor.

NEIL BESOUGLOFF



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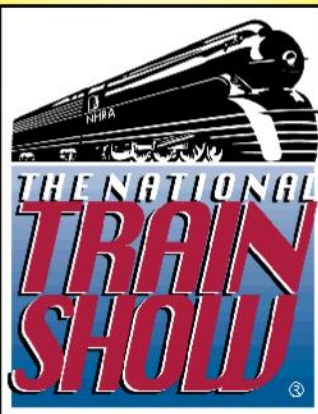
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Modern commuter train set. This three-piece set includes an NJ Transit Bombardier Transportation ALP-45DP locomotive (direct-current model with eight-pin socket, 21-pin plug, and space for a speaker), a multi-level trailer, and a multi-level cab car. The trailer and cab car feature metal wheels, injection-molded plastic seats, and light-emitting diode (LED) interior

lighting. The cab car has directional LED headlights, ditch lights, and marker lights; provisions for a speaker; and a 21-pin plug for a Digital Command Control decoder. All of the HO scale models are equipped with Kadee couplers. The modern commuter train set sells for **\$354.85**. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

HO scale locomotives

- **Electro-Motive Division F3A, F7A, and F7B diesel locomotives.** Atchison, Topeka & Santa Fe (passenger F7A, F7B, and F7A-B set); Burlington Northern (patched out Spokane, Portland & Seattle passenger F7A and Maintenance-of-Way Brown freight F7A); Minneapolis & St. Louis (freight F7A and F3A-F7A set); Spokane, Portland & Seattle (passenger F7A and F3A-F7A set); and Western Pacific (freight F7A-F7A sets). Prototype-specific details, wire grab irons, and detailed cab interior. Direct-current models: single unit, \$169.98; two-unit set, \$319.98. With SoundTraxx Tsunami 2 dual-mode sound decoder: single unit, \$269.98; two-unit set, \$499.98. November 2017. Genesis series. Athearn Trains, 800-338-4639, www.athearn.com
- **Electro-Motive Division F45 diesel locomotive.** Atchison, Topeka & Santa Fe ("Kodachrome" scheme); Burlington Northern (Great Northern patchout); and Great Northern. Three road

numbers per scheme. Roadnumber-specific details, Flexicoil-C truck sideframes with high brake cylinders, and 4,000-gallon fuel tank. Direct-current model with 8- and 9-pin connectors for Digital Command Control decoder, \$179.98; with dual-mode SoundTraxx Tsunami 2 sound decoder, \$279.98. December 2017. Genesis series. Athearn Trains, 800-338-4639, www.athearn.com

- **Electro-Motive Division SD40-2 and SD40-3 diesel locomotives.** SD40-2:

Atchison, Topeka & Santa Fe (123" snoot nose); Chicago & North Western (original yellow); and Milwaukee Road (as delivered). SD40-3: CSX (dark blue and yellow). Four road numbers per scheme. Roadnumber-specific details, illuminated number boxes, and five-pole motor with dual flywheels. Direct-current model, \$149.99; with ESU LokSound dual-mode sound decoder, \$219.99. Rivet Counter line. ScaleTrains.com, 844-987-2467, www.scaletrains.com

HO scale



American Railway Association 40-ton truck.

This one-piece acetal molding has separate brake shoe detail and non-magnetic, insulated 33" semi-scale wheelsets. One HO scale pair is priced at **\$8.35**. Tahoe Model Works, P.O. Box 3935, Carson City, NV 89702

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Conducted by Cody Grivno



• **Electro-Motive Division GP35 diesel locomotive.** Atchison, Topeka & Santa Fe (blue and yellow freight warbonnet); Chessie System (Chesapeake & Ohio reporting marks); Conrail; Gulf, Mobile & Ohio (blue and white); Rock Island (maroon and yellow with small block lettering); and Southern Pacific (General Repair and Improvement Program rebuild). Four road numbers (two each in direct current and Digital Command Control). Based on Phase II prototype. Prototype-specific details, five-pole skew-wound can motor, and Proto-Max couplers. Direct-current models, \$199.98; with SoundTraxx Tsunami dual-mode sound decoder, \$299.98. Walther's Proto. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

HO scale freight cars

• **Assorted freight cars.** Delaware & Hudson Pullman-Standard 4,750-cubic-foot-capacity three-bay covered hopper, \$19.98. Erie Lackawanna 50-foot welded-side boxcar, \$17.98. Lehigh & New England 40-foot double-sheathed boxcar, \$17.98. Family Lines System (Louisville & Nashville reporting marks) American Car & Foundry 4,600-cubic-foot-capacity three-bay Center Flow covered hopper, \$18.98.

Nashville, Chattanooga & St. Louis two-bay offset-side hopper, \$17.98. New York Central Lines 36-foot double-sheathed boxcar (Chicago, Indiana & Southern; Pittsburgh & Lake Erie; and Pittsburgh, McKeesport & Youghiogheny), \$17.98; three-pack, \$52.98. New York, New Haven & Hartford 50-foot double-door boxcar (orange), \$17.98. Pere Marquette United States Railroad Administration two-bay hopper, \$16.98. Union Pacific Pullman-Standard 40-foot PS-1 boxcar, \$17.98.

Injection-molded plastic kits with plastic wheelsets and Accumate couplers. Accurail, 630-365-6400, www accurail.com

• **62-foot tank car.** American Car & Foundry Leasing (blue), BASF Wyandotte, Burlington Northern (fuel tender), Coors Brewing, TEIX Eco-Energy, and Union Tank Car Co. Three road numbers per scheme. Wire grab irons, RP-25 contour metal wheels, and body-mounted McHenry scale couplers. \$32.98. November 2017. Ready-to-Roll.

O scale



Pullman-Standard 50-foot PS-1 double-door boxcar. This modernized car is decorated for Chessie System (with Chesapeake & Ohio reporting marks), Erie Lackawanna, Illinois Central Gulf, Missouri-Kansas-Texas (BkTY marks), and Soo Line. The boxcar is offered in two road numbers per scheme and is also available undecorated. The O scale model (\$84.95) has sprung, die-cast metal trucks; separately applied grab irons, ladders, and brake line details; and Kadee-compatible scale couplers. Atlas O, 908-687-9590, www.atlaso.com

N scale



Assorted freight cars. The latest cars from Micro-Trains include a Louisville & Nashville company service 50-foot double-door auto parts boxcar, **\$27.90**; a Pennsylvania RR American Car & Foundry three-bay Center Flow covered hopper, **\$28.95**; a New York Central American Car & Foundry three-bay Center Flow covered hopper, **\$29.95**; and a Shell Oil Co. 39-foot single-dome tank car (two road numbers), **\$26.90**. The N scale models feature Magne-Matic couplers. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

Athearn Trains, 800-338-4639, www.athearn.com

- **FMC 50-foot plug-door boxcar with Superior doors.** Atchison, Topeka & Santa Fe ("Shock Control" lettering); BNSF Ry. (post-2005 herald); Canadian National (wet noodle herald and www.cn.ca); Minnesota, Dakota & Western; New Orleans Public Belt; and Norfolk Southern (Southern Ry. reporting marks). Three road numbers per scheme. Wire grab irons, etched-metal end platforms, and McHenry scale couplers. \$28.98. November 2017. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com

- **Trinity 64-foot mechanical refrigerator car.** Union Pacific (ARMN reporting marks). Twenty-two road numbers; also available undecorated. Former BLMA model with 100-ton trucks, 36" metal wheels, and body-mounted Kadec no. 156 couplers. \$46.95 (undecorated, \$36.95). Third quarter 2017. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **American Car & Foundry 11,000-gallon tank car.** New road numbers. With platform: Union Tank Car.

New paint schemes. Without platform: Gas-Oil Products and Propane Gas Service. With platform: Gem Automatic Gas Co., Jefferson Chemical, Pyrofax Gas, and Superior Propane. Two numbers per scheme; both body styles also available undecorated. Safety placards, 50-ton solid-bearing trucks, and molded handrails. \$39.95 (undecorated, \$32.95). Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **Assorted cabooses.** Short-body bay-window caboose: CSX; Toledo, Peoria & Western; and Union RR. Short-roof transfer caboose: Central Indiana Ry. (one road number), Conrail, Southern Pacific, Indiana Harbor Belt, Kansas City Southern, Missouri Pacific, New York Central, Rock Island, Southern Ry., and Texas & Pacific (Missouri Pacific Lines "buzz saw" herald and "Dodger Service" stencil, one number). Transfer caboose with running boards and ladders: Chicago & North Western and Detroit Terminal (one number). Two road numbers per scheme unless noted. Wire grab irons and uncoupling levers, metal wheels, and Kadec couplers. \$49.95. Fall 2017. Bluford Shops, 618-822-6833, www.bluford-shops.com

- **Assorted freight cars.** HO n2. Bulkhead flatcar and gondola. Injection-molded plastic kits for non-operating display models. Three-pack, \$14.98. SceneMaster line. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

HO scale structures



- **The Atomic Cafe.** Cast-Hydrocal kit with sidewalks, full-color signs, and painting and weathering instructions. \$44.95. Downtown Deco, 406-821-0181, www.downtowndeco.com



- **Yard Bunkhouse.** Wood kit with laser-cut walls, doors, and windows; trim

HO scale



Just Plug vehicles. These hand-painted vehicles include a driver and working headlights, tail lights, and a rooftop beacon (police car only). Shown here are the police car, comfy cruiser, cool convertible, and heavy hauler. The HO scale vehicles include one linker plug and one or two 36" lengths of wire. The vehicles (\$29.99 each) must be connected to a Just Plug Light Hub. Woodland Scenics, 573-346-5555, www.woodlandscenics.com

and porch railing; scale stripwood; and roofing material. Footprint is 2 1/2" x 5". \$25. QuickKit line. The TrainMaster LLC, www.thetrainmaster.com



• **Pizza Hut.** Milled and laser-cut styrene kit with street sign, self-adhesive logo signs, and clear acrylic window glazing. Measures 9" x 6 1/8" x 2 3/4". \$89.95. Summit USA, www.summit-customcuts.com

HO scale details and accessories

- **40-foot intermodal container.** American President Line, China Shipping, Hamburg Süd, Italia, Lloyd Triestino, PIL, and Seaco. Two 3-packs per scheme. Injection-molded plastic. \$32.98. November 2017. Athearn Trains, 800-338-4639, www.athearn.com
- **Drop-frame trailer.** Atlantic Coast Line, Chicago & Eastern Illinois, Clipper Express, Illinois Central, Louisville & Nashville, New Jersey Central, Northern Pacific, Rock Island, and Tennessee Central. Three road numbers per scheme; also available painted silver but unlettered. \$28.95. Fourth quarter 2017. Trainworx, 970-874-9747, www.train-worx.com
- **Garbage cans and recycling bins.** Twelve metal garbage cans and eight

two-wheeled plastic recycling bins. \$9.98. SceneMaster line. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

N scale locomotives

- **Northern Pacific class Z-8 4-6-6-4 Challenger steam locomotive.** Northern Pacific (coal or oil tender, one number each) and Spokane, Portland & Seattle (oil tender, one number). Cast pilot with fold-down coupler, detailed boiler backhead with printed manual controls, and illuminated number boxes. Direct-current model, \$379.98; with dual-mode ESU LokSound Select sound decoder, \$479.98. December 2017. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com



- **Electro-Motive Division SD70M diesel locomotive.** Union Pacific and Norfolk Southern. Two road numbers each. Five-pole motor with dual brass flywheels and illuminated number boxes. Direct-current model, \$120; with Train Control Systems Digital Command Control decoder, \$160. Kato USA Inc., 847-781-9574, www.katousa.com



- **General Electric AC4400CW diesel locomotive.** Chicago & North Western



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2 NJ Transit multi-level trailer. Atlas offers this HO scale commuter car with four NJ Transit safety slogans.

The car retails for **\$89.99**. Atlas Model Railroad Co., www.atlasrr.com

3 Beverage delivery truck. Paint schemes on this die-cast metal truck include Mountain Dew, Pepsi, and Budweiser. The HO scale model has a cab interior and is priced at **\$19.99**. Menards, www.menards.com

4 Evans 4780 covered hopper. New paint schemes on this Walther's Proto car include Axtell (Neb.) Co-op Grain Co. The HO car lists for **\$37.98**. Wm. K. Walther's Inc., www.walthers.com

5 Painting tools stand. This medium-density fiberboard kit includes holes for paint

brushes and bottles, chisels, and a water cup. The stand sells for **\$13.95**. HobbyZone USA, www.hobbyzone.biz

6 70-foot Husky-Stack well car. This die-cast metal and plastic N scale model is lettered for TTX. The well car is priced at **\$27.90**. Micro-Trains, www.micro-trains.com

and Union Pacific. Two road numbers per scheme. Directional headlights, illuminated ditch lights and number boxes, and all-wheel electrical pickup. Direct-current model, \$120; with Train Control Systems Digital Command Control decoder, \$160. Kato USA Inc., 847-781-9574, www.katousa.com

N scale freight cars

- **50-foot hi-cube plug-door boxcar.** Atchison, Topeka & Santa Fe ("Super Shock Control" slogan); BNSF Ry. (post-2005 herald); Coe Rail Inc. (Champion International Corp. logo); Golden West Service (St. Louis Southwestern reporting marks); Southern Pacific Santa Fe; Union Pacific (Western Pacific reporting marks); and Western Pacific ("Cushion Protected" slogan). Three road numbers per scheme. Injection-molded plastic body with separate brake wheel, metal wheels, and McHenry couplers. December 2017. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com
- **Fruit Growers Express 57-foot mechanical refrigerator car.**

Burlington Northern/Western Fruit Express (Oxide Red in one road number and yellow), BNSF Ry./Western Fruit Express (Oxide Red), Fruit Growers Express ("Solid Cold," Phase I and III bodies), Tropicana ("Solid Cold" patchout with TPIX reporting marks), and Union Pacific ("Chilled Express" slogan and ARMN marks in six numbers, "Solid Cold" patchout with ARMN marks in one number). Three numbers per scheme unless noted. Prototype-specific exhaust stack and body-mounted McHenry scale couplers. Without sound, \$29.98; with SoundTraxx sound unit, \$59.98. December 2017. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com



- **1932 American Railway Association boxcar.** New paint schemes: Soo Line (modern), Erie (1945 repaint),

Pennsylvania RR (fictional paint scheme on two road numbers), Missouri Pacific ("Route of the Eagles" slogan), Roberval Saguenay, Seaboard Air Line (1934-37 scheme), and Western Maryland. Three road numbers per scheme; also available undecorated in five body styles. Solid-bearing trucks and Accumate couplers. \$26.95 (undecorated, \$20.95). Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **National Steel Car 50-foot plug-door boxcar.** New paint schemes: Youngstown & Austintown RR (British Columbia Ry. patchout), Canadian Pacific (green with Multimark), Ontario Northland (blue and yellow), and Quebec Central (green Canadian Pacific patchout with Multimark). Four road numbers per scheme. Prototype-specific ends, doors, and sills; 70- or

100-ton trucks; and Accumate couplers. \$23.95. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

- **United States Railroad Administration 40-foot steel rebuilt boxcar.** New paint schemes: Chattahoochee Valley, Great Northern, Soo Line, Western Ry. of Alabama, and Union Pacific. New road numbers: Canadian National, Chicago & North Western (CMO reporting marks), and Pennsylvania RR. Two road numbers per scheme; also available undecorated in three versions. Fish-belly or straight underframe, 10-panel body, and positionable doors. \$26.95 (undecorated, \$19.95). Third quarter 2017. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

N scale details and accessories



- **Assorted 1950s vehicles.** GMC: petroleum tank truck. International R-190: fire truck, petroleum tank truck, stake truck (includes undercarriage toolbox but no decals), tractor, and wrecker. White-metal castings with vacuum-formed windshield and decals unless noted. \$13.95 to \$17.95 each. Showcase Miniatures, 334-750-3276, www.showcaseminiatures.net

- **Drop-frame trailer.** Atlantic Coast Line, Chicago & Eastern Illinois, Clipper Express, Illinois Central, Louisville & Nashville, New Jersey Central, Northern Pacific, Rock Island, and Tennessee Central. Three road numbers per scheme; also available painted silver but unlettered. \$18.95. Fourth quarter 2017. Trainworx, 970-874-9747, www.train-worx.com

O scale freight cars

- **United States Railroad Administration 40-foot steel rebuilt boxcar.** New paint schemes: Chattahoochee Valley (four road numbers), Grand Trunk Western, Great Northern (four numbers), Soo Line, Western Ry. of Alabama, and Union Pacific. Two road numbers per scheme unless noted. Injection-molded plastic body, die-cast metal underframe and

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HO scale



Soo Line Fond du Lac, Wis.-built 50-foot 7-post plug-door boxcar. A new run of boxcars is available from Fox Valley Models. Road names on the 7-post plug-door boxcar include Montana Rail Link, Soo Line, Wisconsin Central, Burlington Northern, and Great Northern. Each road name is available in three road numbers. The HO scale injection-molded plastic

model features a one-piece body with a separate diagonal- or X-panel roof; wire grab irons; separate door rods, brake wheel, and ladders; 33" metal wheels; and Kadee no. 5 couplers. The boxcars have a manufacturer's suggested retail price of **\$30.95**. Fox Valley Models, www.foxvalleymodels.com

trucks, and 33" wheels. \$82.95. Third quarter 2017. Atlas O, 908-687-9590, www.atlaso.com

O scale details and accessories



Old West-era figures. Figure shown has black wash to accentuate details. Shopkeeper with broom, bartender, carpetbagger, cowboy passenger with saddle, drinkers (three versions), lady passenger,

lawyer, pa, pedestrian, school marm, town doctor, and undertaker. Unpainted lead-free pewter castings. \$4 each. Knuckleduster Miniatures, 309-838-9871, www.knuckleduster.com

Z scale locomotives

• **Electro-Motive Division GP30 diesel locomotive.** New paint scheme: Chesapeake & Ohio (Enchantment Blue with "C&O for Progress" herald on cab and "Chesapeake & Ohio" lettering and

road number on long hood). Three road numbers. Directional light-emitting-diode headlights, clear cab window glazing, prototype-specific details, and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

• **Electro-Motive Division GP38-2 diesel locomotive.** New paint scheme: CSX (blue, gray, and yellow). Three road numbers. Traction tires, optional plows and pilot, and directional light-emitting-diode headlights. Designed for Digitrax and TCS drop-in Digital Command Control decoders. American Z Line, 614-764-1703, www.americanzline.com



• **Electro-Motive Division SD45 diesel locomotive.** New paint scheme: Milwaukee Road. Four road numbers. Can motor with dual flywheels, clear cab window glazing, traction tires, and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

Z scale freight cars



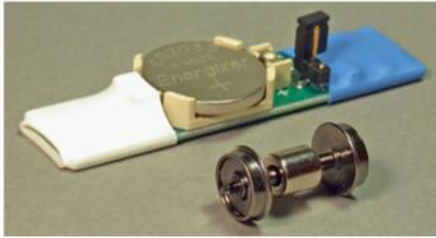
• **17,600-gallon corn syrup tank cars.** New paint scheme: Domino Sugar (ASRX reporting marks). Two single cars and one four-pack. Metal wheelsets and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

Z scale passenger cars



• **New York Central heavyweight observation car and RPO.** Observation cars: *Central Park* and *Central Avenue*. Railway Post Office: nos. 3701 (two-tone gray) and 3769 (Pullman Green). Metal wheelsets and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

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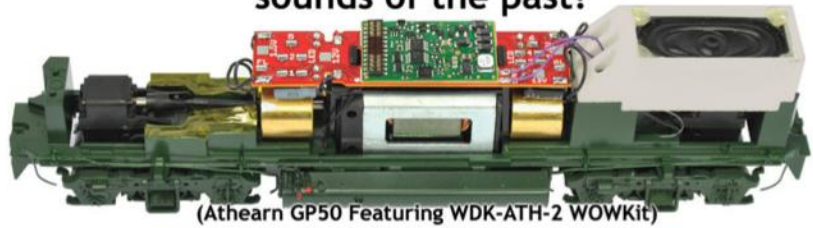


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Correction

- On page 20 of the April 2017 *Model Railroader* magazine, we announced the book *Arduino Model Railroad Animation*. The book is written by Paul and David Bradt. **MR**

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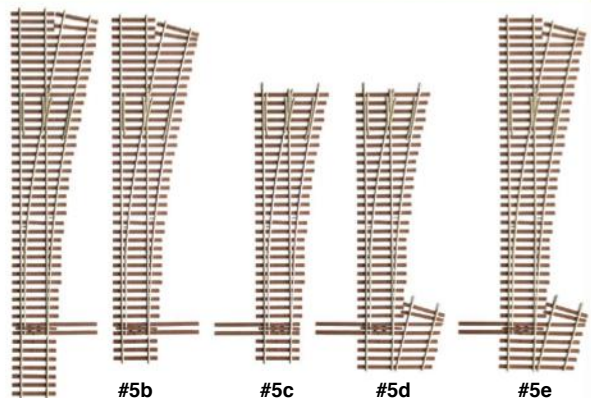
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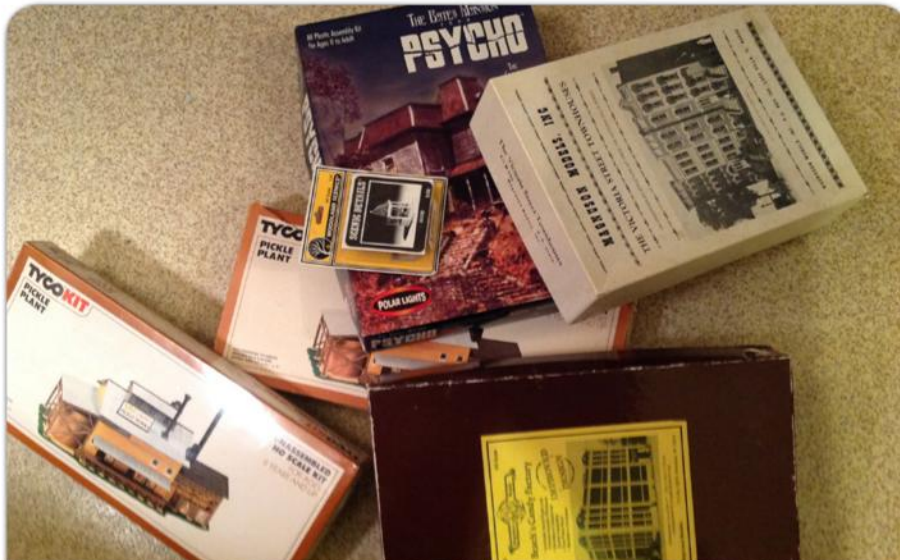
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A recipe for visual interest, maybe. For realism, maybe not... Mark Albert photo

It was a good idea once

Well, I guess I'll have to rethink my plans for a new layout addition! Neil makes a great point about realism in his March From the Editor column.

To be honest, I picked these kits up years ago and never used them for the very reasons Neil and author Lance Mindheim mention.

Mark Albert, Indianapolis, Ind.

Frankly, here in California, I think the percentage is even higher than that.

One way I can tell immediately that a well done photograph is a model is seeing a bunch of brightly colored vehicles populating a scene. Model manufacturers please take note.

Edward Angel, Lompoc, Calif.

Conflicting signals

I enjoyed On Operation in March. I'm a member of a modular model railroad club, and we often get to operate on other modelers' home layouts.

While I'm retired from the Vermont Rail System, I previously had 27 years on the Delaware & Hudson Ry. in various capacities. One of our other club members is a retired Boston & Maine conductor. When John and I work together, he as engineer and I as conductor, we can't seem to agree on the proper hand signals. Whereas both of our roads had Alco RS-3s set up long-hood forward, he always wants to run as if all units are short hood forward. I, on the other hand, give hand signals based on the specific locomotive on our train. I signal "back up," he goes forward, and vice versa. And then we yell at each other.

Ralph Balfourt, Albany, N.Y.

There can't be two firsts

In the 1,000th issue appears an apparent incongruence. Page 23: In the timeline date of 1945: "John Allen's first cover photo is on the December 1945 issue." Page 104: "Renowned model railroader John Allen made his MR cover debut in the January 1948 issue."

Only one of the two can be true. Or is there a clarification to be made?

Russ Stolling, Fresno, Calif.

[John Allen's work was on both covers, but December 1945 was the first. -Ed.]

Correction

Unfortunately the last paragraph of my iPhone holder article in the May issue on page 56 misstates what I actually did. Although I bought an iPhone holder capable of being mounted on a "selfie stick," I don't use it with a selfie stick to extend my reach over the railroad. The holder will also mount onto a camera tripod, which is what I did.

Lou Sassi, Willow Spring, N.C.

Finding a Ben-Hur boxcar

After reading the articles on the Beer Line extension and the Ben-Hur Freezer Co. industry article in April, I thought you might get a kick out of this.

I grew up in Foley, Minn. on the Great Northern's Mora-Milaca-St. Cloud line. My grandfather had an appliance store and one year he partnered with another store in Pierz to sell a boxcar load of Ben-Hur Freezers.

My grandfather received a trophy, I guess you could say, for selling the boxcar load. Here's a picture (below) of the model boxcar he received in 1958. It's HO scale on sprung trucks with dummy couplers. The track is hand-laid and spiked. Don't know much more about it.

Todd Monroe, Grand Rapids, Minn.



Realism by the numbers

I just wanted to say how much I enjoyed Lance Mindheim's realism tips in the March issue. He is one of the hobby's true masters of scenery. When discussing the use of color, one thing he did not talk about but is obviously aware of, is very evident is the main photo on page 28. Every over-the-road vehicle in the photo is white.

Here are some facts I came across while researching the subject recently that you might find interesting: white, black, and some shade of silver/gray, are the three most popular colors of private vehicles sold in the United States. In fact, according to the 2011 DuPont Automotive Color Popularity Report, these colors made up 70 percent of all private vehicles sold in that year. The numbers get even more skewed when you factor in commercial vehicles. Small commercial vehicles (pickups, vans, and cars) make up about 8 percent of the traffic on our roads. About 90 percent of them are white or silver/gray.

As for the types of vehicles out there, nearly half of all private vehicles on the road are pickups, mini-vans or SUVs.

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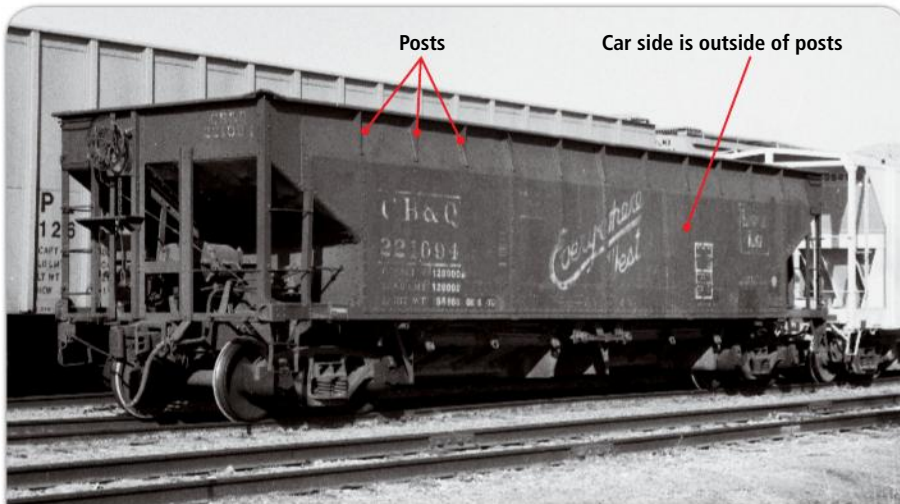
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Offset-side hoppers, like this Chicago, Burlington & Quincy ballast hopper seen in Crookston, Minn., in 1983, have their sheet-steel sides outside the vertical posts to add a few more cubic yards of capacity to the car. Steve Grivno photo

What makes a hopper "offset"?

Q I have several coal hopper cars. On some of the boxes it states that this an "Offset-Side" car. I don't see any difference in the cars. What am I missing?

Paul Reagon, Camden, Ark.

A Hopper cars have vertical posts to provide structural strength to their sheet metal sides. On a hopper meant to haul dense material like ore, sand, or cement, these posts are usually visible on the outside of the car, as that's the simplest way to build the car. These are called "exterior-post" hoppers. But cars that carry less dense materials like coal or wood chips are designed to maximize their carrying capacity, since exceeding the car's rated weight isn't likely to be a problem. To get all the volume possible out of these cars, the sides of the hopper bay are moved to the outside of the posts. Unlike exterior-post hoppers, these "offset-side" hoppers have smooth sides on the outside, though as in the picture above, you can often see the tops of the posts where the sides angle in at the top of the car.

Q I'm building a layout depicting a fishing town in the Pacific Northwest. This layout is a practice layout to keep me occupied until my children finish college. When that happens, I'll be able to double the size of the layout. I'm making all of the structures removable so that they may someday be reused. My question is, how do I make the car float apron, car float, cannery, and fishing boats removable? In order to make it look realistic, I would think they need to be in place while I pour the resin water around them. But once I do that, they're permanently installed. It's still possible to find the apron and the car float for sale, but the two fishing boats were made by a company that's no longer in business,

and the cannery is a \$400 craftsman kit. Any suggestions?

Dan Wolfer

A The easiest solution would be to build the waterfront part of your current layout as a module or diorama that can be removed and transplanted wholesale into the new layout. But if you've already built that part of the benchwork, or want your new harbor to be a different size or shape, you'll need a different solution.

I don't know if your vessels have complete hulls, including keels, or whether they're "waterline models" that are cut off flat on the bottom. My suggestion is, if they aren't waterline models, make them so by dipping them in thinned stain to find a level waterline, then

cutting them off at that line so they can sit flat on top of the resin water. Then use clear silicone caulk to affix them to the water. It will look like waves. When it comes time to dismantle the layout, you should be able to carefully carve and peel away the caulk to remove the models.

The same technique should work for structures on pilings, like the cannery; just use caulk to glue the foot of the pilings to the water's surface. Build up waves or foam around them with more caulk highlighted with white paint, and nobody should be able to tell they don't extend below the surface.

Q In one of your recent magazines, you had an article on how to make an operating swing gate for a factory entrance. Can I still get the magazine that article came in?

Robert Moore, Haddonfield, N.J.

A The article "Build a working industrial gate" was published in our April 2013 issue. If that back issue isn't in your collection, you can purchase it by calling 800-533-6644, or read it (and all other issues back to January 1934) online in our All-Access Database at www.model-railroader.com/AllAccess.

Q When a new railroad siding is needed to serve a business, who actually decides on its location? Is there a limit to how much of the street that can be crossed or traveled down?

Bob Thompson

A Every new railroad spur will be a different and unique project. The location and alignment of a new spur track for a customer will be largely decided upon by the customer (who is presumably paying for the new track) based on the facility to be served. But it will be subject to approval by many other players.

The customer will likely have a general contractor that will likely subcontract an engineering firm who specializes in railroad track design. The best design and alignment will be dependent upon the railroad's connection criteria and considerations; railroad track engineering and construction design standards and specifications; the availability of a suitable right-of-way or easement with workable grades and curves; any agreed-upon requirements with involved property owners; and local and state laws and regulations.



Switching a stub-ended industrial spur, like those under the coal tippie on MR's HO scale Virginian project railroad, can sometimes require a runaround move to shove the cars into the spur ahead of the locomotive. Engineers on the prototype usually prefer to avoid such maneuvers. Bill Zuback photo

There are no set limits on the number or configuration of grade crossings and bridges involved in such a project, but they will have to be approved by the appropriate jurisdiction responsible for the streets and highways to be crossed. New spur trackage going down streets is pretty rare these days, but still happens. Such situations would be treated the same as at-grade crossings.

Obviously, a new spur track will need to fit the customer's design for the entire project. Industrial development projects often involve fitting a lot of stuff onto a limited amount of land, requiring railroad spurs to be fit in, around, and through buildings and other structures. Because these tracks will have much lower operating speeds than you would find on a main track, curves can be sharper, grades can be steeper, and grade crossings can be customized for the particular situation. – *Otto P. Dobnick, Trains magazine contributor*

Q How does one work with a stub-ended industrial spur? Do you cut the caboose on the main and then back the rest of the train into the spur?

Julian Wolfe, Libertyville, Ill.

A Yes, if you're dealing with a trailing-point spur (where the spur points toward the caboose). In most cases, cars to be set out first would be blocked in the train nearest the locomotive. The crew would cut off most of the train and leave it on the main while backing the car(s) to be spotted into the spur. The exception would be if the spur being worked has weight or clearance restrictions that would limit the access of a locomotive; in these cases, the car(s) to be spotted would be blocked farther back in the train, and the cars ahead of them would be used as a switching "handle" to shove the car(s) to their spots.

The other case is a facing-point spur, which points the other way, in front of the engine. The only way to work this kind of spur is to drop the train on the main before a passing siding or other runaround, pull the car to be spotted onto the runaround, circle around behind it, shove it ahead of the locomotive into the spur, drop it there, then go back for the rest of the train. Train crews don't like having to do these extra moves, especially if the runaround track isn't located near the spur, so they avoid them if possible. One way is to assign

READER TIP

Dryer sheets for plaster shell

I have a tip for anyone who still does plaster shell scenery over screen or cardboard mesh. Instead of buying plaster-impregnated gauze or using paper towels for the plaster, try used fabric softener dryer sheets. Most people throw them away after they've been used in the dryer, but I find they have the perfect size and texture to soak in plaster. They don't fall apart like paper towels and cost virtually nothing, other than the cost of the plaster. One small box of dryer sheets is enough to cover many square feet of surface area.

Another tip: If you don't want to risk seeing white plaster if it gets nicked or cracked, add some earth-tone powdered fabric dye to the water when you mix your plaster. A small box can go a long way. – *Daniel Rawers, Sugar Grove, Ill.*

delivering that car to a "turn" (an out-and-back local) that can work the spur as a trailing-point on its return trip, or drop the car on an interchange track where it can be picked up by a local that works in the other direction.

Q I'm getting ready to redo my first layout, on which I used DAP Alex Plus adhesive caulk to glue the track to the roadbed. I want to reuse the track and would like to know how to remove it without bending the rail and breaking the ties.

Don Barnes, Cerritos, Calif.

A Since latex adhesive caulk like the brand you used is waterproof, you'll find it difficult to pull up your track without damage, but it's not impossible. First, soak your ballast and roadbed well with 70 percent isopropyl alcohol to dissolve the ballast cement and any scenery glue that may have seeped into the roadbed. Use a putty knife to scrape off as much ballast as you can from the sides of the ties. Then, working slowly with a side-to-side rocking motion, work the putty knife between the bottom of the ties and the roadbed. Once it's all the way

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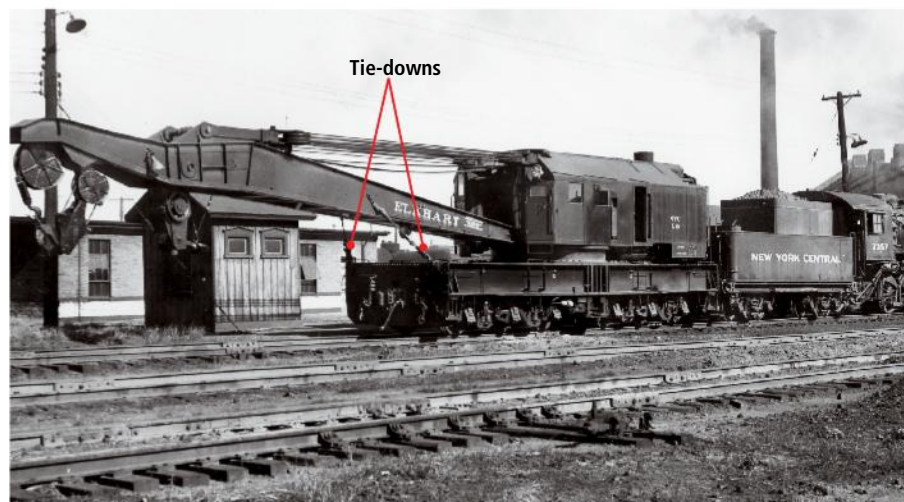
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New York Central 250-ton wreck crane no. X-16 had just been delivered to the railroad when this photo was shot in Elkhart, Ind., in October 1949. Note the adjustable tie-downs securing the boom to the front of the deck. Robert C. Schell Jr. photo

underneath, continue working it sideways along the track. Don't get impatient and try to pry it up, or you may end up ripping the rails from the ties like a broken zipper.

Start with your turnouts, since they're the most valuable, and also because their rails are fixed to the ties more securely than those on flextrack, which are designed to slide. Once you've removed all your turnouts, you might just decide that forgetting about salvaging the flex-track doesn't sound like such a sacrifice any more. Good luck!

Q In your June 1997 issue there is an article titled "A Corner Full of Industry." I have a spot on my layout for building a good part of the structures from this article, but I was wondering what kit Art Curren used to build Ladishfeger Steel Products?

Steve Lingenfelter, Surrey, B.C.

A Though Ladishfeger Steel Products Co. appears next to Art Curran's "Corner Full of Industry," it wasn't part of that project, and it doesn't look like Art ever wrote an article detailing its construction. Since we still have the structure, I examined it. It appears to have been kitbashed from Smallman Street Warehouse kits from City Classics, with additional sections made from Pikestuff corrugated metal wall panels.

Q I'm working on a couple of cranes for my maintenance crew and wondered something about the real ones. Did they chain the booms in place

when running them to a site? I was thinking of making a clip that used model chain and a chain tightener on each side to stabilize the booms, and it occurred to me that this may have been the practice on the prototype, too.

Bob Johnston, Cambridge, Ont.

A While some cranes (particularly, older steam-era ones) might have used chain to tie down their booms, all the prototype "big hook" photos we've seen had dedicated cables or rods on the sides of the booms for this purpose. They usually have integral tightening ratchets.

Q I bought a few Oregon Rail Supply HO 3-over-3 block signal kits a while ago and I'm just getting to building and wiring them now. However, I can't seem to find wire small enough to fit all seven strands I need (six LEDs and one common) in the brass tube supplied for the signal mast. What kind of wire should I use and where can I find it?

Joe Knight, Mentor, Ohio

A What you're looking for is called magnet wire. It has a thin layer of polyester insulation and is available in very small gauges. A size of 30AWG should be thin enough and still handle the low current needed to drive light-emitting diodes. You can find it online at Amazon.com, RadioShack, Mouser, Digi-Key, All Electronics, and other electronic-component vendors.

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

Where are all the passengers?

Railroads haul all sorts of profitable things in freight cars. But they also carry people, and if one judges by what's often seen, model railroads are money losers, running empty passenger trains.

For decades, passenger car kits were sold empty, leaving hobbyists to install interiors and lighting from a variety of different sources. But what about passengers? It appears model railroads discourage them. It wasn't always so.

Model train manufacturers were selling large gauge passenger trains with riders as early as the mid-1880s. The French made fanciful passenger cars carrying fashionably dressed customers.

Following suit, Germans Bing, Märklin, Lutz, Planck, and Rock & Graner offered well-equipped passenger cars with interior compartments ready to accept painted terra cotta or plaster figures comfortably impaled on spikes to keep them from falling from their seats.

One had compartments with button-upholstered bench seats, wash basins, baggage racks, and an end lavatory. Planck's sleepers had a full-width bench in each compartment, or beds made up and turned back ready for use. There were diners with tables complete with place settings and food, seated patrons, a kitchen with food on the stove, and a rack with bottles.

Americans were far more casual toward the miniature riding public. From 1927 to 1932, Lionel made standard gauge 18 $\frac{1}{4}$ "-long, 400-series passenger equipment: a chair car with seating; a diner equipped with tables, chairs, and kitchen; and an observation with seating. They were nice, but even though they were larger than O, they still lacked passengers.

- INTERIORS
- SUPER DETAILS

Interior detail parts have been available for HO scale models for decades. The top photo shows the interiors Walthers sold from the 1950s to the 1970s for its passenger car kits. Walthers also offered interior kits for other makes of models, such as the Athearn observation car in the bottom photo. They all still needed passengers.

Passenger cars, with their larger windows, invite an observer to peer in, whether on the move or in a station awaiting departure.

Walthers started selling metal and wood HO scale passenger car kits in the 1950s, finally ending production of that line in the late 1970s. The company supplied HO interior seating and lighting for its myriad passenger equipment, and later for Athearn, LaBelle, Model Die Casting palace cars, and AHM standard cars.

The interiors for Walthers cars had open passageway doors, printed bathroom tiles, table surfaces, and kitchen details that the others lacked.

The interiors offered for Athearn's Pullman, coach, RPO-baggage, and observation car interiors were more plain. Walthers' 1971 catalog showed compartments without printed corridor doors, exposed corner wash basins and open toilets! Even a small corner lavatory lacked a

printed access door. The RPO-baggage had an open toilet, not unheard of or unusual on the prototype, and a coal stove at one end.

LaBelle's parlor and coach interiors were illustrated with accessible enclosed lavatories and coal stoves. Additional interiors were available for the diner and narrow gauge cars. All that was missing were paying passengers.

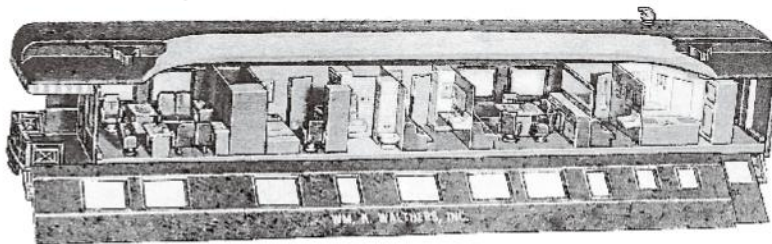
An April 2014 *Railroad Model Craftsman* revealed Walt Muren's interiors with active and relaxed HO people in his Chesapeake & Ohio and Pere Marquette business cars, including large murals one would expect to find in them. Glossy manufacturer ads now proclaim the intensity of

interior details such as antimacassars on seatbacks in empty domes and coach window blinds at different levels – but still no passengers.

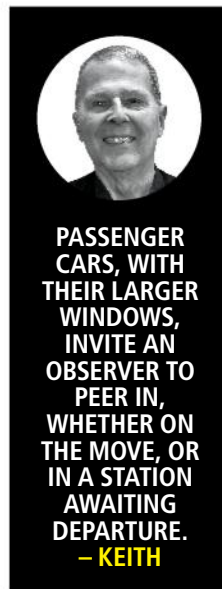
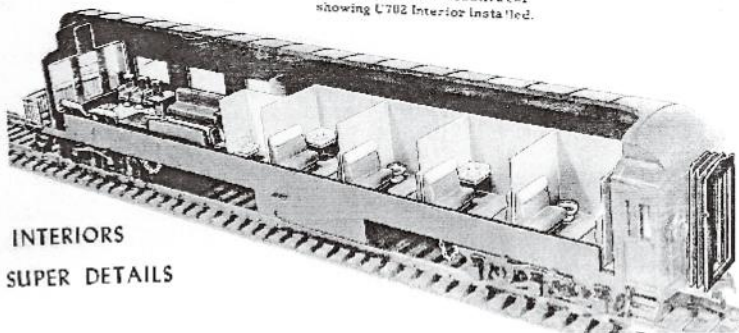
There is hope. A 2016 April/May *O Gauge Railroad* issue had a photo through a lit dining car window with set tables and guests. And Walthers now sells deluxe versions of its

name trains complete with passengers, so model railroads have an opportunity to earn revenue from passenger service.

Some manufacturers supply visible crews in their locomotive cabs; now, if only more would populate interiors so passenger trains could finally begin to make money and not be seen dead-heading around the layout. **MR**



Cutaway of 7808 Executive car showing L702 interior installed.



PASSENGER CARS, WITH THEIR LARGER WINDOWS, INVITE AN OBSERVER TO PEER IN, WHETHER ON THE MOVE, OR IN A STATION AWAITING DEPARTURE. – KEITH



Another load of concrete is on its way out of Tews Lime & Cement on *Model Railroader's* Beer Line addition. Since we couldn't find any era-appropriate mixers, we built our own from 3-D printed parts and Classic Metal Works cabs and chassis. Learn how associate editor Eric White modeled Tews Lime & Cement starting on page 36. Bill Zuback photos

1940s cement mixers from 3-D printed parts

What's a model railroader to do if he or she can't find a model of something needed for a project? Why, you build it, of course!

I needed several 1940s cement mixers for 2017's addition to our Beer Line project railroad. Early cement mixers are easily recognizable as such, and clearly different from any readily available HO scale cement mixer models.

First of all, they're much smaller. And the mixer is more cylindrical, rather than tapered like on a modern truck. I hoped to use one of Athearn's Mack B cement trucks, but the B model didn't come out until 1953, too late for our 1948 setting.

I found many photos online of 1940s-era cement mixers, including a few of trucks owned by Tews Cement, the company depicted on the Beer Line. Model Railroader Video Plus associate editor Ben Lake was interested in doing another 3-D printing, or rapid-prototyping, project (he built a freight house using 3-D printed windows and architectural details for MRVP's Winston-Salem Southbound project), so I gave him printouts of the photos and he set to work drawing a mixer body in a 3-D modeling program. The drawings were sent to Shapeways (www.shapeways.com), a commercial 3-D printer that produced the parts.

We'd already chosen Classic Metal Works' 1941-46 Chevy truck as the cab and chassis for our model, so once we had all the parts, I got to work assembling them.

We'd already chosen Classic Metal Works' 1941-46 Chevy truck as the cab and chassis for our model, so once we had all the parts, I got to work assembling them.



ON THE WEB

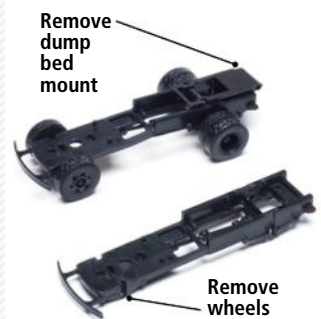
Model Railroader Video Plus subscribers can see this project at www.MRVideoPlus.com. Ben Lake's mixer body is available at www.shapeways.com/shops/rvm

STEP 1 DISASSEMBLY

The starting point for this project was a Classic Metal Works 1941-46 Chevrolet dump truck. You could start with a different version of the truck, and one that has tandem rear axles would help, since you'll need an extra set of rear wheels. We had enough truck parts to assemble three trucks.

I started disassembly by removing the screw under the cab. The hood is molded with the cab. The fenders, grill, and running board came off next. I removed the bed by pulling the metal pins that secure the mud flaps. The bed lifted free.

Next, I removed the wheel and tire assemblies and the bed mount, which



broke off in pieces. That's OK, as I didn't need them. I was left with the frame and drivetrain. The last part to come off was the driveshaft. It's glued in place, so I was careful removing it so it could be reused. I twisted it to break it free. Sometimes they broke apart at the universal joints, sometimes they came off in one piece.

STEP 2 FRAME MODIFICATIONS

Using photos as a guide, I could see that in order for the cement mixer body to fit, the frame was going to have to be longer. Also, it needed two rear axles, as mentioned earlier. (For more on the mixer body, see "3-D printing a mixer body" on the next page.)

I started the modifications by cutting off the last scale 1'-9" of the frame. This pushed the rear axle back under the mixer body. I made the next cut a scale 2'-4" forward of the rear axle centerline. I used a razor saw in a miter box to get square cuts.

On the inside face of the frame rails there are some location ribs for the dump body mount. I removed those with a hobby knife, sanding sticks, and files so the inside of the frame was smooth from the rear axle forward to the crossmember under the cab.

Next, I cut frame extensions from .040" x .156" styrene strip. I needed two pieces a scale 3'-3" long, and two a scale 7'-9" long. Each 3'-3" piece was spliced into the frame to lengthen it, and the 7'-9" piece reinforced the connection. The longer piece got glued to the inside of the existing frame with plastic cement;

that's why the frame needed to be smooth.

I started by gluing the 7'-9" pieces to the cab end of the frame on the inside. Then, once the glue set, I placed the rear end of the frame on the backing pieces to see how well the 3'-3" splices fit. I trimmed the

7'-9" backing pieces so the splices fit perfectly.

I glued the 3'-3" splices to the 7'-9" backing pieces. Once those joints set, I glued the rear frame section to the rest of the frame.

Now I needed a new rear axle. I cut a piece of $\frac{3}{32}$ "

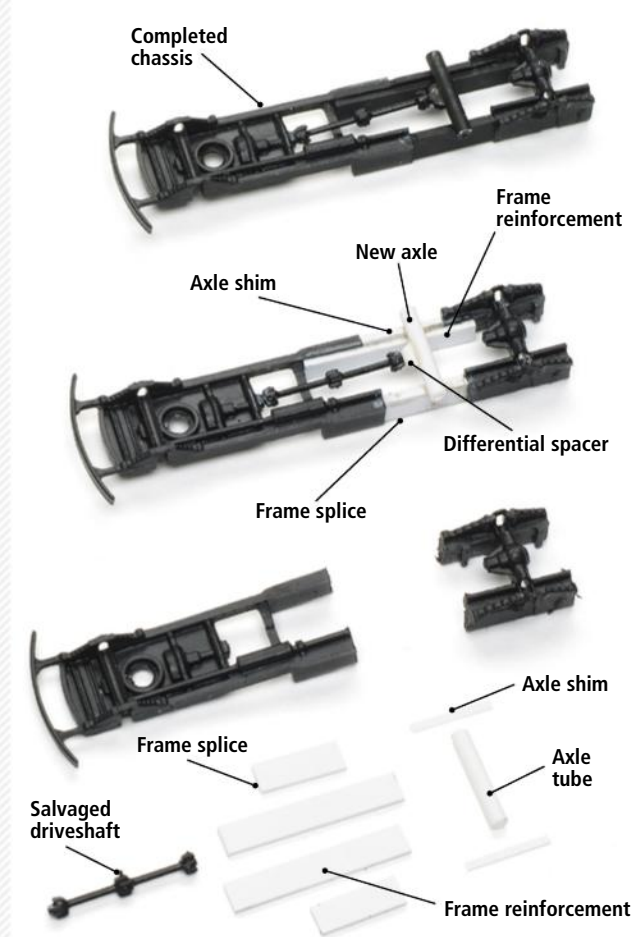
tube 4 scale feet long.

Using a no. 54 bit in a pin vise, I reamed the hole in the tube to accept the axle from the Classic Metal Works truck. I replaced all of the wheels and axles on the frame. It was time to see how much of a shim I needed between the axle tube and the frame.

With the wheels and axles assembled on the axle tube, I placed the truck frame with its wheels over the new axle assembly. To fill the space between the axle tube and the frame, I used .040" wide styrene shims. The spaces were between .010" and .020". The last truck I built needed .015" shims.

Since the chassis is painted black, I just glued the axle tube and its shims to the frame, not worrying about simulating the suspension. The driveshaft was visible from above, so I reinstalled that.

In order for it to fit, I made a trapezoidal piece to fit the front of the axle tube and simulate the shape of the differential housing. This was just a scrap of .040" x .156" plastic roughly cut to shape and sanded to fit. With the driveshaft reinstalled, it was almost time for final assembly.



STEP 3 PAINTING

I knew the Tews Lime & Cement Co. trucks had green cabs and gray cement mixer bodies. The dump trucks I started with were black, so I had to do a bit more disassembly. If your trucks are in a color you want, you can skip this part.

I used a small-bladed screwdriver inserted in the rear window to gently pry the window casting from the cab after first removing the interior tub. The headlights and grill casting can be removed from the fenders by gently

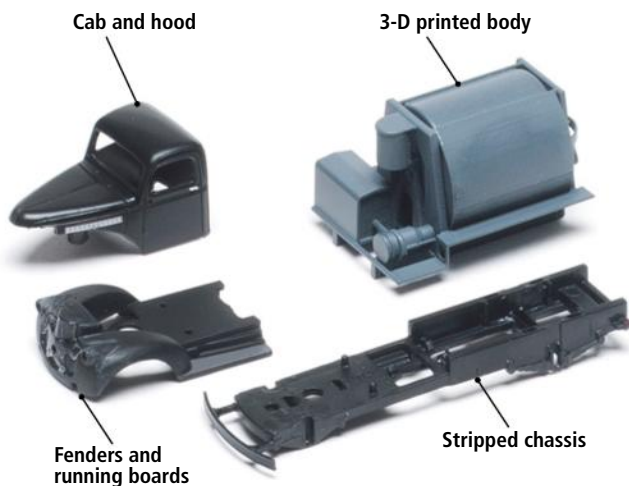
prying them off with a hobby knife and small screwdrivers.

I washed the parts to remove skin oils. Then, using small strips of masking tape, I covered the painted-on grill detail on the sides of the hood.

I also cleaned up the front of the fenders around the headlights to remove some mold lines.

I airbrushed the cab with Model Master Signal Green. I brush-painted the frame with Model Master Engine

STEP 3 PAINTING (CONT'D)



Black, which I also used on the running boards and as a wash on the grill.

The mixer body took a little more preparation. As it comes from Shapeways,

the Frosted Ultra Detail plastic is translucent. To clean the plastic, I soaked it in Bestine, a thinner for rubber cement available at artist's supply stores. Once

the air hit the part after coming out of the Bestine, the mixer body started to turn white. Now I could more easily see some of the printing texture from the rapid-prototyping process.

I used a variety of sanding sticks to knock down this texture, especially on the mixing drum, where I was going to apply decals. When I was finished sanding, I washed the part with dishwashing detergent, as I did the rest of the parts.

I added a control wheel to the back of the mixer. It's a Plastruct handwheel, the smallest one in the four-part set, no. 95589. I attached it with cyanoacrylate adhesive (CA). When it was dry, I sprayed the

mixer body with a coat of Rust-Oleum Painter's Touch 2X flat gray primer.

Next came a coat of Polly Scale D&H Gray. A good substitute for this discontinued line of paint is Model Master Medium Gray. When the gray was dry, I sprayed the mixer with a coat of Testor's Glosscote in preparation for decals.

There are no commercially available decals for Tews Lime & Cement, so I used the desktop publishing software here at work to create the images, then printed them on Kadee decal paper on a laser printer. Once the decals were applied and dry, I applied Dullcote to give the model a flat, uniform finish.

3-D printing a mixer body

When we needed a 1940s cement mixer body, I turned to Model Railroader Video Plus associate editor Ben Lake. While I've done a few things in 3-D design program SketchUp, I knew that the shapes required for the mixer body would be more complex than the simple architectural shapes I've designed before.

I gave Ben a photograph of a late '40s Tews Cement truck, a Classic Metal Works 1941-46 Chevrolet truck, and a folder full of vintage cement mixer photos I found online.

"The picture I was provided for this project was a great start," said Ben. "There was enough detail to most of the front of the mixer body modeled. The mystery was what the back of the mixer looked like.

"It appeared that the companies that owned these things didn't like taking pictures of the back. Almost every photo I found was a $\frac{3}{4}$ wedge shot. This was going to take a little research.

"First, I determined that a key brand for cement mixers at the time was Rex Moto Mixer. It was one of the few that produced a horizontal drum mixer, like the one in the photo. Moto Mixer was produced in Milwaukee by Chain Belt Co. Through a series of rebranding and acquisitions, it's now known as Rexnord. I contacted Rexnord to see if it had any more photos of horizontal drum mixers. The company did, but once again the photos were only front $\frac{3}{4}$ views.

"My next step was to look for drawings. I found some low resolution photos of promotional materials for these trucks. These materials even included dimensional drawings. However, I couldn't clearly see the detail I was looking for."

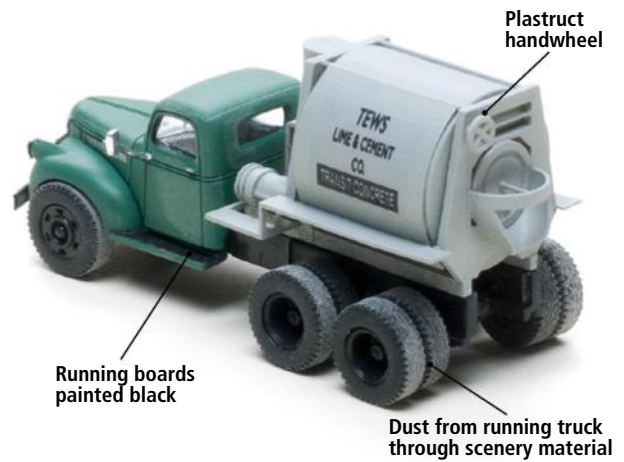
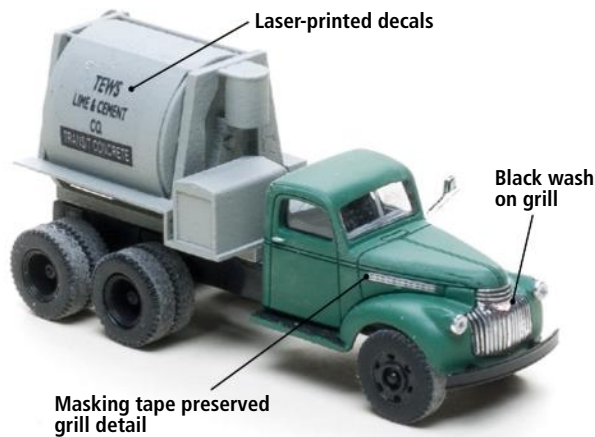
"Finally, I came across Google Patents. A simple search of patents by The Chain Belt Co. for cement transport trucks between 1930 and 1950 revealed a trove of data about how these devices looked and how they worked.

"These included drawings and descriptions of many individual parts of the trucks. That's how I figured out how to model the back of the truck. It isn't perfect, but it's a good and fairly durable representation. After all, 3-D printing is a constant balance between detail, material specifications, and durability."

Ben has drawn a fair number of 3-D models in Blender, an open-source program available for free at www.blender.org. This program is designed for creating more complex, curved shapes, which would be required for our project.

Of course, if Ben's model is exactly what you're looking for, and you don't feel like designing your own mixer body, you can buy one of his on Shapeways at his store, River Valley Models. – *Eric White, associate editor*

STEP 4 REASSEMBLY



Now for the fun part!

I started reassembly with the cab pieces. I used CA to attach the chrome-plated grill and headlight assemblies to the fender section.

Then I snapped the glazing back into the cab, and pressed the interior tub back into place.

I added the wheels and tires to the painted frame,

then pressed the fender piece onto the mounting bosses on the frame.

After I installed the cab, I glued the rear view mirror in place on the cab door.

Finally, I glued the cement mixer body to the frame using CA. I made sure to align the back of the mixer frame with the truck frame. **MR**

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1 Twin Alco RS-2 diesels pull a manifest freight over a deep river gorge just outside Pendleton on Gary Randall's freelanced N scale layout. The engines are by Kato.



PACIFIC NORTHWEST EMPIRE

Soaring scenery and a loads-in, empties-out operation highlight this 15 x 17 N scale layout

By Jim Morse

Photos by Lou Sassi

Gary Randall and I knew each other from Scale Rails, a train club in Fort Myers, Fla. [See *Great Model Railroads 2017*. – Ed.] When Gary approached me to help build and design his new layout, I knew it would be a great project. I'd worked with him on several club projects and was impressed with his attention to detail and modeling skills.

When I went to Gary's home to see the room where the layout would be built, we started talking about the footprint and type of layout, how wide the aisle should be, and more. We decided a walk-in, G-shaped layout with no duck-unders would be the best solution.

Gary and I came up with a list of things we thought should be included on his layout, including spline roadbed;



loads-in, empties-out operation; hidden staging; hilly or mountainous terrain; long runs; and long trains. A large double-ended yard with arrival and departure tracks, a turntable, and diesel or steam servicing also made the list.

Gary wanted to model the Union Pacific. We set the railroad in the Pacific Northwest, with a single-track main, lots of bridges, and great scenery. Gary is

well versed in electronics and wanted to use Digital Command Control as well as some automatic features, like operating grade crossing signals and automated return loops. Since Gary would run the layout by himself most of the time, he needed to have one or two trains run continuously while he switched the yard. But the ideal plan would also ensure challenging operating sessions.

Portland would be the main yard, with trains running north to Seattle and south to San Francisco. I suggested including the Keddie wye, where a branch line would lead to a small town off the main. Gary wanted a deepwater port reminiscent of his U.S. Navy days, with a large container ship, traveling gantry crane, wharf area, and maybe a seedy side. Fitting all this in was going to



② Gary doesn't model any particular era. Mighty Union Pacific steam locomotives share Portland Yard with modern diesel power. Fueling up at the coal tower is 4-6-6-4 Challenger no. 3985, an Athearn model.

All level areas are built on 1/2" plywood and flat cork sheet. Spline subroadbed connects these flat areas. [See "Spline subroadbed" on page 33. – Ed.] Gary used code 55 Atlas flextrack with no. 5 and no. 7 Atlas turnouts controlled by Tortoise by Circuitron switch motors.

To ensure reliability, all track sections have electrical feeders, and the rail ends are dressed (slightly rounded and notched on the inside edge) for smooth operation. These techniques are used on our club's layout with good results. The more than 60 turnouts have indicators on the control panel and on the layout, with dwarf signals in the yard and searchlight signals on the main.

The next step was building the main yard, with both diesel and steam locomotive servicing facilities. The Oregon Middle Division, as we decided to call the model railroad, still has regular steam excursions with an impressive stable of steam engines.



③ This view down the layout entrance shows Astoria and its seaport at right, Portland Yard against the far wall, and the mountain that divides the linked coal mine and power plant at center.

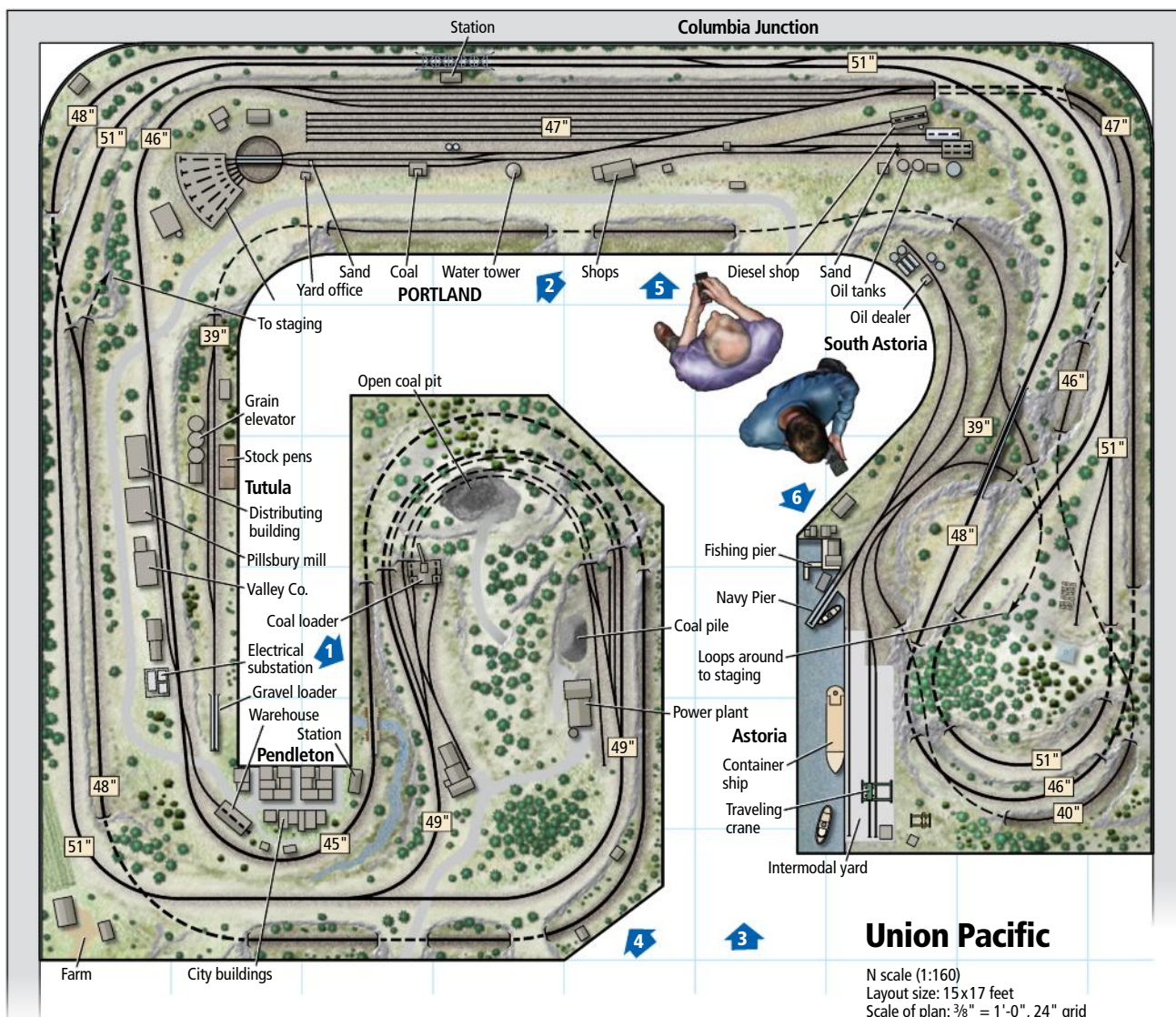
be a tall order, but after several tries, we came up with an out-and-back design that worked for us.

CONSTRUCTION

The layout is built on L-girders. The seaport, now called Astoria, is at the low-level, as is staging. We built a wye at Astoria to lead to the branch line. It

wasn't exactly Keddie Wye, but it serves the railroad well.

The first part we built was the four-track staging yard, which would be hidden from normal view under the main yard. Indicator lights were added to show when the trains were properly staged, and a camera was installed to display the trains entering and leaving staging on a monitor.



Union Pacific

N scale (1:160)
 Layout size: 15x17 feet
 Scale of plan: 3/8" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson
 Find more plans online in the
 ModelRailroader.com Track Plan Database.

The layout at a glance

Name: Oregon Middle Division

Scale: N (1:160)

Size: 15 x 17 feet

Prototype: freelance, based on
 Union Pacific

Locale: Pacific Northwest

Era: none specified

Style: walk-in

Mainline run: 150 feet

Minimum radius: 16"

Minimum turnout: no. 5

Maximum grade: 3 percent

Benchwork: L-girder with spline subroad-
 bed

Layout Height: 39" to 42"

Roadbed: cork

Track: Atlas code 55 flextrack

Scenery: cardboard mesh covered with
 plaster cloth and drywall compound

Backdrop: hand-painted on tempered
 hardboard

Control: Digitrax Digital Command Control

The railroad is an out-and-back design from both ends of Portland Yard. The lines are parallel at Columbia Junction, where we put in two single crossovers. The two return loops are controlled by automatic turnouts.

The town of Roslyn has a coal mine, which exchanges loads and empties with

the power plant on the outer side of the mountain. Roslyn also has a large passing siding. The other loop has tunnels and plenty of tall scenery to hide the fact the train is turning around.

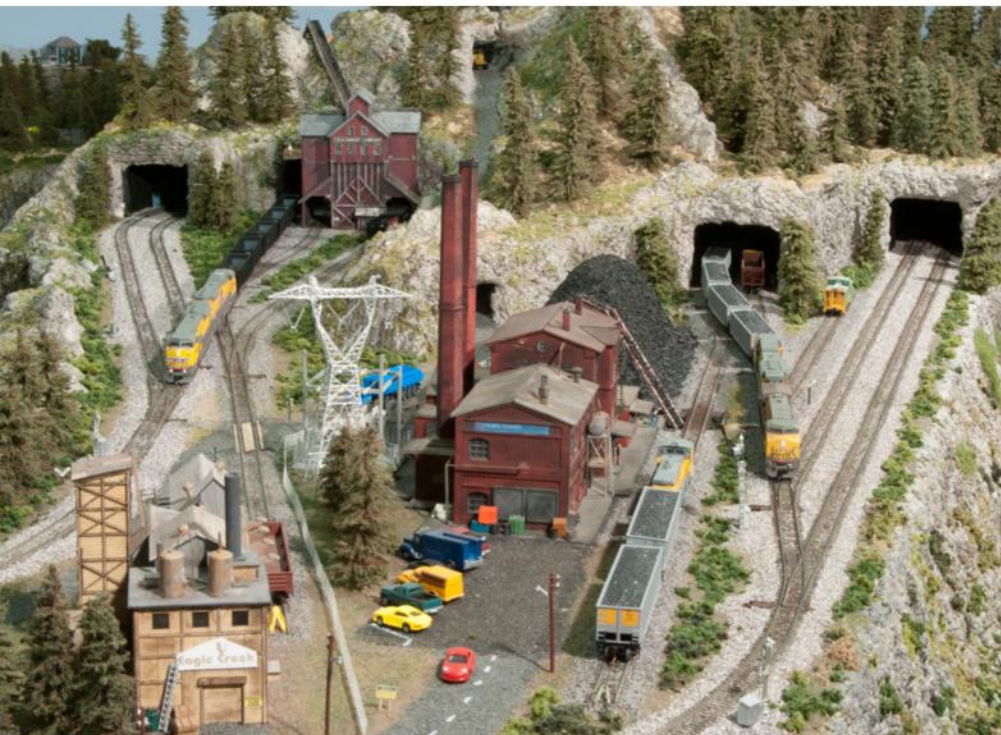
Leaving north from Portland, trains have the option to go to the port city of Astoria, with its wye, oil terminal, and

port area. The wharf allows transloading of freight to ships or transferring rail cars to a barge. The wye leads to a line that runs to the small community of Trudy; from here, future expansion can take the railroad to a shelf line to another room.

SCENERY

Once we drove the golden spike to complete the track, the scenery was started. Gary wove 1" cardboard strips into a mesh and hot-glued them to the benchwork, subroadbed, and wood stringers that supported the higher peaks. Plaster cloth formed what looked like two large white circus tents.

When building my On30 layout, I used a mix of powdered drywall compound and blow-in cellulose insulation as scenery material. Mixed with



4 The power plant in the foreground and the coal mine behind it are linked via hidden tracks in a loads-in, empties-out operation. Cars delivered to one industry emerge at the other, awaiting pickup.



5 A video monitor on the fascia near Portland Yard lets operators see what's going on in hidden staging behind the hillside. The line of light-emitting diodes on the right side indicates a train's location before it reaches camera range.

Monitoring hidden staging

Gary installed video cameras to monitor the progress of trains in hidden staging. With a low cost, compact size, and ability to shoot in low light, a closed-circuit security camera system was a perfect fit. Four cameras are positioned to cover the entire yard, so you can watch your train enter, stage, and leave the staging tracks. Little did we know that this was going to be one of the most popular features on the layout, but operators seem to really enjoy watching their trains on TV. – *Jim Morse*



Meet Gary Randall

Gary grew up in Naples, Fla. He joined the U.S. Navy and served 20 years, retiring as a chief petty officer. In addition to being a model railroader, he is an avid amateur radio operator. He also enjoys boating and travel with his wife, Terri.

45-minute drywall compound to the consistency of modeling clay, this material can be molded and shaped into anything you can dream up. The slow setup gives you plenty of time to use a putty knife to make all the serrated rocks and vertical grooves you want.

While Gary and I put the “magic mud,” as we called it, onto the shell, Gary’s wife, Terri, mixed the batches in a 5 gallon bucket. Using this method, we covered the entire layout in three days.

The tallest peak is above Roslyn and is more than 70" above the floor. Using traditional materials for ground cover and real dirt on the more level spots, the layout started to take shape. Now all that was needed was about 700 trees. Again, Terri came to our rescue and made all of them. Terri and Gary then used dark washes to add shadows to the rocky scenery until it looked just right.

Gary built the city of Pendleton using Design Preservation Models and scratch-built structures. The city has buildings with finished interiors and lighting, as well as illuminated streetlights, working traffic signals, and a grade crossing with operating arms, blinking lights, and a sounding bell.

The bridges and trestles Gary builds are truly a sight to behold. The high bridge above the seaport is more than 4 feet long and 11" high, built with Micro Engineering deck girders and steel trestles. I still hold my breath every time a train rumbles across it. The scratchbuilt wood trestle near the town of Pendleton spans a river gorge that has lots of sunbathers and kayakers watching the trains pass high overhead.

At one of our club's annual clinics, Jim Overman showed us how to build realistic aspen groves. Gary used the technique to forest the area around a ranger tower and natural stone arch. The aspens and evergreens make a very pleasant scene.

ELECTRONICS

Our club uses Digitrax DCC, and most members have their own throttles, so Gary decided to also use Digitrax components on his layout. Digital Command Control accessory decoders work with switch motors to line the turnouts. Control panels with lights to indicate turnout alignment are positioned at busy switching points. Gary built two dual panels for the power plant and coal mine so an operator can control the turnouts for the loads-in, empties-out tracks from either side of the peninsula.

The south end of staging is almost 8 feet from the main line, so photocells that drive indicator lights on the control panel were installed every foot along this line. This way, operators can keep track of their train's progress until it's viewable on the TV monitor. The monitor has four cameras that cover the entire staging area.

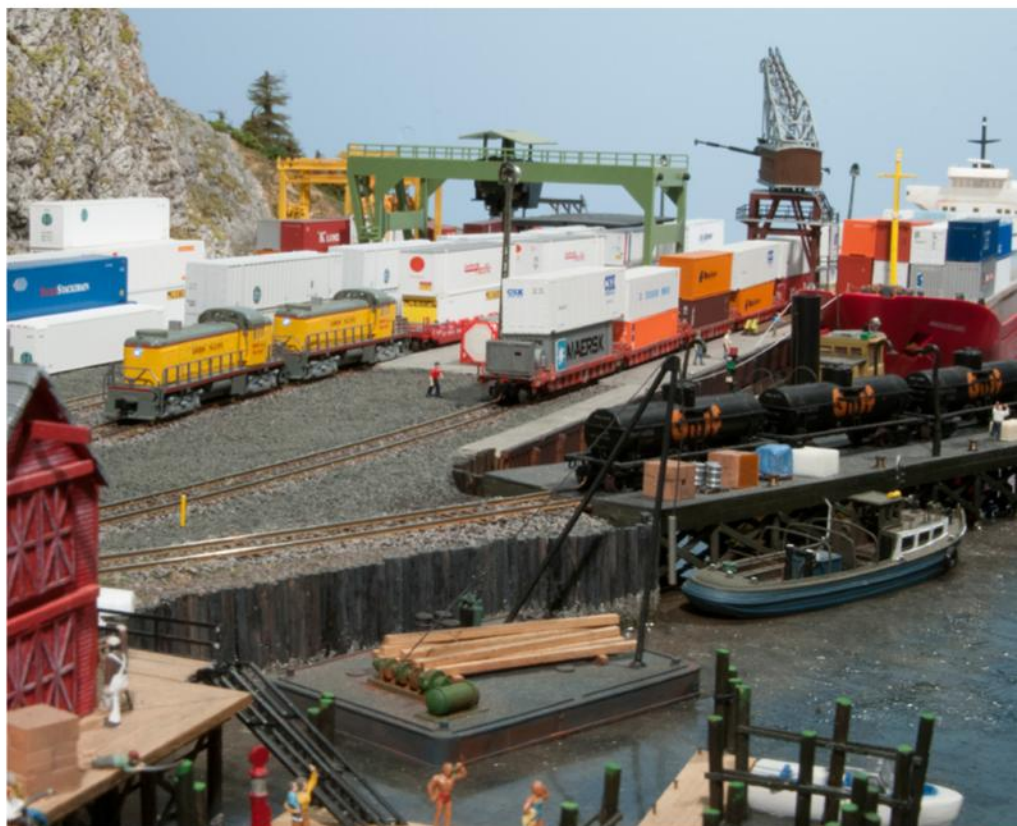
There are also lights on the layout itself. A radio tower made of brass has a photocell to turn on bright strobes during "daylight" or red flashers at night. It's detailed items like this that make Gary's layout a treat no matter how often I visit.

OPERATIONS

The layout runs well with one to five operators. A dispatcher is at Columbia Junction, from where he can control train movements on the entire railroad.

During a typical session, we run a loaded unit coal train from the mine to the power plant. The empty hopper train is then run back to the mine. A container unit train is dispatched from Astoria via the wye north or south to Seattle or San Francisco, then back to Astoria. Long-haul fast freights are sent in both directions from Portland, then staged to reappear later. Two deluxe passenger trains leave staging for a trip across the line, then back to staging.

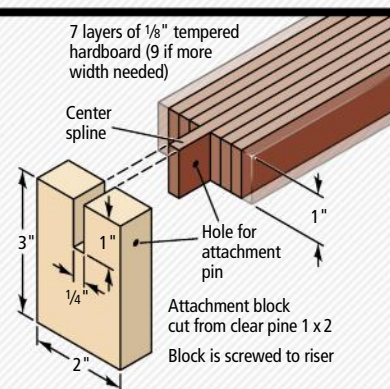
Speaking of passengers, we have a lot of fun running Budd Rail Diesel Cars (RDCs) from Portland to the wharf station near Astoria, to Pendleton, and to the station near the coal mine or all the way to the small town of Tutula. The RDCs have to dodge the higher priority



6 The port of Astoria is a busy place, with a fishing boat pier, transloading pier, and intermodal yard. The container ship is a Sylvan model. The gantry crane is a working model by Brawa.

Spline subroadbed

Gary's layout uses spline subroadbed made of $\frac{1}{4}$ " tempered hardboard for transition between different elevations. Each section is made up of seven 1" wide strips of tempered hardboard, laminated to form a $1\frac{3}{4}$ " wide base. Where extra width is needed, an extra two strips are used. Each end of the spline is attached to the $\frac{1}{2}$ " plywood used in yards and towns with a $\frac{3}{4}$ " x 2" x 3" bracket. This board is attached to the bottom of the plywood and a $\frac{1}{4}$ " wide, 1" deep cut is made to receive the center spline.



The spline is pinned in place with a finishing nail. The center spline is curved to the desired shape, and the remaining splines are then glued and clamped to its sides. The strength of the spline allows the risers to be as far as 36" apart. When the glue is dry, the top of the subroadbed is sanded. Spline subroadbed takes a little more time, but we think it's well worth the effort. — Jim Morse

passenger or freight trains, and the out-and-back ability of the RDCs make them ideal for this railroad.

Portland Yard can make trains up to 22 cars long. Portland also makes up the steam excursion runs. Our Big Boy has been running for years and still draws a large crowd.

The local peddler freight serves the towns of Pendleton, Astoria, and Tutula, via the branch line. We like the options you have leaving Portland in either direction, as you can have fun running your trains across a beautiful railroad. Isn't that what model railroading is supposed to be, fun? **MR**



Tews Lime & Cement Co. had several locations in the Milwaukee area, including its plant on North Avenue. Associate editor Eric White used techniques from scratchbuilding, to kitbashing, to rearranging kit parts to build the complex.

Using multiple techniques to build a **CEMENT PLANT**

Kitbashing, scratchbuilding, plastic, and wood all came together to model Tews Lime & Cement on our Beer Line addition

By Eric White • Photos by Bill Zuback

This is the final installment of our Beer Line series. The layout has three prototype-based industries on it, and modeling them offered a variety of challenges. With Tews Lime & Cement Co., I had a distinct advantage: access to someone who worked there. John H. Tews, a grandson of the two brothers who founded the company, is a model railroader who is deeply involved in the Milwaukee-area National Model Railroad Association division.

John is also a buddy of retired *Model Railroader* senior editor Jim Hediger, so a call to Jim set up a meeting with John, and the project was off and running.

I did a bit of research before meeting with John. My first source was the book *The Milwaukee Road's Beer Line*, by Art Harnack (Milwaukee Road Historical Society, 2003). It has an aerial photo showing Humboldt Yard, the North Avenue Viaduct, and along the right edge of the photo, Tews Lime & Cement.

With location information, I searched online for Tews Cement; North Avenue and Humboldt Avenue in Milwaukee,

Wis.; and Humboldt Yard. I found photos and maps, and even a blog entry by *Classic Toy Trains* Editor Carl Swanson about the North Avenue Viaduct. Old maps and aerial photos are prime sources of information, and one of our favorite websites is www.historicaerials.com.

Feeling more confident, I used sheets of paper to create footprints for each structure in the complex. My building site was defined by the main line and the adjacent Steinman Lumber and Ben-Hur Freezer Co.

With the footprints done, I started making cardboard mock-ups. These made it much easier to see the relationship between the four buildings in the complex. They helped me realize, for example, that my footprint for the warehouse was too large, creating a cramped look between it and the garage behind.

When I was happy with my mock-ups, I printed out the information I gathered from the internet and cell phone photos of my mock-ups sitting on the layout and went to meet John. He pointed out a tall smokestack from a boiler used to produce steam to keep aggregate, sand, and

cement flowing in Wisconsin's cold winters. He identified the uses of the various bins and structures of the batch plant.

He told me the wooden carriage house on the property was where his father and uncles parked their cars when they were running the business. And he told me how cement was delivered in boxcars, and later covered hoppers, and how aggregate came in gondolas. I started with the batch plant.

Beer Line series

Jan. 2017: The Beer Line addition

Feb. 2017: Benchwork and tracklaying for the Beer Line addition

March 2017: Scratchbuilding Steinman Lumber Co.

April 2017: Mix kitbashing and scratchbuilding to model Ben-Hur Freezer Co. in 17 x 31 inches

May 2017: Building the North Avenue viaduct

June 2017: Using multiple techniques to build a cement plant

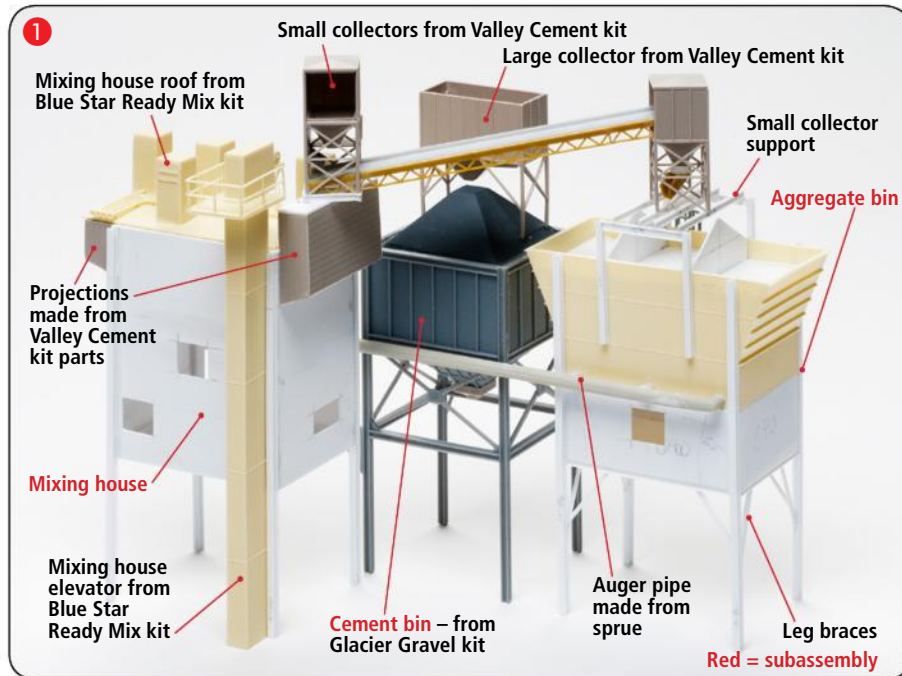
1. RAIDING KITS FOR DETAILS

The batch plant consists of three structures: the mixing house, the cement bin, and the aggregate bin ①. I moved from one part of the plant to another as I went along. Because the parts are interrelated, I could only go so far before I needed to switch to another facet of the project.

At the outset, I was concerned I couldn't build an exact model of a 1940s batch plant, so I turned to a number of kits to get industrial-looking parts that would give the proper busy look to the structure.

The first thing that stood out was the cement bin with its pyramidal bottom and top. I knew Walther's Glacier Gravel kit had similar parts, so I modified the gravel hoppers in the kit to make my cement bin. These parts, shown in ② and ③ on the next page, are now available separately from Walther's, part no. 933-4090.

The next shape I noticed was the top of the aggregate bin, shown in ④ on the next page. Its flare is similar to the rectangular bin of Walther's Blue Star Ready Mix kit (933-3086). This kit depicts a much newer plant, but I could modify its bin for Tews Cement. I assembled the upper section of the bin, then cut the top off just above the angled sides.

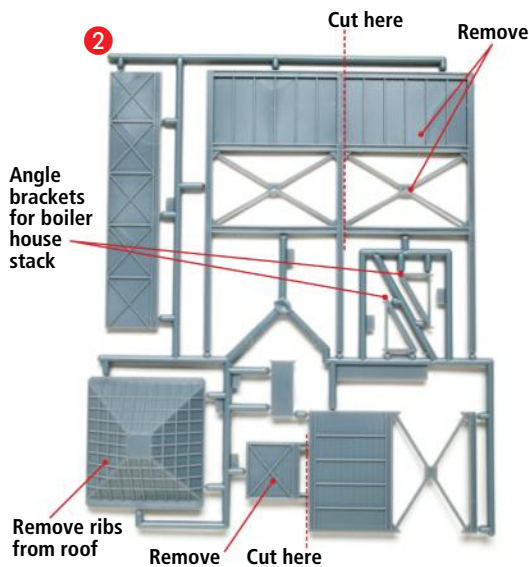


Styrene sheet .040" thick and styrene shapes finished off the basic structure. I also cut an opening for a Tichy Train Group no. 8026 six-pane window in its face, and added pieces of .100" channel at the bottom of the wall between the legs to simulate the floor framing.

The mixing house, ⑤ on the next page, is a box of .040" styrene sheet. The legs on the mixing house, and the aggregate bin, got braces made from .060" styrene angle ⑥. It has two Tichy six-pane windows on its front side.

At the top are two projections with angled bottoms. Looking through the

1. RAIDING KITS FOR DETAILS (CONT'D)

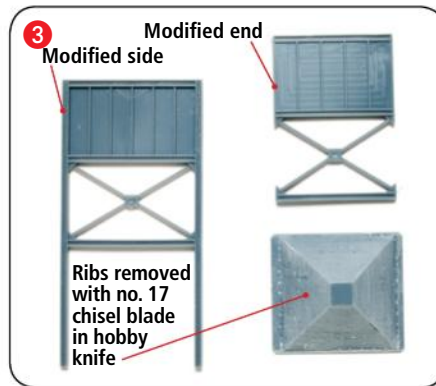


parts of a no. 933-3098 Walther's Valley Cement kit we had in our workshop, I found a similar angle in parts 6 and 7. The pieces are molded to represent poured concrete cast in wooden forms **7**, so there are a series of mold lines on the parts, which I thought added interesting texture.

The conveyor system brings aggregate from the ground to the bin. The photos I had didn't show clearly how it was constructed, but then I got my inspiration from the silos at Medusa Cement, a Walther's kit (933-3019) on our Milwaukee, Racine & Troy staff layout.

Small bins with tapered bottoms, called collectors, parts 37-40, would be the parts I needed to connect the conveyors to get the aggregate across the top of the batch plant. The Valley Cement kit has the same silos as Medusa Cement. There were also some interesting pipes and ducts in the kit too that proved useful.

The two larger conveyors, which bring material up from ground level to the first, lower collector on the mixing house, were from the Glacier Gravel kit (933-3062), with modifications to their

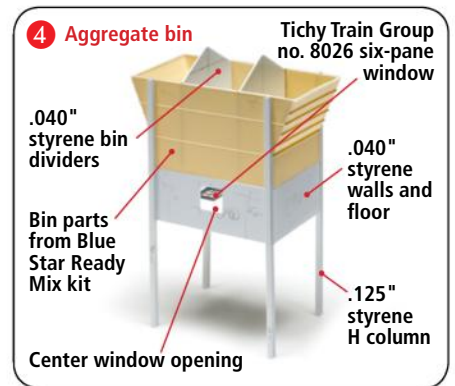


ends. The smaller conveyor atop the batch plant between the collectors uses the belt section of a Glacier Gravel conveyor with the support trusses from two smaller conveyors in the no. 933-4035 Glacier Industrial Sands kit, used in a previous project. The conveyors are shown in **8** on the next page.

The first collector rests on the tall projection on the mixing house. I made a square frame to support it from .100" styrene channel and I beam. The second collector, on top of the aggregate bin, needed a more complex support structure. To mount the collector on the aggregate bin, I built a framework from styrene I beam and H column, shown in **9** on the next page.

The upper collector is skewed to line up with the lower collector. I determined the location for the smaller .100" I beams, which each support one corner of the collector, by placing a scrap of styrene sheet on the .125" I beams and marking the location of the collector's legs. I then transferred those marks to the .125" I beams.

I could see some sort of large bin standing on top of the cement bin, and the large collector, parts 29-32, looked like it would fit the bill. I used the piping from the kit to connect the large collector to the top of the mixing house. I made pipe brackets as shown in **10**.

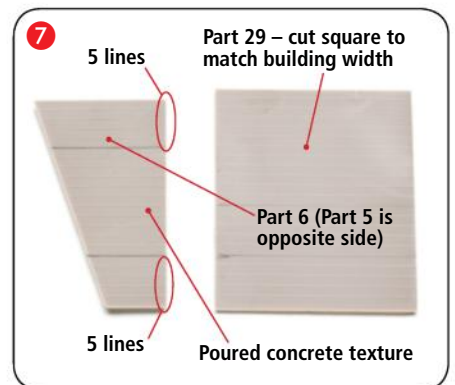
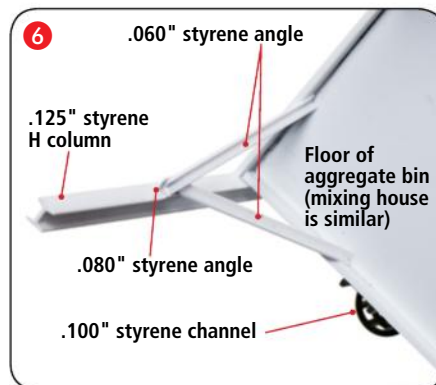
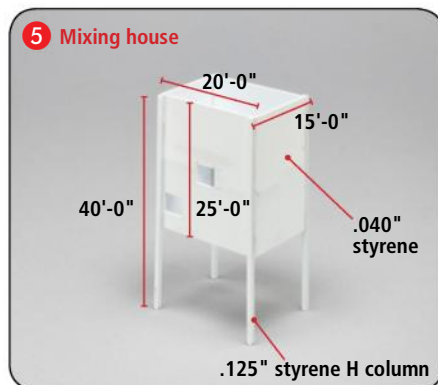


The roof of the mixing house is from the Blue Star Ready Mix plant. The kit has a number of interesting roof details. I trimmed the roof to length and assembled the parts according to the instructions.

John told me there was a bucket hoist that went to the top of the mixing house. I used the elevator parts from the ready-mix kit as a stand-in, but shortened the elevator shaft so it would fit my location. You can see the elevator in **1** on the previous page. I also trimmed the pipes that come off the roof of the mixing house and go to the ground.

I connected the aggregate and cement bins to the mixing house with pieces of sprue, also shown in **1**. John told me augers were used to move some of the material between the structures. I like using sprue because it has built-in junctions. I found pieces that had the Ts and Ls I needed, then cut them to length with a razor saw in a miter box to ensure square ends. I used styrene putty to fill any voids.

I added doors to the backs of the mixing house and aggregate bin for workers to access the machinery inside. The mixing house door is from the ready-mix kit, which required me to cut a hole in the assembled building. On the aggregate bin, I just made a frame from strip styrene on the surface to



simulate a scale 2'-8" x 6'-8" door. The doors are shown in 11.

I used walkway parts from the Glacier Gravel kit to access the doors 11. I used angle brackets from the same kit, and from a no. 933-4046 Diamond Coal Mine kit we used on the Eagle Mountain RR project layout last year. The mine kit also provided a caged ladder to access the rooftop conveyor, which got walkways of its own.

The last structure in the batch plant complex was a small boiler house 11. I made my boiler house from leftover parts of the Atlas no. 0721 Middlesex Manufacturing Co. kit used in several earlier projects. The building has an elevator shaft that was just about the right footprint for a small boiler house, plus it had foundation and roof castings that would simplify assembly.

The walls are 8 scale feet tall. I cut a door opening to match the size of a door, part 41, from the Blue Star Ready Mix kit. The stack is a piece of 3/8" styrene tube 65 scale feet tall. To steady the stack, I used two angle brackets, part 50 from the Glacier Gravel kit.

To finish the batch plant, I added pipes, ladders, walkways, and railings from the kits mentioned. I thought about where people would need to have access, and made sure there was a logical path to get them there. Like the other parts of this project, I worked from area to area as I built up details, adding on until it all made sense.

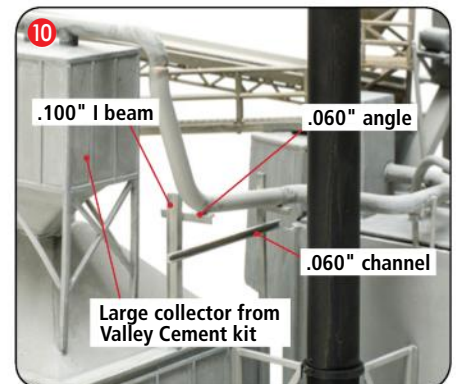
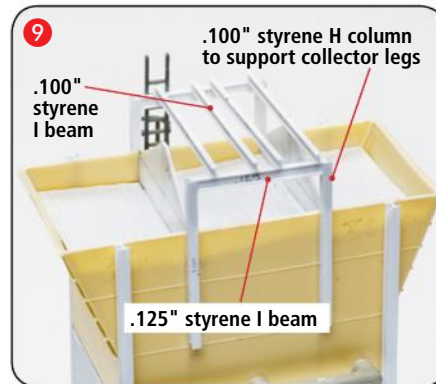
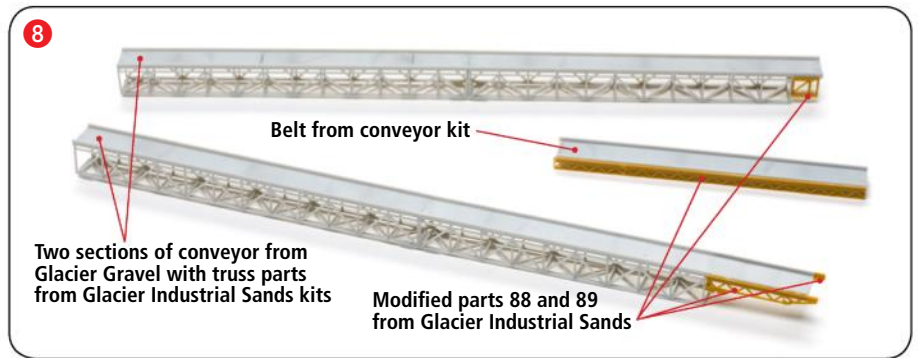
Once all of the components were completed, I airbrushed them with Polly Scale D&H Gray. Model Master Medium Gray is a good substitute for this discontinued paint.

The doors and windows were painted Model Master Reefer Gray, and the boiler house roof was painted Model Master Grimy Black. The stack is the same firm's Engine Black.

The boiler house is painted Polly Scale D&RGW Depot Cream, to mimic the cream-colored brick Milwaukee is noted for.

The buildings were weathered with washes of Reefer White, Grimy Black, and Earth, all Model Master paints. To make my washes, I shook up the paint, dipped the tip of my paintbrush in the pool of paint on the lid, then dipped it in a cup of water before applying the wash to the building.

If the color was too dark, I dipped the brush back in water, then back on the model to wash the color away. I tried to keep the structures upright so color would pool realistically, as though



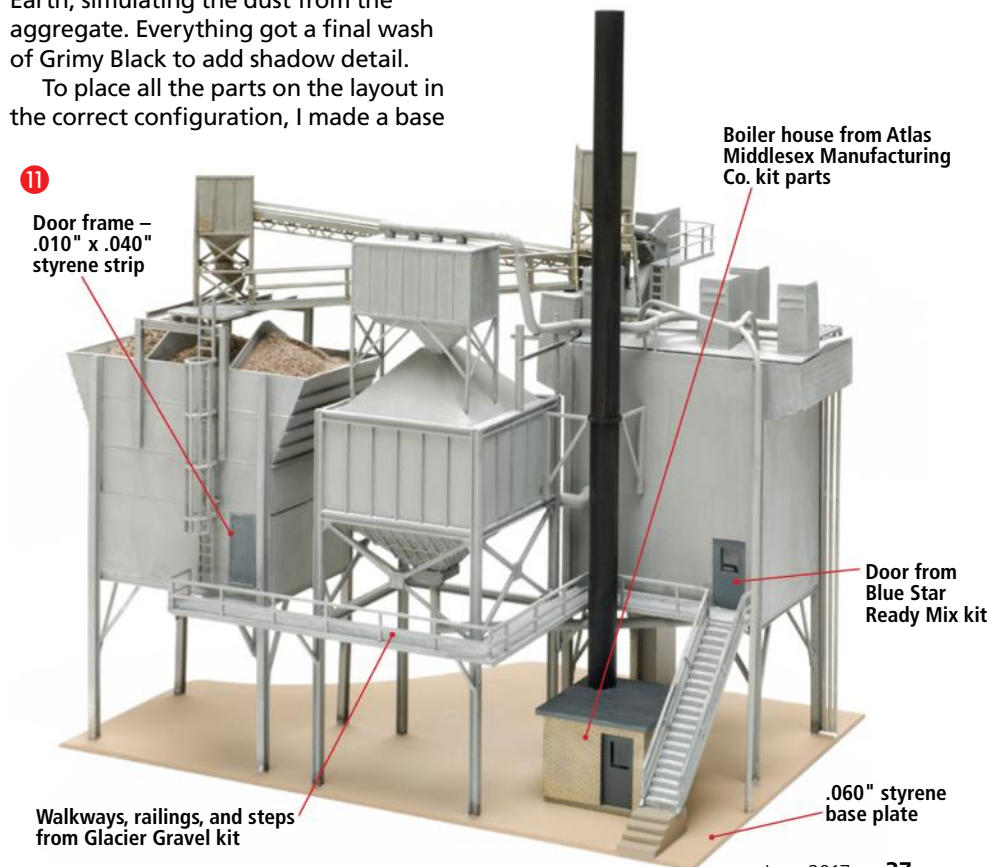
rain water had washed dust and grime down the sides of the structure.

I chose colors based on the structure's purpose and location. Everything got a wash of Reefer White to simulate the cement and lime dust that was everywhere. The conveyors and aggregate bins also got a wash of Earth, simulating the dust from the aggregate. Everything got a final wash of Grimy Black to add shadow detail.

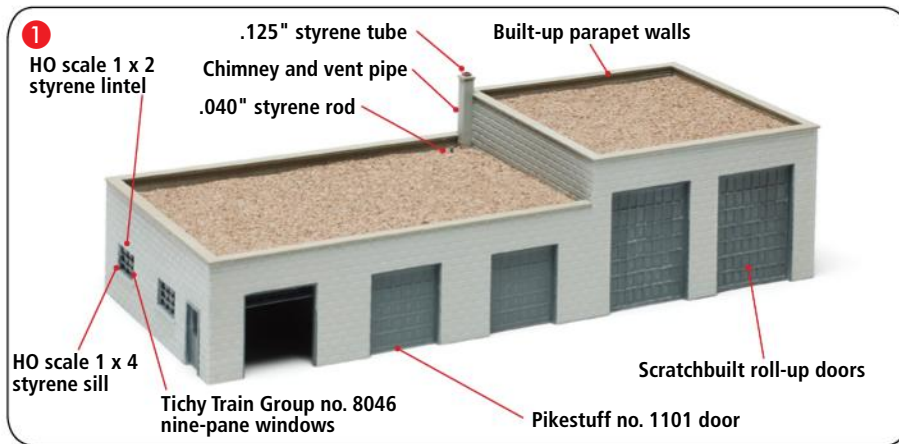
To place all the parts on the layout in the correct configuration, I made a base

plate from .060" styrene sheet and cemented the structures to it.

Of course, I didn't build the batch plant from start to finish without regard to the other structures in the complex. As I waited for paint and/or glue to dry, or inspiration to strike, I tackled different buildings.



2. SCRATCHBUILDING THE GARAGE



The garage was a straightforward scratchbuild. It's a rectangular box with five roll-up doors in the front, a personnel door and two windows on each side, and seven windows across the back ①.

I used roll-up doors from Pikestuff, part no. 1101, 30-panel wood door; nine-pane windows from Tichy, part no. 8046; and doors from the Glacier Industrial Sands kit, part 8. I made a pair of roll-up doors from .020" sheet styrene and .010" strip styrene, shown in ②.

I laid out my subwalls on .040" sheet styrene. I used black styrene because that's what we had in the shop ③. The walls are sheathed in no. 50005 concrete block-textured plastic sheet from The N Scale Architect. This .020"-thick material is easy to cut to size, although the blocks are a little oversized.

I was careful to line up the block courses at the corners and to be sure the blocks alternated accurately so there weren't two half blocks around the corner from each other. I used solvent cement to secure the block sheet to the subwalls, flowing cement at the top and bottom of each wall and at the window and door openings.

I also flowed cement at the corners and pressed the edges together to get rid of any gaps. A quick touch-up with files and sanding sticks made the corners look like a solid mass.

Because masonry windows are usually set flush with the outside walls, I was careful cutting out the openings for the windows in the concrete block sheet. I cut the openings in the subwalls a little oversized so I could mount the

windows from the back, yet still nearly flush with the concrete block.

The windows were slightly shorter than the height of four courses of block, so I used pieces of styrene 1 x 2 to represent steel lintels, shown in ①. Styrene 1 x 4 was used as sills.

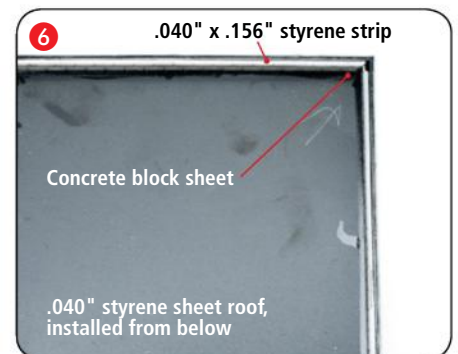
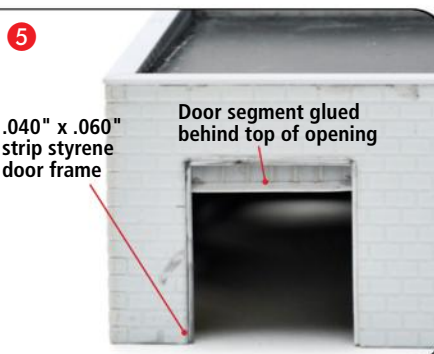
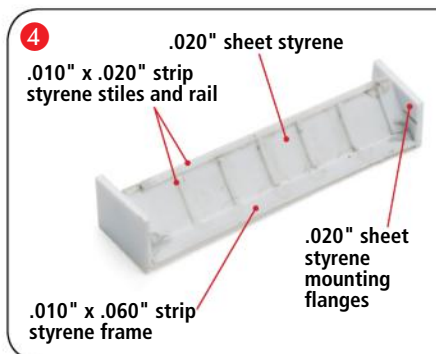
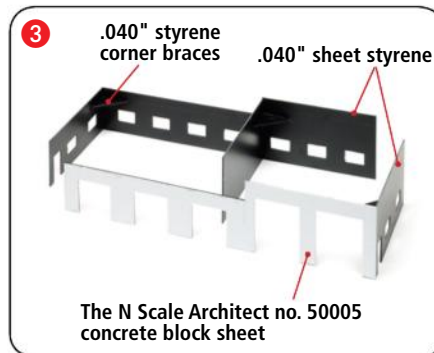
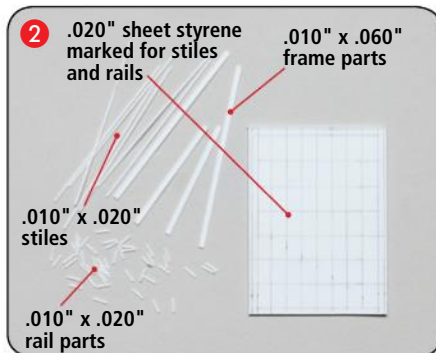
The Pikestuff roll-up doors came two to a pack, and since I needed three, I made an open door to make the scene more interesting. I'd only need the bottom panel to be visible at the top of the opening. Using the same technique as for the larger scratchbuilt doors, I made a bottom panel ④, then cemented it to two square pieces of sheet styrene at an angle ⑤.

The roof is made from the same .040" sheet styrene as the walls. I added strips of .040" x .156" styrene along the inside of the walls at the top ⑥. These pieces created a surface to glue the roof to from below, and also added scale thickness to the walls. Strips of block sheathing two courses high were glued on after the roof was in place to simulate the inside of the parapet walls. A cap of .040" x .188" styrene strip finished off the walls.

I added a chimney for the heater made from .188" square tube with a cap made from a square piece of .040" styrene. I added a flue made from a short slice of .125" square tube. The last detail was a scale 12"-long piece of .040" rod as a bathroom drain vent pipe.

I painted the building using the same colors as the batch plant, with similar washes. I also dusted the base of the walls with A.I.M. Products weathering powders (now available from Monroe Models) to simulate dirt that was splashed on the walls by rain.

To finish the roof, I painted on a coat of full-strength white glue, then sprinkled on a layer of gray limestone ballast. I wet it with 70 percent alcohol and soaked it with Woodland Scenics Scenic Cement.



3. MORE SCRATCHBUILDING

The warehouse was built using the same methods as the garage, but with a different type of roof. The walls were again made from a layer of .020" thick concrete block sheet from The N Scale Architect, but this time laminated to .060" thick styrene sheet, since the walls were longer. The raised center portion of the warehouse was sheathed in Evergreen .020" thick V-groove siding with a .040" spacing ①.

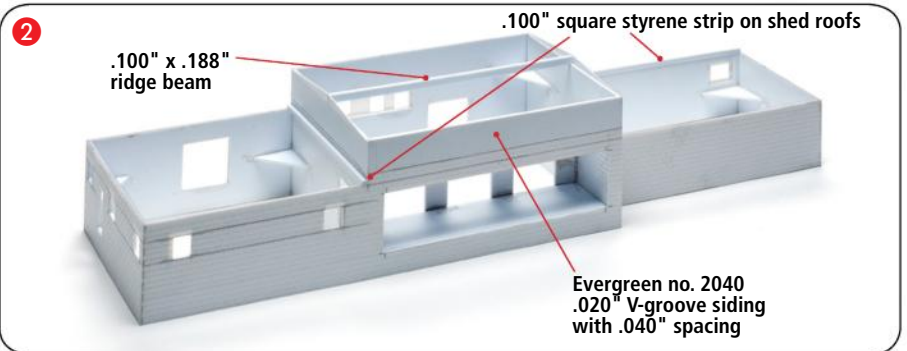
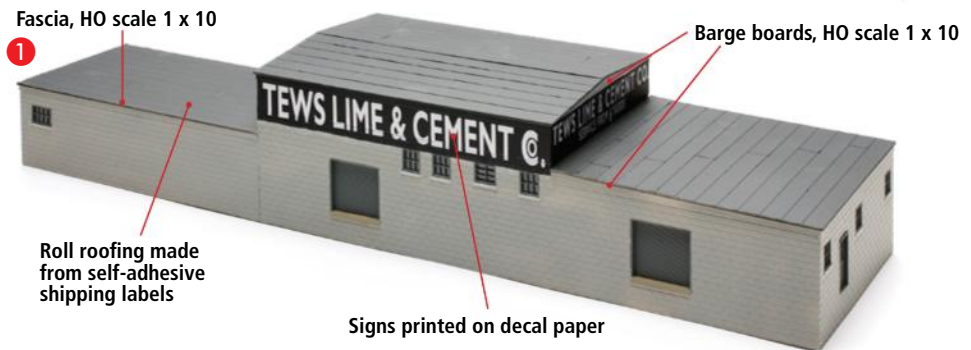
The windows were from Walther's' no. 933-3097 American Hardware Supply kit. They're part no. 29. Most of the windows were set vertically, but two were set horizontally to vary the appearance. I again made window sills of HO scale 1 x 4, like those on the garage. I used a Micro-Mark Nibbling Cutter to make the window and door openings in the thicker subwall material.

The personnel doors are from Tichy Train Group, part no. 8009. The freight doors are pieces of roll-up door that came with the no. 541-0104 Pikestuff Milton A. Corp. kit we used on a previous project. The freight doors are framed with .020" x .060" strip styrene.

The roof is also .040" thick styrene sheet. To create the pitch on the highest roof, I used a piece of .100" x .188" strip styrene as a ridge beam ②. The two lower roofs have strips of .100" square strip styrene glued to the top of one wall to give them a gentle slope.

To cover any gaps between the roof sheathing and the walls, I used strips of HO scale 1 x 10 as barge and fascia boards ①. This added an extra bit of detail, and I didn't have to be 100 percent precise with my cuts on the peaked walls below the highest roof.

To finish the roof, I used one of contributing editor Pelle Søborg's tricks. I simulated tar paper roll roofing



with adhesive-backed 8½" x 11" labels. The material I used was Avery no. 8165.

I marked lines across the paper at scale 3-foot intervals, then cut out the strips using a sharp-bladed hobby knife. I made similar marks on the roof to help keep things parallel.

I marked the approximate length of the roof on the strip of paper, cut with scissors, then stuck the label in place at the bottom of the roof. I took the cutoff strip of label and placed it on the next row. Then I started the process again, marking, peeling, and sticking until I reached the top of the roof.

By continuing to use the leftover strips of paper, I got an interesting pattern of overlapping roofing. Once all of the paper was applied, I flipped the building on its roof and trimmed

the edges with a sharp, new blade in a hobby knife.

To reproduce the painted-on signs on the upper walls of the warehouse, I used the desktop publishing program we have here at MR, along with some help from our art department.

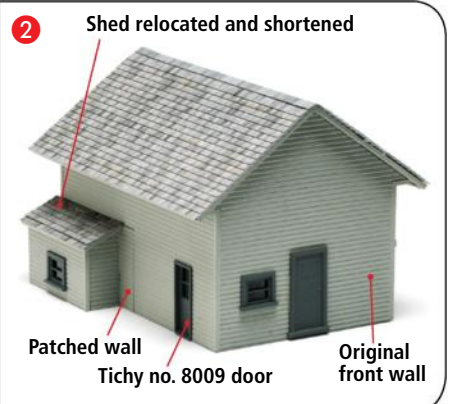
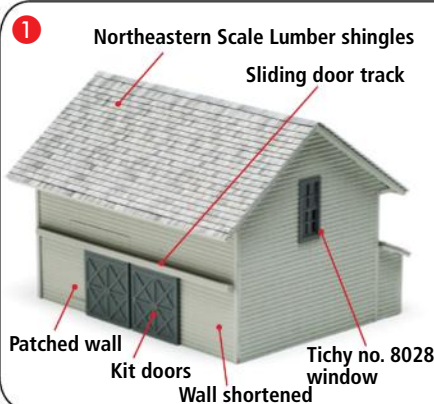
I printed the decals with a laser printer on Kadec decal paper. The decal is the black area with the lettering left clear, so it shows the background color through it. I brush-painted a coat of Microscale Micro Liquid Decal Film over the surface of the lettering to protect it during application.

Since we can't print white lettering, I painted the area behind the decal with Model Master Reefer White. The other walls and roof were painted with the same colors as the other buildings.

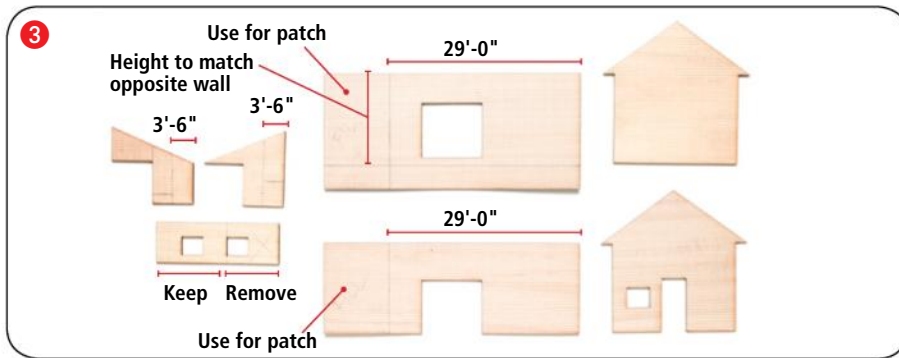
4. CARRIAGE HOUSE FROM MODIFIED KIT

The pitched-roof carriage house was a simple rearrangement of the kit parts ① and ②. I used an Alpine Division Scale Models Rural New Haven RR Freight House, kit no. 5805. The end wall had the proportions I was looking for, and the building had appropriate wood siding.

Although the end walls looked right, the side walls were too long. Also, the kit had a loading dock I didn't need, and a shed on the back that was surplus. Otherwise, it was a perfect match.



4. CARRIAGE HOUSE FROM MODIFIED KIT (CONT'D)

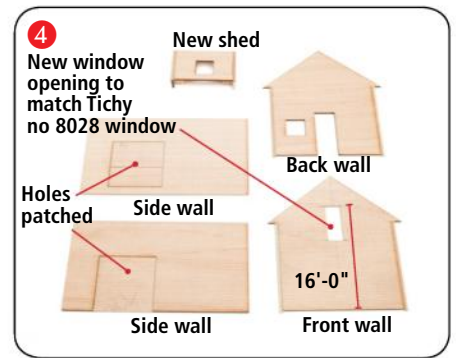


I started my modifications by shortening the side walls to 29 scale feet long. There were also two loading doors – one in each wall – that I didn't need. I used some of the cut-off wall pieces to fill the door openings.

I used parts from the shed on the rear of the kit to make a small shed on the side of my building. I cut a 3'-6" section from the shed side walls, then cut the shed's back wall along the edge of one of the windows. I ended up with a window that sat a little low in the wall, but it was a compromise I could live with.

The kit's front end wall became my back wall, so I needed to add a door to the side of the building for people to get in and out. I used a Tichy four-pane door, no. 8009, like on the warehouse.

On the opposite side wall, I used the freight doors that came with the kit, glued to the outside to simulate sliding doors. I used pieces of stripwood from the kit, $\frac{1}{16}$ " x $\frac{1}{16}$ " and $\frac{1}{32}$ " x $\frac{3}{32}$ ", to simulate the track the doors rode on. To finish the wall modifications, I cut a window opening high on the outside end wall sized to fit a Tichy no. 8028 4/4 double-hung window.



Before I installed the windows and doors, I sprayed the building inside and out with Rust-Oleum Painter's Touch 2X flat gray primer. I wanted this solvent-based paint to protect against the water-based Model Master acrylics I used for the final colors.

I used Northeastern Scale Lumber Co. no. HOSHG1B1 gray slate laser-cut shingles to more closely match the prototype roof. I used weathering powders, White for an overall dusting, Grimy Black on the roof, and Medium Earth along the ground, instead of washes on the wooden walls.

5. FINISHING TOUCHES

I started the project by consulting with John H. Tews, grandson of Tews Lime & Cement Co. co-founder Henry Tews. And here's an HO stand-in for John **1**, greeting his dad after a day at the yard.

With the buildings complete, it was time to integrate them into the scene.

Most of the ground cover is light gray limestone ballast. I mixed this with Highball Products Real Dirt, play sand from The Home Depot, and some anchor bolt cement. Photos showed a stand of trees behind the batch plant, so I used Faller and Kibri kits.

The vegetation in the yard is made up of Walthers grass tufts and bits of Busch and Heki field grass mats. The spur is buried in sand and limestone ballast. Be careful to keep the ballast below the railheads, or you too will get to spend an hour or more picking and scraping it away from the rails.

I needed several pallets of concrete block and brick. We had leftover pallets of soda cases from Kibri that looked somewhat like concrete block, so I painted the parts Model Master Concrete and assembled the pallets. Most of the castings were of six cases in one piece, but I also added individual case/blocks to vary the stacks.

I stacked resin castings of bricks and small blocks under the viaduct. John told me the company used the area for storage. Empty pallets, sacks of cement and lime, and several figures finished the detailing.

I painted Classic Metal Works 1941-46 Chevrolet dump trucks and a Stoney Mountain Classic Castings '42 Dodge stakebed truck in Tews Cement green and gray. Of course, a concrete batch plant needs cement trucks as well. You can read about them in this month's Step by Step on page 24. **MR**





TEXTURE
WEATHER
STAIN
AGE

LET'S BE REALISTIC.



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A pair of bright pink and white sneakers with a large black circular logo on the side. The sneakers are shown from a side-on perspective, highlighting their vibrant colors and bold design.

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COAL AND STEEL FOR Rod Stewart's



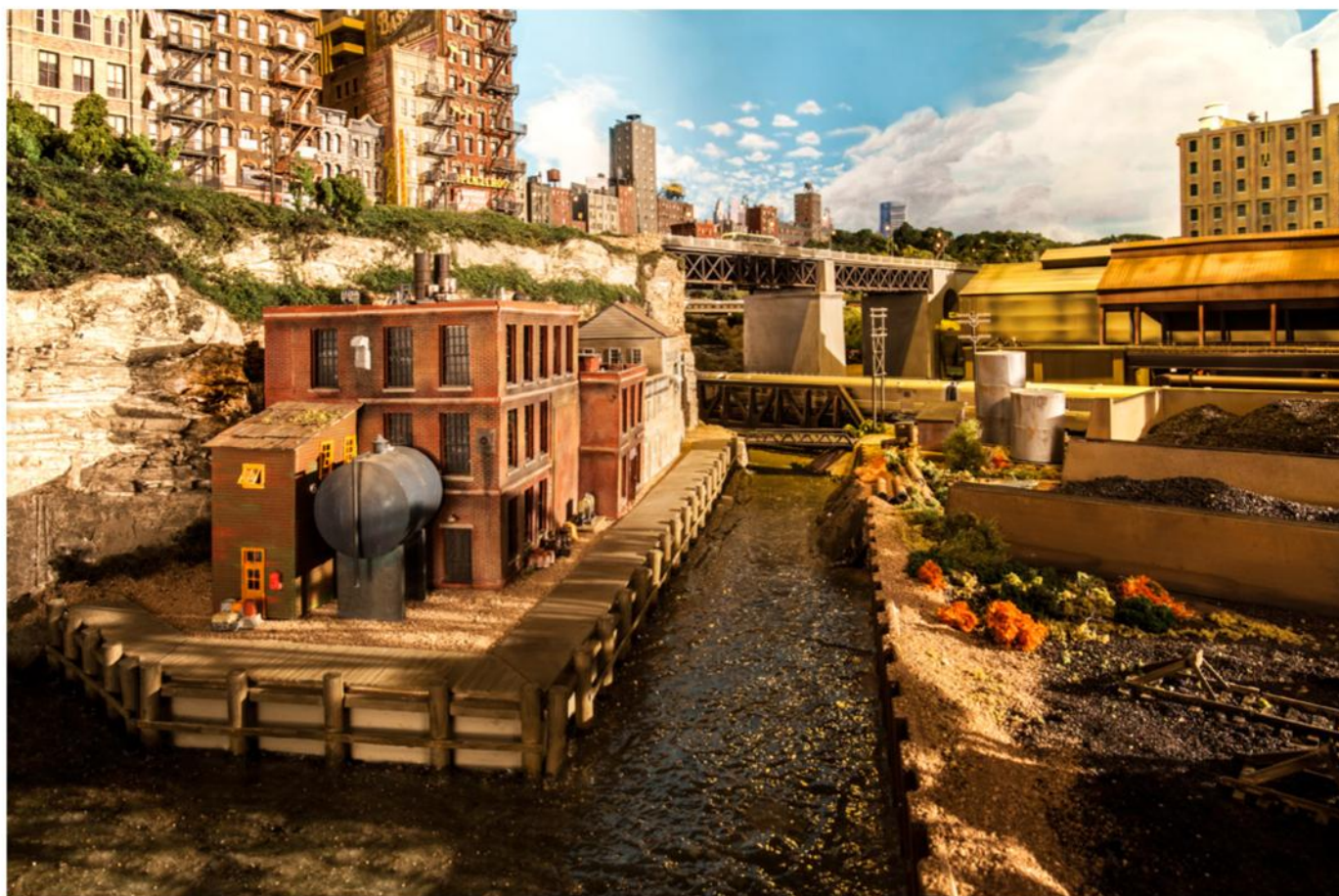
masterpiece



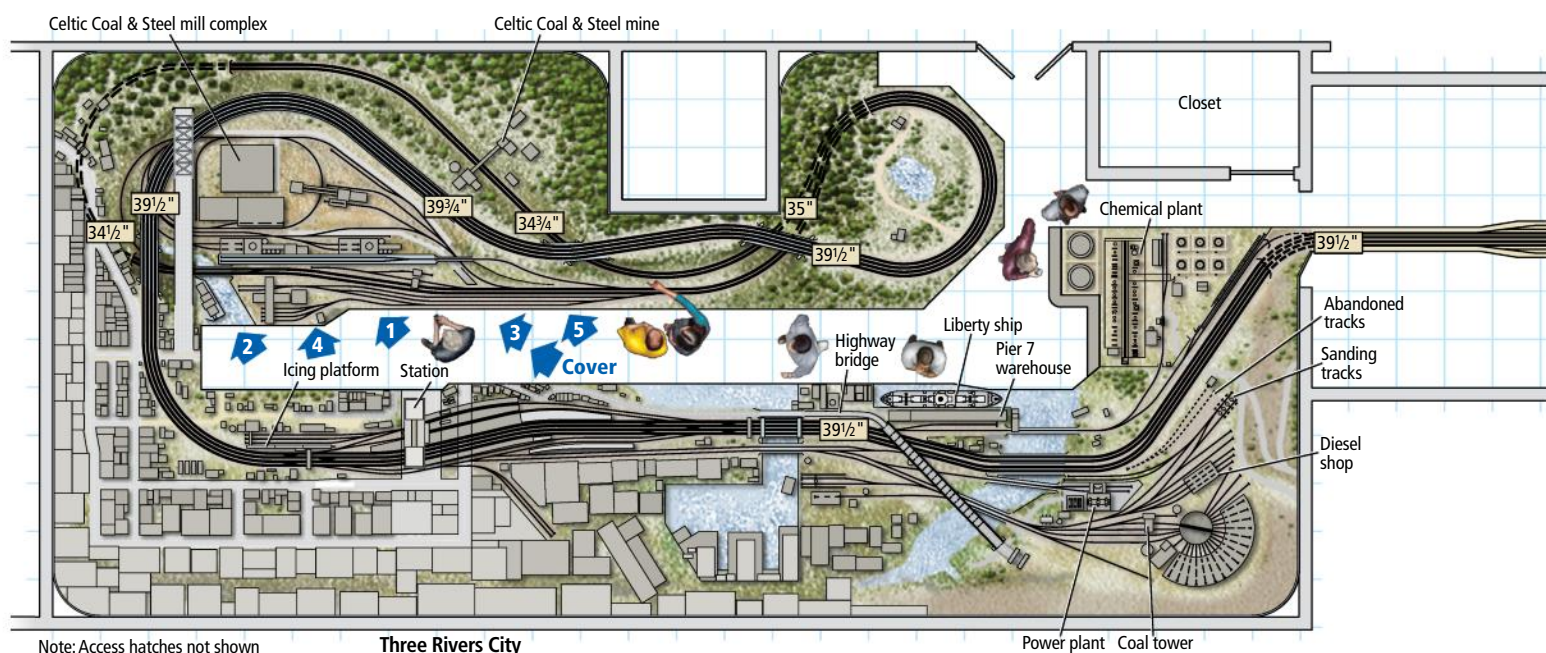
1 This steel mill completes Rod Stewart's 1,500-square-foot Grand Street & Three Rivers RR, an HO scale model railroad 23 years in the making. The industrial scene is a showcase of scratchbuilt and kitbashed structures.

The rocker finishes off his HO scale Grand Street & Three Rivers RR with superdetailed industrial scenes

By Carl Swanson • Photos by Steve Crise



② Creating a transition between the downtown area of Three Rivers City, at left, and the steel mill, at right, required a lot of thought. Rod's solution took the form of this detailed dock in the foreground. The bridge beyond serves as a view block.



Note: Access hatches not shown

Three Rivers City

Power plant Coal tower

In the past two decades, Rod Stewart has recorded more than 50 songs, toured the world, been inducted into the Rock & Roll Hall of Fame (twice), been knighted by Queen Elizabeth II for his services to music and charity – and completed one remarkable model railroad.

The 23 x 124-foot HO scale Grand Street & Three Rivers RR fills a large room on the top floor of his Beverly Hills home. It's inspired by the landscape of Pennsylvania and the postwar industrial cities of the Midwest and East Coast.

"With all the time I've spent – in Chicago, New York, in Philadelphia – in hotel rooms looking out the windows and seeing all the skyscrapers, it was a bit more interesting than the English countryside," Rod said, regarding his railroad's setting.

The model railroad features a city scene made from hundreds of Rod's highly detailed kitbashed and scratch-built structures, including downtown skyscrapers that stand 5 actual feet tall.

A recently added mountaintop mine and an extensive steel mill complex mark the end of major work on the layout. The mill complex includes Hulett unloaders in the foreground surrounded by the raw materials of steel – stockpiles of coke, iron ore, and limestone. A scratchbuilt open-hearth furnace, a scratchbuilt rolling mill, and a kitbashed power plant flank two Wm. K. Walther's no. 933-2973 blast furnaces.

Overlooking this busy scene is the massive Celtic Steel building, which Rod made by combining the contents of "eight or nine" HO structure kits. Celtic Steel, one of the most distinctive build-

ings on the layout, is based on a prototype stamped steel products factory that once stood in Bethlehem, Pa.

Like many of the buildings on the railroad, Rod built this kitbashed structure a long way from Los Angeles.

Rod divides his time between England and California and tours frequently. Many of the hundreds of structures on his layout were built on the road. For many years, a set of large shipping cases filled with carefully organized structure kits, tools, paints, and adhesives accompanied Rod on tour. He would set aside a few hours each afternoon to work on models in his hotel room before heading to the show venue.

The hobby provided rare moments of peace and quiet concentration in his hectic and demanding schedule.

"For three or four hours a day I'm in heaven, absolute heaven," he told *Model Railroader* in a February 2014 interview.

The power of partnership

Modeler Mike Cartabiano helps with modeling tasks in California, which means progress continues to be made even when Rod is out of town. An expert in model railroad electronics – he owns Durango DCC (www.durangodcc.com) – Mike installed 10 Digital Command Control detection districts on Rod's layout and expects the railroad will soon handle 20 moving trains at once, controlled by a laptop computer and specialized software. Mike also built some of the steel mill buildings.

The two have worked closely on the railroad for six years. Rod said, "Mike

has been absolutely wonderful – keeping the locomotives clean and running, and the track clean – and he's an excellent modeler."

Scouring the internet to locate items for the layout is another of Mike's tasks. In one instance he purchased hundreds of identical HO windows and shipped them to Rod in England. He also purchased the fleet of HO steel mill cars needed for the steel complex.

The way Mike sees it, his role is providing a solid foundation – smooth running track, reliable electronics, and basic scenery – to showcase Rod's buildings, which he feels are the real stars of the layout.

The layout at a glance

Name: Grand Street & Three Rivers RR
Scale: HO (1:87.1)
Size: 23'-0" x 124'-4"
Prototype: New York Central and Pennsylvania RR
Locale: Pennsylvania
Era: mid-1940s
Style: walk-in
Mainline run: 900 feet
Minimum radius: 40"
Minimum turnout: no. 6
Maximum grade: 3.5 percent
Benchwork: box grid
Height: 39½"
Roadbed: Homasote
Track: code 70 flextrack
Scenery: plywood table
Backdrop: painted drywall
Control: Digitrax Digital Command Control

Grand Street & Three Rivers RR

HO scale (1:87.1)
 Room size: 23'-0" x 124'-4"
 Scale of plan: 1/8" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson and Jay Smith

Staging tracks

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



"I'm the land developer and he's the property tycoon," Mike said. "It's a good partnership."

Glancing around at Rod's buildings, Mike adds, "I don't think of these as model railroad structures. These are artworks in three dimensions."

Rod signed and dated many of the structures. Because of his enthusiasm for the Celtic Football Club (a professional soccer team in Glasgow, Scotland), he often adds a match result or comment on the team's season to his signature.

Long-distance builders

To complete the mine, Mike and Rod e-mailed measurements and photos of

coal mines from the 1940s and '50s back and forth as Rod built the structures in England and Mike worked on the land contours in California. So smooth was their collaboration that when the buildings finally arrived in California, they fit the compact footprints of the scenes exactly. Only slight adjustments were needed in the mine area.

The two followed a similar process in planning and building the Celtic Steel complex. A number of kits from the Walther's Cornerstone Ashland Iron & Steel series are represented on the layout. Some were built straight from the box and detailed and weathered. Other kits were combined and rearranged to better fit Rod's vision for the mill, guided by

3 The blast furnaces and massive brick Celtic Coal & Steel building tower over the passing passenger trains on the layout's four-track main. The structures were inspired by Rod's visit to the former Bethlehem Steel Works in Bethlehem, Pa.

Mike's research and the historic reference photos he located.

For Rod, the process really came alive during a visit to the former Bethlehem Steel complex in Bethlehem, Pa.

With corporate roots stretching back to 1857, Bethlehem Steel grew to become the nation's second largest steel producer. A subsidiary, Bethlehem Shipbuilding, was the country's largest shipbuilder. The company was also heavily involved



in mining and was a world leader in rail-car production.

Steel production in its namesake city ended in 1995. Part of the 662-acre mill site was cleared for a \$600 million casino project. Ironically, a worldwide shortage of structural steel slowed the 2007 casino development for a time.

Sections of the former mill complex, including the plant's five gigantic blast furnaces, still stand near the casino. Tours of the remaining parts of the old mill are available, often conducted by former steel workers.

"We did a show in the casino, and in the afternoon I wandered around. My God, [steel mills] are so much bigger than you think," Rod said.



4 The new section of Rod's railroad focuses on heavy industry. The theme carries through from the scrap piles in the foreground, through the limestone and iron ore stockpiles in the middle, to the switcher working the high line in the background.

A life in railroads

Some of Rod's earliest memories involve trains. The windows of his childhood home in the Highgate district of London overlooked a railroad yard and steam-powered passenger trains operating out of Euston Station.

His father bought him an electric train set when Rod was 7. He built his first model railroad, a simple 4 x 6-foot train table, as a teenager. A much more ambitious layout followed, a 2-foot-wide around-the-walls layout in his bedroom with a hinged lift section at the door.

The room was small, which meant the bed had to be tucked under the benchwork. This arrangement led to a mishap that has become a part of rock 'n' roll history. Rolling Stones guitarist Ronnie Wood, a childhood friend of Rod's, stayed over one night. On waking the next morning he sat up very quickly and cracked his head on the underside of the benchwork.

Not long afterward, Rod's music career took off. In 1971, his song "Maggie May" became his first major hit and enabled him to purchase his first large house. By taking decisive action Rod soon made space for an ambitious layout.

"I knocked holes through three bedrooms for the trains to go through and come back," Rod recalled.

Four years later, however, he left it behind and moved to the United States. From 1975 to 1993, Rod was without a railroad, but not without a hobby. He filled the time building structure kits.

When he moved into his present home in Los Angeles, Rod and Malcolm Cullimore, his personal assistant at the time, started planning the Grand Street & Three Rivers RR. — *Carl Swanson*

The singer was especially impressed by Bethlehem's role in the "Arsenal of Democracy." In both World Wars, the company was part of the industrial effort that helped achieve Allied victory.

From inspiration to historic photographs to steel mill kits and rolling stock, Rod had everything needed for

the final major scene on his Three Rivers City. There was one remaining challenge to overcome — and it was a tough one.

Stuck and unstuck

More than 20 years ago Rod and a friend, Malcolm Cullimore, planned the



Meet Rod Stewart

Sir Roderick David Stewart is a Grammy Award-winning singer and one of the best-selling recording artists of all time. He's also a *New York Times* bestselling author for his autobiography *Rod*. He tours extensively and is a headliner at Caesars Palace in Las Vegas. In 2017, his song "Maggie May" will enter the Grammy Hall of Fame. His Grand Street & Three Rivers RR has been the subject of three previous *Model Railroader* cover stories. Rod has eight children and is married to model and photographer Penny Lancaster.

footprint of the layout and established its track plan. Benchwork followed quickly, and Rod soon had the four-track main line winding around the room. Then Rod really set to work, adding structure after structure and street after street.

Downtown, with its towering skyscrapers, was first to take shape. A major passenger terminal followed, then a river port. After years of effort, a steam service complex and roundhouse completed one side of the layout. Turning the corner and working his way methodically back down the room, Rod added a rural countryside and laid out the mine scene.

Along the way, Rod decided a steel mill would be the finishing touch on his layout. With everything else completed, or nearly so, Rod faced a dilemma.

The downtown scene is on an elevated platform alongside – and a few inches above – the corner of the room reserved for the future steel mill. American cities don't typically have heavy industry across the street from its tallest skyscrapers. Although Rod's layout is freelanced, he's determined that it look like a place that could really have existed.

Separating downtown from steel town required a logical transition, and it could occupy no more than a few inches of layout real estate. Even as he was working his way around the room, Rod knew he

needed to solve that problem before anything could happen with the steel mill.

Even so, he wasn't overly concerned. Building a layout is a creative process, he feels. Drawing a comparison that comes naturally to him, he says model railroading is very much like writing a song.

As the author of classics like "You're in My Heart," Rod said songwriting and modeling are things that can't be rushed.

"It's all up to the imagination. It's like writing songs. One minute you've got an idea and then you think, 'No, that's not going to work, wait until tomorrow' and then it all came together."

In time, the key to finishing Three Rivers City appeared just as he knew it would, in a flash of inspiration.

Rod realized he could extend an existing downtown avenue in the foreground of the elevated city center across the future steel mill on a bridge running parallel to the back wall of the room.

With the bridge in place, he then added a backdrop of hills on the wall, crowned by building flats to form a picture of a city curving away in the distance, its grand buildings overlooking a valley of heavy industry. Between the bridge and aisle, a small river inlet with a dock scene separates city from industry.

"A eureka moment," Rod added with satisfaction.

Work on the layout's steel mill moved into high gear. A web of industrial tracks was laid, some on elevated trestles, followed by blast furnaces, rolling mills, a power plant, and the massive brick Celtic Steel building.

With these in place, the layout is nearly complete. There are a couple of small bare spots to fill in, and it's possible an older building or two may be retired and replaced by improved models, but Rod is content with what he has built.

In all, construction of the 23 x 124-foot Three Rivers City took 23 years of steady effort.

"Obviously that's not 23 years, every day, seven days a week," Rod adds. "I have to go out and earn a living."

As Rod's modeling skills got better, some of the early buildings on the layout were replaced by improved structures. Many details and small scenes were added as Rod went along, but he never revised the basic plans he and Malcolm developed two decades ago.

Asked if he would do anything differently, now that he can step back and assess the railroad as a whole, Rod said, "I would have liked it to have been more accessible. I wanted there to be real honest depth in the buildings, so I sacrificed the access points."

There are, he adds, a few places where one can gain access to hidden tracks, or crawl under the layout and stand up behind the hills, but other areas, especially the downtown buildings along the wall, are difficult to reach. Fortunately, he adds, the room is fairly dust-free.

"It's a really good room. We keep it very clean. We always keep the door closed and we filter the air."

Rod said the freelanced nature of his railroad is the challenge that kept him focused over the decades.

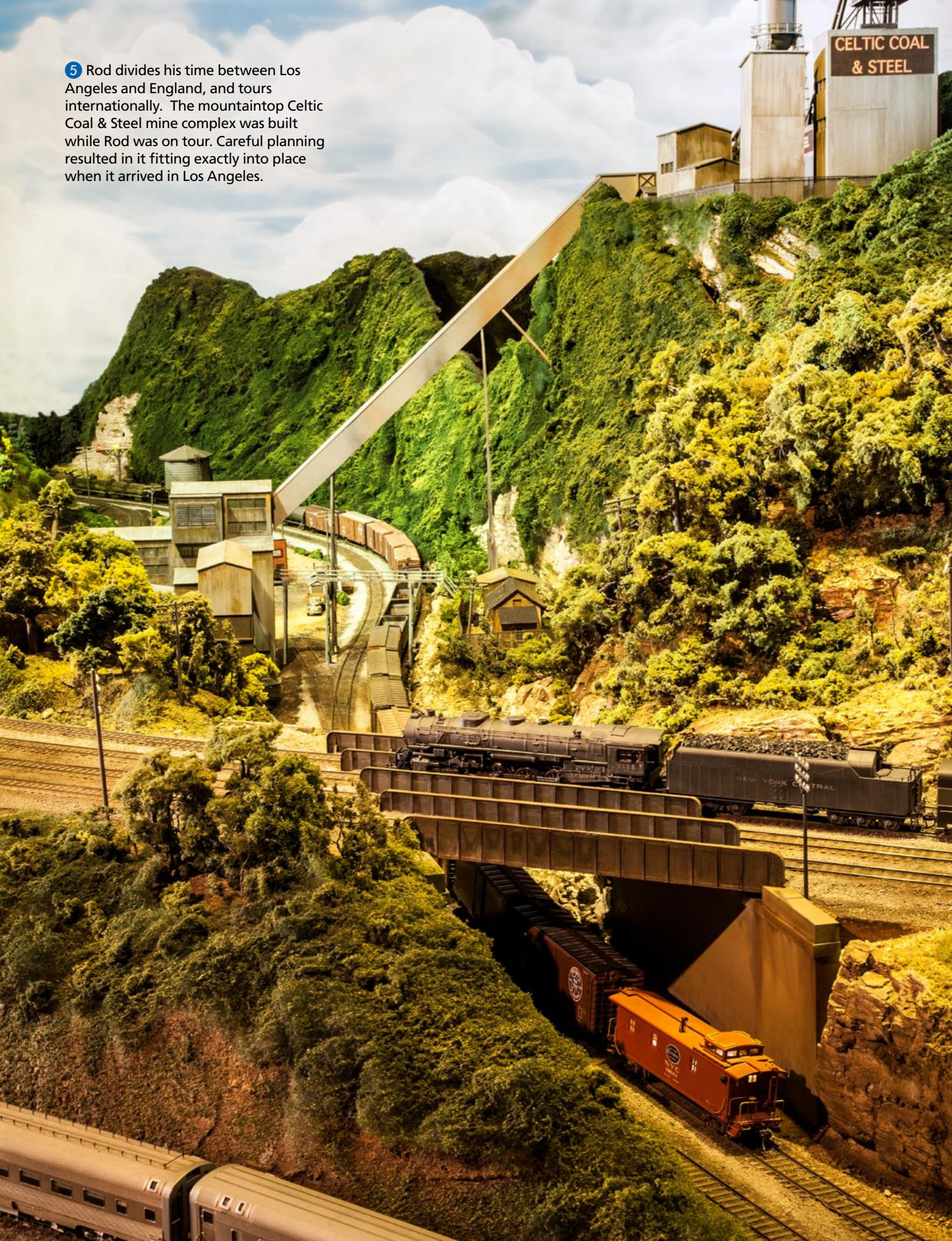
"I don't build cardboard mock-ups of things," Rod said. "I trust my intuition to get it right. There's about seven or eight buildings I didn't use because – when I was halfway through – I thought, 'No, not going to work. Try something else.'"

With the completion of the layout, Rod is facing a lengthy tour schedule without his traveling cases of tools, paints, and structure kits.

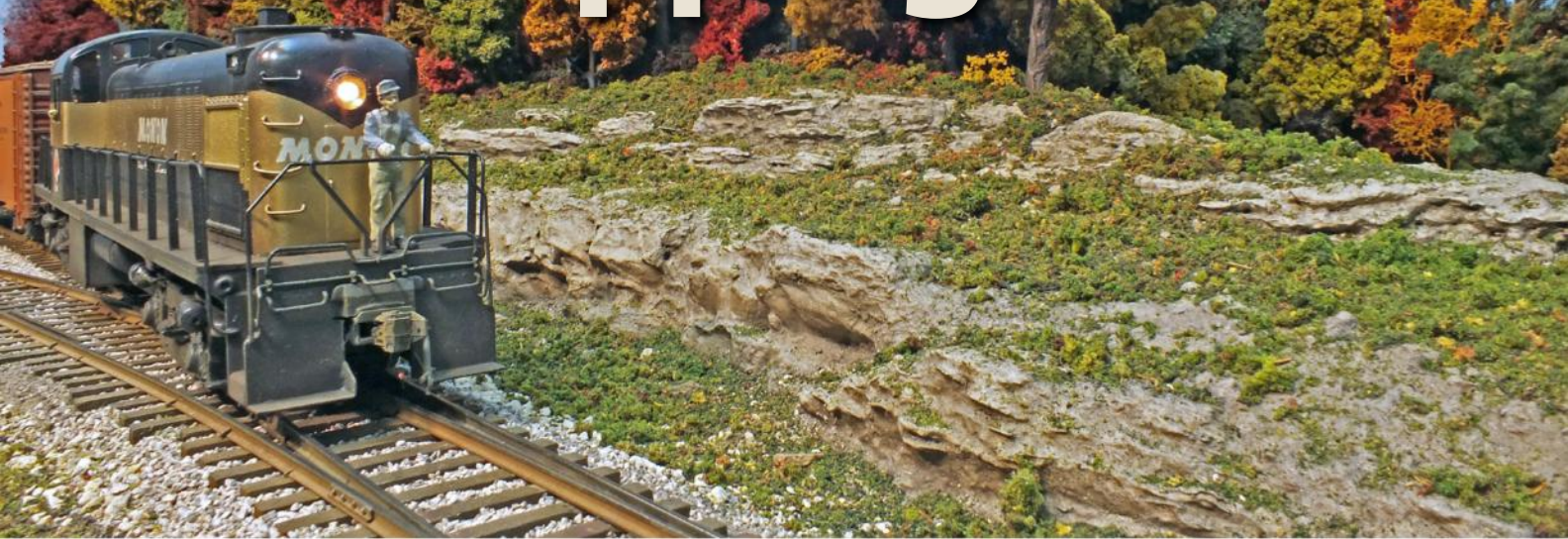
"There are a lot of mixed feelings at the moment," he said. "Yes, [the layout] is an accomplishment. Yes, I am very proud of it. Anybody who walks into that room and has never seen it is absolutely floored."

"They always say a model railroad's never finished. This one is finished." **MR**

5 Rod divides his time between Los Angeles and England, and tours internationally. The mountaintop Celtic Coal & Steel mine complex was built while Rod was on tour. Careful planning resulted in it fitting exactly into place when it arrived in Los Angeles.



How to model realistic rock outcroppings



Tree bark proved the perfect material for modeling exposed limestone on Roger Nulton's S scale Monon RR. Learn the techniques he used to model the rock formations and ground cover in this realistic-looking scene.

Tree bark, ground goop, and cat litter make convincing rocky scenery

By Roger Nulton • Photos by the author

Outcroppings are a prominent scenic feature in the part of Indiana that I model on my S scale Monon RR. When I started my layout, the available rock molds didn't work well to re-create the Indiana landscape. These molds represented vertical surfaces, and I needed something appropriate for sloped terrain.

Tree bark proved to be just the material I needed. Unlike rock molds, bark comes in an endless variety of shapes and convincingly models the top surfaces of rock. It can also be easily cut, shaped, and curved to fit the terrain.

Although I model in S scale, the techniques demonstrated in this article would work equally well in larger and smaller scales. Follow along as I show you how I use tree bark to model limestone outcroppings.

Basic landforms

Working from prototype photos is crucial for modeling scenery. I took several prototype photos along the former Monon right-of-way I model. Photo ① shows a rock cut that inspired the scene.

I don't think anyone is talented enough to model nature exactly. The best we can do is approximate shapes, colors, and textures. To that end, my prototype photos are an invaluable guide.

After studying my photos, I found that tree bark captured the texture and variety of shapes I needed to model the prototype scenery. I used both bark that I find in the woods and bagged bark mulch that's sold at lawn and garden centers. In ②, the large piece of bark on the left is from the woods, while the smaller pieces are from a bag of mulch.



① Prototype photos. Roger took several photos of the real landscape along the former Monon RR right-of-way. These photos guided him in his modeling efforts.

I already had track and rough scenery in place on the section where I wanted to add the rock cut. First, I glued scraps of extruded-foam insulation board to the scenery base using foam-safe construction adhesive. After letting the adhesive set overnight, I added a slope to the foam using a Surform planing tool.

I then placed pieces of bark against the foam, moving them around until I was satisfied with the look. I found it helpful to cut the backs of some pieces on an angle using a bandsaw to get a better fit. I also used the Surform tool to shape some pieces.



2 Tree bark. Roger uses both bark that he finds in the woods as well as pieces from bagged mulch. The bark doesn't need to be treated for pests, since he will be painting all the pieces.



3 Basic landforms. Scraps of extruded-foam insulation board carved with a Surform planing tool give the rock formations their basic shapes. Roger then hot-glued pieces of bark to the foam.



4 Ground goop. A putty knife, paint brush, and palette knife are the basic tools used to apply this mixture of Celluclay and vermiculite.



5 Ground goop over bark. Roger painted the bark with paint that was mixed to match an actual piece of Indiana limestone. He then used ground goop tinted with the limestone-colored paint to fill in voids between the bark pieces and make the wood look more like rock.

Satisfied with the arrangement, I glued the bark in place. Hot glue is the fastest way to attach the bark, but any water-based adhesive will work, too. The first layer of bark is shown in **3**.

Once all the bark was in place, I painted the entire rock formation with limestone-colored paint. I took a piece of real Indiana limestone to the paint store and had the clerk custom mix paint to

match the rock's color. I also had him color-match samples of Indiana dirt. I use these limestone and earth colors extensively on my layout scenery.

Ground goop and cat litter

I used a stiff mixture of "ground goop" to contour my layout's scenery. I made mine using equal parts of Activa

Products Celluclay, an instant papier-mache product sold in art supply stores, and vermiculite, which is available at lawn and garden centers. To this mix, I then added water, white glue, and latex paint for color. I keep two batches on hand: one colored for limestone, and the other colored for dirt. The limestone ground goop is shown in **4**. Ground goop can be stored in a sealed container



6 Cat litter talus. Roger sprinkled unscented, non-clumping cat litter over the rock face to represent talus, the rock debris that typically accumulates at the base of a cliff. The material is available inexpensively in large quantities. For a finer texture, he used track ballast at the base of the formation.



7 Paint wash. Roger painted the rocks a limestone color. He used diluted earth-colored paint to represent mud washed down the rock face by rain.



8 India ink and drybrushing. To add some definition to the rock formation, Roger sprayed it with a mix of India ink and isopropyl alcohol. He then drybrushed the rock faces to add highlights.



9 Finished scene. Roger finished the scene by adding ground foam to the rock faces to simulate moss. He also added a tree line along the backdrop.

for years. [For another method of making ground goop, see Lou Sassi's story in the March 2015 *Model Railroader*. – Ed.]

Before applying the ground goop, I sprayed the painted bark with wet water, which is simply water with a few drops of dish detergent added to it. This helps the ground goop adhere to the wood. I then used my fingers and a putty knife to apply the goop. A palette knife is also helpful for pressing goop into the voids between the bark pieces. Finally, I ran a stiff, wet paint brush horizontally along the rock face to help blend

everything together, as shown in photo **5** on the previous page.

Unscented non-clumping cat litter adds another layer of texture to the scene. Cat litter is very economical (I can get big bags of it for less than \$4 each), and it's a useful scenery material. In this scene I used cat litter to represent the talus and broken rock that accumulates at the base of rock formations.

As seen in **6**, I sprinkled the cat litter over the rock formation until it reached its natural angle of repose. I added track ballast around the base.

The ballast has a finer texture than the cat litter.

To fix the cat litter and ballast in place, I first sprayed the material with wet water followed by diluted white glue or matte medium. The wet water helped the diluted glue penetrate the material.

Painting and weathering

I painted the rock formation with a final coat of limestone-colored latex paint and the ground with a coat of earth-colored paint. When the paint dried, I applied a thin wash of earth-colored paint over the rock faces. This represents mud washed down the limestone slope by rain. See **7**.

Next I sprayed the rock formation with India ink diluted with alcohol. The India ink wash settled in the low areas and added definition to the rock formation. Then I drybrushed the high areas of the rock with light gray. The small amount of paint on the high areas of the rock simulates sunlight hitting the rock surface.

With painting and weathering complete in **8**, the area was ready for final scenicking. This included some ground foam on the rock faces to simulate moss and the tree line with fall foliage along the backdrop.

The finished scene is shown in **9**, and I think the rock formations realistically depict the Hoosier terrain. Although I model the limestone-laden hills of southwestern Indiana, these techniques can be used to model exposed rock outcroppings found throughout the country. I hope you'll give it a try on your model railroad. **MR**

Roger Nulton lives in Tacoma, Wash. This article is his first byline in Model Railroader magazine.

Model a modern log-grasping lift



Andrew Taylor converted his LeTourneau container loader into a wood handler by scratchbuilding a log-grasping lift.

This scratchbuilt detail turns an HO scale container loader into a wood handler

By **Andrew Taylor** • Photos by the author

The LeTourneau Letro-Porter machine was designed to lift trailers and containers on and off flatcars. After reading an article on scratchbuilding one in the August 1985 *Model Railroader*, I was so impressed that I built one. Though the task was time consuming, the finished machine was a fantastic HO model that has been the talking point among visitors to my layout for many years.

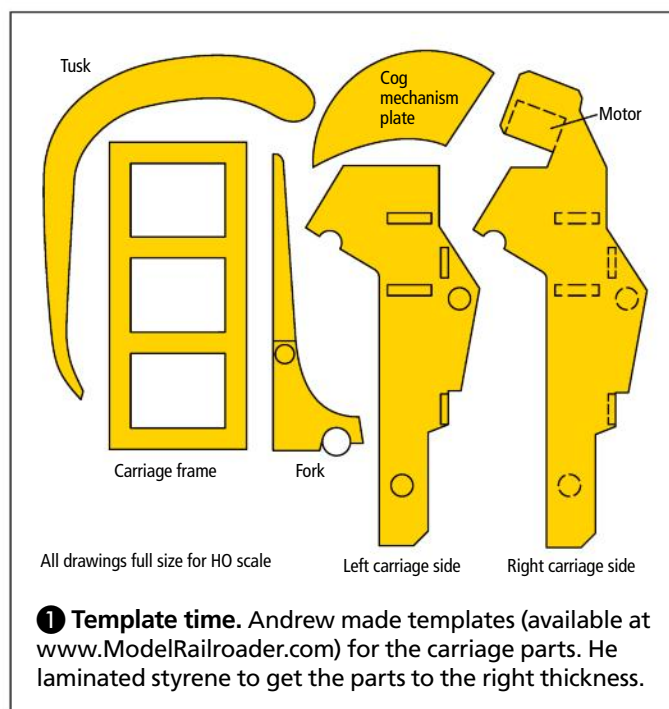
More than 30 years have passed since the article was first published. Though I still model the same period, I now favor branchline operations over mainline railroading. I didn't really have space for a piggyback terminal. However,

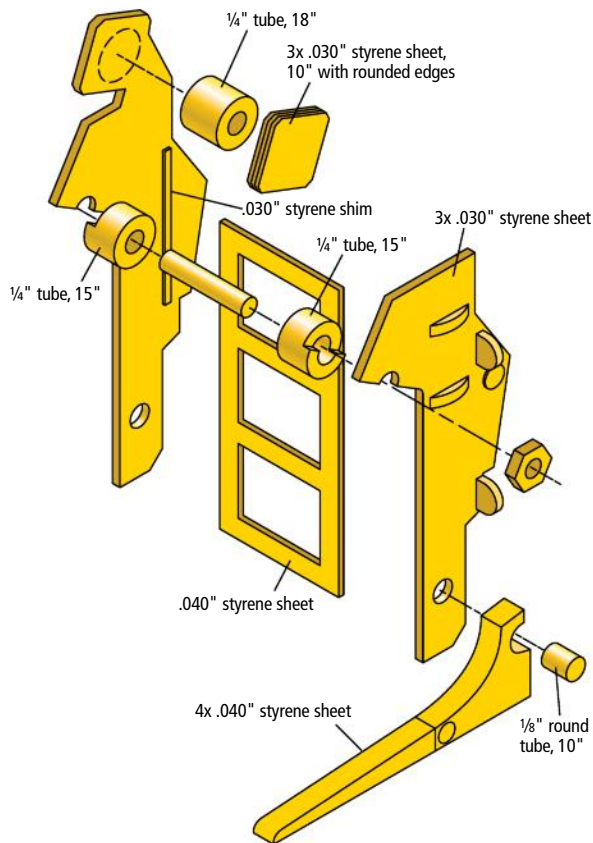
I didn't want to confine the LeTourneau to a display cabinet. To justify keeping the machine on the layout, I converted it to an HO log stacker.

My log-grasping lift is designed to fit on the scratchbuilt LeTourneau from the August 1985 MR. However, the plans can be modified to attach the mechanism to other appropriate tractors.

Prototype research

I downloaded brochures from the LeTourneau website (www.joyglobal.com/products/forestry-log-stackers) and studied prototype photographs to understand the details and dimensions of the log-grasping lift. LeTourneau makes various sizes of lifts.





② Carriage assembly. Andrew turned pieces of styrene sheet and tube into a log-grasping lift.

The HO model described here is sized to lift logs off 40-foot flatcars fitted with Details West log bunks.

Using a scanner, I enlarged the drawings from the brochure to produce scale templates. Although the body of the machine has changed over time, the log-grasping lift is basically unchanged.

Cutting the parts

The carriage supports the forks and tusks. I made the carriage sides by layering three pieces of .030" styrene sheet. I printed a template for each side (see ① on the previous page) and attached the template to the styrene with temporary tacky glue.

Once the glue dried, I cut out the sides. Then I laminated the sides to .030" styrene sheet with Tenax-7R cement. I cut out the now .060"-thick carriage sides and repeated the laminating and cutting process one more time. The final thickness of the sides should be .090".

I smoothed the edges of the carriage sides. Note that the right carriage side houses the motor that raises and lowers the tusks.

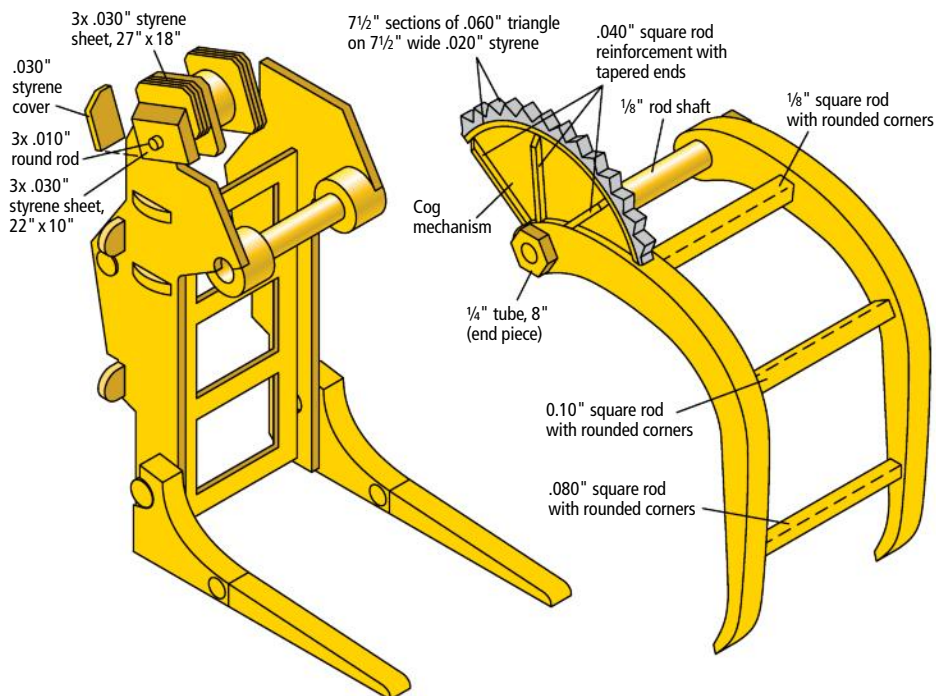
I next made two sets of forks and tusks using the templates shown in ①. The forks are four laminations of .030" styrene sheet, and the tusks are three laminations of the same material.

Finally, I made the carriage frame from .040" styrene sheet and a plate for the cog mechanism.

Building the carriage

Next, I shaped the two short sections of plastic tube that are attached to the carriage to carry the shaft for the tusks. See ②. I removed a semi-circular section of the tube equal to the thickness of the carriage sides and glued it to the carriage. The complete section of tube sits inside the carriage frame. I opened the hole in the carriage for the shaft by drilling through the tube. I then glued the carriage sides and carriage frame together.

Since the carriage is positionable, I glued .030" styrene shims to the interior of the carriage sides. I located the shims so the front of the carriage sides aren't behind the front of the wheels when seen from the side. This ensures logs won't rub on the wheels.



③ I am the walrus. Andrew used round and square rod as spacers for the tusks. He squared the sides on the round rod and rounded the corners on the square rod to match prototype photos.

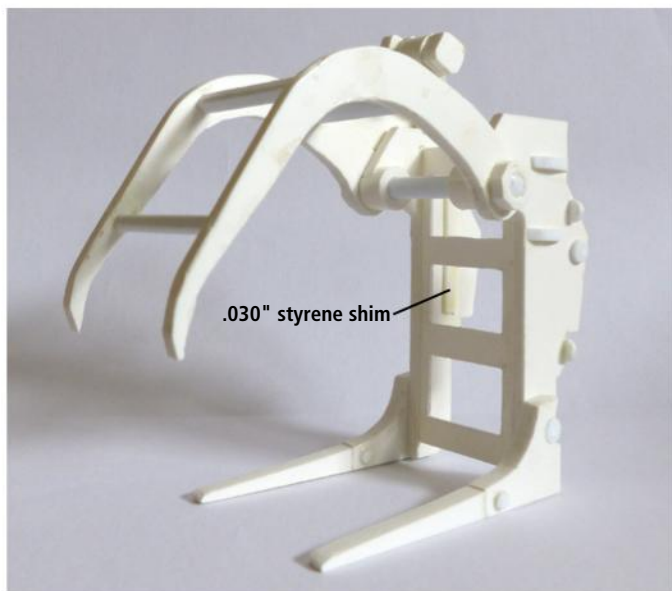
Materials list

Plastruct styrene

90606 1/4" round tubing
90682 HO scale handrails
90740 .040" square rod
90750 .060" square rod
90760 .080" square rod
90843 .060" triangular rod
90860 .100" round rod
90861 .125" round rod
91102 .020" sheet
91103 .030" sheet
91104 .040" sheet

Miscellaneous

Tulle (bridal veil material)



4 Paint me yellow. With all of the styrene parts assembled, the log-grasping lift is ready for the spray booth.

Tusk assembly

I aligned the two tusks and drilled a 1/4"-diameter hole for the shaft that will later enable the tusks to be fitted to the carriage sides. Then I checked the distance between the outer faces of the carriage. This equals the required length of the tusk spacers.

I cut and shaped the spacers, glued them to the tusks, and set the assembly aside to dry. See **3**. It's important to view the tusks from all angles to ensure everything is square, the mounting holes for the shaft line up correctly, and that the spacers are at a right angle to the tusks.

Then I made the cog mechanism shown in **3**. After shaping the base, I glued the mechanism to the right-hand tusk. The inner face of the cogs lines up with the inner face of the tusk.

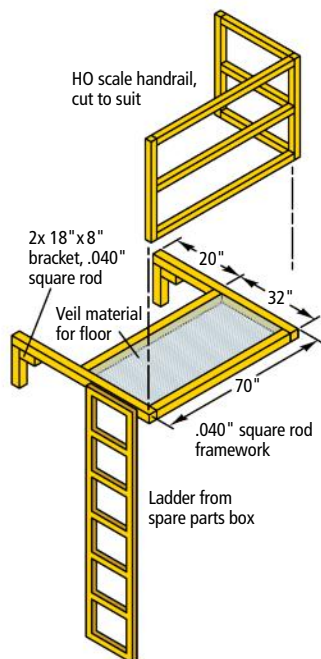
Finally, I test fit the shaft that connects the tusks to the carriage. The goal is to have the tusks raise and lower yet be stiff enough to hold in any position. Though the shaft will be glued to the tusks, it should rotate freely on the carriage.

Final assembly

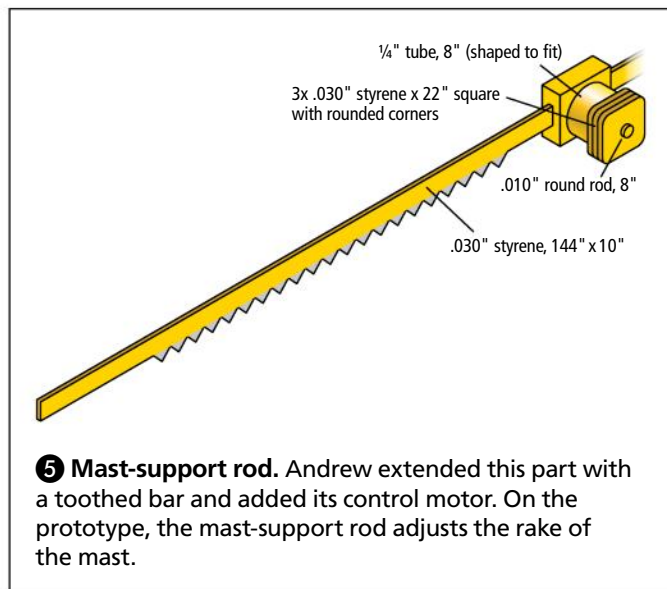
I glued the forks to the carriage, making sure they

were at a 90-degree angle. Then I installed the tusks by threading the shaft through the tusks and carriage sides. I secured the tusks to the shaft with a dab of glue applied from the outside of the frame.

Next, I made the motor for the cog mechanism. The outer part of the motor sits over the teeth of the cog. The lift is now complete and ready for painting. See **4**.



6 Easy access. The ladder and gantry allow mechanics to work on the lift. Andrew used tulle mesh to make the platform see-through.



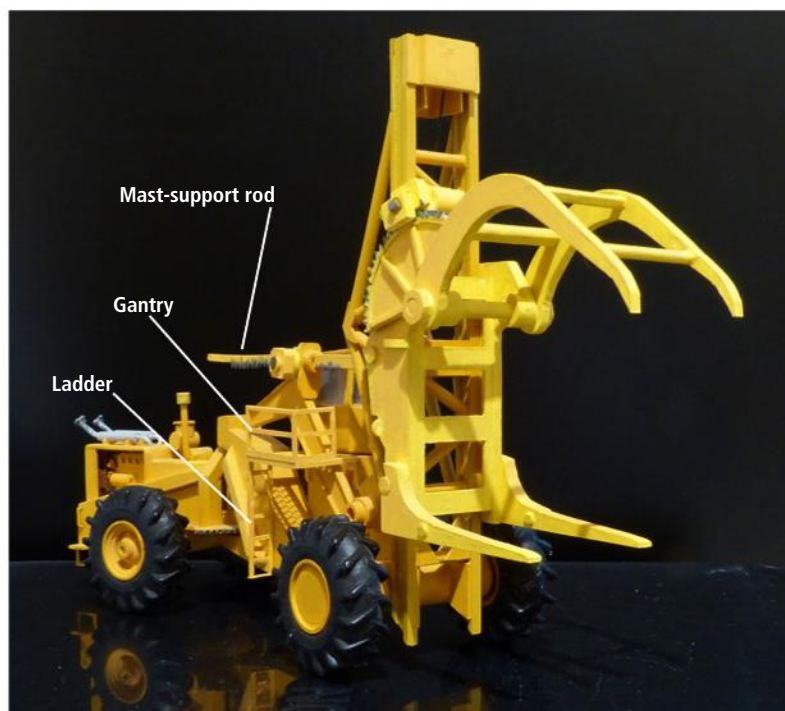
5 Mast-support rod. Andrew extended this part with a toothed bar and added its control motor. On the prototype, the mast-support rod adjusts the rake of the mast.

I made two modifications to the original LeTourneau machine. I extended the mast-support rod with a toothed bar and added its control motor, as seen in **5**. This adjusts the rake of the mast on the full-size machine; it's fixed on the model.

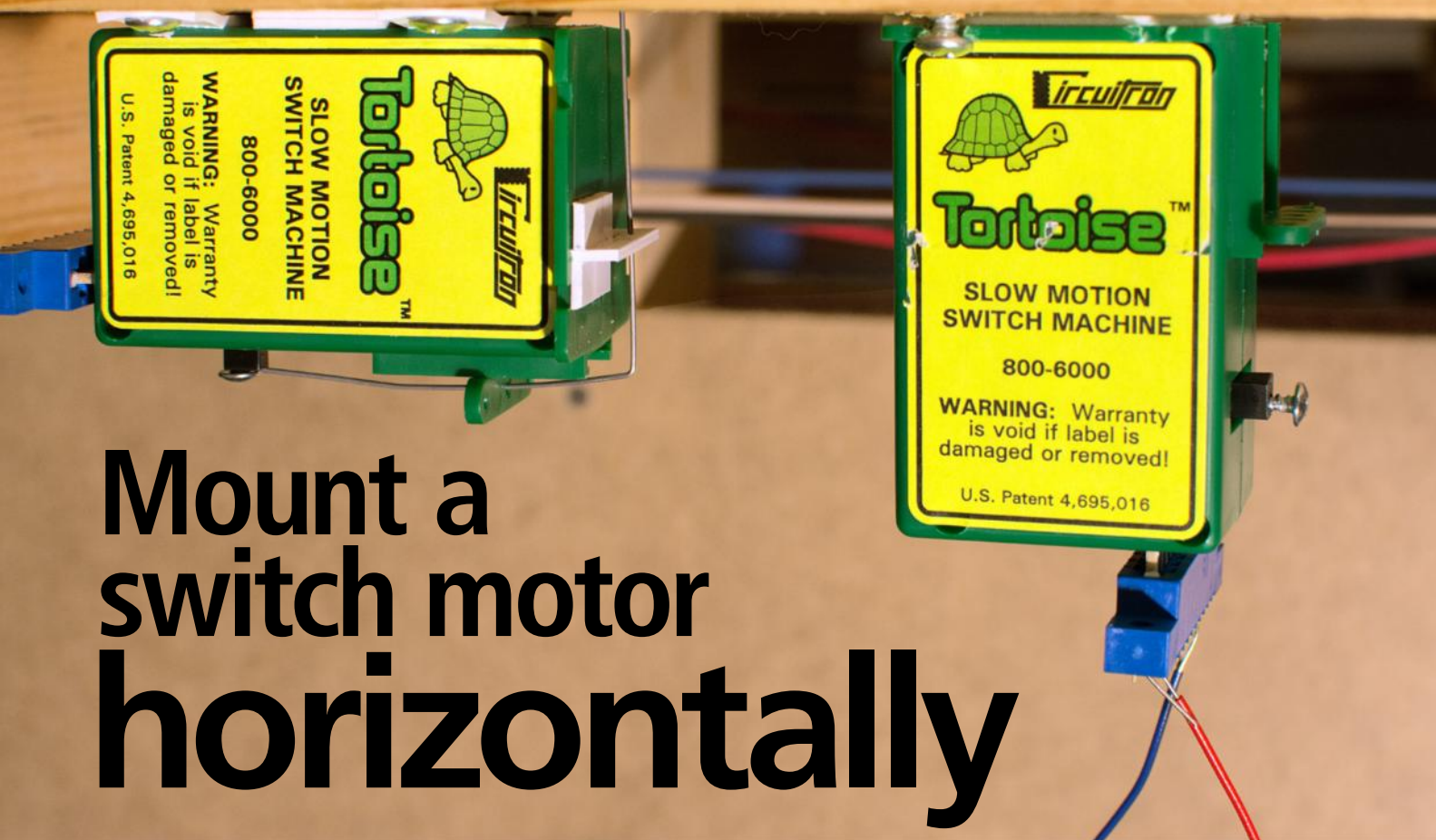
I also added a ladder and gantry that enable the motor for the cog mechanism to be serviced. The gantry, **6**, seems to be optional, as I've seen log stackers without them.

If all has gone to plan you will have a log-grasping lift that can be raised and lowered with operable tusks capable of supporting the weight of a full load of logs. The finished model is shown in **7**. My LeTourneau is now in service again – far better than sitting on a shelf. **MR**

Andrew Taylor lives in the United Kingdom. This is his first article in Model Rail-roader magazine.



7 Ready for service. This view of the right side of the LeTourneau log stacker shows the ladder, gantry, and extended mast-support rod.



Mount a switch motor horizontally

This side-by-side comparison shows how much vertical space is saved by mounting a Tortoise by Circuitron switch motor on its side. Ron St. Laurent was able to make this adaptation for less than \$1 per motor.

Need extra space between decks? Try tipping the Tortoise

By Ron St. Laurent • Photos by the author

The **Tortoise by Circuitron** switch motor has been a staple in model railroading for many years. When mounted vertically, the motor stands 3 $\frac{3}{8}$ " tall. But what if you have a low-profile fascia or a multi-deck layout where every inch between levels counts? By mounting the Tortoise on its side, the

switch motor's profile slims down to 2 $\frac{3}{16}$ ".

All you need to mount the motor on its side is .060" sheet styrene and .032" music wire, also called piano wire. The price per conversion is less than \$1.

Try this method of mounting your switch motors in areas where vertical

space is a factor. I'm sure you'll be satisfied with the results.

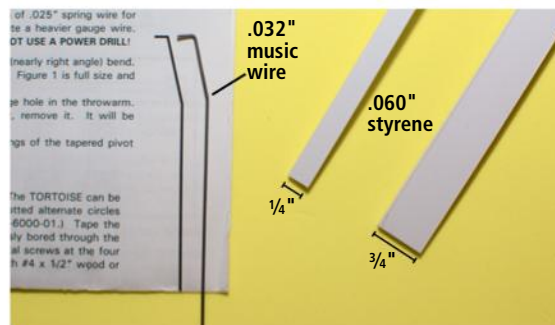
Ron St. Laurent is a retired General Motors program quality manager. He's a member of the Lansing (Mich.) Model Railroad Club and has served as treasurer for 11 years.

Step 1 Cutting the styrene

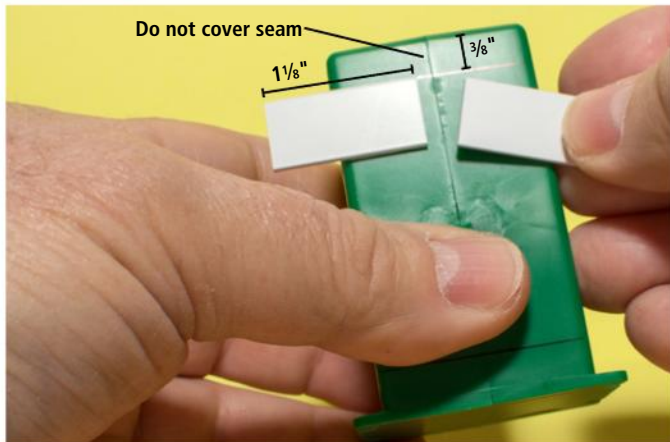
First, I cut the .060" styrene into $\frac{1}{4}$ " and $\frac{3}{4}$ " strips. At this point the styrene is oversize; I trimmed it to its final length later.

Next, I cut the .032" music wire into 7" pieces with a pair of hardened steel cutters (Xuron no. 2193, for example) and bent the wire as shown in the Tortoise instructions. I've found the wire supplied with the Tortoise too short and too flexible for horizontal installations.

The length of the wire may vary based on your installation. However, I've found 7" provides enough extra wire for reaching through plywood, foam, and cork.



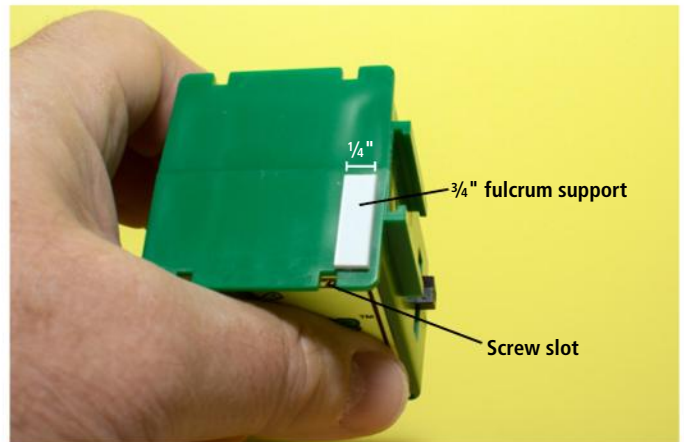
Step 1 Cutting the styrene (cont'd)



I then cut the $\frac{3}{4}$ "-wide strips of .060" styrene into $1\frac{1}{8}$ " lengths. These are the new mounting tabs. Four are required for each switch motor.

I glued the styrene to the motor with liquid plastic cement, $\frac{3}{8}$ " from the edge on the side opposite the throw arm.

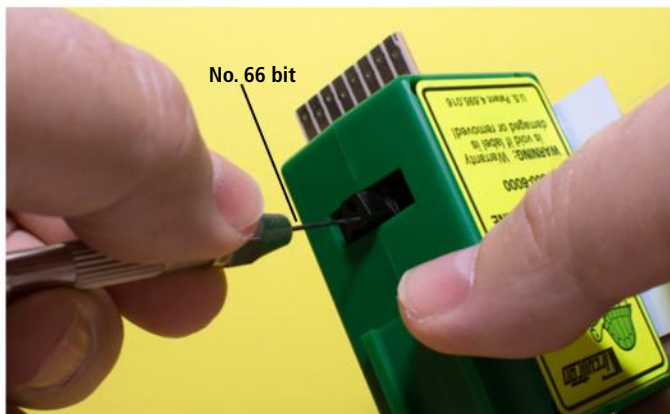
Be careful to keep glue away from the seam on the switch motor's plastic case. This access makes it easier to work on the motor in the event repairs are necessary.



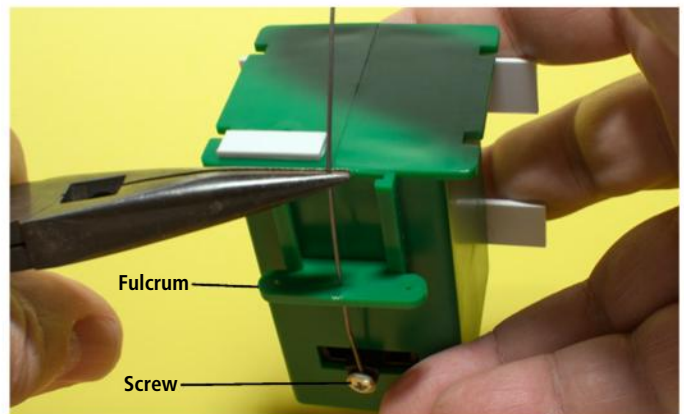
I next cut the $\frac{1}{4}$ "-wide styrene strip into two $\frac{3}{4}$ " pieces for the fulcrum supports and one $1\frac{1}{4}$ " piece for the fulcrum (more on this in **step 3**).

Using the corner of the screw slot as a guide, I attached the first fulcrum support. At this point I let the machine sit overnight so the glue would form a solid bond.

Step 2 Adding wire



I enlarged the hole in the Tortoise throw arm using a pin vise with a no. 66 bit. This is necessary to accommodate the .032" wire.



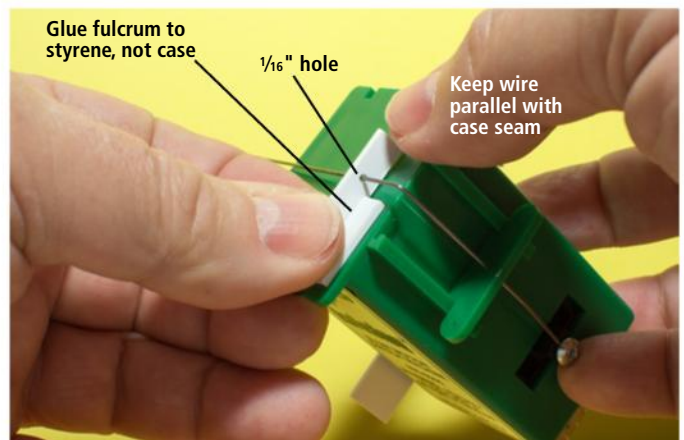
I added the green fulcrum to the motor. Then I screwed the .032" music wire to the throw arm. After moving the throw arm to the center, I bent the wire to a 90-degree angle.

Step 3 A second fulcrum

With the wire bent, I was ready to work on the second fulcrum, which is a $\frac{1}{4}$ "-wide, $1\frac{1}{4}$ "-long piece of .060" styrene.

First, I drilled a $\frac{1}{16}$ " hole, centered on the styrene, $\frac{7}{8}$ " from the end. I then slid the fulcrum on the wire, positioned the fulcrum against the support I added in **step 1**, and adjusted the fulcrum so the wire was parallel with the case seam.

Once properly aligned, I glued the fulcrum to the support. As before, avoid getting glue into the case seam. The fulcrum should float over the seam. Then I added the second fulcrum support.



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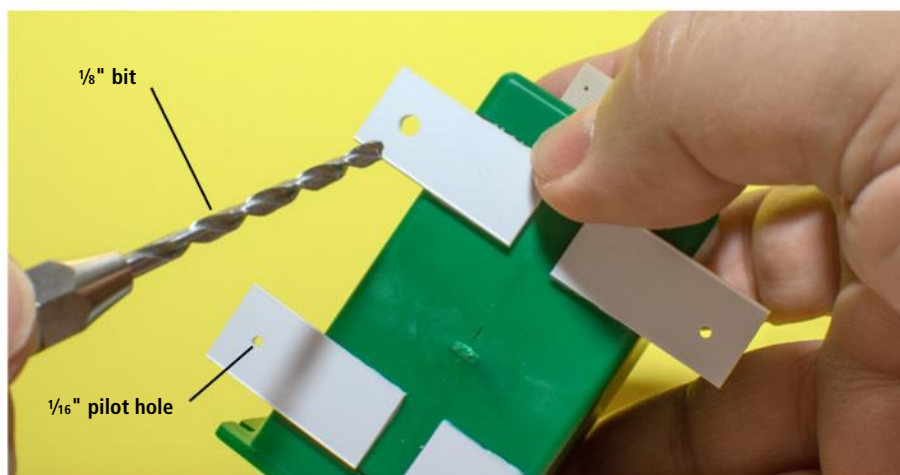
HO Scale

The Coach Yard

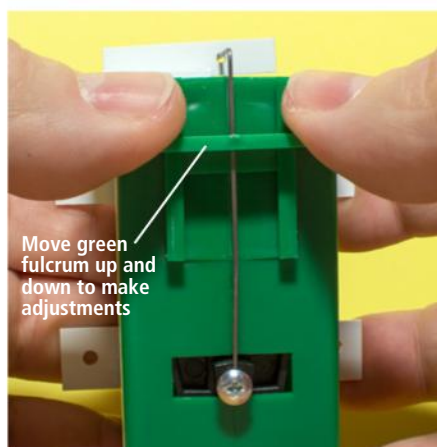
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Step 4 Ready for installation



I used a 1/16" bit to drill pilot holes in the .060" styrene mounting brackets. Then I followed that up with an 1/8" bit, which is large enough for the screws.



Any final throw adjustments can be made by sliding the green fulcrum up and down with the throw arm in the center position, as shown in the photo at left. I find positioning the fulcrum in the center works well.

Mounting the switch motor horizontally, as shown in the image below, keeps the fulcrum fully accessible.



Use your preferred method to install the switch motor. I like to apply double-sided foam tape to the mounting side of the motor. Then I center the motor's output arm and turnout's switch rod.

Next, I place a piece of tape across the switch rod to hold it in place. From under the layout, I slip the wire through the switch rod and gently press the motor to tack it to the bottom of the benchwork.

At this point, I look at the wire passing through the switch rod and confirm that it passes straight through the hole. With the position confirmed, I firmly press the motor to set the tape.

Finally, I add the four mounting screws and cut the wire at the switch rod. **MR**



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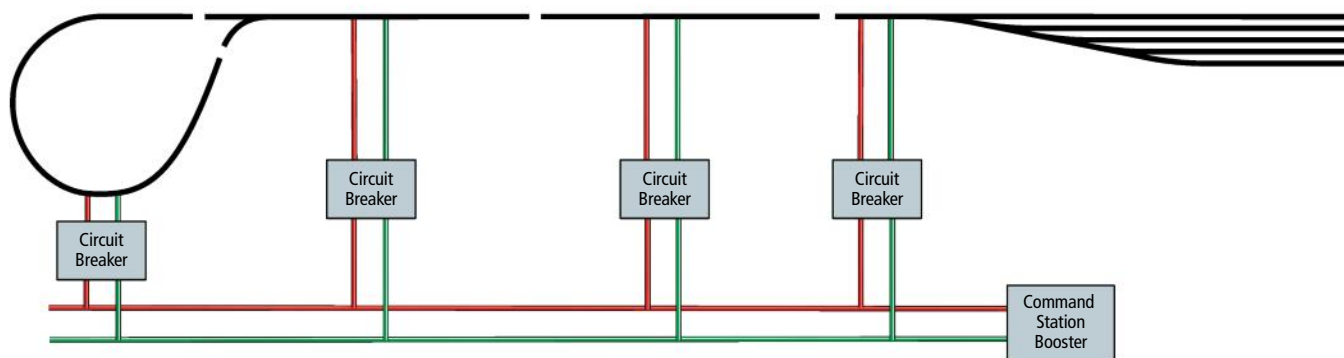
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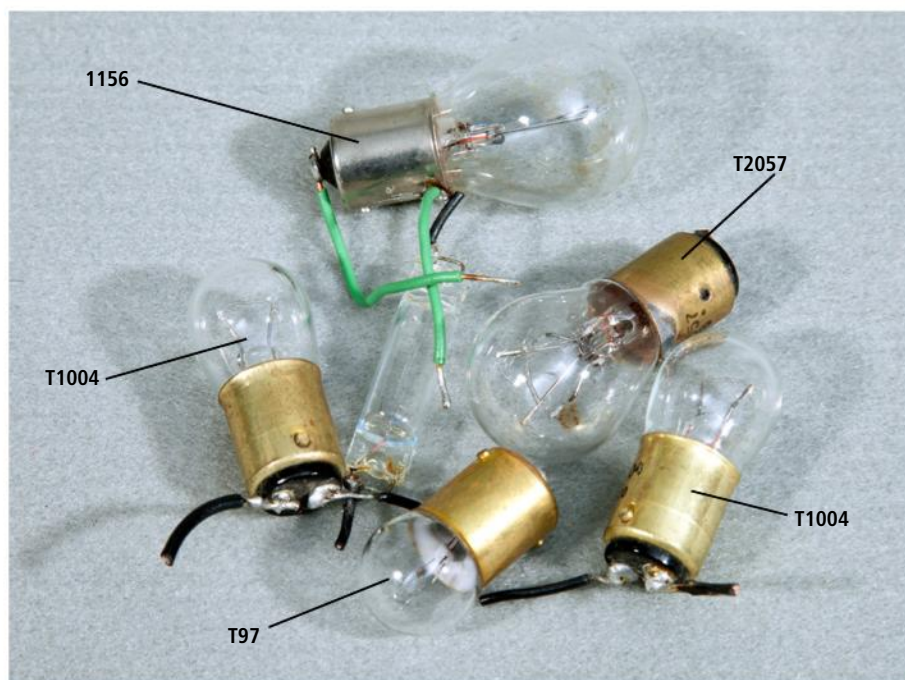
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gulliversgate.com



Keeping short circuits at bay with DCC



1 Circuit breakers may be used with a single command station/booster to divide a layout into isolated blocks and protect against short circuits. This month, Larry Puckett goes over some of the advantages of different kinds of circuit protection.



2 **Light in the darkness.** Many 12V automotive bulbs can be used as ballast lamps, but some experimentation may be necessary to find the optimal combinations of amperage. Larry found these bulbs, identified by number, at his local auto parts store. The packages were labeled with amperage and voltage ratings.

Dealing with short circuits has a long history in model railroading, and they became more of an issue when Digital Command Control (DCC) came along.

With DCC, all the trains on a layout may be powered by one command station/booster, and if it shuts down due to a short, everything comes to a halt. And with boosters supplying up to 10 amps, there's potentially a lot of wattage involved that can translate into heat under the right circumstances.

Most common causes for shorts are:

1. Tools, screws, and other metal objects left on the rails;

2. Out-of-gauge wheels or oversized wheel treads running through turnouts;

3. Derailments on turnouts at frogs and switch points;

4. Running past rail gaps at the frog ends of power-routing turnouts; and

5. Polarity changes in turnout frogs, reverse loops, wyes, and on turntables.

The first problem is easy to deal with – don't leave things on the rails. As far as the others, wheels should be checked when initially put into

service. I wrote about power-routing and all-live turnouts in the November and December 2015 DCC Corner columns.

Dealing with polarity issues in item 5 can usually be handled with the various autoreversing circuits from DCC Specialties, Digitrax, Model Rectifier Corp., Tam Valley Depot, and others. Another approach when using a Tortoise by Circuitron slow-motion motor on turnouts is to wire one of the two built-in single-pole double-throw (SPDT) switch to automatically correct polarity each time the route is changed.

My focus in this article, though, is to concentrate on how to deal with shorts that result in shutting down the entire layout. By dividing the layout into electrically isolated sections or blocks 1, we can prevent a short in one section from affecting the other sections of the layout.

In the early years of DCC, this meant installing a booster for each electrically isolated block in the layout, but that's expensive overkill. One less-expensive thing we can do is install circuit breakers that work similarly to those in our homes.

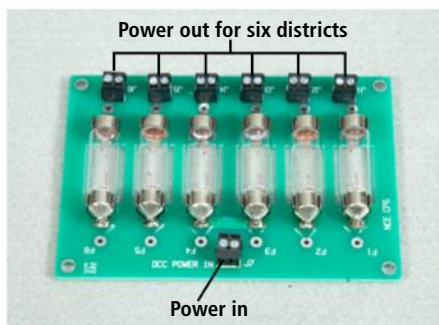
Circuit breakers for DCC range from simple and cheap to complex and expensive, and each has its own advantages.

The least expensive one, which is actually a circuit limiter, is a simple 12V automotive light bulb, referred to in this use as a ballast lamp.

Ballast lamps 2 work by wiring a light bulb into one of the wires of the power bus powering the block. When a short occurs, the lamp turns on and limits the current in the affected block. One good

ON THE WEB

Model Railroader Video Plus subscribers can watch "How-to Library: DCC Installation for large layouts, Part 4 - Setting up power districts" at MRVideoPlus.com



3 Improving on the basics. The NCE Circuit Protector ballast lamp-based device provides protection for up to six power blocks at a rating of 1 amp each with the standard bulbs and 1.75 amps with optional bulbs.

thing is that as long as the ballast lamp is mounted in a visible location, you know where the short circuit is as soon as that light bulb turns on. As always, the devil's in the details, so let's take a closer look.

Ballast lamps work essentially as variable resistance electrical components. When the current passing through the filament is low, the resistance is also low and the bulb doesn't light up. However, when a short occurs, the full current of the booster attempts to flow through the bulb filament, the bulb lights up, and resistance increases.

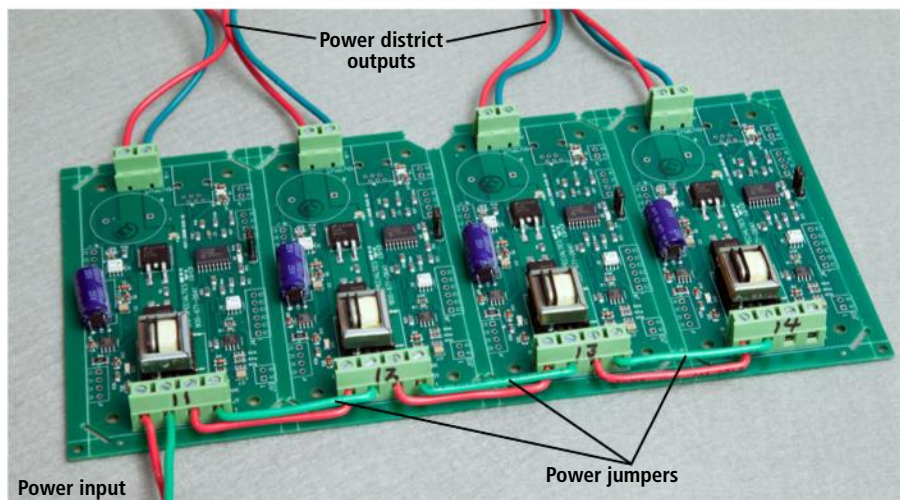
The result is that the current flowing to the affected block is prevented from exceeding the maximum operating current of the bulb. The bulb most commonly used for this purpose is the 1156 taillight bulb, and its maximum operating current is about 2.1 amps.

The weak point of ballast lamps is they don't stop current to a short, they only limit it to the operating current of the bulb. That bulb can get hot, and so can the point where the short is occurring.

Another aspect of the variable resistance feature of ballast lamps is that, like any resistor placed in your track wiring, they will reduce the voltage, and the voltage will vary depending on how much current is flowing.

Normally, the current draw of a single locomotive isn't enough to significantly affect track voltage. However, when several locomotives are running, they can draw 1 amp or more. Then the bulb will start to glow, voltage will drop, and your trains will slow down. This will happen whether there's a short or not.

So with an 1156 ballast lamp, if you're running several locomotives pulling a total of 1 amp, you'd lose about 2.8V



4 Making a break. Electronic circuit breakers like this PSX-4 from DCC Specialties are available from several manufacturers in various configurations and capabilities.

from your track voltage. Instead of, say, 14V on the track, you'd be left with only about 11.2V, and your locomotives would slow accordingly.

Of course you could compensate by increasing the booster output voltage to 15.8V. However, the track voltage will still vary depending on how much current is flowing through each ballast lamp.

Another downside is that the 2.1 amps used by the 1156 during a short circuit is subtracted from your total available amperage from a given booster. So the 1.44 amps provided by the NCE PowerCab power supply would be inadequate and everything would come to a halt as soon as a short circuit occurred.

Even systems like a Digitrax Zephyr, with its 3 amp output, would only have .9 amp left when a short occurs. A short while running other trains could lower voltage enough to cause erratic operations with some sound decoders.

There are other bulbs available. The NCE Circuit Protector **3** comes with ballast lamps rated at 1 amp; bulbs rated at 1.7 amps are available as an option. For more information on ballast lamps, visit Allan Gartner's website (www.wiringfordcc.com) and Marcus Ammann's website (www.members.optusnet.com.au/nswmn/1156.htm#_top).

On the more expensive side are circuit breakers **4**. These devices, available from DCC Specialties, Digitrax, MRC, NCE, Tam Valley Depot, and others, sense when a short circuit occurs in the block they're protecting and completely shut power off. Most are solid state electronic devices, although some may use relays and be a bit slower as a result. Most of these circuit breakers can be set up to activate at various trip currents. They're also self-resetting and will repeatedly attempt to re-establish power.

There are a couple things to look out for with these circuit breakers. First, low output boosters such as the PowerCab may not be powerful enough to stay on if the circuit breaker cycles on and off during a full short. To counter this problem, some circuit breakers can be configured to remain off in case of a such a short, and then be restarted using a remote switch once the short circuit is removed.

Unlike ballast lamps, circuit breakers are wired into both wires of your power buses. Because they can be set for specific trip currents, they allow you to customize your power districts and manage the power available from your boosters and command station in much the same way the circuit breakers in your house circuits are rated for different amperages.

This allows you to operate a large layout using fewer boosters. I'll have an article in the October 2017 *Model Railroader* on power management. In the meantime, visit my website at www.dccguy.com or pick up a copy of my book *Wiring Your Model Railroad*, available from Kalmbach Books at www.KalmbachHobbyStore.com. 





WalthersMainline HO scale Plymouth ML-8

Small switchers, such as this Plymouth ML-8 modeled by Walthers, toiled away for decades at various trackside industries and railroad shops. The Walthers-Mainline model captures the look of its prototype “critter” and features impressive power for such a diminutive locomotive. The model is available in direct-current (DC) or Digital Command Control (DCC) versions. We tested the DCC version that features a SoundTraxx motor decoder (non-sound) with CurrentKeeper technology.

Prototype. Under the name J.D. Fate Co., the first locomotive rolled out of the plant at Plymouth, Ohio, in 1910. The company that eventually became the Plymouth Locomotive Works built more than 7,500 industrial locomotives for customers worldwide until the company was sold in 1997. Although Plymouth designed some heavier locomotives, most of those sold weighed 25 tons or less.

Like many industrial locomotive builders, Plymouth offered several models that could be further customized to

meet a customer’s specifications. The locomotives could be powered by gasoline or diesel engines connected to the axles via either a hydraulic or mechanical transmission.

Depending upon the engine used, a 25-ton ML-8 like that modeled by Walthers could produce 220 to 300 hp. On straight-and-level track the switcher could pull 500 tons per 100 hp produced.



The ML-8 features a die-cast metal hood and plastic cab with clear window glazing. The front and rear headlights are light-emitting diodes (LEDs).

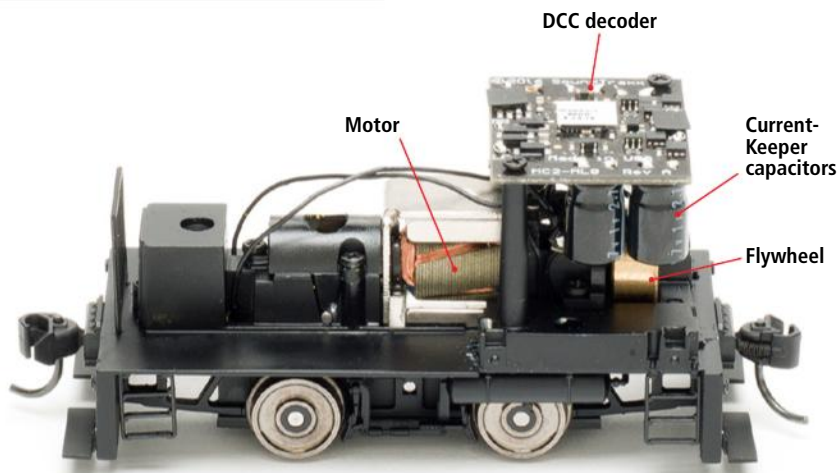
Model. The basic dimensions of the Walthers model match those of a prototype diagram for an M-series standard gauge locomotive in a Plymouth Locomotive Works catalog.

While the model’s cab is plastic, the hood and underframe are die-cast metal. Those components, as well as the mechanism, contribute to the locomotive’s weight of 3.6 ounces.

The engine-access doors and vents are crisply cast in the metal hood. The raised PLYMOUTH lettering on the end of the hood above the radiator is especially well done.

Separately applied plastic detail parts on the model include the footboards and handrails as well as the stack, bell, and sand dome along the top of the hood. The etched-metal radiator grill captures the depth and texture of the prototype part. All the cab windows feature clear plastic glazing.

Our review sample is smoothly painted in a medium blue with a white roof. The blue paint on the die-cast metal hood perfectly matches the shade on the plastic cab. The handrails and PLYMOUTH



The switcher's heavy die-cast metal frame provides solid pulling power for such a small locomotive. The decoder and CurrentKeeper capacitors fill the cab.

lettering above the radiator are neatly painted white.

For our unlettered sample, Walther's thoughtfully included a sheet of decals with white and black numbers in both serif and sans-serif fonts. The decal sheet also features heralds for a variety of free-lanced trackside industries that Walther's has offered as structure kits over the years. This makes it easy to add a dedicated industry switcher to Medusa Cement, Washington Salvage, Glacier Gravel, and several other popular Walther's kits.

Mechanism. As per the instructions, I removed the cab and hood as a single unit. A screw behind the coupler box holds the hood to the chassis, while locking tabs hold the front and rear of the cab to the chassis. I squeezed the cab and gently rocked it back and force until I could get my hobby knife between the plastic shell and the chassis to disengage the tabs.

The cab interior is filled with the DCC decoder and CurrentKeeper capacitors. There's no additional room for an onboard speaker for those wondering if an onboard sound system could be added.

A worm connects the flywheel-equipped motor to a gearbox that drives both axles.

Performance. The switcher has impressive pulling power for such a diminutive locomotive. On our layout, I easily shifted cuts of four to five scale 40-foot cars, some carrying 3-ounce loads that weighed more than the cars themselves.

As stated on the Walther's product listing and confirmed on our test track, the decoder-equipped model will operate only on DCC layouts. During speed tests the model accelerated smoothly from 4 scale mph in speed step 1 to 64 scale mph in speed step 28. The top speed of the prototype was about 25 mph.

After I set the decoder for 128 speed steps, the ML-8 crept along at less than 1 scale mph. The speed can be further fine tuned, including lowering the top speed, with preset or custom speed tables. Acceleration and deceleration momentum can also be added. A diesel user manual and list of programmable configuration variables (CVs) is available at www.soundtraxx.com.

The factory-installed SoundTraxx CurrentKeeper capacitor pack is a smart addition on a locomotive with a wheel-base of less than an inch. The capacitors store enough power for the HO switcher to easily roll over an unpowered turnout frog or dirty stretch of track without so much as a headlight flicker.

To test the CurrentKeeper, I covered a 2-foot long stretch of track with tape. I then ran the Plymouth from a powered section of track onto the tape-covered track. The locomotive kept rolling at a steady speed over the unpowered rails.

Although it doesn't have sound, the SoundTraxx motor decoder has many of the programmable features of the firm's Tsunami and Econami decoders. I was happy that I could easily set up one of my favorite SoundTraxx features, the train brake, on the Plymouth. With this feature I could use a function button

Facts & features

Price: \$149.98 (DCC-only), \$99.98 (DC)

Manufacturer

Wm. K. Walther's Inc.
5601 W. Florist Ave.
Milwaukee, WI 53218
www.walthers.com

Era: 1920s to present

Paint schemes and road names:

Painted blue but unlettered; painted yellow but unlettered; Atchison, Topeka & Santa Fe; Union Pacific; United States Army Transportation Corps. Unpainted version also available.

Features

- All-wheel drive and electrical pickup
- Brass flywheel-equipped motor
- Die-cast metal chassis and hood
- Light-emitting diode (LED) headlights
- Proto-Max metal knuckle couplers mounted at the correct height
- RP-25 contour metal wheels
- SoundTraxx DCC motor and lighting decoder with CurrentKeeper capacitors (DCC version only)
- Three-point suspension for positive track contact
- Weight: 3.6 ounces

PERFORMANCE TESTS

DRAWBAR PULL .64 ounce
9 HO scale freight cars

SCALE SPEED (DCC)

SPEED STEP	SCALE MPH
1	4
7	27
14	55
28	64

(I used function 9) to independently stop and start the locomotive without touching the throttle setting.

The headlights are bright white light-emitting diodes (LEDs) that turn on according to the locomotive's direction. To be more prototypical I remapped the lighting functions for independent non-directional control. This also allowed me to have both headlights on and set to dim. Function 7 is factory-programmed to dim the headlights.

The Walther's Mainline Plymouth ML-8 not only captures the look of a classic critter, but also features excellent performance that would make this locomotive a worthy centerpiece of an HO scale industrial layout. — Dana Kawala, senior editor



Athearn HO Southern Pacific EMD SD40

Second-generation diesel modelers looking for a heavy-duty six-axle road engine would do well to take a look at Athearn's new Electro-Motive Division SD40. The model has prototype-specific details, wire grab irons, see-through fan grills, and other features usually found on higher-end models. This version is detailed specifically for the Southern Pacific; we reviewed a version detailed for the Chicago, Burlington & Quincy in the March 2016 *Model Railroader*.

The Ready-To-Roll SD40 includes an RTR Sound Digital Command Control decoder made for Athearn by Sound-Traxx. While it shares some features with that manufacturer's other decoders, it's not a Tsunami or Econami.

History. When EMD came out with the SD40 in 1966, many railroads initially

shied away from the 3,000-hp diesel in favor of the higher horsepower SD45. However, they soon warmed to the easier maintenance of the SD40's 16-cylinder 645E3 engine compared to the SD45's 20-cylinder engine. Almost 1,200 of the six-axle diesels were sold in the United States and Canada, 62 in Mexico, and 10 more for the export market.

Though the other locomotives in the series are true SD40s, the Southern Pacific models like our sample are technically SD40Rs – rebuilt (SP said “upgraded”) under the General Rehabilitation and Improvement Program, or GRIP, which started in 1977. The SD40R can be spotted primarily by the battery box doors on the cab sides; GRIP-rebuilt locomotives have three doors, with two sets of four louvers on the forward door. Athearn's SP models have this feature.

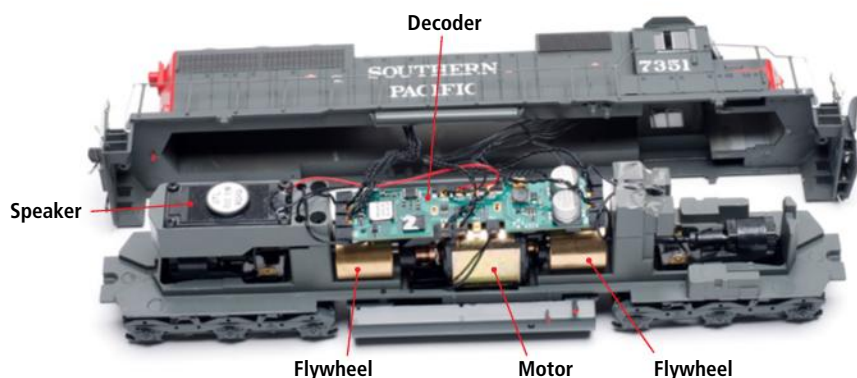
First look. Our sample model is painted in the Southern Pacific's scarlet-and-gray “bloody nose” scheme. The paint is smooth and even, with crisp separation between colors. The white “SOUTHERN PACIFIC” lettering on the sides is straight and opaque, with voids where it crosses panel lines on only one side. The smallest lettering is legible under magnification.

All the dimensions I checked on the model match those in drawings published in *S Gaugian* magazine (Sept. 1989) and *Railroad Model Craftsman* (Jan. 1967). The paint scheme and placement of details matched prototype photos I found online, with one exception. Prototype photos showed the locomotive's home shop and rebuild date painted under the road number on the cab; this was missing on our model.

The blackened-metal RP-25-contour wheels are all in gauge, and the plastic McHenry knuckle couplers are mounted at the correct height.

Though the model's abundance of fine details is impressive, many of them proved rather fragile. Handrails easily dislodged with handling, cab window sun shades broke off, and so did the long hood's dummy safety light. A few drops of cyanoacrylate adhesive secured all the errant details.

Performance. After removing both couplers, the shell easily lifted off. The model has the same mechanism as the RTR SD40 reviewed in the March 2016 issue.



A motor with dual brass flywheels nestles in the die-cast metal frame. The shell is detailed with wire grab irons, flexible handrails, and sliding cab windows.

PERFORMANCE TESTS	
DRAWBAR PULL	3.5 ounces 49 HO scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
7.5 (start)	6.5
9	27
10	42
12	63
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	5
7	36
14	53
28	61

I first tested the locomotive under direct current. The sound began to stutter as I increased the track voltage, before turning on steady at 7V. (This is common with DCC sound decoders, as the sudden surge of current caused by the sounds kicking in can drop the voltage below the starting threshold.) Once started, the sound of a turbocharged 645 prime mover filled the air.

The engine responded well at low speeds, starting to creep along at just over 7V. At 12V, the locomotive reached a top speed of 63 scale mph. This is similar to the top speed of one of the low gear ratios available on the prototype.

The prime mover sounds increased in RPM automatically as I increased the throttle. The bell sounded whenever the locomotive was moving at slow speeds. I could trigger a grade-crossing horn signal (long-long-short-long) by rapidly increasing, then decreasing, the throttle.

Performance was smooth under DCC, as shown in the charts above. Switching to 128 speed steps lowered step 1 to just 1.5 scale mph.

Under DCC, I also had direct control of the sound effects. Function key 1 toggled the bell, while F2 and F3 played long and short horn blasts. F8 mutes all sound effects. The Gyalites were triggered by F5. The red safety lights on front and rear are non-functioning.

Unlike a Tsunami, the RTR Sound decoder doesn't include brake or dynamic brake effects. However, I could still set up manual notching to increase or decrease RPM sounds independently of the throttle setting.

At almost a pound in weight, the locomotive exhibited a lot of pulling power. According to our force meter, the engine had 3.5 ounces of drawbar pull, enough to pull 49 free-rolling 40-foot boxcars on straight and level track. In a

Facts & features

Price: \$184.98 (Digital Command Control and sound), \$134.98 (direct current)

Manufacturer

Athearn Trains
1600 Forbes Way Suite 120
Long Beach, CA 90810

www.athearn.com

Era: 1966 to early 2000s (SP models, 1977 to 1998)

Road names: Southern Pacific ("bloody nose" scheme); Atchison, Topeka & Santa Fe (blue-and-yellow freight warbonnet); Burlington Northern; Conrail; and Montana Rail Link (large "W" or "meatball" herald, two road numbers each). Four road numbers each unless noted; also available undecorated.

Features

- All-wheel drive and electrical pickup
- Blackened metal RP-25 contour wheels, in gauge
- DCC decoder socket (DC version)
- Five-pole skew-wound motor with dual flywheels
- Flexible Celcon handrails
- McHenry knuckle couplers mounted at correct height
- Minimum radius: 18" (22" recommended by manufacturer)
- Prototype-specific details
- RTR Sound by SoundTraxx (DCC version)
- See-through fan grills
- User-applied fuel tank details
- Weight: 15.2 ounces
- Wire grab irons

real-world test on our Milwaukee, Racine & Troy layout, the SD40 muscled nine loaded coal gondolas up a curving 3 percent grade without slipping.

I also ran the engine forward and back through the 19" curves and no. 5 turnouts of our Eagle Mountain project layout. It handled both easily. Athearn says the locomotive will take 18" curves, but recommends a 22" minimum for better performance and appearance.

Filling a niche. While most model train manufacturers focus on the more plentiful SD40-2, Athearn's SD40R (and SD40) fills a significant gap in the market. Espee fans who model the 1980s and 1990s have needed this locomotive, and now, they can have it with DCC and sound. — *Steven Otte, associate editor*

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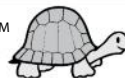
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Spring Mills Depot HO wagontop hopper

The **Baltimore & Ohio wagontop** hoppers are rounded up and heading out. These transition-era covered hoppers are now available from Spring Mills Depot.

The **B&O built** a series of wagontop cars between the world wars. These home-built cars had at least two purposes: keep the shops busy during the Great Depression, and solve the problem of water infiltration on house cars. In addition to the class N-34 covered hoppers, the B&O also built cabooses and boxcars using similar construction techniques.

The covered hoppers were built in two lots of 100. The first batch, numbered 630400 to 630499, were built in the rail-

road's DuBois, Pa., shops in April 1940. The second batch, numbered 630300 to 630399, were built in B&O's Keyser, W.Va., shops in June 1940.

Records show most of the cars still in service at the end of the 1950s, and two cars, numbers 630354 and 630474, show up in the January 1974 issue of *The Official Railroad Equipment Register*. None were listed in January 1975.

The cars were mostly used in cement service, but they also carried soda ash and clay for B&O customers. In the 1950s, some cars were labeled with a "G" in front of the road number to indicate they were suitable for glass sand loading.

The **plastic body shell** on Spring Mills Depot's covered hopper is finely molded. The truck design matches photos in the June 15, 1940 *Railway Age* magazine. Foundry markings indicating journal size and manufacturer are all legible and match published information.

All dimensions were within inches of measurements published in the same *Railway Age* magazine. The gray paint is evenly applied, and the lettering is all clear and legible, including the information on the brake cylinder and hopper bottoms. Spring Mills Depot even paid attention to the ampersand in the B&O herald – open on the first cars (pictured above) and closed on the later repaints.

The car weighs 3.8 ounces, about ½ ounce too heavy for a 4½"-long car. I tested the hopper on our Beer Line project layout and had no trouble pushing or pulling it through 18" radius curves and Atlas Snap-Switches.

Facts & features

Price: \$54.95

Manufacturer

Spring Mills Depot

P.O. Box 1616

Spring Mills, MD 21158

www.springmillsdepot.com

Era: mid-1940 to 1974

Paint schemes: early-late 1940 transition

Kuhler; late 1940-mid 1945 wartime

Kuhler; 1945-1946 early 13 Great States;

1953-1955 early billboard; 1956-1957

mid-1950s billboard; 1957-1962 late 1950s

billboard; unassembled, undecorated kit

Features

- Blackened metal wheelsets, in gauge

- Kadee knuckle couplers, mounted at correct height

- Separately applied grab irons and ladders

- Slack adjuster as appropriate

- Weight: 3.8 ounces (.55 ounces too heavy according to National Model Railroad Association Recommended Practice 20.1)



An AB brake system with metal piping highlights the details that include metal grab irons and plastic and metal ladders.

Modelers interested in the transition era of post-World War II through the beginning of the diesel era's second generation in the mid-1960s could find a place for this car on their layouts. Although their assignments were concentrated in the Midwest, B&O shippers could have sent their products across the country. This is another well-done model from Spring Mills Depot. – *Eric White, associate editor*

QUICKLOOK

Woodland Scenics Built & Ready Work Shed

Price: \$26.99

Manufacturer

Woodland Scenics
P.O. Box 98
Linn Creek, MO 65052
woodlandscenics.com

Comments: A shack or shed is a common trackside feature in both urban and rural settings. Woodland Scenics makes it easy to add one of these simple structures to a model railroad with Built & Ready sheds and shacks in its Landmark Structure series. While this review focuses on the HO scale structure, the firm also makes N and O scale versions.

The sheds are offered in three versions. The work shed (pictured) is the largest of the three, with a 1¹¹/₁₆" square footprint. The other two versions, a tin shack and a wood shack, take up even less space.

The models are made of plastic with well-defined molded detail. The siding on the work shed has wood grain detail. I appreciated that the shake shingles on the molded plastic roof include a few that look like they've been blown loose by the elements. The rafter tails are also visible under the eaves, the smokejack is a separate plastic part, and one wall includes a molded electrical box and conduit. These are impressive details for such a modest structure.

Each model also includes some extra plastic details that fit in notches around the perimeter of the structure. The work shed came with a realistic-looking wood pile and a storage bin.

All the models are factory painted and weathered. The siding on the work shed looks like its red paint has faded, exposing some bare gray wood underneath. The paint also looks like



it's realistically peeling on the white door and window frames. The roof is a dull grimy black color. I think some drybrushing with gray paint would help further weather the roof.

The sheds don't have interior detail. However, Woodland Scenics included view blocks that will make it possible to add interior lighting without revealing the hollow space inside.

These Built & Ready sheds and shacks offer an easy-to-add scenic element that would be right at home on just about any model railroad. –
Dana Kawala

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QUICKLOOK

Atlas N Dry-Flo covered hopper

Price: \$32.95 (undecorated, \$24.95)

Manufacturer

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

Era: 1959 to 1990 (as decorated)

Road names: Chicago, Burlington & Quincy; Atchison, Topeka & Santa Fe; Chicago Great Western; Dow; Louisville & Nashville; and Northern Pacific. Three road numbers per scheme; also available undecorated.

Comments: Atlas continues to bring BLMA Models freight cars into its N scale lineup after purchasing the California-based company in 2016. The latest addition is the General American Transportation Co. 3,500-cubic-foot-capacity Dry-Flo covered hopper. The plastic model features a one-piece body with etched-metal running boards,

wire corner grab irons, and a separate brake wheel. The center sills, end sheets, and hopper bays are separate parts that make up the underbody.

General American Transportation Co. produced the Dry-Flo covered hopper from 1959 to 1962. The car was designed to transport free-flowing and dry bulk materials such as carbon black, feeds, rice, malt, brewers grits, and salt.

Our sample is decorated for the Chicago, Burlington & Quincy. The model is based on CB&Q's HC-4 class covered hoppers numbered 85200 through 85299. Cars from this class were still in service on the Burlington Northern, CB&Q's successor, as late as 1993.

The model's dimensions closely match drawings published in the 1961 *Car Builders' Cyclopedic of American Practice* (Simmons-Boardman).

The gray and black paint is smooth and evenly applied on the model. All of

the lettering was legible and the placement matched prototype photos. The BURLINGTON ROUTE heralds are separately applied; the one on the right is slightly crooked.

The hopper weighs 1 ounce, which is correct per National Model Railroad Association recommended practice 20.1. The body-mounted scale couplers are installed at the correct height. The 33" metal wheelsets are in gauge.

I tested the car on our N scale Salt Lake Route project layout from 2010. The covered hopper negotiated the layout's Kato Unitrack no. 6 turnouts, 11" radius curves, and 12¾" double crossover without incident.

If your N scale model railroad is set between 1959 and the early 1990s, the Atlas General American Dry-Flo covered hopper will be a welcomed addition to your layout. – *Cody Grivno, associate editor*



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Duplex Set Includes: DCS210 Advanced Command Station, DT500D Advanced Duplex Throttle, UR92 Universal Panel, PS615 power supply, and a LT1 LocoNet Tester.

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Identifying which train just went by

It's going on four in the morning. Our train, Extra 4217 West, is safely tucked in the siding at Marcel on Southern Pacific's famed Tehachapi line, with orders to meet Extra 6440 East there. Marcel is a blind siding, a station with no depot or other means of communication. Coffee steams as we settle in to wait. Let's pass time reviewing some rules.

Safe movement of trains over single track, timetable and train order (TT&TO) territory makes it necessary to clearly distinguish between regular trains and extras. Southern Pacific rules closely resemble the Standard Code, which defines a regular train as one authorized by a timetable schedule. An extra train is a train without a schedule that runs in addition to those shown in the timetable.

Rule 19 requires a red flag or light at a train's rear to mark its end. Trouble, such as doubling a hill or setting out a bad order car (a car with a defect), could force a crew to leave part of its train behind, standing on the main track. Proceeding after an opposing movement passes without seeing its marker invites a collision. A train has not passed until its marker does.

Train signals, or their absence, also convey essential information to other trains. Rule 21 requires that extras display white flags by day and white lights by night on the engine's front. The absence of such markers indicates a regular, scheduled train.



Southern Pacific F units wearing the classic "Black Widow" paint scheme lead a westbound freight into Tehachapi, Calif., in 1949. The La Mesa Model Railroad Club in San Diego re-creates such scenes regularly. Linn Westcott photo

Northeast Operating Rules Advisory Committee (or NORAC, used by Amtrak, CSX, and Norfolk Southern) and General Code of Operating Rules (GCOR, typical of roads west of the Mississippi including BNSF Ry. and Union Pacific) have similar requirements. NORAC Rule 24 and GCOR 5.10 specify use of a marker to indicate the end of a train. Today, trains commonly carry flashing rear-end detectors (FREDs), but a red flag or reflector can satisfy the marker requirement.

A train doesn't need cars or a caboose to be a train. Displaying markers makes helpers coupled together returning to the bottom of a grade and power running light in Centralized Traffic Control (CTC) territory into trains.

Time drags by and our thoughts turn to No. 58, *The Owl*. It's an eastbound, a

regular first-class train due out of Woodford, the next station, at 5:29 a.m. If the extra doesn't pass soon, we'll be stuck here for both trains. Finally, a headlight's gleam shines the rails.

Our watches show 4:35 a.m. We agree this can't be No. 58, because Rule 92 demands that no train leave a station ahead of its scheduled time. No other regular trains are overdue, so this is likely the extra. The headlight blooms into the bulldog nose of a covered wagon with white classification lights shining under number boards marked X6440, confirming our powers of deduction.

Southern Pacific's form of Rule 21 allowed the use of train indicators in place of white flags. A train indicator was a number board mounted on the front of the engine that displayed the schedule number, if a regular train, or the engine number with an "X" prefix, if an extra. It helped crews of other trains in accurate identification.

This scenario describes a typical run at San Diego's La Mesa Model Railroad Club, a marvelous depiction of the prototype that boasts almost

1,500 feet of main line. Most of the time at the club, double-stacks trail GEVOs through fully-signaled CTC territory. However, Malleys (as SP designated its Cab-Forwards) and order wires come to life several times a year when La Mesa hosts TT&TO sessions set in 1952, as if CTC wasn't installed.

Displaying signals and markers is a challenge for modelers, but we can still practice Rules 19 and 21. Coach crews to state their identities when passing one another. "Who are you?" "We're Extra 6440 East with 19 cars and caboose. Who are you?" "We're Extra 4217 West with 24 cars and caboose" or "We're No. 58 with no signals and 10 cars."

Extra 6440 East's caboose rolls past at 4:45 a.m., completing the train and fulfilling the meet. Running time to Woodford is 15 minutes. We'll proceed and clear up for No. 58 there, comfortably complying with Rule 87 which demands clearing the time of opposing superior trains by five minutes.

We're eager to start rolling again, and the head brakeman trots out to the switch. Highball! **MR**



PROCEEDING AFTER AN OPPOSING MOVEMENT PASSES WITHOUT SEEING ITS MARKER INVITES A COLLISION. A TRAIN HAS NOT PASSED UNTIL ITS MARKER DOES. -JERRY

Behind a streamlined Norfolk & Western 4-8-2, the *Powhatan Arrow* streaks around the river bend as a Virginian Ry. coal train rumbles over the steel truss bridge. Pat Ryan of Hubbard, Ohio, built and photographed the HO scale scene. He scratchbuilt the bridge from an article in the March 1961 *Model Railroader*. The locomotive is a Key Imports brass model Pat painted.

Send us your photos

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

MORE ON THE WEB

Download the photo on this page for use as your computer desktop wallpaper. It's free. Go to ModelRailroader.com







A Weston Transit Authority President's Conference Committee (PCC) car rumbles down Main Street in Weston while the citizens go about their busy day. Steve McIver of Feasterville, Pa., built and photographed the HO scale scene. The trolley is from Bowser; the city structures are a mixture of kits from Walthers, City Classics, Bachmann, Vollmer, and others.



Passengers wait on the platform for the outbound train while the inbound rolls through Broadway Station behind them. Inspired by his father's 40-year career on the New York City subways, Lou MacDonald of Thornton, Colo., built this O scale diorama. He also shot the photo. The subway cars are by MTH.



The conductor of a Great Northern manifest freight shot this photo of the oncoming fast freight from the cupola of his caboose during a meet in Stevens Pass, Wash. Lee Marsh of Issaquah, Wash., was inspired to photograph the HO scale scene by an article published in the August 1958 *Trains* magazine.



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CLOSING DATES: Jan 2017 closes Oct. 21, Feb. closes Nov. 14, March closes Dec. 21, April closes Jan. 24, May closes Feb. 21, June closes Mar. 21, July closes Apr. 24, Aug. closes May 19, Sept. closes June 19, Oct. closes July 24, Nov. closes Aug. 21, Dec. closes Sept. 26.

Note to Readers:

Schedule of Events

AZ, GLENDALE: WVRHRS Model Train Swap Meet. Glendale Christian Church, 9661 North 59th Ave. Saturday, May 13, 2017, 9:00am-1:00pm. Admission \$5.00. Tables \$25.00 to sign up send stamped envelope, check or money order to WVRHRS, PO Box 5643, Glendale, AZ 85312-5643. Contact: Craig Faris 623-340-3529.

AZ, TUCSON: Gasden Pacific Toy Train Swap Meet. Tucson Expo Center, 3750 East Irvington Road at Palo Verde I-10 Exit 264. June 2-3, 2017, Friday 1:00pm-6:00pm and Saturday 9:00am-2:00pm. Admission \$6.00, under 13 free. Information: <http://www.gpdToyTrainMuseum.com>

CA, FREMONT: NDHF & TCSME Model RR Club invites you to Open House, June 10-11, 2017, Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Two layouts in operation & Niles Depot Museum open. 37592 Niles Blvd. in the Niles Plaza. <http://www.nilesdepot.org>

CA, SIMI VALLEY: Swap Meet, Santa Susana Railroad Historical Society, Santa Susana Park, 6503 Katherine Rd., May 20, 2017, 7:00am-10:00am. \$2.00 donation, kids under 12 free. All scales, equipment, scenery, books and photos. For vendor table availability contact Dave, 661-753-6006 or e-mail events@santasusannadepot.org

FL, ORLANDO: NMRA 2017 Orlando National Convention. Rosen Plaza Hotel, 9700 International Drive, Zip: 32819. July 30 - August 5, 2017, 8:00am-11:00pm each day. Admission: See website. www.nmra2017orlando.org Contact: Gilbert Thomas, 8119 Woodvine Circle, Lakeland, FL 33810, 863-412-3090, E-mail: Thomas_12399@msn.com

FL, TAMPA: 17th Tampa Model Train Show. Florida State Fairgrounds (Special Events Center). June 3-4, 2017, Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Adults: \$9.00, good for both days (under 12 free). Large award-winning operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954, rrrshows@aol.com or www.gssr.com

IL, COLLINSVILLE: 11th St. Louis Railroad Prototype Modelers meet. Gateway Convention Center. June 23-24, 2017, Friday 9:00am-9:00pm and Saturday 9:00am-5:00pm. Admission: \$25.00 for both days; \$20.00 for Saturday only. Information: <http://icg.home.mindspring.com/rpm/stlrpm.htm> Contact: John Golden at golden1014@yahoo.com or Lonnie Bathurst at Bathurst@btchfieldil.com or 217-556-0314

IL, GALESBURG: Galesburg Railroad Train Show. Returning to new location: Galesburg High School Fieldhouse, 1242 W. Dayton St. June 24-25, 2017, 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. Info: 309-221-3909 E-mail: cobra@grics.net

IL, GREENVILLE: American Heritage Railroad Train Show @ American Farm Heritage Museum 1-70 @ IL Rt. 127 (Exit #45). Saturday, June 10, 2017, 10:00am-4:00pm. Admission: \$4.00, under 12 FREE. Train ride with paid admission. Operating layouts. Dealers welcome \$15.00 per table. Contact Jim @ 217-825-6230.

IL, ST. CHARLES: 41st Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd. Sunday, June 11, 2017, 10:00am-3:00pm. Admission: \$6.00 w/tax. Tables \$60.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

KS, HUTCHINSON: Center of the Nation Model Railroad Expo, Sunflower North Building, Kansas State Fair grounds. Saturday, June 3, 9am-4pm; Sunday, June 4, 9am-3pm. Adults \$6, under 12 free. Kansas Central Model Railroaders, Don Phillips, 620-662-5906, Dphillips31@cox.net. Visit www.KansasCentralModelRailroaders.org

KS, KANSAS CITY AREA: Turkey Creek Division Train Show Swap Meet. Shawnee Mission High School cafeteria 7201 Johnson Dr., Overland Park, KS. Saturday, July 29, 2017, 8:00am-3:00pm. Admission \$6.00, under 12 free. Layout tours 3:30pm-8:30pm. Vendors and Registrants contact Larry Alfired, captalfred@gmail.com 913-782-6584. Go to: www.tc-nmra.org for forms.

NC, RALEIGH: 33rd Annual Neuse River Valley Model Railroad Club Model Train Show. November 4-5, 2017, 9:00am-5:00pm both days. Free Parking. Admission \$9.00, \$1.00 off coupon available at nrclub.net Children 12 and under free. Vendors wanted. Contact George Lasley glasley@bellsouth.net

NC, SPENCER: Model Train and Railroadiana Show at the North Carolina Transportation Museum. May 12-13, 2017, Friday 12:00pm-7:00pm and Saturday 9:00am-5:00pm. Speakers, train rides, newly opened 1905 Back Shop! Details: nctrans.org or 704-636-2889, ext. 251

NE, DESHLER: Train Show & Open House, Spring Creek Model Trains, 304 E. Bryson Ave. July 1-2, 2017, Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Special guest clinics: Pelle Soeberg, Doug Geiger, Chris Brimley, Manufacturers: Scale Trains, Athearn, Intermountain, Rapido, Check details on our website: www.springcreekmodeltrains.com

NE, DESHLER: Train Show & Open House, Spring Creek Model Trains, 304 E. Bryson Ave. Show Location: 4th & Race St. July 1-2, 2017, Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Admission: \$6.00; 12 and under FREE. Special guest clinics and manufacturers. Check website for details: www.springcreekmodeltrains.com

NE, OMAHA: NE-IA Railroaders 46th Annual Train and Toy Show. Ralston Arena 7300 "Q" Street, Omaha, NE 68127. June 3-4, 2017, Saturday 9:00am-4:00pm, Sunday 9:00am-4:00pm. Admission: \$6.00, 12 and under free. Information: Bob Schaffer 402-253-8885 rgsmrcman@gmail.com; Ron Bond, 402-292-3392, ronsuzbond@cox.net VENDORS WANTED!

OH, COLUMBUS: The 9th Ohio N Scale Weekend, "For N-Scalers by N-Scalers" Franklin County Fairgrounds, Hilliard, Ohio. Presented by Central Ohio N-Trak. May 20-21, 2017, Saturday, 10:00am-5:00pm and Sunday 9:00am-3:00pm. Set-up Friday May 19th, 1:00pm-8:00pm. Event registration \$10.00. Event info www.centralohiontrak.org or e-mail ohionscaleweekend@yahoo.com

TN, JOHNSON CITY: George Carter Railroad Museum Train Expo. East Tennessee State University indoor Minidome, 1081 John Robert Bell Drive, June 2-3, 2017, Friday 10:00am-8:00pm and Saturday 10:00am-4:00pm. Admission \$5.00, under 12 free. Free garage parking. Vendors, working layouts, live steam. Contact Roger Teinert 423-791-4937 or William Hensley 865-257-6605.

WA, BREMERTON: Bremerton Northern Model Railroad Club Annual All Scale Swap Meet. West Side Improvement Club, 4109 West "E" Street. June 17, 2017, 10:00am-3:00pm. General \$5.00, children under 12 free. POC: Bill Hupe, 360-621-5041, whopay@tsncnet.com

WI, SPOONER: Railroad Heritage Day, June 17, 2017, Spooner Elementary School, 1821 Scribner St. Model train show, layouts, vendors. Tour railroad museum inside restored 1902 Chicago & North Western depot. Train rides on Wisconsin Great Northern. Presented by Spooner Railroad Memories Museum. Admission \$1.00. Contact David Masterjohn, 715-491-5030.

WI, WAUPACA: WAMR 28th Strawberry Fest Model Railroad Show & Model Contest. Waupaca Recreation Center, School/State/Badger Sts. June 17-18, 2017, 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.wamrfd.com

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"Are you Tony?"

I was sitting by a pool. The pool was on deck 8 of a ship. The ship was in the Atlantic Ocean off the coast of Argentina on its way to the Falkland Islands and then Antarctica. It was January 2017. So, in this rather remote location and venue, I was a little surprised when a gentleman walked up to me and asked, "Are you Tony?"

One aspect of editing or writing for a model railroad magazine is an element of, shall we say, notoriety. Our photos show up in print or in video segments, so readers have little trouble recognizing us. But that's usually in context – at a model railroad convention or train show, for example. Outside of such events, it's unusual to be greeted by a stranger. Not unpleasant, mind you; just a little surprising.

On this occasion, four model railroaders – Gerry Leone, who hosts the "Off the Rails" show on Model Railroader Video Plus; Bill Darnaby, builder of the highly regarded Maumee Route; Steve Cizek, a frequent crew member at Bill's; and yours truly – and wives Renay, Mary Ann, Sue, and Judy, were on a Holland America cruise to see penguins and our southernmost continent in January. That's summer Down Under, but it's never what you'd call balmy in and along Antarctica.

I wish I could recall the gentleman's name. I do remember that he and his wife are

Texans, and that we have mutual friends – the late Andy Sperandio and David Barrow, builder of the Cat Mountain & Santa Fe, to name two.

At our first port of call in Montevideo, Uruguay, we rode behind a British steam locomotive. It's operated by the Uruguayan Rail Friends Association, which was founded back in 1954. Mogul (2-6-0) no. 120, a product of Manchester, England's Beyer & Peacock, dating to 1910, was displayed for 30 years before the friends restored it to operation.

After three spectacular (unusually so, we were told) days between the South Shetland Islands and Antarctic Peninsula, we also rode the End of the World Train (*El Tren del Fin del Mundo*) in Ushuaia ("U-shy-ah"), Argentina. It's a very narrow-gauge railroad: less than two feet separates the rails. It was built to haul prisoners into the forest, now a scenic national park, to cut firewood for the growing purpose-built colony in that hostile environment. A miniature Beyer-Garratt (and an internal-combustion helper for the first leg) powered our train.

My point in relating this is that model railroading can easily expand its potential to include much more than acquiring, by whatever means, and operating model trains. I attend quite a few National



A British steam locomotive dating to 1910 still runs in Montevideo, Uruguay, and above, a narrow-gauge Beyer-Garratt takes tourists to the End of the World at the southern tip of South America. Tony Koester photos

Model Railroad Association, prototype modeling, train show, and historical society meets each year, in part to learn more about our hobby, and also to meet with members of what has become an extended family.

I've been involved in the NMRA since the mid-1960s and the model railroad industry since 1969, so it follows that I would have made a lot of friends over that span of time. But the term "friends" can embrace both people you recognize from previous meetings as well as those who have become as close as brothers and sisters and aunts and uncles.

Prior to the NMRA National Convention in Seattle in 2004, Judy and I decided to give vacations aboard cruise ships a try – unpack once and let them move your hotel room to the next destination while you

sleep sounded appealing. We mentioned this to several close modeling friends. Three of them and their wives joined us and later agreed with our assessment about the convenience of this approach to multi-destination vacations. The core group along with several other modeling friends and spouses has been doing this ever since on both major oceans and on rivers in Europe.

But I'm not selling cruises. I am suggesting to those of you who are new to our hobby that it knows virtually no boundaries. It will be as fulfilling to you as you allow it to be. And the opportunities for reward extend far beyond your workbench and train room.

If you happen to spot me at one such outing, I won't be offended if you walk up and ask, "Are you Tony?" I'll have made a new friend. **MR**



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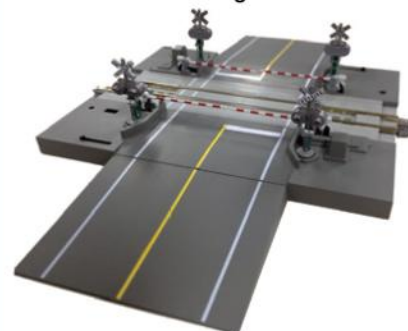
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