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October 2018
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**Layout pays tribute to the
Erie and the Lackawanna** p.42

**From the
wayback machine:
Operate on the
Gorre & Daphetid** p.30

PLUS

Kitbash a mission-style Santa Fe depot p.34

Why did railroads stop hauling livestock? p.20

How to model multiple open-car loads p.26

N scale steam DCC decoder installation p.58

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- 3 drop grab irons for rear inverter box
- 2 plastic injected cut levers

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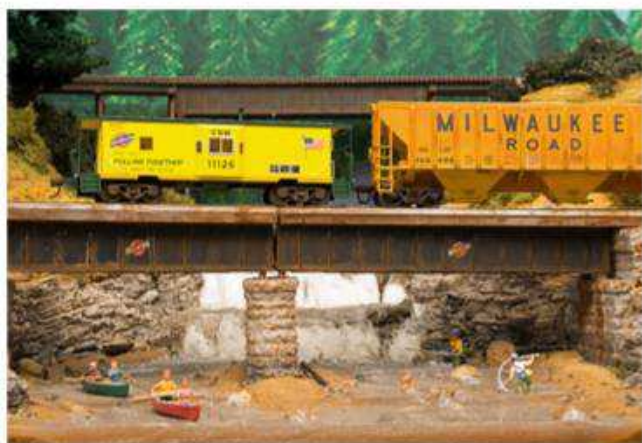
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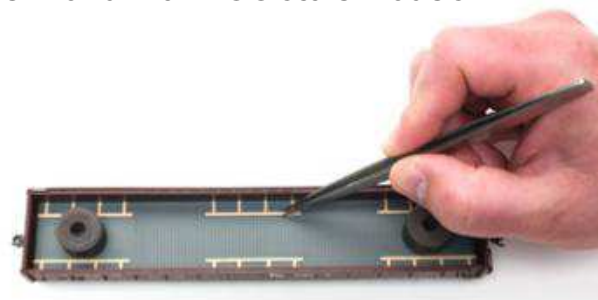
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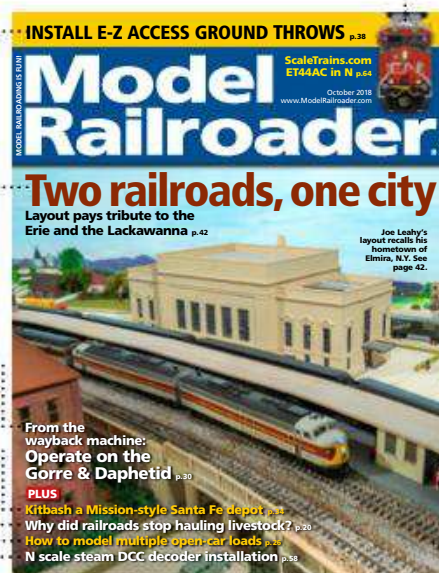
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On the cover: Memories of riding the *Phoebe Snow* on the Delaware, Lackawanna & Western inspired Joe Leahy's layout. Lou Sassi photo



Next issue

In **November**, we visit an upside-down Clinchfield layout in Australia, dive into the history of the auto rack, decorate a locomotive for the MR&T, and more!

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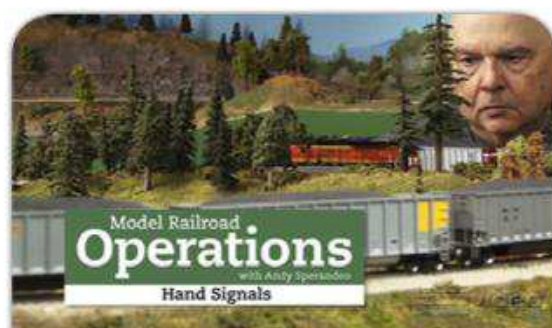
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When this month's special model railroad operations features conclude in print, the story continues on Model Railroader Video Plus! Visit MRVideoPlus.com to find more than 30 insightful, instructional, and inspiring videos covering all aspects of prototype and model railroad operations. Not an MRVP subscriber yet? Watch the **free video** to see the inspiring insights you've been missing!

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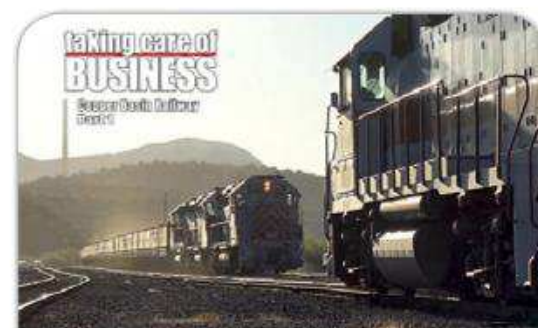
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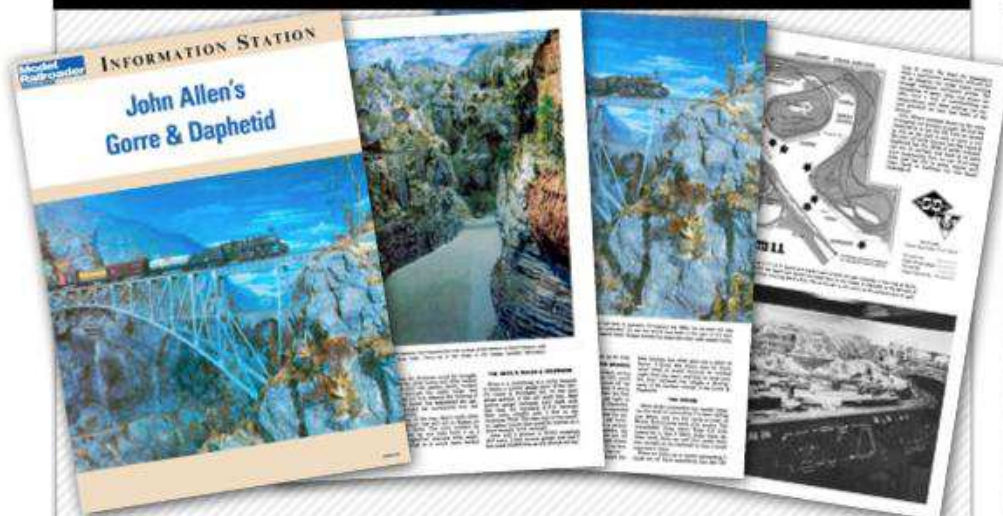
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Watch trains run along the HO scale Erie and Lackawanna in Elmira, N.Y.

Featured on this month's cover and on page 42, Joe Leahy's HO scale layout celebrates railroading around Elmira, N.Y., in the 1950s. *Model Railroader* subscribers can see trains running along the beautifully scenicked main line in this exclusive short video. Find the link under Online Extras at www.ModelRailroader.com.

MORE GORRE & DAPHETID



Get vintage G-D Line articles and track plans

Don't miss Bob Warren's first-hand account of running trains on John Allen's famous Gorre & Daphetid model railroad on page 30. For those inspired to learn more about the influential G-D Line, be sure to visit the Kalmbach Hobby Store (kalmbachhobbystore.com) to get this special Digital Download. The article collection PDF includes track plans as well as black and white and color photos. You'll also learn about John's tab system for car forwarding and strategies for realistic operation.

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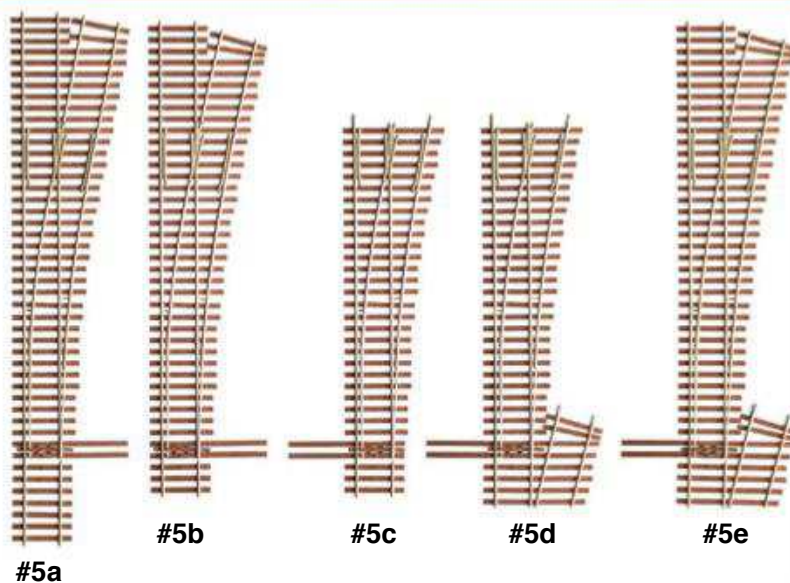
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You had to *want* to be a model railroader



Gulch Route electric locomotives nos. 3, left, and 511 harken back to the beginnings of *Model Railroader*.

Sometimes, something rough can be beautiful.

At our offices we have a glass case that houses a number of artifacts from *Model Railroader*'s history. Among the items are a couple of locomotives and a few cars built by Al Kalmbach for his Great Gulch, Yahoo Valley & Northern RR layout, which was built in his attic some time prior to the founding of the magazine in 1934.

With MR's 85th anniversary coming up in January 2019, I thought it would be fun to see if we could get at least one of the O gauge locomotives running again.

I've long admired these locomotives because of the work and thought that went into them.

By today's standards, locomotives no. 511 and 3 leave a lot to the imagination. Built

before many ready-made parts existed, these motors kept the rails and catenary of Mintario (the fictional setting for the Gulch Route) humming with commerce.

The locomotive project sent me on a journey through the online *Model Railroader* Archive to find out more about them. Alas, there were no instructions, but there were several articles on the railroad and its construction in the first three years of MR publication. The Gulch Route helped build the magazine.

When readers tour our offices, we always show them the items in the display case. I usually comment, "A lot that's in here comes from a time when you had to *want* to be a model railroader."

Given that the locomotives were made during the Great Depression with only a few



commercial parts, I think they are beautiful examples of what you can make when you put your mind to it.

The least we can do is shine them up a little and get them back to their intended purpose, even if it's just for a little while. You'll be able to see the project in the January 2019 *Model Railroader*, and watch it on Model Railroader Video Plus.

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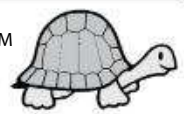
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HO scale freight cars



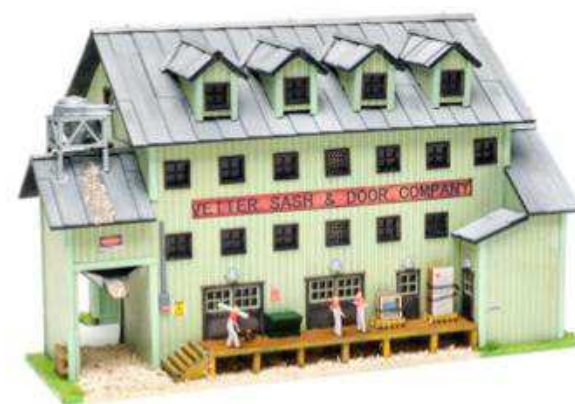
- **Assorted Pullman-Standard 40-foot PS-1 boxcars.** Minneapolis, Northfield & Southern (blue 1967 repaint without running boards), \$39.95. America: Home of the Free Because of the Brave, \$42.95. Injection-molded plastic body, two-piece self-centering trucks, and no. 2100 scale couplers. Kadee Quality Products Co., 541-826-3883, www.kadee.com



- **General Steel Industries 60-foot bulkhead flatcar.** Great Northern (1969 rebuild in six road numbers), Atlantic Coast Line (1964 original black in three numbers, 1975 repaint in one number), Burlington Northern (1988 repaint in one number), Missouri Pacific (1983 red repaint in two numbers), and Seaboard Coast Line (1978 repaint in two numbers). Ready-to-run painted primer gray

and undecorated kit also available. Prototype-specific details, wire grab irons and uncoupling levers, and Kadee scale couplers. \$44.95. Tangent Scale Models, 828-279-6106, www.tangentscalemodels.com

HO scale structures



- **Vetter Sash & Door.** Factory-assembled and painted structure with two rotating exhaust fans, backlit sign, four light-emitting diode (LED) yard lights, three red blinking LEDs on roof, three figures, Jack the German shepherd, two pallets with doors and windows, dust collector, and Dumpster. Requires 4.5V power source, sold separately. Measures 11" x 6 1/4" x 6 5/8". \$69.99 plus shipping (or free shipping to your local Menards store). Menards, www.menards.com/trains



N scale locomotives



- **General Electric C39-8 diesel locomotive.** Pre-production sample shown. Conrail (five road numbers), Norfolk Southern (six road numbers), and Pennsylvania Northeastern (Conrail and NS patchouts, one number each). Prototype-specific details, directional light-emitting-diode headlights, and all-wheel electrical pickup. Direct-current model with ESU Next18 connector, \$134.99; with dual-mode ESU LokSound Next18 Select Micro sound decoder featuring Full Throttle, \$224.99. Fall 2018. Rivet Counter line. ScaleTrains.com, 844-987-2467, www.scaletrains.com.

Scene and photo by Ken J. Johnson

N scale freight cars

- **Pullman-Standard PS-2 2,600-cubic-foot capacity two-bay covered hopper.** Chicago & North Western (green), Conrail (gray with black lettering), CSX (tan), Grand Trunk Western (gray with red lettering), Missouri-Kansas-Texas (red), and Rio Grande Chemical (gray with GNOX reporting marks). Three road numbers per scheme. Etched-metal running boards and McHenry couplers. \$25.98. May 2019. AthearnN. Athearn Trains, 310-763-7140, www.athearn.com

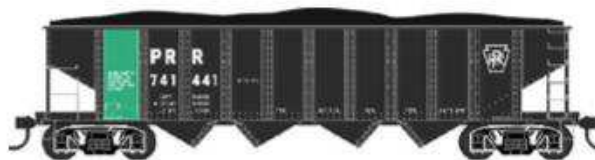
N scale



1860s-era bobber caboose. Atchison, Topeka & Santa Fe; Central Pacific; Pennsylvania Lines; and Union Pacific are the road names on this Bachmann model. The N scale caboose (\$25) has RP-25 contour metal wheels and body-mounted couplers. Bachmann, 215-533-1600, www.bachmanntrains.com



- **55-ton two-bay fish-belly hopper.** New paint schemes: Norfolk & Western (late repaint); Akron, Canton & Youngstown; and Delaware & Hudson (late repaint). New road numbers: Atlantic Coast Line, Reading Co. (Roman lettering and "America's Largest Anthracite Carrier" slogan), and Western Maryland (speed lettering). Five numbers per scheme (two single cars and one three-pack). Die-cast metal underframe and slope sheets, prototype-specific ends, and Accumate couplers. Single car, \$21.95 (undecorated, \$16.95); three-pack, \$65.85. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



- **Pennsylvania RR class H21 four-bay hopper.** Penn Central (class H5 and class H21a [maintenance-of-way and ore service schemes], three road numbers each). Pennsylvania RR (H21a painted black with keystone herald and Roman billboard lettering or block reporting marks [three numbers each]; Freight Car Color with early lettering and circle

In Memoriam

James J. King, 1923-2018

Former Kalmbach Publishing Co.

president James J. (Jim) King died on July 20. He was 95 years old.

Al Kalmbach hired Jim to serve as the company's controller in July 1954. In 1963, he was named Kalmbach's executive vice president. Two years later, he became company president, a position he held for 22 years.

Jim was also on Kalmbach's Board of Directors from 1972 until November 2012. In total, Jim served Kalmbach Publishing Co. for 58 years.

"He was deeply passionate about Kalmbach and its customers," said Dan Hickey, Kalmbach Media CEO.



keystone herald; early lettering, circle keystone herald, and "Coal Goes to War" slogan [three numbers]; early lettering [three numbers]; and Roman billboard lettering and shadow keystone herald). Virginian Ry. (leased

HO scale



Western Pacific Pullman-Standard 40-foot PS-1 boxcar. Railroad Innovations has released this custom-decorated InterMountain Railway boxcar. The HO scale model has see-through running boards and separately applied details. The boxcar is offered in three numbers (100 of each number produced) for \$40 each plus shipping. A three-pack is priced at \$115 plus shipping. Railroad Innovations, railroad.innovations@gmail.com, www.rr-innovations.com

PRR car, three numbers). Six numbers per scheme unless noted. Fox Valley Models metal wheels and body-mounted couplers. \$24.95. March 2019. Bowser Manufacturing Co. Inc., 800-327-5126, www.bowser-trains.com

N scale structures

- **The General Store.** Laser-cut wood kit with Tichy Train Group detail parts and signs. Based on prototype in Belville, N.C. Footprint is 2½" x 2⅝".

\$49.99. RS Laser Kits, 503-371-4290, www.rslaserkits.com

S scale freight cars

- **Composite general service gondola.** Cast-resin kit with one-piece body, separate underframe, inner floor, weight, grab irons, ladders, and full brake details. Trucks and couplers not included. With Southern Pacific (classes G-50-20 and G-50-23) or Union Pacific (class G-50-11) decals, \$85 each; without decals, \$80. Pre-Size Model Specialties, 970-527-4586, www.pre-size.com

O scale freight cars



- **55-ton two-bay coal hopper.** New paint schemes: Lehigh Valley, Nickel Plate Road, and Public Service of New Jersey. New road numbers: Ford and



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N scale



Assorted freight cars. New freight cars from Micro-Trains Line Co. include a Canadian National 50-foot double-door boxcar with positionable doors, **\$24.25**; a Milwaukee Road 40-foot 1 1/2 door boxcar with positionable doors, **\$19.90**; a Great Northern 40-foot double-sheathed refrigerator car, **\$29.80**; and a Southern Pacific 70-foot Husky-Stack well car, **\$29.90**. The N scale injection-molded plastic models have plastic wheelsets and Magne-Matic couplers. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

Peabody Short Line. Four numbers per scheme; also available undecorated. Die-cast metal center sill, chassis, and stirrups; wire grab irons; and scale couplers. \$89.95 (undecorated, \$84.95). First quarter 2019. Master Line. Atlas O, 908-687-0880, www.atlasrr.com

- **40-foot stockcar.** New paint schemes: Canadian Pacific (red and white); Chicago, Burlington & Quincy (red); Chicago & North Western (green and yellow); and Missouri-Kansas-Texas (yellow and black). New road numbers: Great Northern

(Vermillion Red) and Union Pacific (brown). Two road numbers per scheme. Separately applied running boards; sprung, die-cast metal trucks; and body-mounted scale couplers. \$69.95. First quarter 2019. Trainman line. Atlas O, 908-687-0880, www.atlasrr.com

O scale structures



- **Lindsey's Grocery.** Cast-Hydrocal kit with full-color signs. Footprint is 5" x 7". \$69.95. Downtown Deco, 406-821-0181, www.downtowndeco.com

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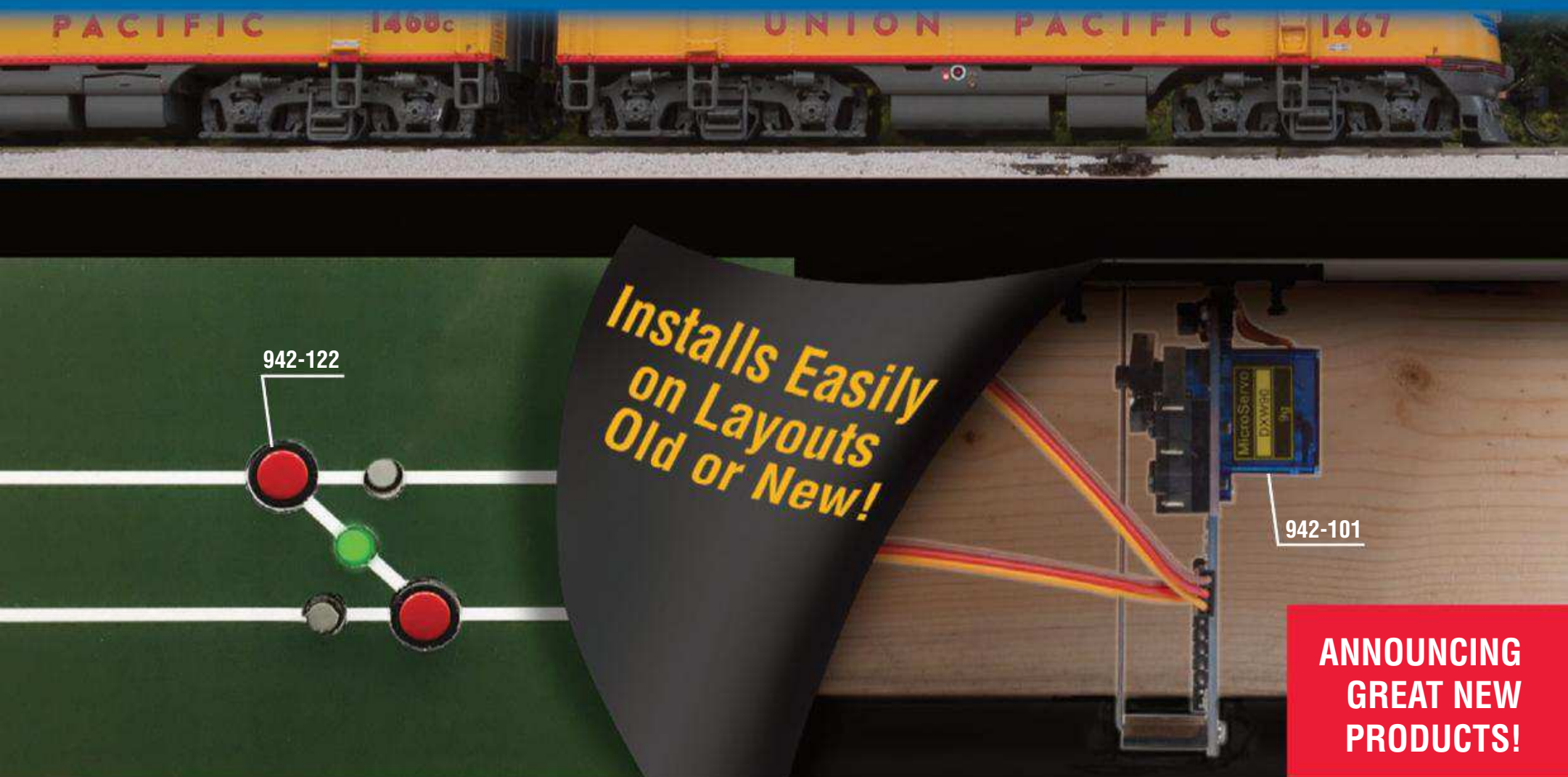
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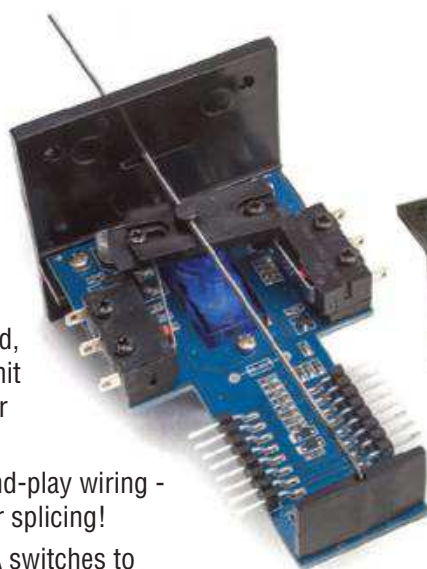
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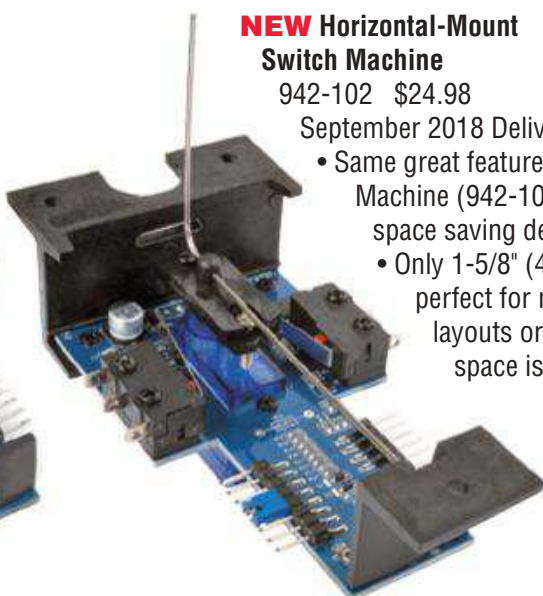


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Z scale locomotives

- **General Electric P42 diesel locomotive.** Amtrak (phase 2 40th anniversary scheme). One road number. Traction tires, directional light-emitting-diode headlights, and AutoLatch couplers. Designed for Digitrax and TCS drop-in Digital Command Control decoders. American Z Line, 614-764-1703, www.americanzline.com

Z scale freight cars



- **1937 Association of American Railroads 40-foot boxcar.** Western Pacific. Seven road numbers (single car, two-pack, and four-pack). Murphy raised-panel roof, prototype-specific positionable doors, metal wheels,

AutoLatch couplers, and 4-5 Dreadnaught ends. American Z Line, 614-764-1703, www.americanzline.com

Electronics/controls

- **T1300E throttle.** Features USB rechargeable battery, 60 hours of continuous operation between charges, thin handheld case, and 16 frequencies. Can be ordered with or without USB charger and USB charger cable. T1300Ev4 (for Lenz system using the CVP ALR900 wireless receiver) and T1300Ev6 (for EasyDCC systems using the CVP XFG1 or XFG2 wireless receiver). \$139 (includes throttle, charger, and charging cable); \$129 (throttle only). CVP Products, 972-238-9966, www.cvpusa.com

Decals

- **Iowa Interstate Gunderson 5,188-cubic-foot-capacity three-bay covered hopper.** Covers 4000 through 4099-series cars. Includes enough

Club offerings



- **Hogsback & Southern wood-chip hopper.** Bowser HO scale kit custom-decorated for the Lansing Model Railroad Club. Four road numbers. Kadee-compatible couplers, metal wheelsets, and wood-chip load. \$18 each plus \$7 shipping (one or two cars). Send check, payable to LMRC, to Lansing Model Railroad Club, P.O. Box 1305, East Lansing, MI 48826; www.lmrc.org/store

heralds to complete four covered hoppers. HO scale, \$8.25; N scale, \$6.75. Microscale Industries, 714-593-1422, www.microscale.com

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This refueling facility for steam locomotives was located at the former Southern Pacific Narrow Gauge Laws Yard in Bishop, Calif. The area is now home to the Laws Railroad Museum and Historic Site. *Jim Morrow photo*

Refueling steamers

Here's another photo of a refueling facility for steam locomotives ["How were oil-burning steamers refueled?" Ask MR, July]. This facility is at the Laws Railroad Museum in Bishop, Calif., at the site of the former Southern Pacific Narrow Gauge Laws Yard. It was in use from the early 20th century, when the SP converted to oil burners, until the line shut down in 1959.

The building in the background housed a boiler and a pumping facility

along what was the oil spur, and in front of the building is a sump where the oil was dumped from tank cars and then heated and pumped by overhead pipes to the tank. The pipes are long gone.

A lot of oil was spilled over the years, and the tracks by the tank, while still usable, are embedded in what is now asphalt.

*Jim Morrow
Big Pine, Calif.*

I'm confident that my benchwork, scenery and electrical work are safely within the bounds of hobby standards, but I still marvel at the modeling ideas displayed in your photos and sidebars. And every month I find myself trying out some new idea that Cody Grivno or others have cooked up.

I would find the hobby far less interesting if you didn't give me a monthly push to move on. I depend on you to help me sort out the many opportunities that technology is creating – while I still appreciate reading about new ideas for building trees or making structures look more realistic.

*Jeff Traintime
Burbank, Calif.*

Laser-cut house kits

I'm a huge fan of Pelle Søbørg. His modeling has been a revelation to the hobby (along with other "modelers of the mundane" like Lance Mindheim and James McNab).

In "Kitbash a laser-cut wood house kit" [May], Pelle wrote about switching the left- and right-side facades on a Laser-Art Structures kit to ensure the side door was positioned to better showcase the detached garage.

As evidenced by the window above the step-down side door, Pelle has shifted the staircase to the left side. However, the front entrance door is on the far right of the house. In most cases (particularly in the America foursquare style), the main staircase is aligned with the front door.

This small point takes nothing away from Pelle's wonderful modeling.

*Jim Robertson
South Orange, N.J.*

Getting it right

A photo caption in the August Trackside Photos identifies Baltimore & Ohio 9512 as an SW1200. B&O 9512 was (and the model shown is) an NW2. The noticeable spotting feature is the horizontal flat spot on the top of the hood immediately ahead of the windshield.

*Brian DeVries
Belmont, Mich.*

[Good catch, Brian. – Ed.]

San Francisco traction action

After seeing "San Francisco" on the July cover, I had to jump to the story ["The streetcars of San Francisco"] to read Harvey Simon's fantastic article on the F line. I remember his Boston traction layout, and was thrilled to see my old Bay Area stomping grounds detailed in such a fantastic layout.

When I first started working in San Francisco, the F line extension along the Embarcadero was being built. And for a while the F line ran right in front of my office building, when the terminus was the old Transbay Terminal. Harvey did a great job of capturing the look of the eclectic Castro district. And I loved the

information/restroom kiosk model he put together, complete with an accurate map!

I can't wait to see what Harvey does with the rest of the layout.

*Nathan Pettit
Lehi, Utah*

Growing with the hobby

Hal Miller's August editorial ["We want to be challenged. Or do we?"] struck me as interesting. I guess we've all met modelers and railfans who are convinced they know it all.

At this point I'd say I'm pretty good, but with each issue of MR I realize my movement is along a path, and challenges still remain.



A BNSF Ry. unit train of protein gondolas – former BethGon Coalporter bathtubs fitted with Shur-Lok brand roll tarps – rolls south through Shawnee, Kan., in June 2009. The lading is Cargill Sweet Bran animal feed. Zach Pumphery photo

What's a protein gondola?

Q In the June issue's News & Products, I saw a photo of a pair of Kato N scale Johnstown America BethGon protein gondolas. What's a protein gondola? How do I model one in HO scale?

Robert Cronan, South Portland, Maine

A ccording to MR associate editor Cody Grivno, "A protein gondola hauls Cargill Sweet Bran (wet corn gluten cattle feed). The feed is produced in the upper Midwest and shipped by rail to Cargill distribution centers in Bovina and Dalhart, Texas." An item in "Ask Trains" in November 2016 says they typically move on BNSF Ry., Canadian National, and Iowa Interstate rails. When they arrive at the destination, they're unloaded with rotary dumpers, much like coal is.

The *Trains* magazine entry adds that protein gondolas are aluminum BethGon Coalporters fitted with Shur-Lok brand roll tarp covers to protect the cargo from the elements during transit. The entry in June's News & Products is for an N scale car from Kato; as far as we know, nobody sells them in HO. But plenty of vendors sell BethGon Coalporters. All you'd have to do is model a load with a tight-fitting roll tarp on top.

Q When and why did railroads stop carrying livestock? Did the end of the steam era have anything to do with it?

Caleb Metzger, Phoenix, Ariz.

A The shift of livestock transportation from rail to highway had more to do with the advent of economical mechanical refrigeration. It used to be that, to optimize delivery of fresh product, meat had to be slaughtered, butchered, and packed relatively close to the consumer – within a few hundred miles at most. That was because ice was still the most

efficient way of keeping the product cold, and ice cooling has a time limit.

But when mechanical deep-freezers became common, as well as mechanically refrigerated trucks, it became possible to ship processed meat farther from the source. Rather than ship live cattle to small packing plants all over the country, it was now cheaper for the meat industry to consolidate its functions in fewer, larger packing plants, close to the source, and instead ship the finished product. This change happened starting in the 1950s and peaked in the 1970s,

with the last large-scale cattle movements by rail taking place in the 1990s.

For more information about how meat moved on the rails, get Jeff Wilson's book *Livestock & Meatpacking* (Kalmbach Books, 2013), available from www.KalmbachHobbyStore.com.

Q I'm having difficulty with the thin wire that comes on dwarf lights. It breaks easily and I can't seem to strip the insulation with my regular wire stripper. Is there a special tool for this type of wire?

John Rooney, Scituate, Mass.

A The insulation on magnet wire (which typically comes on pre-wired light-emitting diodes) is usually not a separate layer of rubber or plastic, like on thicker wires, but rather is painted-on shellac. You should be able to gently scrape it off with a sharp hobby knife. Don't use a lot of pressure, or you might accidentally cut through the wire instead of just stripping it.

Q I'm building the Grand Valley model railroad layout kit from Woodland Scenics, and plan to power it with a Prodigy Advance Digital Command Control system. At what point do I wire the layout, and how do I go about dropping feeders to the power bus? The instructions seem to tell me to wait too long before doing the wiring, making it far more difficult than it should be.

Larry Carne, Hamilton, Ont.

A Generally, wiring is done just after affixing the track to the layout. You might find it easier, though, to attach feeder wires to key track segments before installation, and as you install the track, feed the wires through holes drilled through the terrain to the bottom of the layout. Then once the track is all in place, the feeders can be attached to a power bus beneath the layout. Either way, you'll want to complete and test your wiring before adding ballast or any other scenery, in case a wiring mistake needs to be corrected. You can find more information in our book *Wiring Your Model Railroad* by Larry Puckett (available from www.kalmbachhobbystore.com/product/book/12491).

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

Q I was driving alongside the BNSF Ry.-Union Pacific Joint Line near Littleton, Colo., when I passed a signal bridge. The bridge had two pairs of one-over-the-other 3-color signals, and one of those signals had a solid red light on top and a flashing yellow light on the bottom. Your article on signaling in the April 2017 issue explained what a solid red over a flashing red means, but made no mention of a solid red over a flashing yellow. So what does it mean?

Brandon Gaines, Littleton, Colo.

A Cody Grivno, our in-house BNSF fan, again comes through: “Solid red over flashing yellow is referred to as diverging approach medium. Per BNSF Ry.’s *Signal Aspects and Indications*, this signal tells crews to ‘Proceed on diverging route not exceeding prescribed speed through turnout prepared to pass next signal not exceeding 35 mph.’”

Q How do you glue Kato N scale Unitrack to a surface? Unlike flextrack with ties, where you can spread some

adhesive caulk on the roadbed, Unitrack is hollow inside, with thin edges of molded plastic ballast, which is not much of an attachment point.

Richard Harris, Brandon, Fla.

A Former MR managing editor Dick Christiansen used Kato Unitrack to build our 2010 project railroad, the N scale Salt Lake Route (see January-June 2010). Dick used track nails through the molded plastic bosses on the Unitrack’s base, but also used occasional dabs of Liquid Nails for Projects foam-safe adhesive caulk to further secure it.

But if you don’t want to use nails, I would suggest you put your track in place on your subroadbed, use a pencil to trace the outside edges of the plastic roadbed, then apply thin beads of adhesive caulk along those lines. Once you press the track into the caulk and let it cure overnight, your Unitrack should be secure, despite its thin edges.

We’ve also seen people use expanding spray-on insulation foam to fill the cavity under the Unitrack’s ballast, then

carve it flat and glue that to the subroadbed with foam-safe adhesive. The foam also helps deaden the wheel noise.

Q What size wheels would go under a 100-ton freight car? Would they be 36 or 33 inches?

Bob Devine, no address given

A The rough rule of thumb is 70-ton cars and smaller usually have 33" wheels, while modern 100-ton cars have 36" wheels. There are many exceptions, though, so you can’t always generalize. Low-profile flatcars and modern auto racks have 28" wheels, while some inter-modal cars have 38" wheels. Multi-unit well cars have different size wheels on the ends vs. on the shared trucks between units. So the answer depends on the prototype.

Q I have an HO scale Märklin BR 98 2 model locomotive that is wired for Märklin Digital and has a center electrical pickup. I have direct-current two-rail HO scale layout and wish to

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READER TIP

Bending hardboard

Here's a fixture that I made to curve tempered hardboard for use in a coved backdrop corner or as fascia around the end of a peninsula. I made a pair of wooden clamps from 1 x 4 lumber. I drilled a hole in each end for carriage bolts to hold the boards together, and screwed cup hooks into both ends of one board of each clamp.

To bend the tempered hardboard, you determine where you want the bend to begin, slide the clamps over the board, and tighten the bolts. You then bend the tempered hardboard to a preliminary radius, one that won't crack the hardboard, and hook lengths of light chain onto the cup hooks to hold the bend.

With a hose or a bucket and sponge, wet the back, or unfinished, side of the hardboard so it will soften.



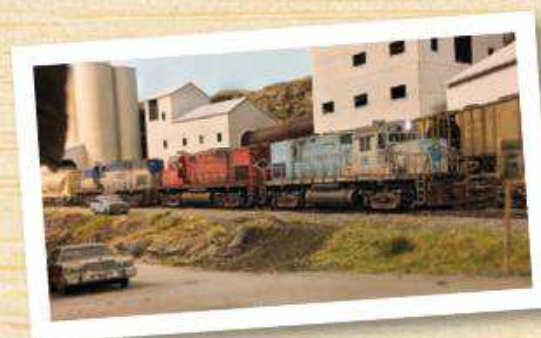
While it's wet, tighten the chain a little bit more. Let the hardboard dry out before continuing. Keep wetting and shortening the chain until you get it a little tighter than the curvature you want, as there will be some spring-back when the chains are released. Then let it dry completely for a few days before removing the clamps and installing it on your backdrop or fascia. – Brian Kistenmacher, Georgetown, Texas

convert it. Short of dismantling and completely rewiring the electronics, how can I convert this locomotive to standard two-rail DC?

Paul Graeber, Spicewood, Texas

A I'm afraid that in addition to dismantling and completely rewiring the electronics, you'll also have to dismantle and replace the wheels. Three-rail setups like Märklin's draw one pole of power from the center rail (or a row of studs in the middle of the ties) and the other pole from *both* the outer rails. This means both sides of the wheelsets on a three-rail locomotive are electrically contiguous. In order to convert such a locomotive to two-rail operation, you'll have to electrically isolate the wheels on both sides. The simplest conversion method would be to place the shell on an appropriately sized two-rail chassis. Märklin offers a line of two-rail HO scale equipment under the Trix name; if they don't offer a two-rail version of your locomotive, they may offer one with a chassis that would fit your shell. **MR**

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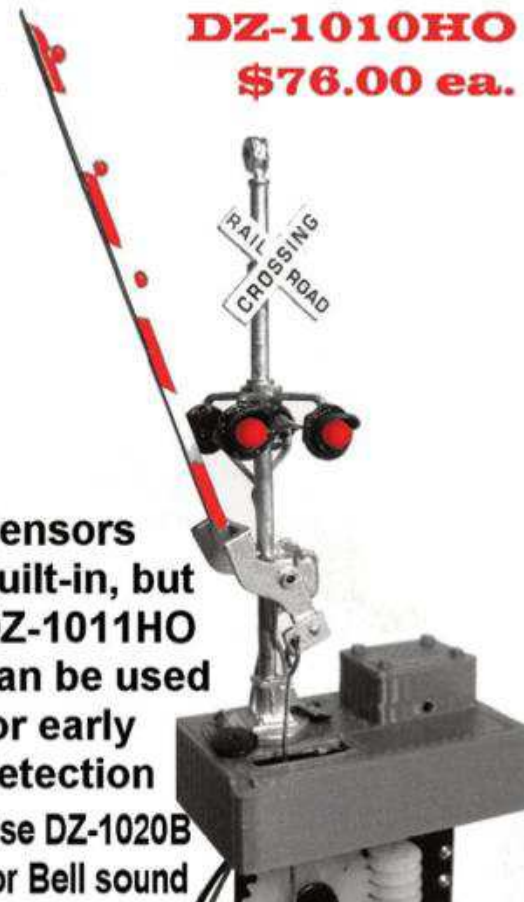
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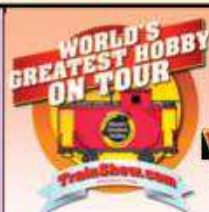
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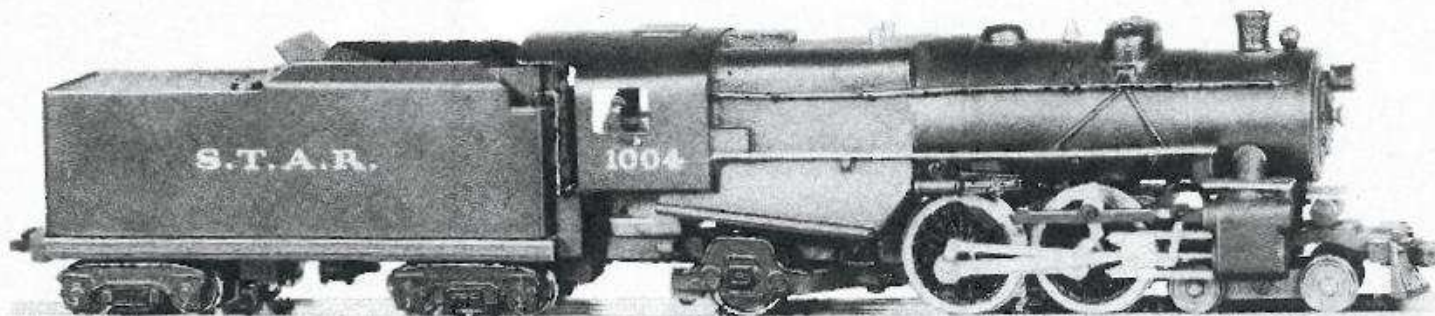
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Pre-World War II OO scale models



Star-Continental Models' OO scale 1937 Pennsylvania RR E6 4-4-2 Atlantic was somewhat plain. Nason's PRR P5a electric (below) was \$59.50 ready-to-run.

As HO and OO scales grew

during the 1920s, they became involved in "The Battle of the Gauges" to prove which of the two was best. HO won, but OO survived with small manufacturers supplying the market. By the late 1930s, Scale-Craft and Lionel were the largest still in OO. There are other prewar names to cite, but three of note here.

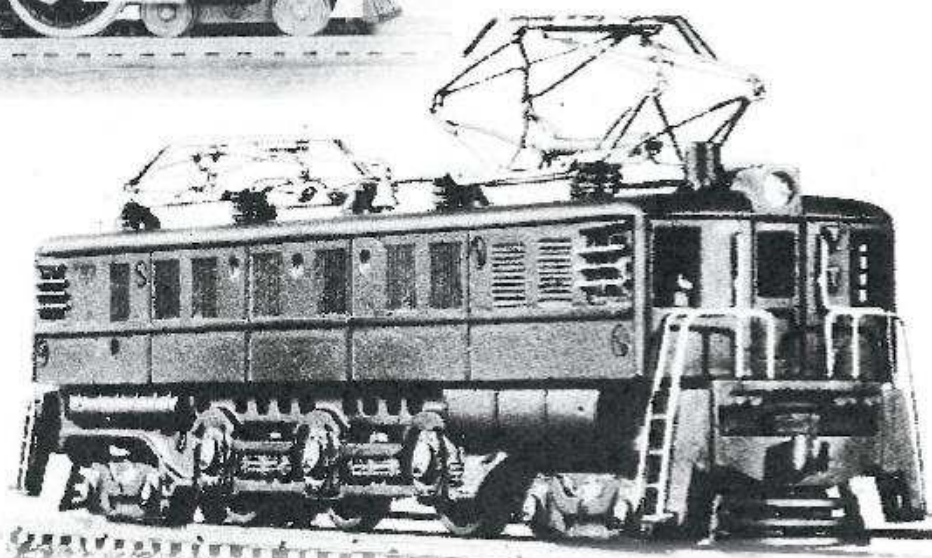
The Star-Continental Models 1937 Pennsylvania RR E6 4-4-2 Atlantic steam locomotive's plain visage would today be considered semi-detailed. How much of a factor Depression-era economics and manufacturing techniques were in preventing more detail is moot at this point. Ready-to-run, it was \$49.50, more than a week's wage, with hand lettering an additional .05 cents per letter, or two for a penny.

There were three kit options: a lathe-required "Workshop" set, \$25; the modest-hand-tools "Tool box" set, \$33; and the

machined and painted "Assembly" kit, \$42.40. Other locomotive lines offered similar levels of kits. A hobbyist could choose which best suited one's budget and skills.

Nason Railways offered a small line of cast-bronze locomotives and cast-aluminum freight and passenger cars. A PRR P5a electric-outline locomotive was offered in similar options to the Star Atlantic: craftsman kit, \$26; workbench kit, \$31; simplified kit, \$50; and ready to run, \$59.50. Photos reveal heavy casting techniques, but the models were well regarded in the era. Nason offered neither painting nor lettering.

LIMCO's (Long Island Scale Model Co.) catalog showed a small line with a die-cast metal PRR/Long Island MP54 multiple-unit coach, a 64-foot coach, and a reefer. Well-lit photos reveal coarseness of rivet details, like Nason's, but then Gilbert's 1938 Tru-Model HO line exhibited the same coarseness



to "read" well on small models, quite unnecessary in O. As a kit, LIMCO included a wood roof, detail castings, a motor, drive wheels, and a drive unit, \$19.75. Ready-to-run and lettered cost \$41.50. Note the large interior motor and drive shaft to the rear truck.

Ready-to-run models in any scale were the most costly, and it paid modelers to build OO scale Star, Nason, LIMCO, Scale-Craft, and Lionel kits.

Model railroading was growing, and Star, Nason, and LIMCO made it possible to start with less costly kits. Today's high-tech manufacturing techniques make the models seem coarse, but they were good for the era.

One still had to be concerned with track and AC

transformers, as not all manufacturers had converted to the National Model Railroad Association (NMRA) DC standards. Series-wound motors were still available for those with outside third-rail AC operation.

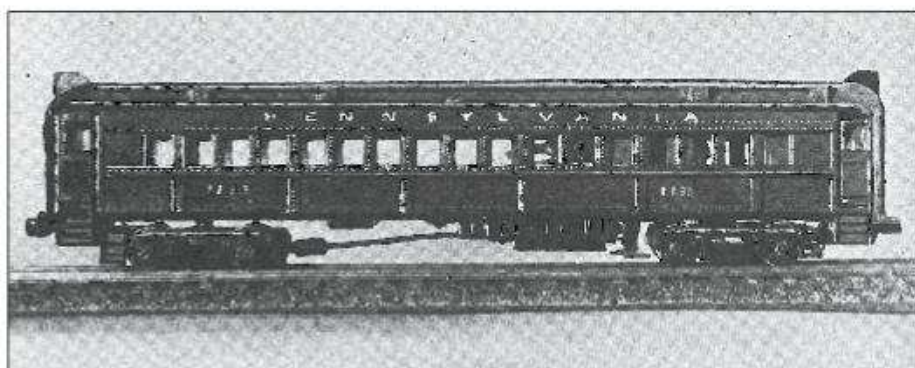
The size of these companies can be measured by their small black-and-white catalogs: Star's 1937 catalog was a 4" x 9" seven-page supplement; Nason's five-page catalog measured just 5½"

x 8½"; NIMCO's six-page offering was 3½" x 9½".

The war took its toll. Small companies that couldn't obtain defense work folded. Nason and Star left the field. Other suppliers arose postwar, but not to the numbers of those in burgeoning HO. OO remained a stepchild, a notch or two ahead of TT in single-digit numbers. **MR**

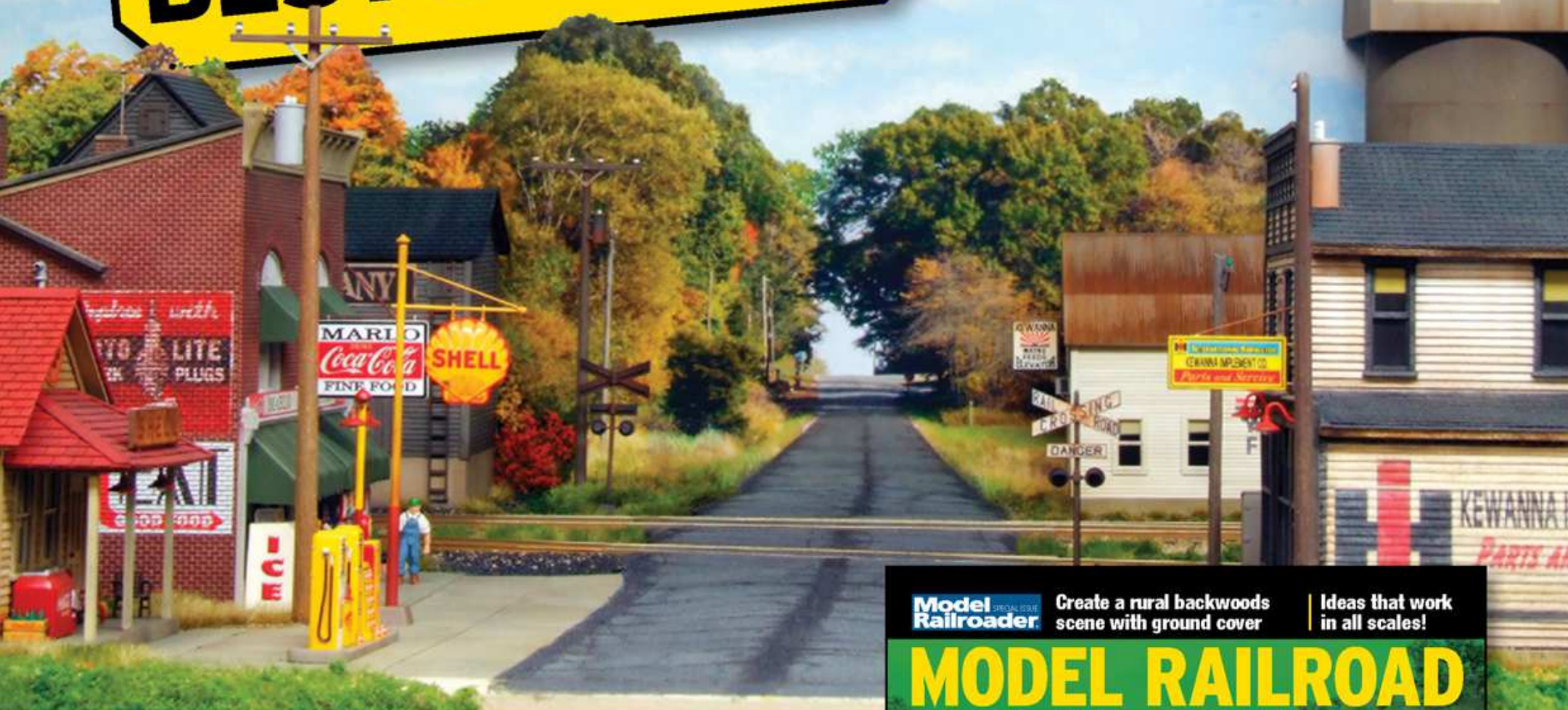


READY-TO-RUN MODELS IN ANY SCALE WERE THE MOST COSTLY, AND IT PAID MODELERS TO BUILD OO SCALE STAR, NASON, LIMCO, SCALE-CRAFT, AND LIONEL KITS. — KEITH



Long Island Scale Model Co. (LIMCO) offered OO scale PRR MP54 multiple-unit coaches as kits or ready-to-run. The roofs were wood with the balance die-cast metal.

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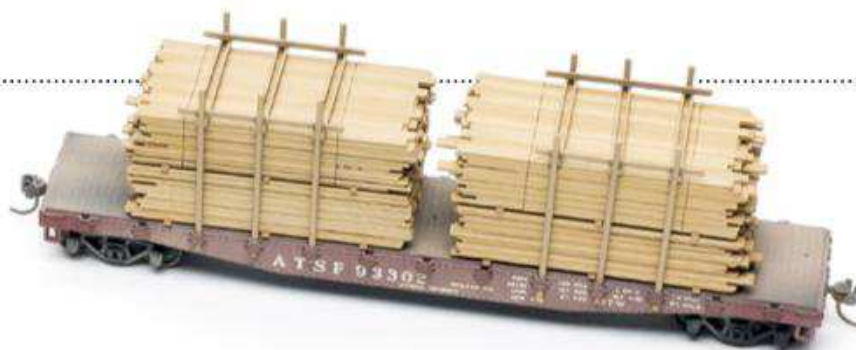
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Need loads for your freight cars? Cody Grivno shows you how to make three loads in this month's Step by Step.

Bill Zuback photos

Three loads for open-top cars

Real railroads earn their money moving freight. On our model railroads, we have to imagine covered hoppers, tank cars, and some boxcars are loaded or empty. But there's no hiding whether or not a hopper, flatcar, or gondola is hauling freight. This month, we're giving you a Step by Step triple play with three loads for three open-top cars.

Loads can be modeled in a variety of ways. Probably the easiest option is using commercial loads. Several

manufacturers offer castings of coal, ore, and scrap metal, among other commodities, for loading hoppers and gondolas. The loads are usually designed to fit a specific car or cars. Most can be modified to fit other models.

Another option is to build a load using a kit. Companies make load kits for coal, pipe, lumber, and electrical generators, to name a few. These loads are offered in a variety of media, including vinyl sheet, injection-molded plastic, and

laser-cut wood. Two of the loads in this month's column were made using kits.

A third option is to make your own loads. Depending on the complexity, most freight car loads can be completed in an evening or two. The steel coil load on page 28 was scratchbuilt.

If you're looking for a way to enhance your open-top rolling stock, try adding a load. Whether it's a commercial casting, a kit, or your own creation, your freight cars will look much better.

LOAD 1 COAL IN A HOPPER



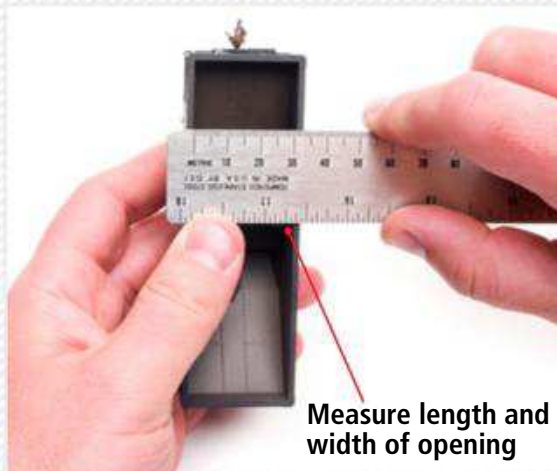
Coal loads are available in resin, plaster, and injection-molded plastic, among other media. However, I wanted to try my hand making a coal load using Chooch Enterprises' new flexible vinyl coal sheets.

The 3 $\frac{3}{4}$ " x 12" sheets are offered in small (no. 8708), medium (no. 8710), and large (no. 8712) grade coal. The loads are not scale specific.

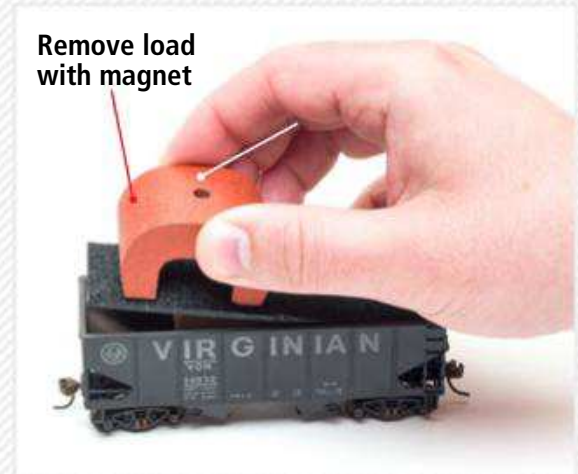
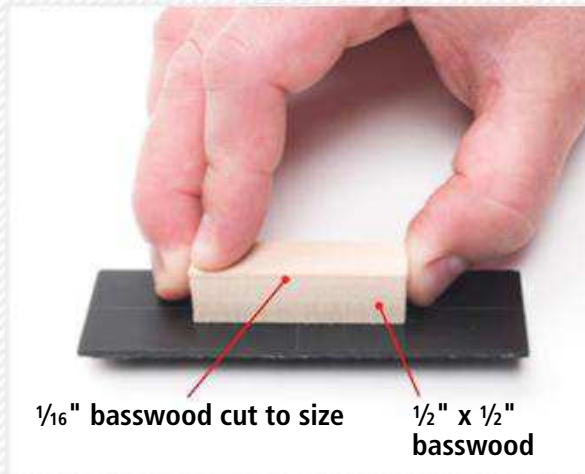
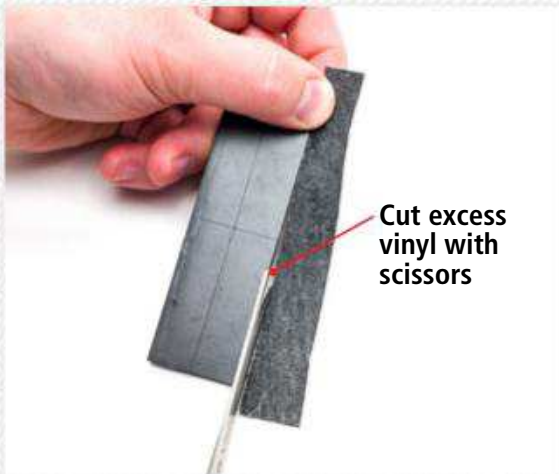
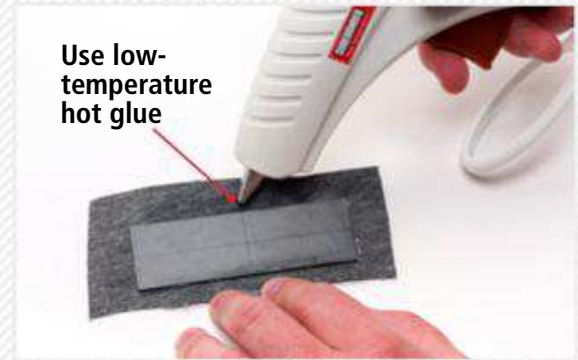
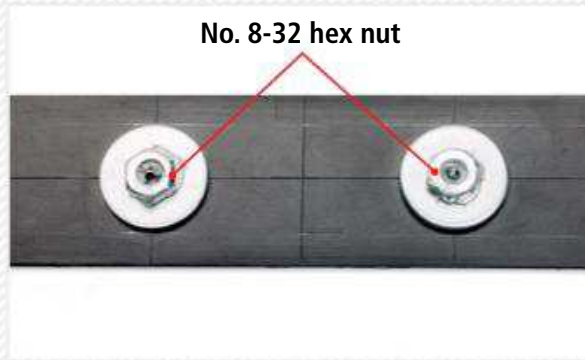
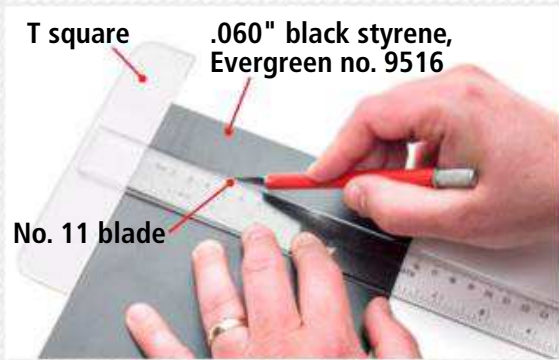
Making the loads is a fairly quick process. First, I measured the opening on the Accurail HO scale United States Railroad Administration two-bay hopper.

Next, I transferred those dimensions to a piece of Evergreen .060" black styrene sheet (no. 9516). I cut the styrene with a no. 11 blade in a hobby knife, using a T square as a guide.

Chooch recommends using nuts and washers to make the mounds for the load. I attached two $\frac{1}{4}$ " washers ($\frac{3}{4}$ " outside diameter) to the styrene with low-temperature hot glue. I set a no. 8-32 hex nut in the middle of each washer with the same glue.



LOAD 1 COAL IN A HOPPER (CONT'D)



Then I cut a piece of the vinyl sheet slightly oversized and attached it to the styrene, again with low-temperature hot glue. I first put a bead of glue between the two washers and pressed the vinyl into place.

Next, I ran glue along the perimeter of the styrene to secure the vinyl along the edges.

Once the glue dried, I trimmed off the excess vinyl with scissors. I checked to make sure the two coal mounds looked realistic. The hot glue is forgiving if you need to make minor fixes.

Finally, I added a 1/2" square piece of basswood to the bottom of the styrene with hot glue. When I set the load into the hopper, I thought it was

too low. To remedy this, I added a piece of 1/16" basswood with wood glue. Now the load sits 1/16" below the top of the hopper.

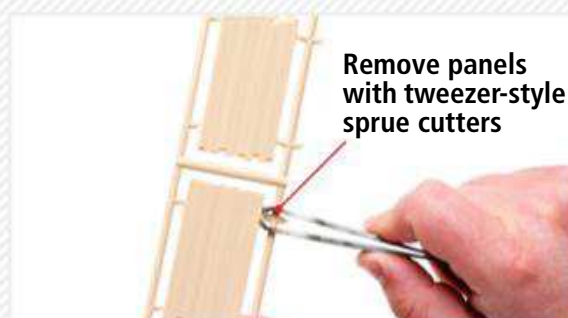
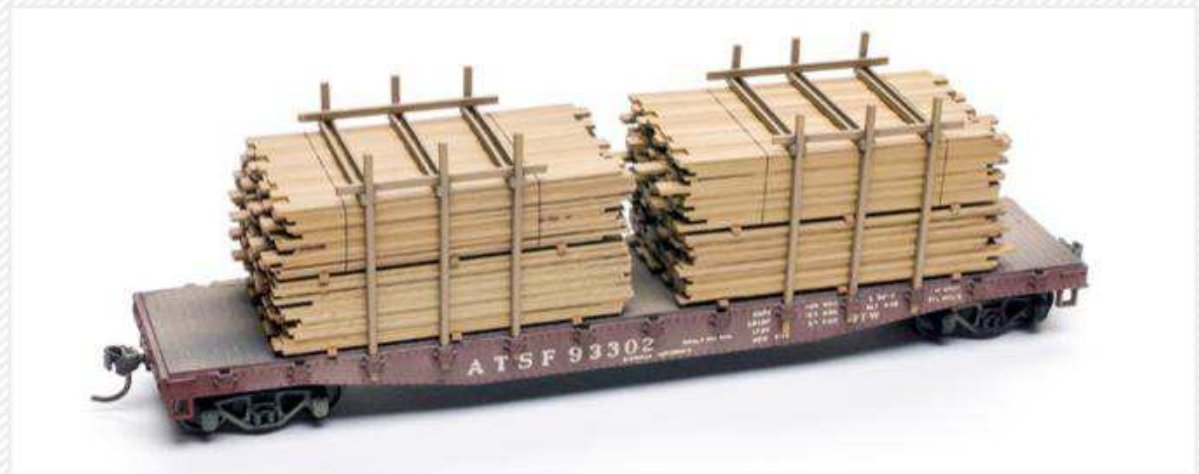
I was satisfied with the finished load. The vinyl has the right texture and sheen. Using the washers and nuts underneath makes the load easy to remove with a magnet.

LOAD 2 LUMBER ON A FLATCAR

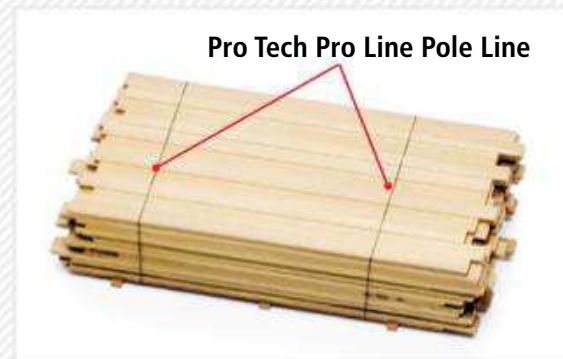
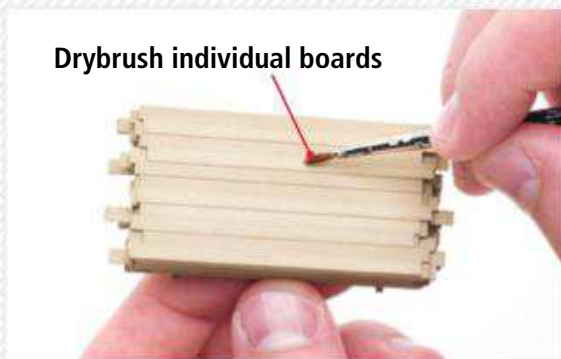
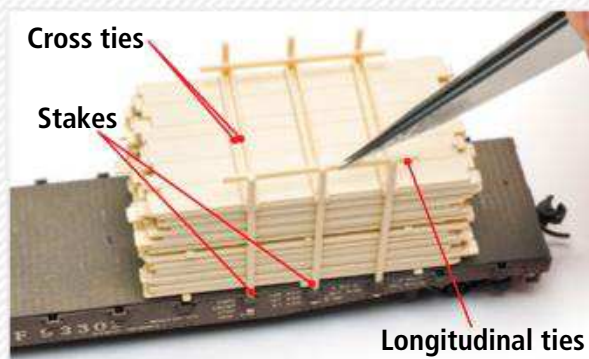
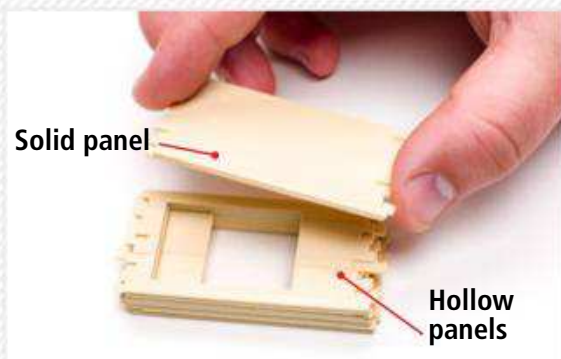
Through the 1950s, stick lumber was shipped in boxcars and on 40- and 50-foot flatcars. Re-creating loads like this could be done with stripwood, but it would be time consuming. To speed things up, I used Owl Mountain Models injection-molded plastic lumber load (no. 3012). The kit is designed for flatcars from several manufacturers, including Athearn, Bowser, Tichy Train Group, and Walthers.

The Owl Mountain kit includes 32 panels of rough-cut 3 x 10s in scale 16- to 18-foot lengths. There are enough parts to model four scale 48" tall lumber stacks or more shorter piles (the minimum height is 30").

I started by removing the panels from the sprues with tweezer-style sprue cutters. After I'd separated the panels from the sprues, I smoothed



LOAD 2 LUMBER ON A FLATCAR (CONT'D)



the rough spots with a no. 11 blade and a square jeweler's file.

The kit includes eight unique panels, which can be rotated or flipped to make each lumber pile different. The solid panel goes on top, the hollow panels go underneath. The panels can be assembled with liquid plastic cement or cyanoacrylate adhesive; I used the former. I also added the supplied separators to the bottom of each pile.

Then I turned my attention to the stakes, cross ties, and longitudinal ties. Since I wanted the loads to be removable, I glued the stakes and ties to make a one-piece assembly for each two-high lumber stack.

I built four scale 48" tall lumber stacks. After the glue dried, I washed

the stacks in warm water with dish soap added to remove impurities that might affect paint adhesion. Then I sprayed the stacks with Tamiya Surface Primer (no. 87042).

I let the primer dry for 24 hours. Then I spray-painted the stacks with Rust-Oleum Camouflage 2X Camo Sand (no. 339004). After the paint had dried, I applied Hunterline Golden Brown Weathering Mix. Then I randomly drybrushed individual boards with Model Master Wood (no. 4673) and British Gulf Armour Light Stone (no. 4813). I applied Hunterline Greige Weathering Mix to the stake, cross tie, and longitudinal tie assembly.

The paint and primer made the stakes too thick to pass through the bottom of the pockets (per

Association of American Railroad loading rules printed in vol. 20 of the *Railway Prototype Cyclopedia* [RP Cyc Publishing Co., 2010], the stakes should extend 4" beyond the bottom of the pocket). Using a jeweler's file, I filed off the paint and some plastic on the back of each stake.

The loading rules also indicate that there should be three strands of 11 AWG black annealed wire, twisted together, two each per pile. A prototype photo in the *Railway Prototype Cyclopedia* showed a load where only the top stacks of lumber were wrapped in wire, so that's what I did here. I used Pro Tech Pro Line Pole Line (try saying that three times fast!), an elastic polymer thread, to simulate twisted wire.

LOAD 3 COIL STEEL IN A GONDOLA

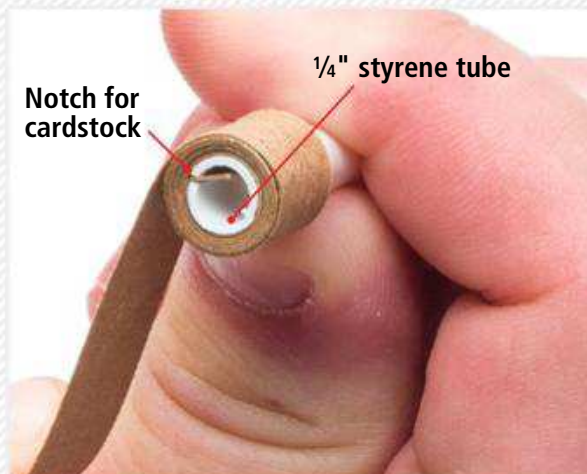
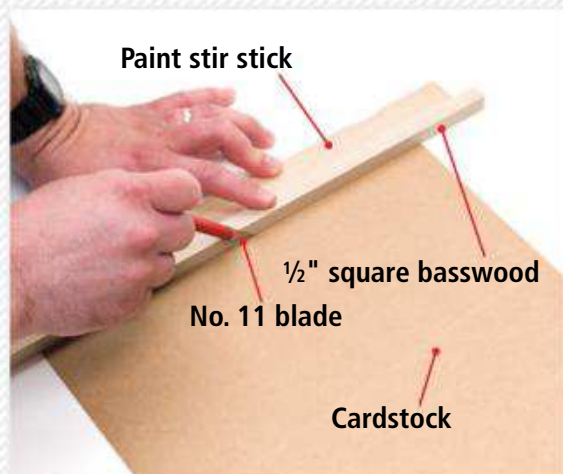


The last load project was inspired by a diagram in the 1976 Association of American Railroads *General Rules Governing the Loading of Commodities on Open Top Cars and Trailers*. The illustration shows how to set coil steel, with the eye vertical, in a gondola with a wood floor.

I built the coils first, following Bruce Dombey's article "Roll your own steel coils" in the May 2009 issue of *Model Railroader*.

I started by cutting 1/2"-wide x 12" strips of cardstock. To get consistent

LOAD 3 COIL STEEL IN A GONDOLA (CONT'D)



cuts, I set the paper against a paint stir stick. Then I placed a 1/2" square piece of basswood against the paint stick. I made the cuts on a hard surface with a sharp no. 11 blade.

Next, I used a piece of 1/4" styrene tube as a winding mandrel. I cut a slot in the middle of the tube to insert the cardstock and started winding the paper. I put a dot of full-strength white glue on the cardstock periodically to prevent the coil from unraveling. I used three strips to make each coil.

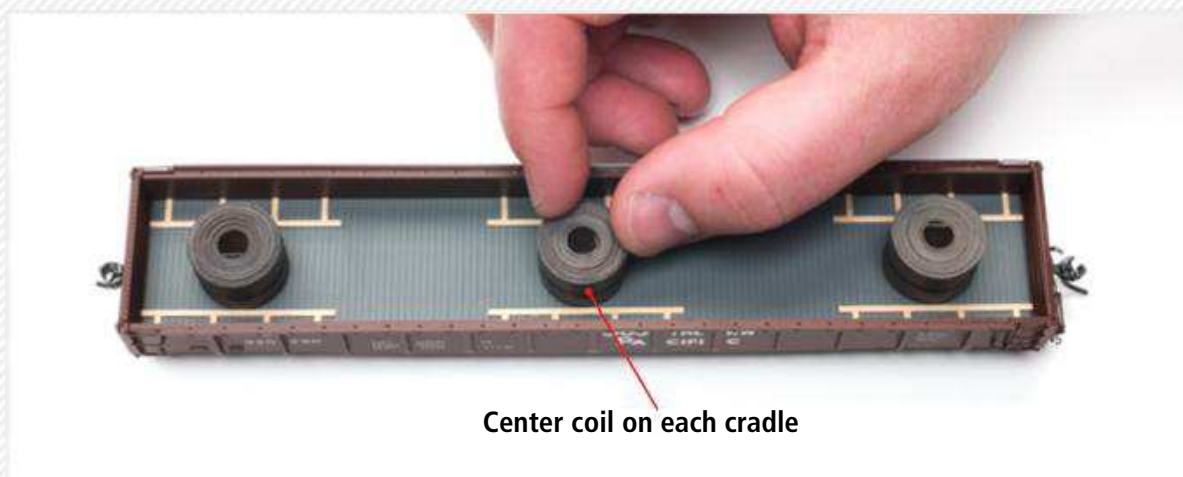
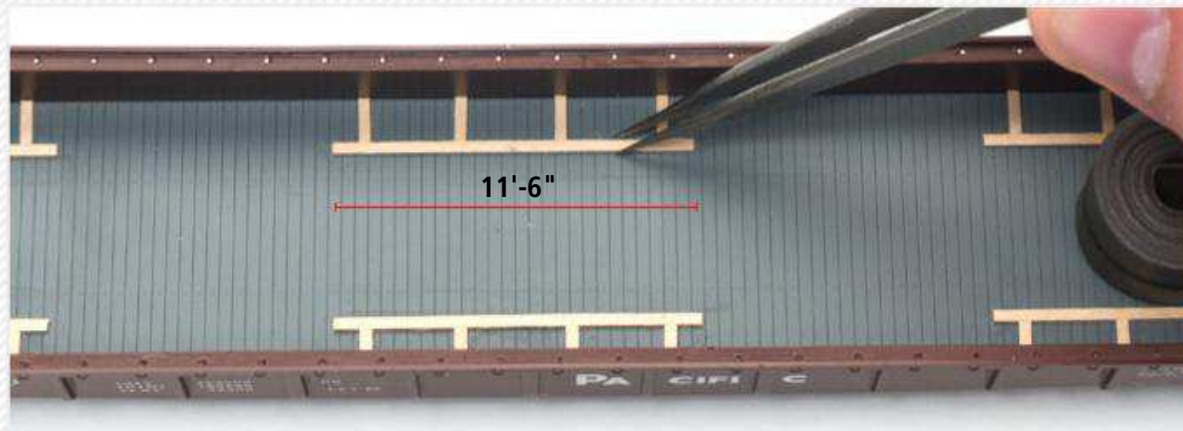
Once I had several coils assembled, I sprayed them Rust-Oleum Painter's Touch 2X Gray Primer (no. 249088). After the primer dried, I gently sanded each coil to remove any stray paper fibers. Then I applied a second, light coat of primer.

Because the coils are exposed to the elements, the steel will rust. To simulate this, I applied Monroe Models Dark Rust weathering powder (no. 3105) with a brush.

The diagram noted that the coils should be secured with a 1 1/4" x .035" high tension band. I simulated this with 1/16" black crepe art tape (it's a bit wide, but it looks the part).

I made the wood cradles for the coils using scale 2 x 4 stripwood. Per the loading instructions, the wood that runs parallel to the car sides must extend 3 feet past each end of the coil. The perpendicular boards must be 18" long and not more than 12" from each end. The intermediate perpendicular boards are spaced no greater than 4 feet apart. I secured the cradles with white glue.

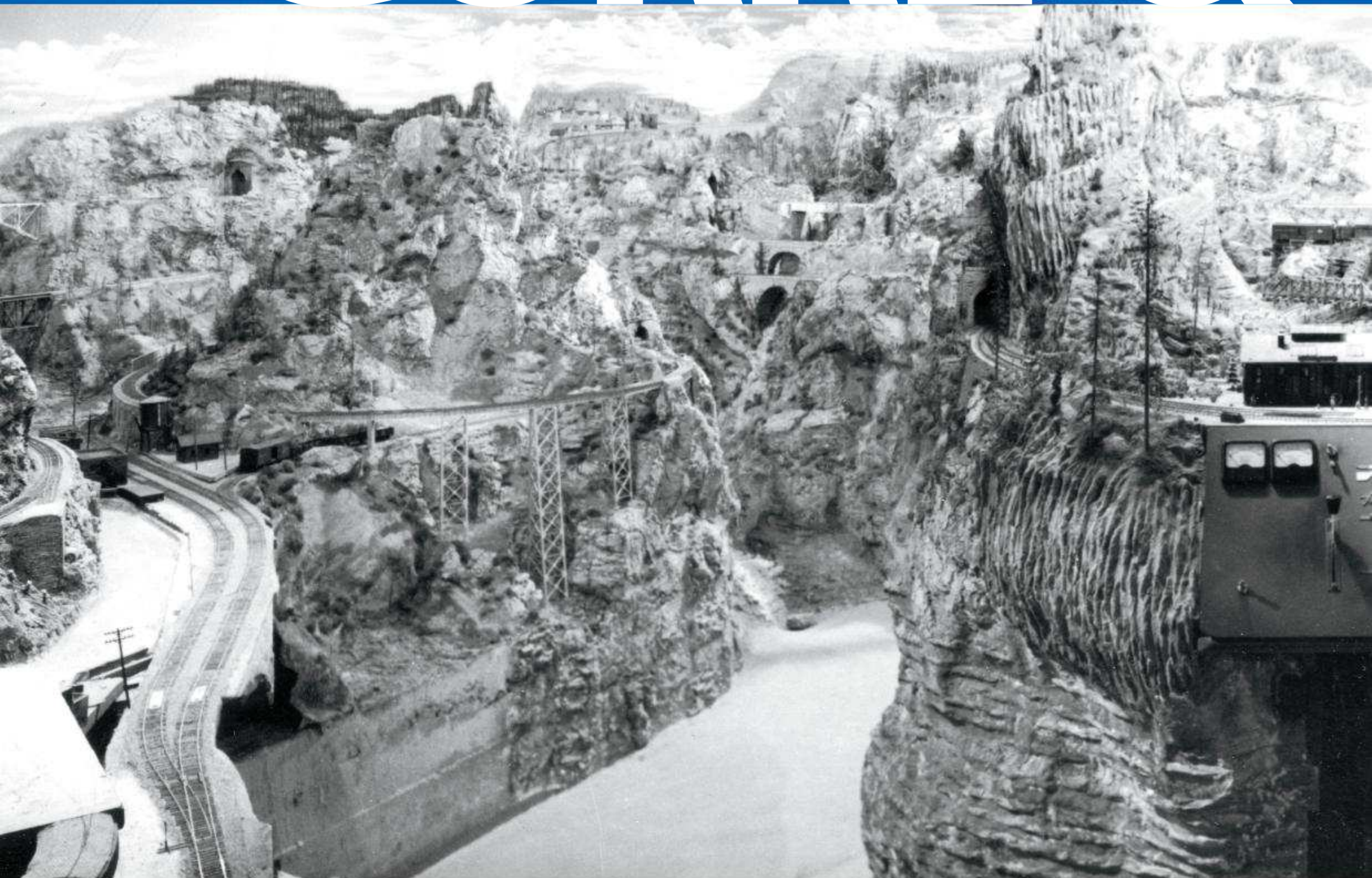
Finally, I installed the steel coils in the gondola, again with white glue.



I centered each coil in the cradle. If you want the cradles and loads to be removable, don't glue them in or use a pressure-sensitive adhesive like Woodland Scenics Scenic Accents Glue.

If you're looking for a reason to get back to the workbench, try building a few loads. These quick-hitter projects are a great way to keep your skills sharp and add some visual interest to your layout. **MR**

OPERATING ON THE GORRE &



John Allen's HO scale Gorre & Daphetid (pronounced "gory and defeated") was one of the hobby's most influential model railroads. The 23 x 27-foot G-D Line, noted for its spectacular bridges, floor-to-ceiling scenery, and mirrors to add the illusion of depth, was featured numerous times in the hobby press from the mid-1940s through the early 1970s.

Sadly, the Gorre & Daphetid was destroyed by fire shortly after John's death in 1973. Some items from the railroad survived the fire, including 4-10-0 no. 34, which is on display at the Model Railroader offices. – Ed.

In 1962 I was transferred by the U.S. Navy to Monterey, Calif., and had the good fortune to become part of John Allen's Wednesday night operating crew on his HO scale Gorre & Daphetid. By this time John's

layout had been featured in *Model Railroader* and other hobby magazines many times. Since I was now residing in the same town as the "Wizard of Monterey," I reached out to John to schedule a visit to his layout.

About two weeks after moving to Monterey, I called John. He said if I could come over in about 15 minutes it would be perfect, as he had other guests visiting at that time. I was out the door in a flash.

The G-D Line was about half built in 1962. The line ran from Divide to Port via Gorre and Squawbottom with a branch line from Gorre to Daphetid. Interestingly, almost all of the rail-served customers were on this portion of the layout. Only a few "new" customers were located on the expanded

layout, with the exception of Andrews.

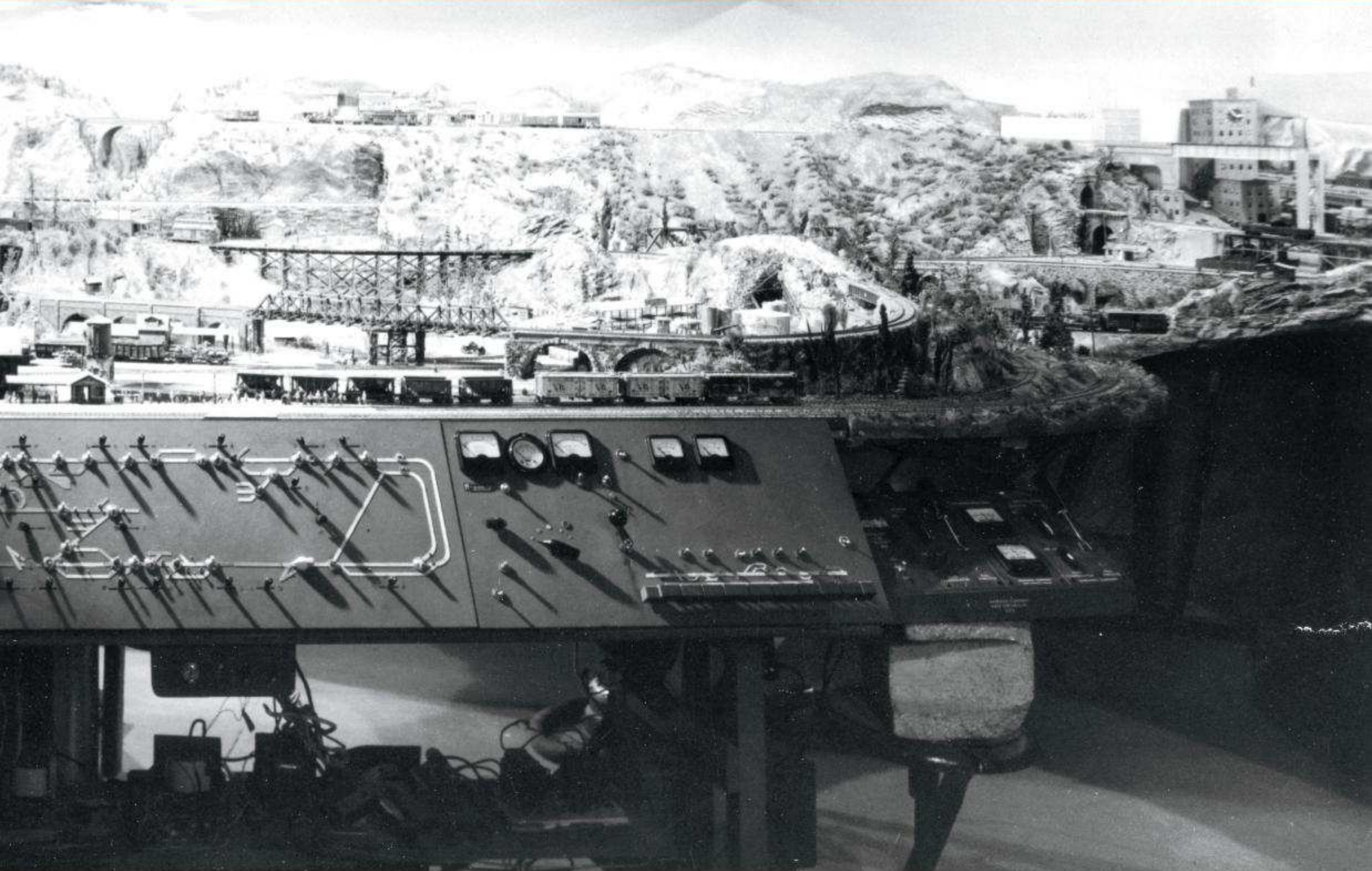
John's basement was approximately 23'-0" x 27'-6", with a 32½-foot jog across the middle. His workbench was under Andrews.

During the visit John asked me how I knew of him. I said I got his number out of the National Model Railroad Association Directory. [This was a booklet produced by the NMRA at the time with the addresses and telephone numbers of members. – Ed.] John was having an operating session that evening, and he invited me to attend.

Memories of running trains on John Allen's HO scale layout in the early 1960s

By **Bob Warren** • Photos by John Allen

DAPHETID



The afternoon tour was breathtaking. Without a doubt, the G-D Line was the finest layout I'd ever seen. That evening's operating session was perfect. The layout performed flawlessly.

My job that night was the switchman at Port. The operating session was my first exposure to car cards and John's simplified waybills. However, this wasn't my first experience in prototype operations. In the mid-1940s I was a junior member of the Wabash, Frisco & Pacific live steam club in St. Louis County, Mo. There we used

rulebooks and timetable-and-train-order operation.

After attending the operating session at John's, my Wednesday evening pattern was established. I'd arrive at John's around 7 p.m. and operate trains from 7:30 until 9:30 or 10 p.m.

John assigned jobs first, but later he created a seniority system based on attendance. For some reason Port wasn't popular with the regulars, but I loved it. John

finally had a Port yardmaster who wanted to be there.

Jobs on the G-D Line

The Gorre & Daphetid jobs were Divide yardmaster, local conductor, Port yard-

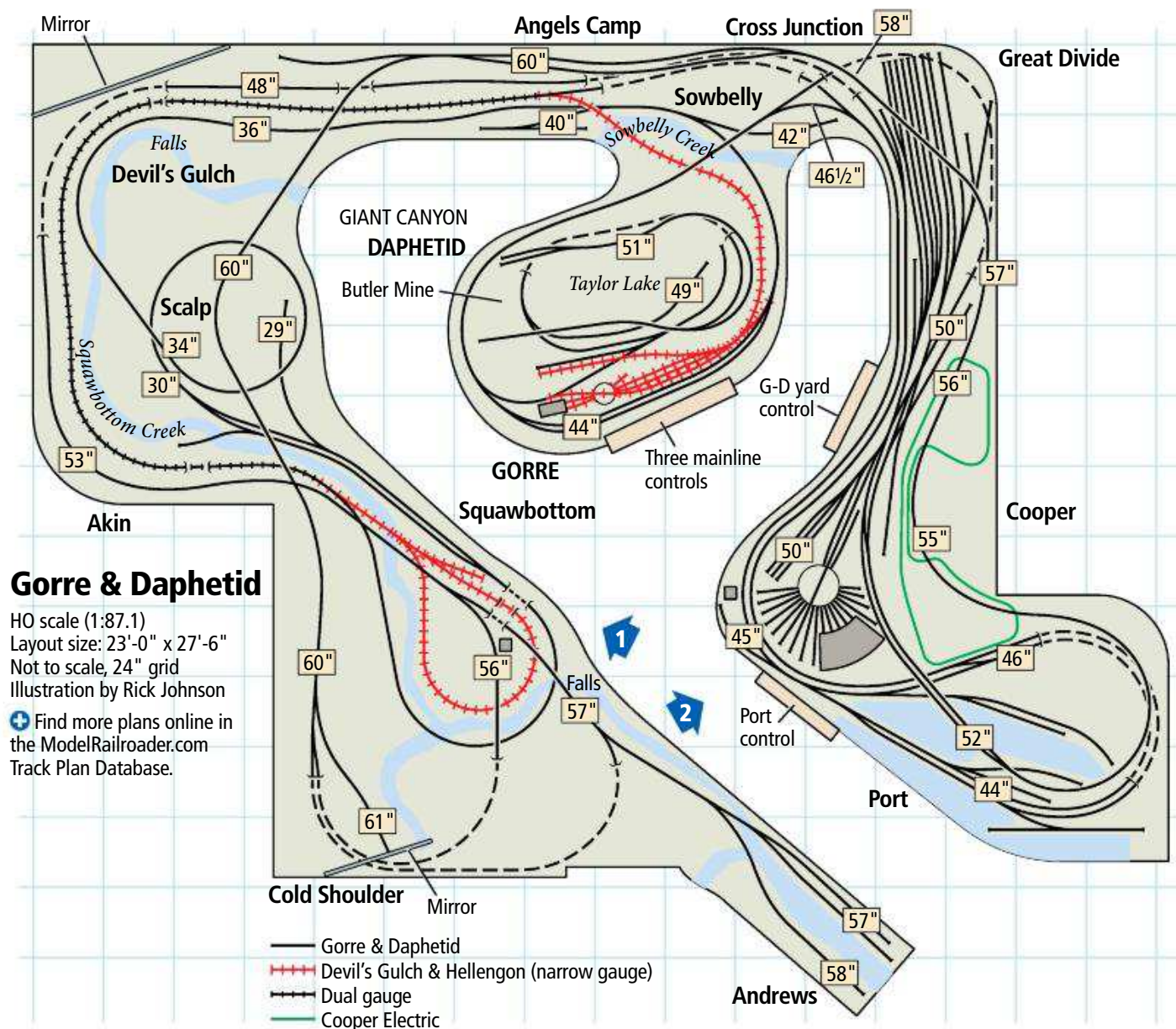
master, road engineer, Divide engineer, local engineer, Daphetid Branch conductor/engineer, and Port engineer. We always had at least six operators and never more than eight.



1 This panoramic view shows Gorre (center) and Devil's Gulch (left) on John Allen's HO scale Gorre & Daphetid layout. Bob Warren shares his memories of visiting and operating on the famous G-D Line in the early 1960s.

The first job assigned was the Port engineer, which was fine with me. Next to go was the Daphetid Branch job, which ran on the original 4 x 8-foot layout. I ran the job once and it was painful. John loved it and ran it often.

John's operating scheme was clever. At the beginning



of the session the Divide yardmaster, local conductor, and Port yardmaster were engaged in preparing car cards.

In Divide, waybills were removed when a train arrived in the yard. While the Divide yardmaster was adding waybills to cars of his choosing for the through freight, the local conductor was turning the waybills on cars spotted at industries.

The Port yardmaster turned the waybills for cars that would go out on the through freight and then removed the rest of the waybills. If he turned a waybill and it didn't say Divide, then that waybill was set aside for the local freight.

When the Port yardmaster had enough cars billed for the through freight, he would remove the rest of the waybills. After the through freight departed, the yardmaster found waybills with destinations for the local freight and added those bills to car cards that didn't have a waybill.

The beauty of this system was that between operating sessions John could devote all of his time to layout construction projects. He didn't have to worry about staging trains.

While the yardmasters and local conductors were busy, other things were happening. The Divide switcher was making up the passenger train, and the road engineer was getting the passenger engine from the roundhouse.

When the passenger engine was on the main, the local engineer put his locomotive on the turntable. When the passenger train departed, the Divide switcher spotted a caboose on the lead for the local, and that engine headed for Gorre as a caboose hop.

By this time the Divide yardmaster had finished with the waybills and assembled the through freight. There wasn't a rush to get the train ready, though. The passenger train had to complete its run first. Then the engineer would take the reins of the through freight.

At the controls

On the G-D Line the two mainline engineers shared the same control panel. It was laid out with a route diagram and block toggles. The rule was if the block was available, you could take it by throwing the double-pole double-throw (DPDT) switch in your direction. When you left the block, you had to release it by putting the DPDT switch in the center-off position.

There was a fast clock on a building near the Divide passenger station. Even though time wasn't an operating factor when approaching Divide or Port, you gave the yardmaster an estimated arrival time based on the fast clock. When the yardmaster gave you the block, a semaphore signal changed from stop to proceed. Delaying inbound trains was discouraged.

The road engineer ran the passenger train and then the through freight, while the other engineer ran the local. There was no question about

train superiority. John functioned as dispatcher, announcing meets when required. It worked.

Running trains

When John started on his layout, he used Baker couplers because they were the best available at the time. Bakers always coupled, manual uncoupling was a cinch, and vertical curves were no problem. In hard-to-reach locations John installed ramps that were raised by a solenoid.

Yardmasters were responsible for keeping trains within tonnage ratings (i.e. number of cars). John had a lot of freight cars equipped with sliding pads underneath for cleaning the track. One track cleaner equaled two cars. Simple, but it kept you on your toes.

John was interested in operation and was a member of a round-robin group that included other prominent model railroaders. Although memory is dim here, it seems to me that the group involved seven members, and everything was done by mail. It was the 1950s, after all.

One impact I felt the round-robin group had on our activity occurred about six months after I became a member of the G-D Line operating crew. John started keeping records of car locations that involved, for example, giving him a car count of how many cars were in Port at the end of a session.

Another change was the addition of through cars on the through freight. With this change trains left Divide blocked with cars for Gorre, through cars, and Port. As a result, train lengths weren't constrained by setouts.

Even though there were operational changes, one thing remained constant about the G-D Line: Everything worked. Locomotives never stalled. I don't remember short circuits ever hap-



pening. Derailments were rare, but that was one of John's best rules. *He* wanted to rerail the offending cars. That was fine with me. The further I stayed away from his models, the better I liked it.

John had another rule that I've always applied to myself, and that was to wear short-sleeve shirts during operating sessions. John's theory was that with bare forearms you might feel something that you wouldn't feel if you were wearing a long-sleeve shirt.

Looking back

Operationally, I feel the Gorre & Daphetid had two flaws. First, there were no interchanges. As a Midwestern native, I was shocked when I rode to California in 1952 on the Southern Pacific. I grew up in Ferguson, Mo., and spent a lot of time at the station watching the Wabash. You

didn't see a lot of Wabash freight cars.

Riding on the SP from El Paso to San Francisco, I wondered, "Why do they have so many SP cars?" Since John was from California, interchanges never occurred to him.

Second, there was a lack of open car loads. If a flatcar came in empty, it left empty. Same way with hopper cars and gondolas.

The hobby has come a long way since the G-D Line. This isn't a complaint, but in the 1960s our hobby had zero interest in prototype operations. John had a homemade car system and that was about it. But it always seemed a little weird to me that on the WF&P in 1945, we were running trains prototypically, with timetable and train orders, two operators, and a dispatcher.

It was almost a half century later before our hobby

gained a larger interest in prototype-based operations. I often wonder why were we so interested in rivets in the 1950s and '60s, but running trains prototypically from A to B was shrugged off?

John could have had a timetable with registers at Divide and Port. The timetable would have listed first-class passenger, second-class freight, and third-class local freight. On good nights we would run a second through freight. That train could have been an extra, and like any extra, conform to the timetable. John wasn't thinking about this, but in the 1960s, no one else was, either.

What the Gorre & Daphetid really needed was Digital Command Control. If there was ever a layout that was perfect for helper operations, it was the G-D Line. Imagine two helpers based at Squawbottom, one facing east and the other west. John had

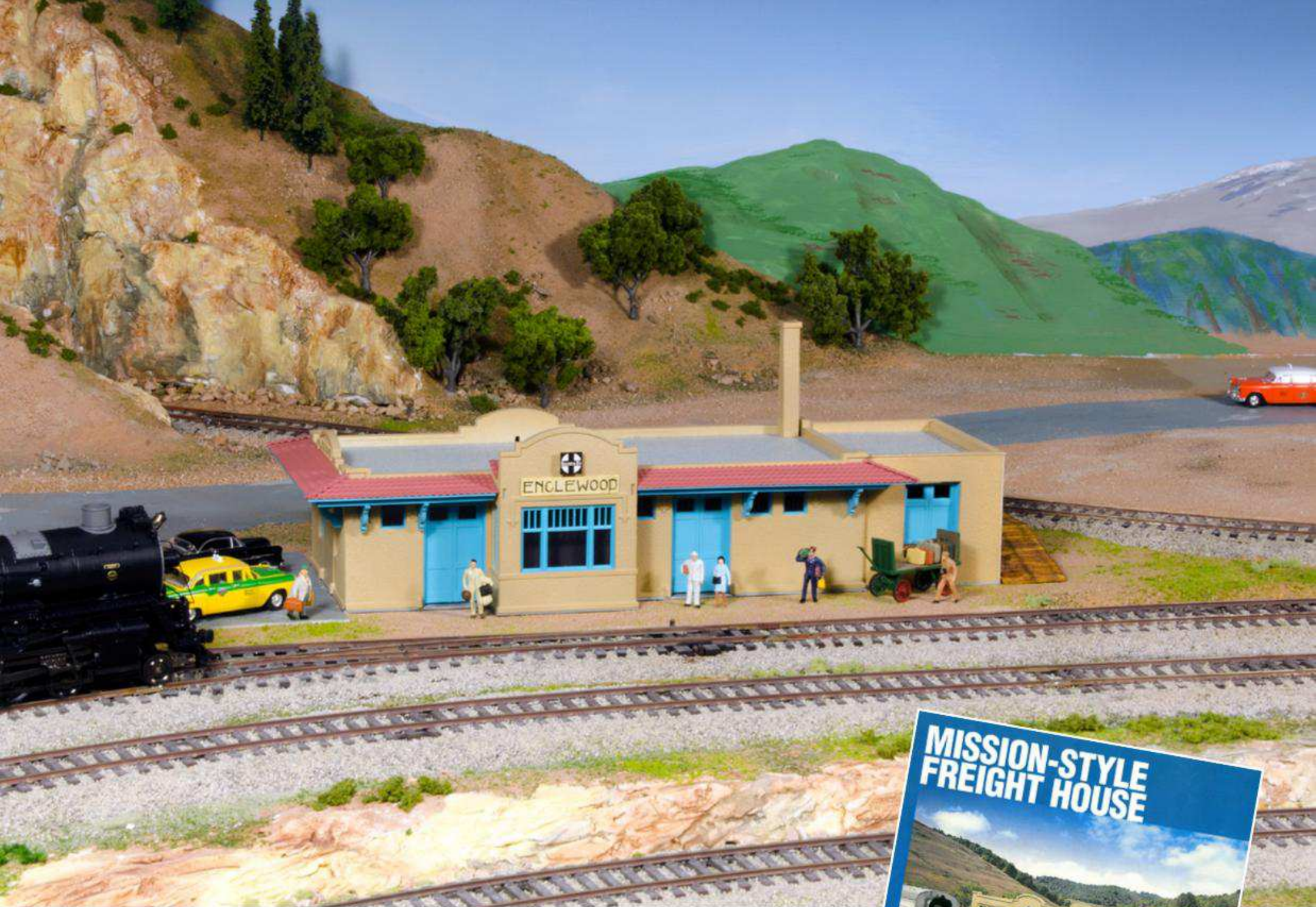
② Bob gladly embraced the role of Port yardmaster on the G-D Line. Partially visible on the fascia is the Port control panel and a box for car cards and waybills.

a couple of 2-6-6-2s that would have been perfect for shoving trains up the hill.

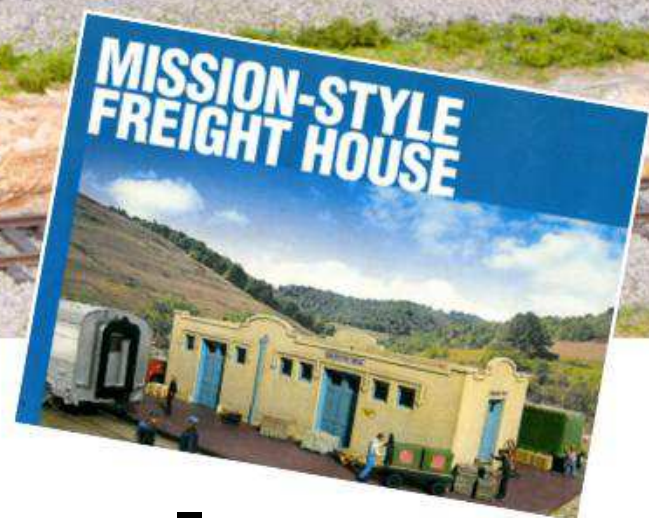
Finally, I never knew where Port was. But I always thought it was on the Pacific Ocean. And since all freights terminated at Port and Divide, I saw them as the end points of the railroad.

Though I love the change in operating emphasis, I'd go back to the Gorre & Daphetid in a minute. Baker couplers, direct current control – who cares? Don't change anything. It was a wonderful memory. 

Bob Warren retired in 1982 as a captain in the U.S. Navy. His track plan article "Ahead of its time" appeared in the November 2004 Model Railroader.



1 A classic Santa Fe station. The Englewood Depot is a busy place on Gerry Glancy's HO scale model railroad. The kitbashing project centered around a Walther's freight house kit (inset).



Kitbash a mission-style Santa Fe depot

How to turn a Walther's freight house into the Englewood, Colo., train station

By **Gerry Glancy** • Photos by the author

The variety of structure kits available today provide excellent raw material for kitbashing unique models. An example on my HO scale layout is the Englewood, Colo., depot **1**, which I built from Walther's kit components, styrene, and stripwood.

The prototype for the model is a mission-revival depot built by the

Atchison, Topeka & Santa Fe Ry. just south of Denver in Englewood, Colo. Built in 1915, the depot served the Santa Fe until it was closed to passengers in the 1950s. The building was moved a few blocks away from the tracks in the 1990s and still stands today as the Letterpress Depot print shop and museum (www.letterpressdepot.com).

In addition to historic photos, I took present-day reference photos to use for the project. A contemporary photo of the station prior to its current restoration is shown in **2**.

The centerpiece of the project is the Wm. K. Walther's Cornerstone Series Mission-Style Freight House, which was available separately (part no. 933-2921)

or as part of a combination station/freight house (part no. 933-2924). I used the latter, since I needed parts from both structures to complete the project.

These kits with their simulated stucco walls are currently out of stock at Walthers but are still available on the secondary market. Simulated brick versions of the station and freight house, part numbers 933-4055 and 933-4056, respectively, are still available. The brick walls could be laminated with Plastruct 91572 stucco sheet to look more like the Englewood prototype.

Follow along as I outline how I built my model of this unique passenger depot. Even though I model in HO scale, many of the techniques I describe, such as modifying a structure footprint or laminating textured sheets over plain styrene, can be used in larger or smaller modeling scales.

Basic structure

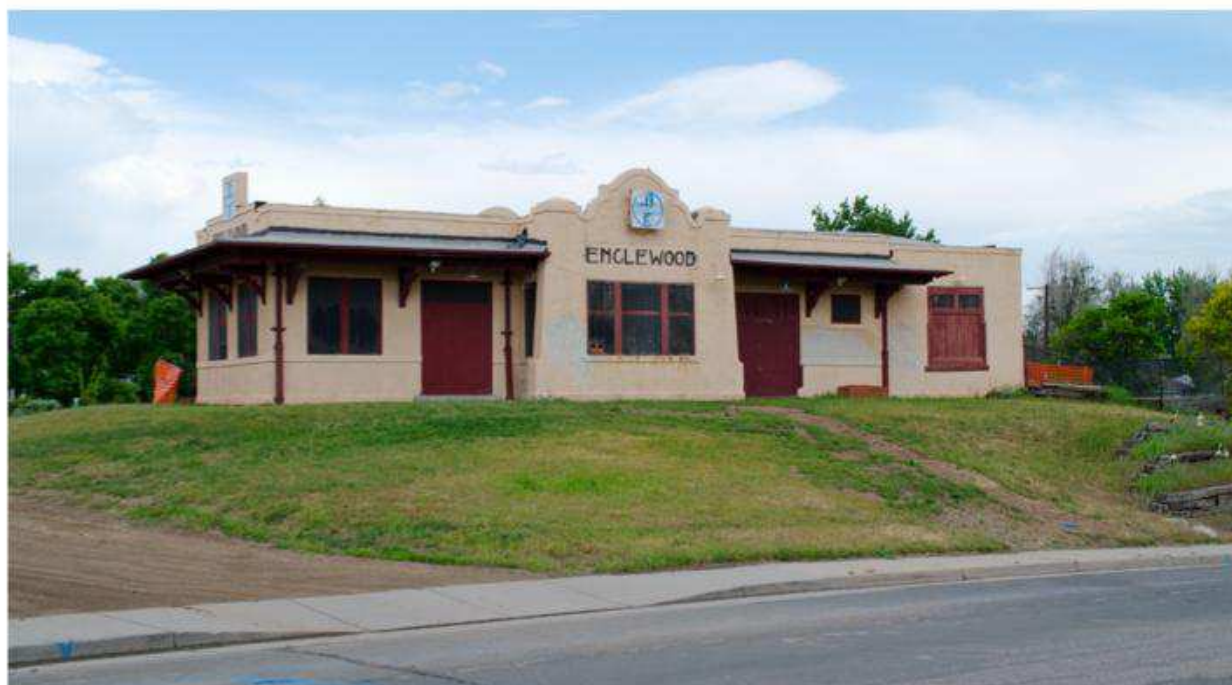
For this project, I used solvent-type cement for gluing the plastic parts together. Photo ③ shows the major components of the depot, including all four of the walls that came with the freight house. I left two of the kit's long walls as is, but sealed the freight door on one end wall with a piece of Plastruct plain stucco sheet. I also cut two window openings in this end wall to accept the long windows (parts 28) included with the freight house kit.

The prototype depot has a prominent bay window. For my model I used the bay window from the Walthers no. 933-2924 Mission-Style Depot kit.

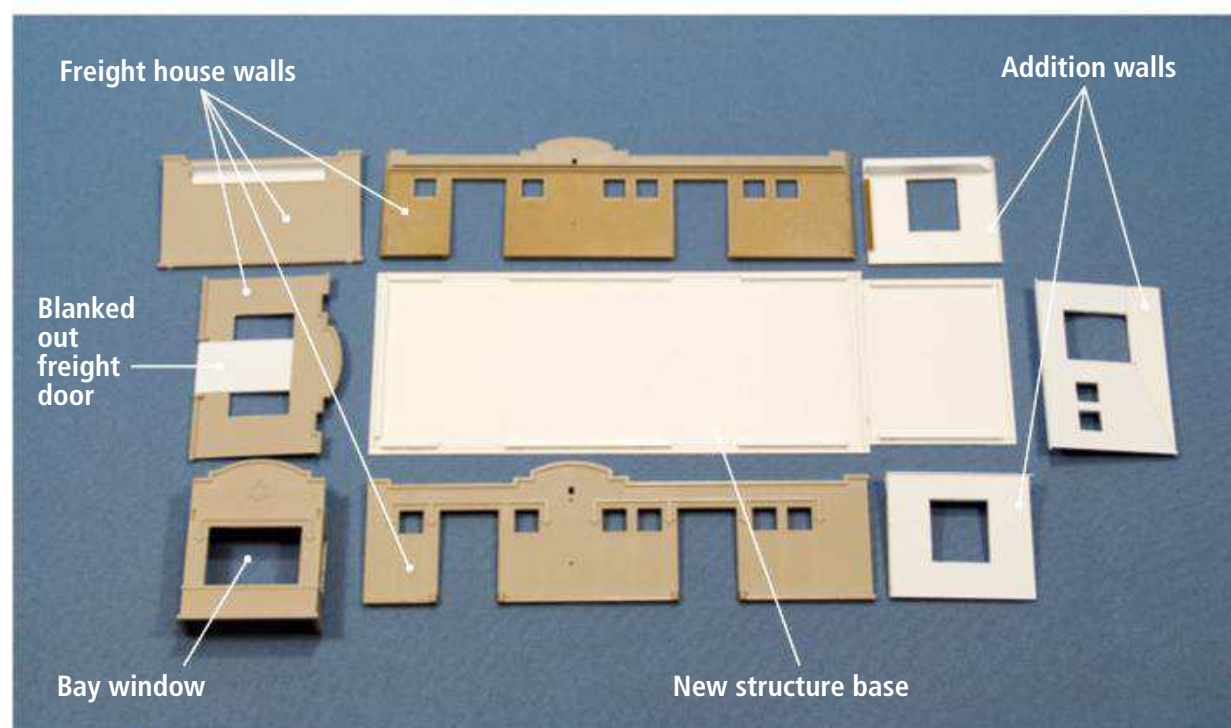
Instead of using the base that came with the kit, I cut a new one from .030" styrene sheet. The new base incorporates the footprint of the original model as well as a 2 1/8" x 3" addition on one end. I also cemented .125" x .125" styrene strip around the periphery of the base to support the walls. I didn't add any strips where there would be door openings.

I made new walls for the addition from Plastruct smooth stucco sheet laminated to .040" plain sheet. The short wall sections measure 1 15/16" x 2 1/8". The end wall measures 1 15/16" x 3".

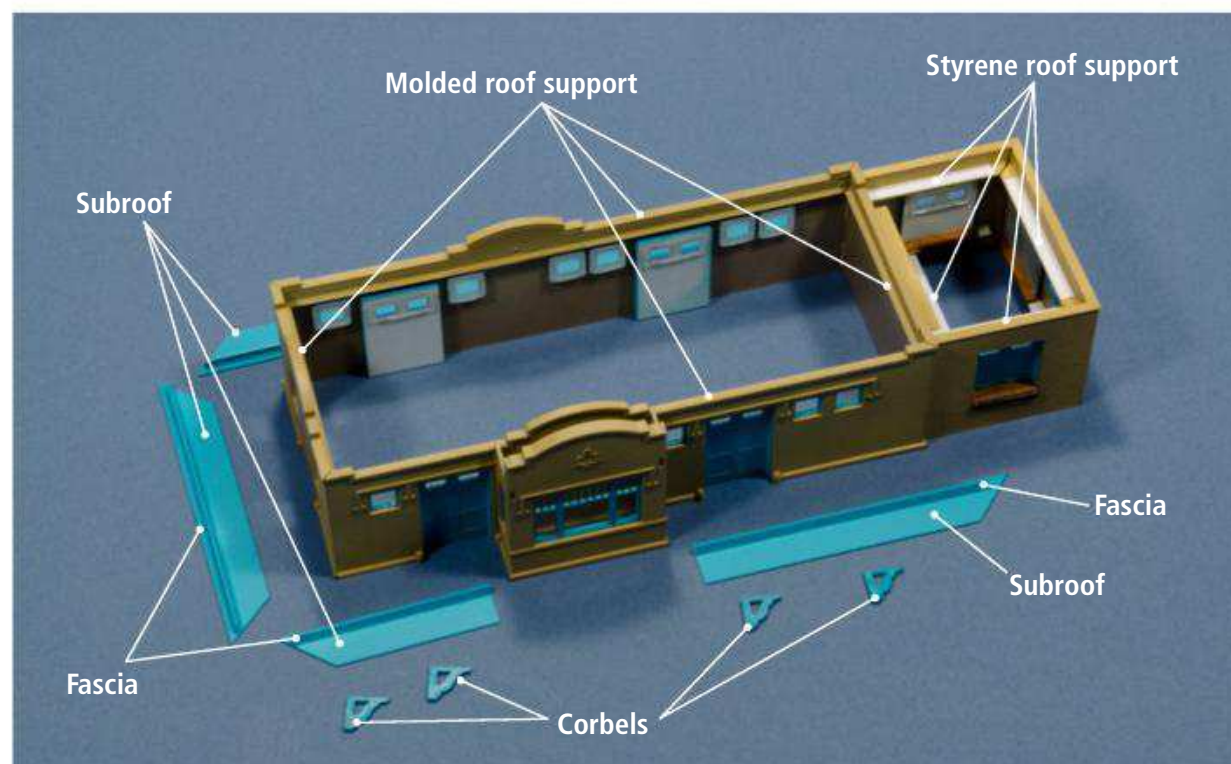
Next, I cut 7/8" x 1" openings for freight doors in all three sections. The bottom sill of each freight door should be 9/16" from the ground. Since there's only one freight door included with the kit (part 61), I had to look in my scrap box for two more. I used Tichy freight doors (part no. 8125), but Grandt Line freight doors (part no. 5198) would also work.



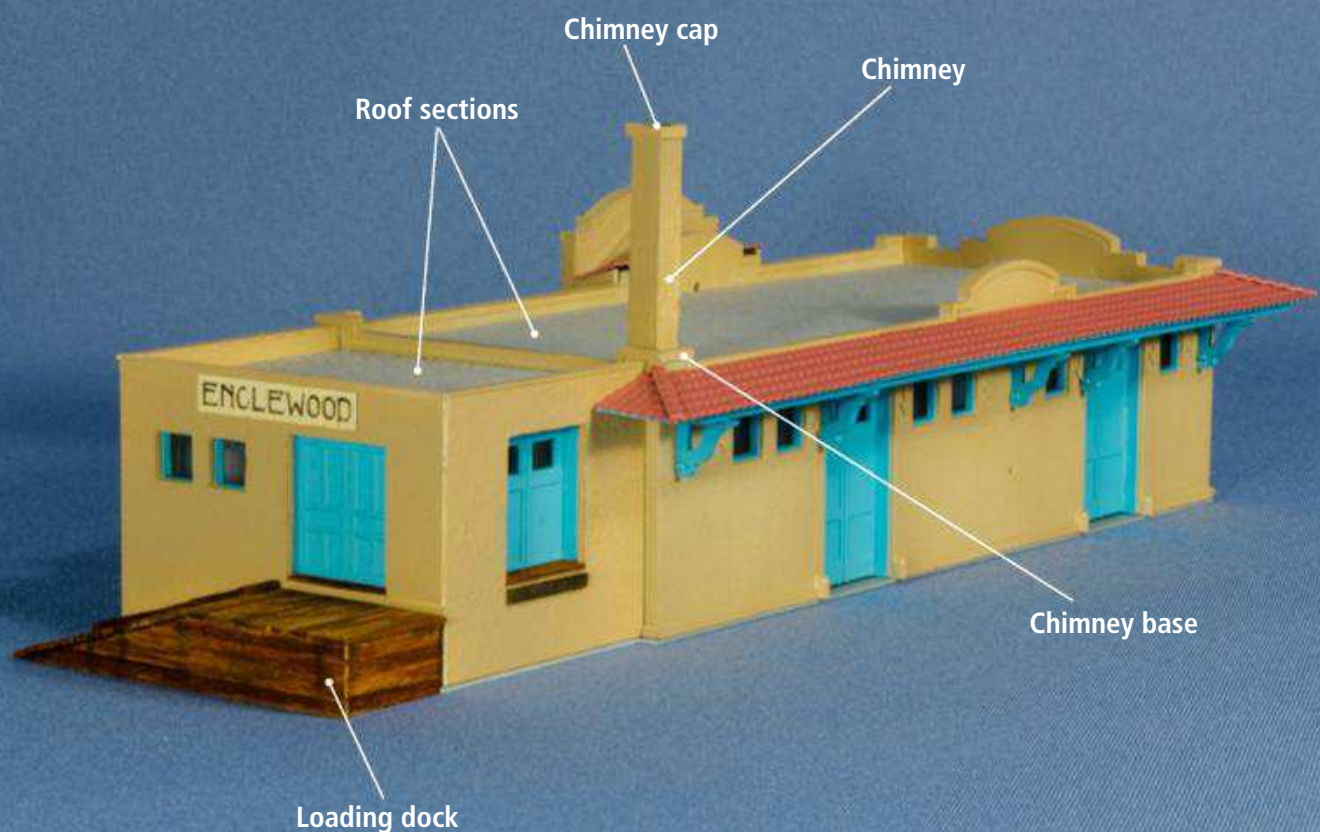
② **Still standing.** This contemporary photo shows the depot after it had been moved away from the tracks in the 1990s. Since this photo was taken, the structure has been restored and is used as a letterpress printshop and museum.



③ **Walls and base.** Gerry used four walls from the freight house kit and a bay window from the station kit. He made a new base and three walls for the addition.



④ **Assembled walls.** After painting, Gerry installed the windows and doors before cementing the walls together. The roof sections will be attached to the roof supports. This photo also shows some of the roof overhang pieces and corbels.



5 Roof details and loading dock. After the roof sections were installed, Gerry added a chimney scratchbuilt from stripwood and styrene. This end of the station also features a scratchbuilt wood loading dock.



Englewood, Colo., got its own train depot in 1915. This photo was taken in 1979 at the depot's original location. Englewood Public Library photo

The "Say It With Flowers" station

The town of Englewood, Colo., was just 7 miles south of Denver and about the same distance north of Littleton, two towns that already had railroad stations. However, in 1910 a group of Englewood businessmen began soliciting railroads for the town to get its own depot.

Among these civic leaders were John Valentine and William Penn, who founded the Florist's Telegraph Delivery Association and coined the firm's famous "Say It With Flowers" slogan. The men helped convince the Atchison, Topeka & Santa Fe Ry. to build a depot in Englewood, which provided access to telegraph service and refrigerator cars. From this small-town start these men built a nationwide network of florists, today known as FTD. – *Gerry Glancy*

The doors should be trimmed to fit the openings.

For the end wall of the addition, I cut two $\frac{11}{32}$ " x $\frac{11}{32}$ " openings to fit windows included with the kit (parts 62).

I made roof supports for the addition out of .020" x .125" styrene strip. The freight house walls already have roof supports molded on their interiors.

I spray-painted the wall sections with Tamiya TS-46 Light Sand and the doors and windows with Model Master 2965 Turquoise. Once the paint dried completely, I cemented the doors and windows in place. Then I cemented the walls together as shown in 4 on the previous page. I used clear parts cement to attach styrene glazing to the windows.

Roof details

Next, I cut a roof to fit the addition from plain .040" sheet. Using Tamiya TS-81 Royal Light Gray, I painted this roof and the main roof included with the kit. Photo 5 shows both roof sections painted and cemented in place.

I made the chimney from a $1\frac{3}{4}$ " length of $\frac{1}{4}$ " square stripwood covered on its four long sides with Plastruct stucco sheet. The chimney cap is made of .080" styrene angle.

On the prototype, a Spanish tile overhang runs along most of the roof's perimeter. On my model, the $\frac{5}{8}$ " wide overhang is made of Plastruct Spanish tile painted with Model Master Boxcar Red acrylic. I laminated the tile to a subroof made of .020" plain sheet. I also added a fascia along the edge of the overhang made of .040" x .125" styrene strip.

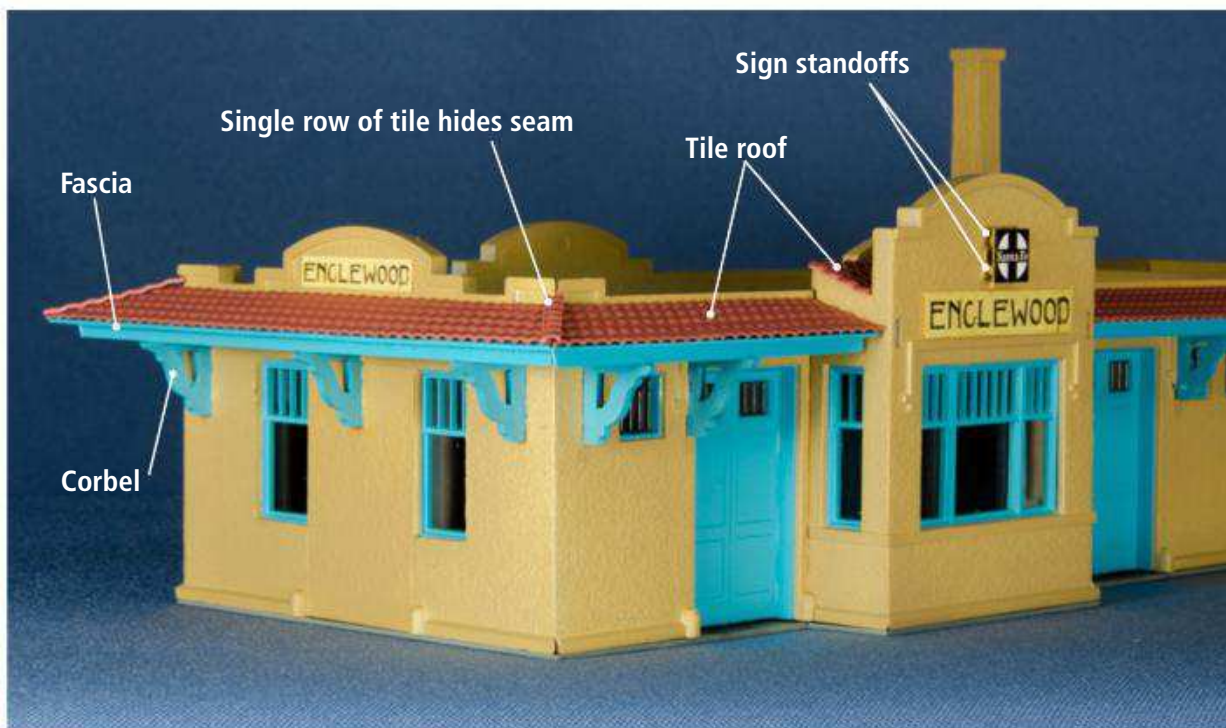
Prior to installing the overhang, I made a cardboard pattern to ensure that the intersecting roof angles would be correct. Due to the slope of the roof, the intersecting sections are cut at about a 50-degree angle. Once I was satisfied with the fit, I used my hobby knife to cut out the styrene pieces.

I installed corbels (Grandt Line 5178) under each roof section. The corbels, fascia, and subroof were painted turquoise, as shown in photo 4.

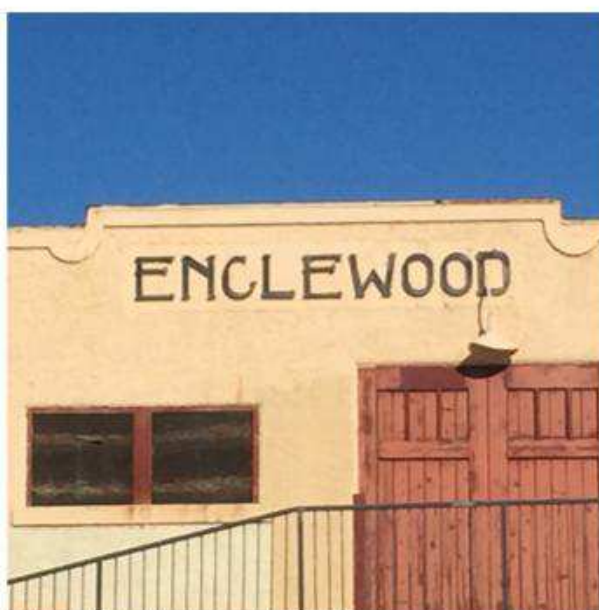
The overhang is shown in 5 and 6. At each corner where the roof sections met, I glued a single row of Plastruct Spanish Tile to conceal the seam. I also cut a $\frac{7}{16}$ " x $2\frac{1}{8}$ " piece of the tile sheet and cemented it to the bay window's roof.

Printed signs

I cut the Santa Fe sign from the card-stock sign sheet included with the freight



6 Spanish tile and Santa Fe sign. The Spanish tile overhang runs around three quarters of the station. The bay window also features a tile roof. Gerry mounted the cardstock Santa Fe sign on styrene and added standoffs to match the prototype.

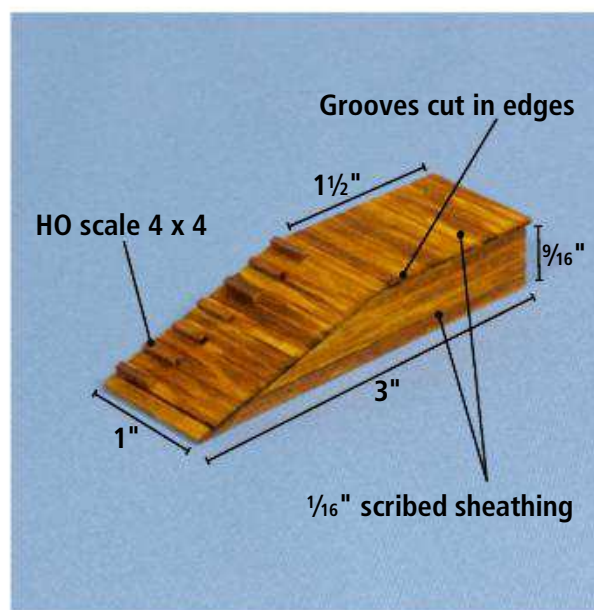


7 Englewood sign. Gerry took this photo of one of the cast-metal signs on the prototype. Using his home computer, he then resized the image for HO scale to fit his model.

house kit. Using white glue I secured the sign to a .020" backing of plain styrene sheet cut to fit. To make the sign stand off the wall, as the prototype sign does, I added four stand-offs to the sign backing made of $\frac{1}{32}$ " lengths of $\frac{1}{16}$ " styrene tubing. When the sign assembly was complete, I mounted it above the station agent's window as shown in **6**.

The Englewood signs with their unique lettering font proved more of a challenge. The prototype signs are cast-metal letters attached individually to the station walls.

I took a photograph **7** of the prototype sign on a clear, sunny day. Using Microsoft Word on my home computer, I adjusted the image's color and reduced its size to fit my model. Then I printed the image, cut it out, and mounted it on .020" plain styrene sheet cut to fit.



8 Loading dock. The loading dock is made of scribed wood sheathing and individual stripwood boards. Prior to assembly Gerry stained all the boards with diluted dark brown shoe dye.

There are three Englewood signs: one on each end wall, and a slightly larger sign above the station agent's window.

Stripwood sills and loading dock

Using Lincoln Dark Brown shoe dye, I stained the stripwood pieces. First I diluted the dye with a little isopropyl alcohol until I was happy with the shade.

After the stain dried, I cut lengths of $\frac{1}{32}$ " x $\frac{1}{8}$ " stripwood to fit each freight door, then cemented the sills in place with CA.

I made the loading dock using $\frac{1}{16}$ " scribed wood sheathing as shown in **8**. The $\frac{1}{16}$ " spacing represents scale 10" wide boards. The overall dimensions of the loading dock are $\frac{9}{16}$ " high, 1" wide, and 3" long. The loading dock's top platform is $1\frac{1}{2}$ " long.

Materials list

Evergreen Scale Models

styrene

126 .020" x .125" strip
146 .040" x .125" strip
186 .125" x .125" strip
217 $\frac{1}{16}$ " rod
292 .080" angle
9020 .020" sheet
9030 .030" sheet
9040 .040" sheet

Grandt Line

5178 HO scale bracket (corbel)

Northeastern Scale Lumber Co.

stripwood

132STR18 $\frac{1}{32}$ " x $\frac{1}{8}$ " stripwood
332SCR116 $\frac{3}{32}$ " x $\frac{1}{16}$ " scribed siding
HOSCAL4411 HO scale 4 x 4

Plastruct

91572 smooth stucco sheet
91638 Spanish tile

Tichy Train Group

8125 freight door

Tamiya spray paint

TS-46 Light Sand
TS-81 Royal Light Gray

Testor's Model Master paint

2965 Turquoise
4881 Boxcar Red

Wm. K. Walthers

933-2924 Mission-Style Depot and Freight House

Miscellaneous

Lincoln Dark Brown shoe dye

To make the siding look more like individual boards, I used my hobby knife to groove the ramp and platform edges.

For the ramp section, I made the foot steps from pieces of HO scale 4 x 4 stripwood. The installed loading dock and door sills are shown in **5**.

With the structure complete, I installed the station on my layout, where it once again serves signature passenger trains. I hope my kitbashed Englewood depot inspires you to think outside the box for your next modeling project. 

Gerry Glancy wrote about kitbashing Denver Union Station in the November 2013 Model Railroader. He lives with his wife, Karen, in Littleton, Colo.

Installing ground

Putting them up front keeps hands and elbows away from scenery, structures, and rolling stock

By Bob Kingsnorth

Photos by the author

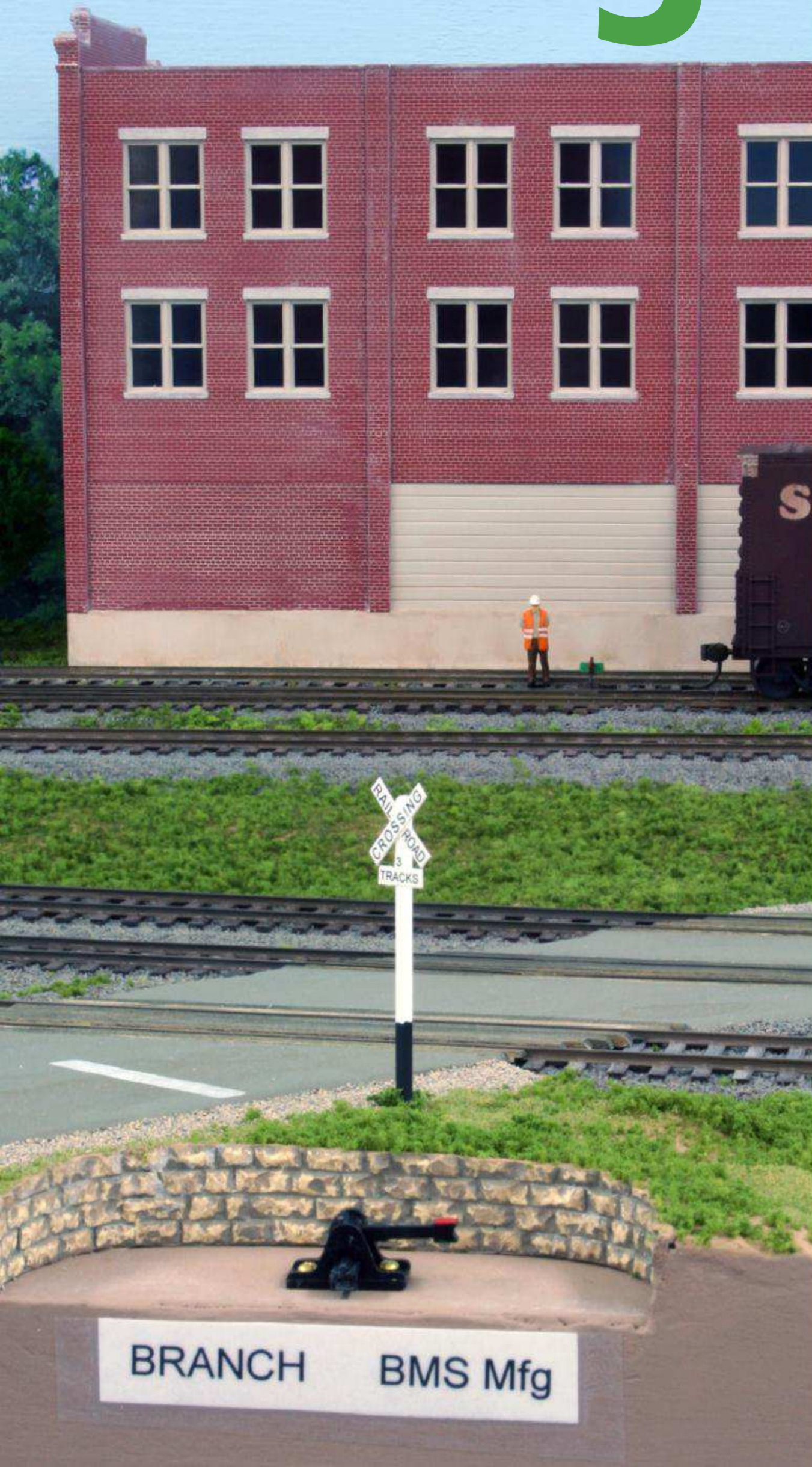
Caboose Industries ground throws have been a popular way to manually line turnouts for many years. The plastic castings are reliable, easy to install, and inexpensive. But in HO scale, they're oversized, standing a scale $2\frac{1}{2}$ feet tall. To minimize the visual impact of the ground throws, and to prevent operators from having to reach into the model railroad, I installed them on the front edge of the layout and used non-operating ground throw castings next to turnouts. Labels on the fascia make it easy to see which route the turnout is lined for.

What you'll need

I used Caboose Industries 206S (.135" travel) and a few 202S (.190" travel) ground throws. The spring feature allows some latitude in matching the movement of the switch points and the ground throw.

I used .032" steel music wire to connect the ground throw to the switch rod.

in the for



throws

The wire is sturdy enough to move the points but has some flexibility for awkward installations **1**.

I enclosed the steel music wire in $\frac{3}{32}$ " and $\frac{1}{16}$ " brass tube to isolate the moving wire from the scenery. I used the larger $\frac{3}{32}$ " tube in the middle of the run, as it reduces friction. I installed the $\frac{1}{16}$ " tube at each end to prevent ballast and other debris from clogging the tube. For short, straight runs the larger tube isn't necessary. My longest run from ground throw to switch rod is 24".

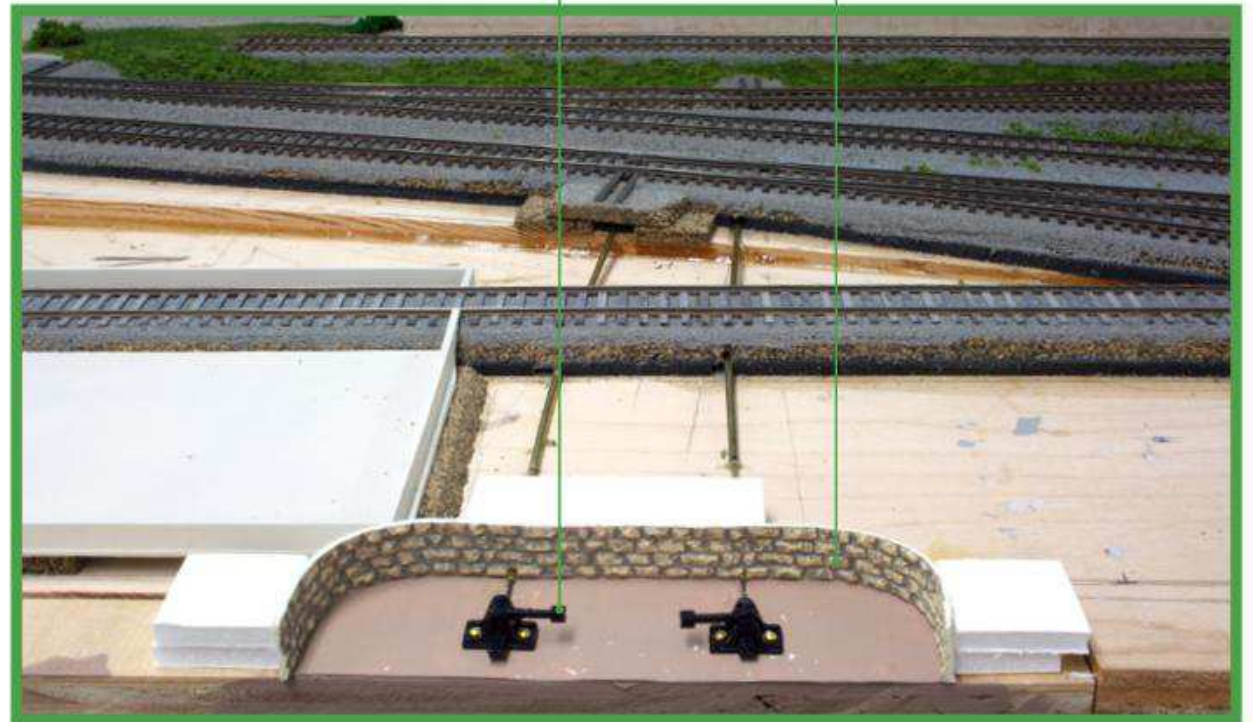
The installation

First, I located the final position for each turnout. Then I drilled a hole or slot under the switch rod so it could move freely through its range of motion.

I created a path between the switch rod and ground throw. The path may require cutting a shallow trench in the scenery, such as yard areas where track is laid directly on extruded-foam insulation board or Homasote, as seen in **2** on the next page. Because the moving control wire is enclosed in stationary tubing, scenery can be applied on top.

After I trimmed the tube to its finished length, I cut a piece of .032" steel wire oversized. I then made a 90-degree bend in the wire that fits into the center of the switch rod from below **3**. I tested the turnout's operation with the tube and steel wire in place and cut the vertical part of the wire to length.

I fixed the turnout in its final position and installed the tube and wire in the switch area and along its path with gap-filling cyanoacrylate adhesive (CA). I didn't glue the end near the ground throw at this time, as I'll need to make



1 Gentle bends. Using steel wire and brass tube allows gentle curvature to accommodate a variety of installations. Bob used Chooch flexible cut stone wall to frame the area around the ground throws.

some final adjustments before securing it to the layout with screws.

Special installations

There are scenarios where the turnout's orientation isn't parallel to the layout's edge. However, a pivot mechanism can accommodate any orientation.

I made the pivot mechanism in **4** using square and round brass tube, a washer, and a flat head wood screw.

First, I soldered two $\frac{3}{32}$ " square brass tubes to the center $\frac{7}{32}$ " round tube. The soldered assembly rotates around a $\frac{3}{16}$ " tube, which is held in place by the wood screw and washer. The angle between the two arms corresponds to the orientation of the turnout in relation to the front of the layout.

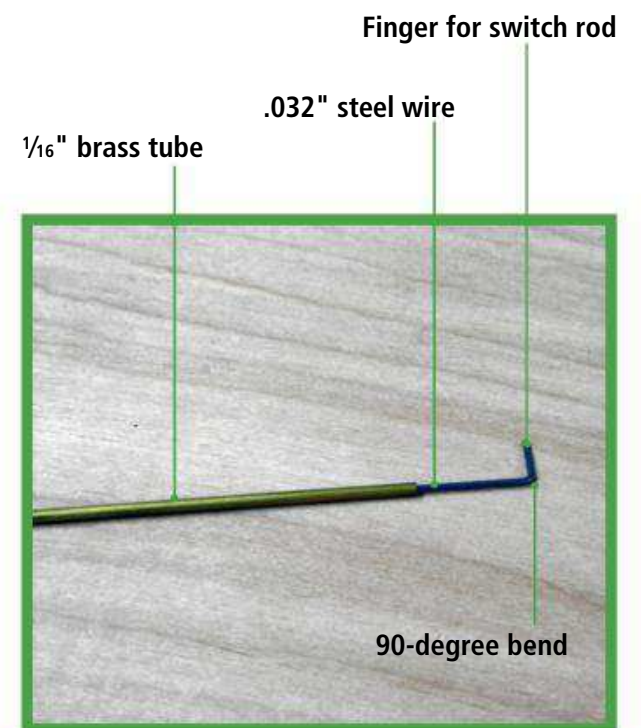
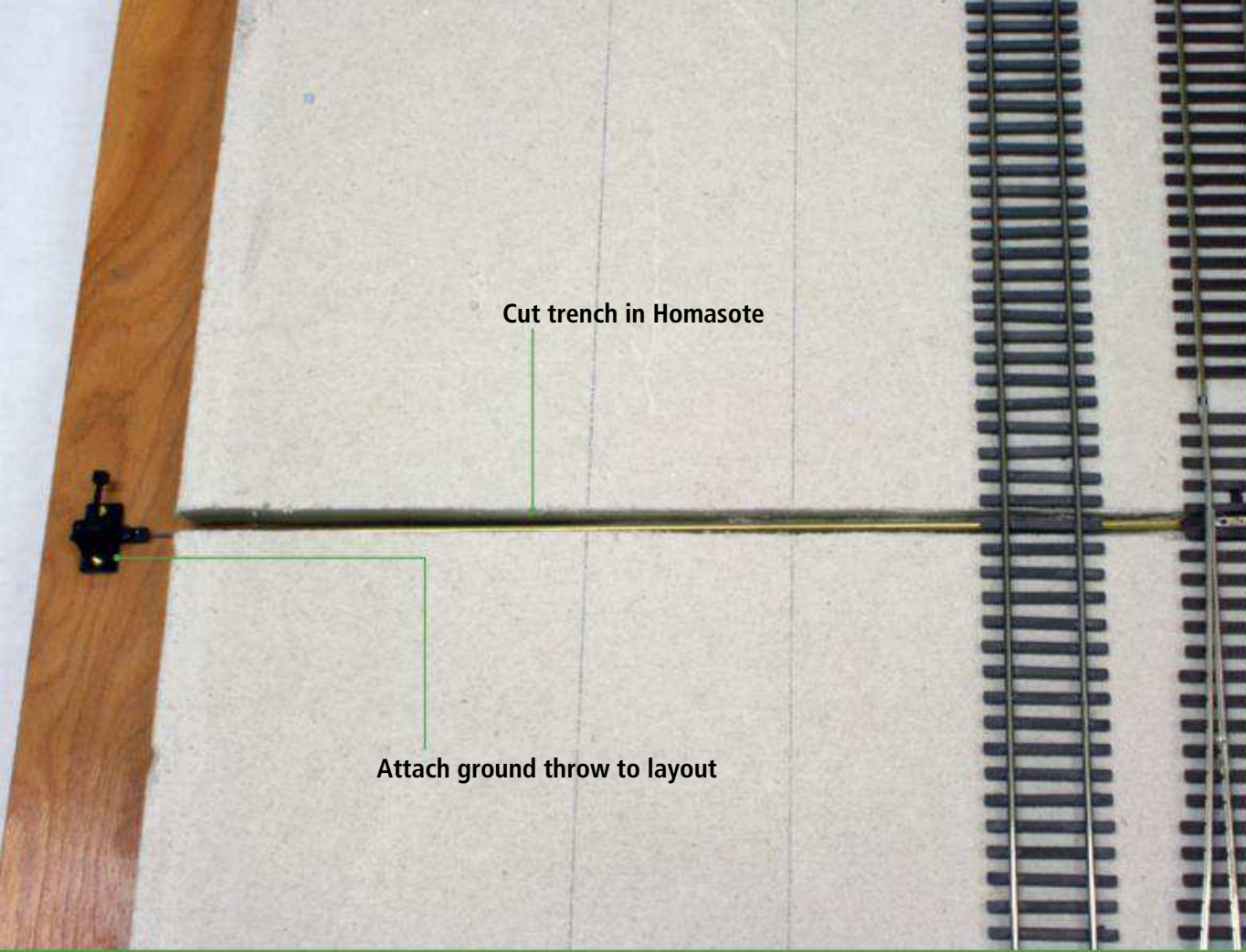
The steel control wire from the turnout's switch rod should be a straight line extension to the pivot. Likewise, the steel control wire from the ground throw should be a straight line extension of the ground throw motion to the pivot.

The steel control wires are connected to the arms of the pivot with 90-degree bends set into .033" (no. 66 bit) holes drilled through the arms of the pivot. The holes should be located an equal distance from the pivot center **5**.

Placing the ground throws

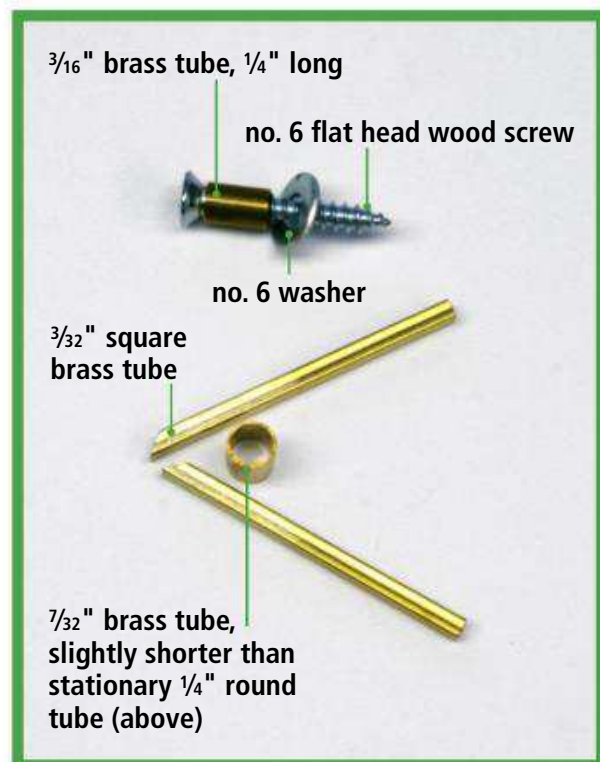
With the switch points and ground throw in mid-position, I marked the location where I had to make the bend in the wire to connect with the ground

eground

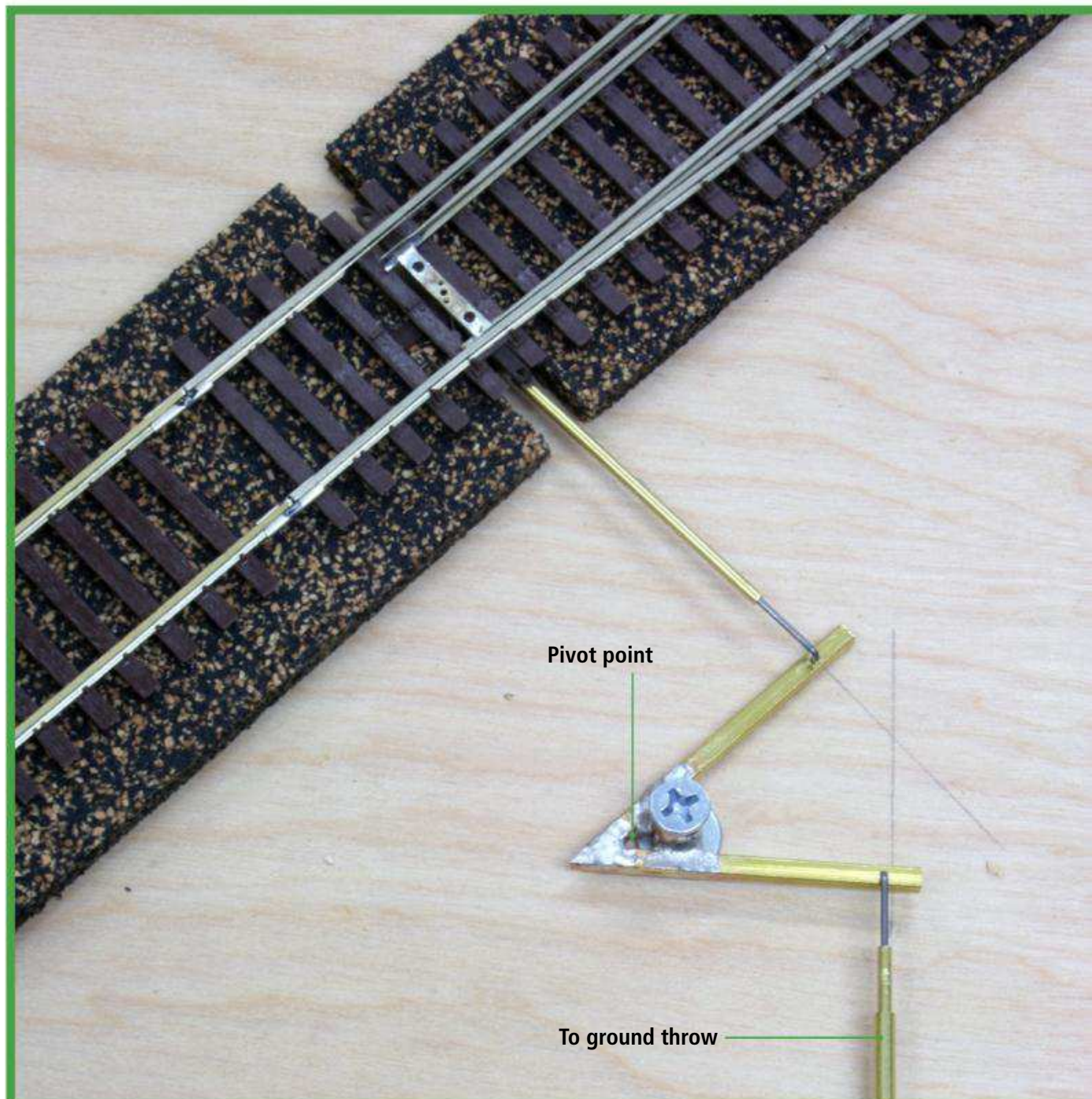


3 Tube and wire. Bob bent a 90-degree angle in the .032" steel wire to engage the switch rod from below. The close fit of the 1/16" brass tube prevents ballast and other debris from clogging the opening.

2 Cutting trenches. In areas where track is laid directly on Homasote or other material, a small trench needs to be cut for the brass tube. Bob secured the ground throw to the front edge of the layout.

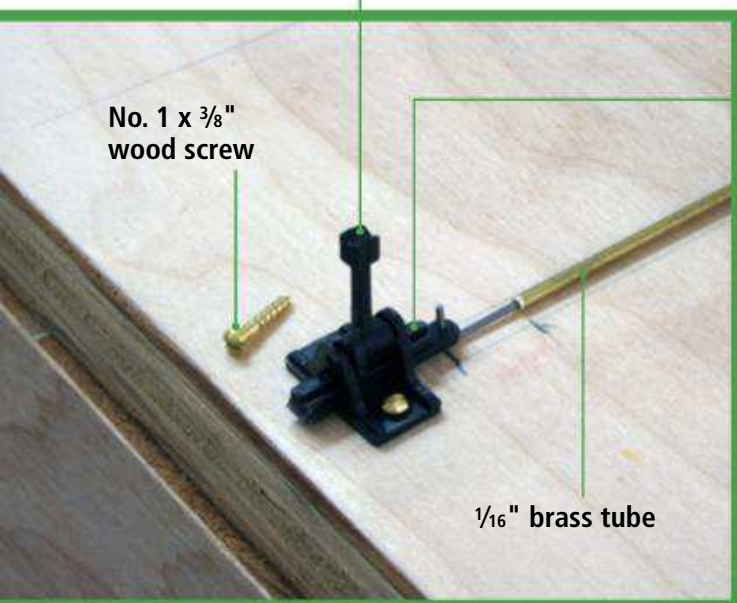


4 Pivot mechanism. Bob made this pivot mechanism for when the turnout wasn't parallel to the layout's edge. The soldered assembly rotates around the 3/16" tube, which is held in place by the wood screw and washer.



5 Pivot mechanism installed. The steel control wires are connected to the arms of the pivot. The holes should be an equal distance from the pivot center.

Ground throw in mid travel

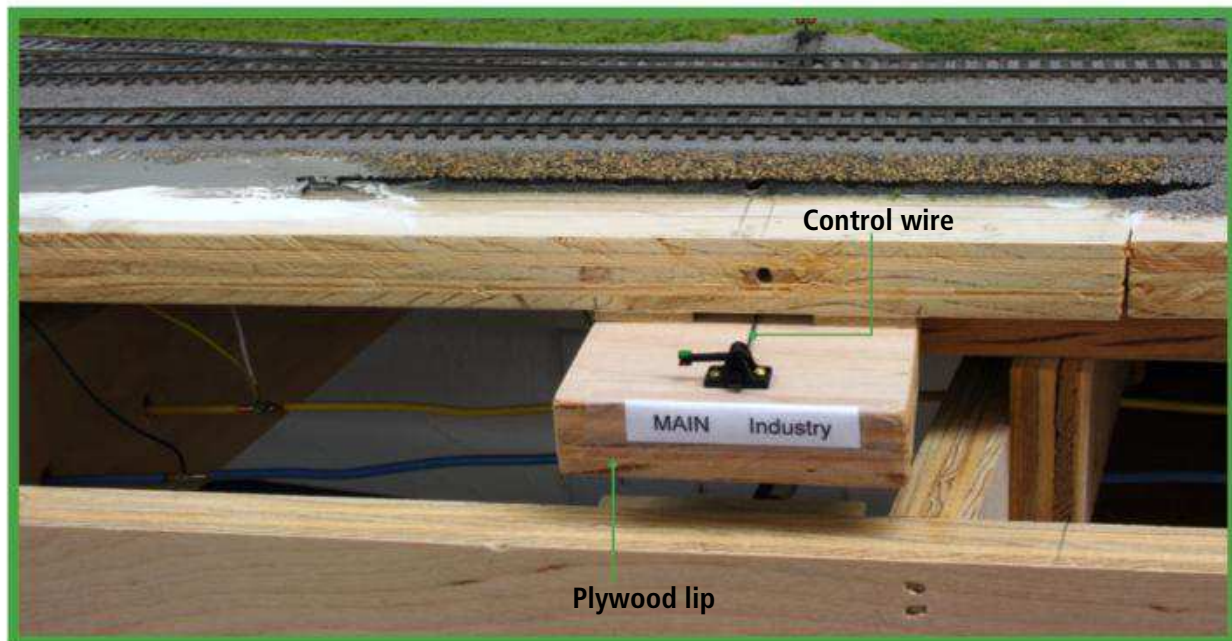


No. 1 x 3/8" wood screw

1/16" brass tube

Make 90-degree bend in .032" music wire

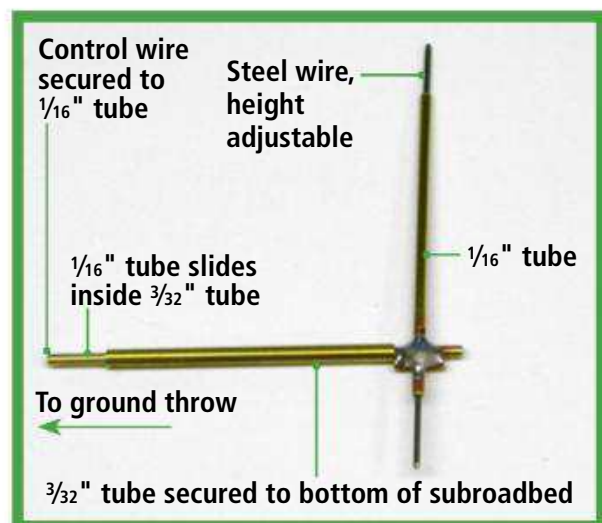
6 Installing ground throws. With the ground throw and points at mid travel, Bob bent a right angle in the .032" steel wire. Then he drilled a pilot hole and installed a no. 1 x 3/8" wood screw to hold the ground throw in place. After making final adjustments, he installed the second screw.



Control wire

Plywood lip

7 Alternate approach. In this section of his layout, Bob mounted the ground throws on a plywood lip below the subroadbed. The control wire runs to a sliding fixture that transfers the motion up to the switch points.



Control wire secured to 1/16" tube

Steel wire, height adjustable

1/16" tube slides inside 3/32" tube

To ground throw

3/32" tube secured to bottom of subroadbed

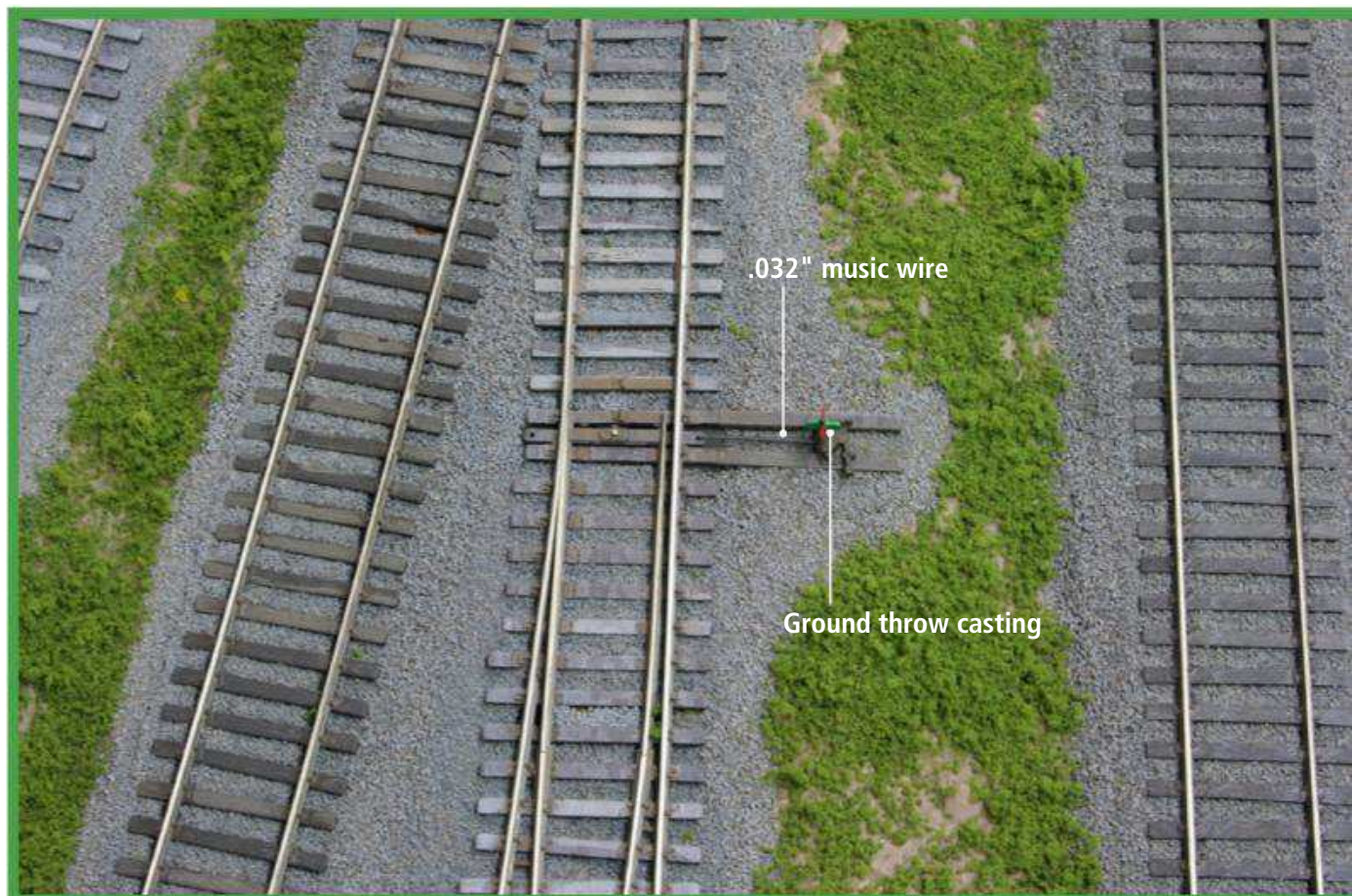
8 Sliding fixture. This view shows the sliding fixture Bob used when he attached ground throws to a plywood lip below the subroadbed.

throw. After making the 90-degree bend, I cut the wire to length.

I secured the ground throws with no. 1 x 3/8" wood screws, drilling pilot holes in the subroadbed with a no. 55 bit first **6**. Small adjustments to equalize the pressure on the switch points at both extremes of movement can be made by slightly rotating the ground throw clockwise or counterclockwise.

In one area, I mounted ground throws on a plywood lip below the subroadbed. The control wire runs underneath the subroadbed, connecting to a simple sliding fixture that transfers the motion to the switch rod through a slot in the plywood subroadbed **7**.

I attached a 3/32" tube to the bottom of the subroadbed with CA. I glued the control wire inside the 1/16" tube. The 1/16" tube freely moves inside the 3/32" tube.



.032" music wire

Ground throw casting

9 Finishing touches. After the scenery was in place, Bob added a non-operating ground throw casting to the headblocks. The .032" music wire is a static link that suggests the ground throw is connected to the switch rod.

I made the final adjustments with the ground throw at the edge of the layout.

I inserted .032" steel wire into the vertical 1/16" tube. A slight kink in the wire holds it firmly, but also allows vertical adjustment to engage the switch rod **8**.

Finishing touches

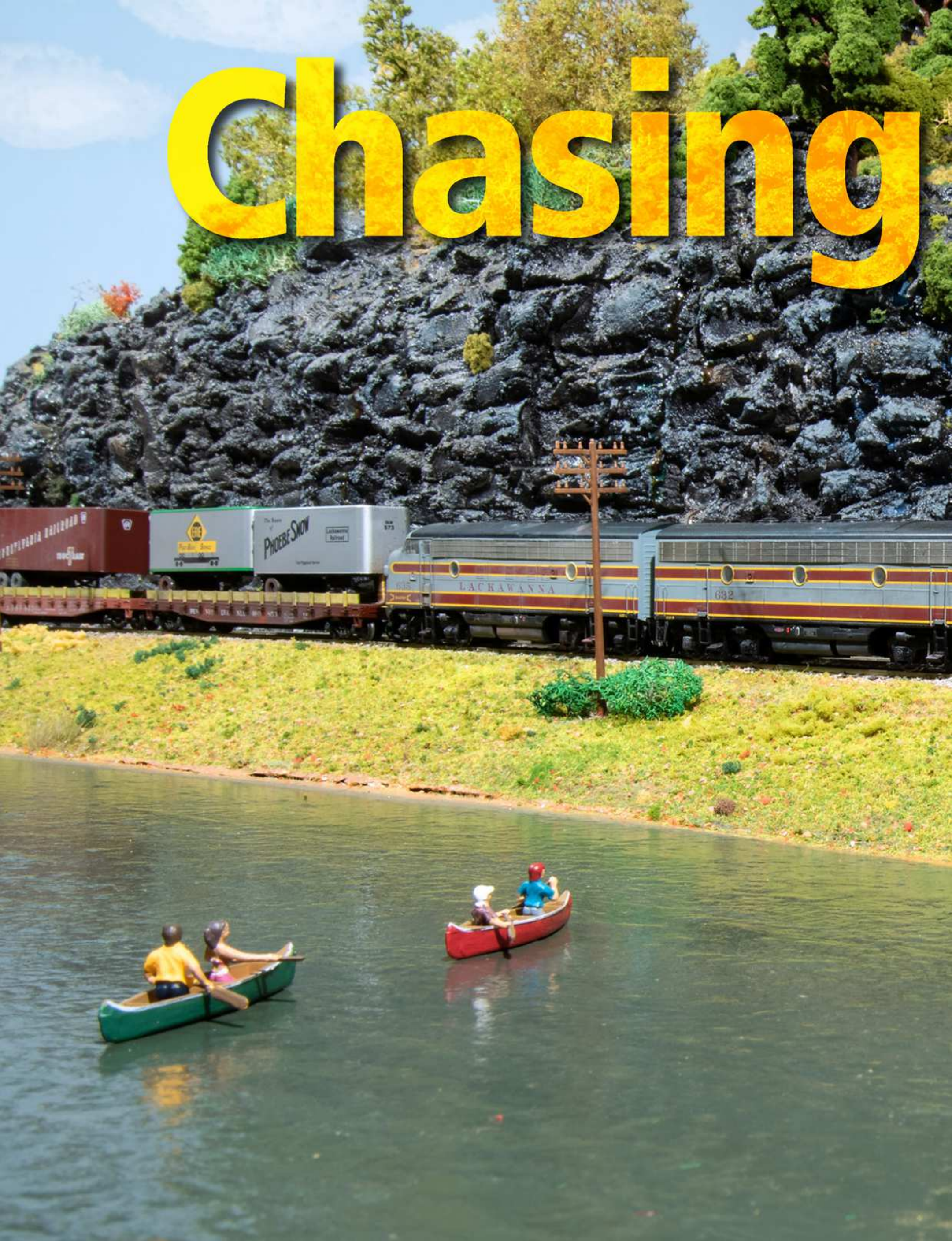
After the scenery was in place, I added the non-operating ground throw castings on the layout. I added a static

link that appears to connect the switch rod to the casting **9**.

Though I use Tortoise by Circuitron switch machines to operate turnouts in remote locations, I prefer hands-on control as much as possible. I also want everything in the scenery to be realistic. These ground throw installations satisfy those objectives. 

Bob Kingsnorth of Central Point, Ore., is a frequent contributor to MR.

Chasing



trains

on the Erie and Lackawanna

This 33 x 36-foot layout celebrates memories of both roads in the 1950s

By **Joe Leahy** • Photos by Lou Sassi



① A Delaware, Lackawanna & Western piggyback train races along the Chemung River. Joe Leahy's HO scale layout models railroads around Elmira, N.Y.



2 The model railroad is housed in the upper level bonus room of a barn. The roof trusses proved a challenge during layout construction.

A 1960 merger marked the birth of the Erie-Lackawanna RR, but my fondest railroad memories are of the Erie RR and the Delaware, Lackawanna & Western (Lackawanna) RR in the previous decade. Growing up in Elmira, N.Y., I'd visit the yards with my grandfather, who worked as a machinist for both railroads. My grandmother's house was a few blocks away from the Lackawanna station, and I'd take regular trips on the Lackawanna's *Phoebe Snow* to visit relatives in Buffalo. When it was time to build my current layout, it was no surprise that I found inspiration in my hometown railroads.

Planning the railroad

My original intent was to model the Erie-Lackawanna RR in the 1960s from Nicholson, Pa., to Hornell, N.Y., where my father's brother worked in the Erie shops. My focus changed as more locomotives and rolling stock became available lettered for the pre-merger Erie and Lackawanna railroads.



3 Joe's workbench surrounds two sides of the stairs leading up to the layout room. The opening in the layout (right) allows access to the Elmira Heights scene.

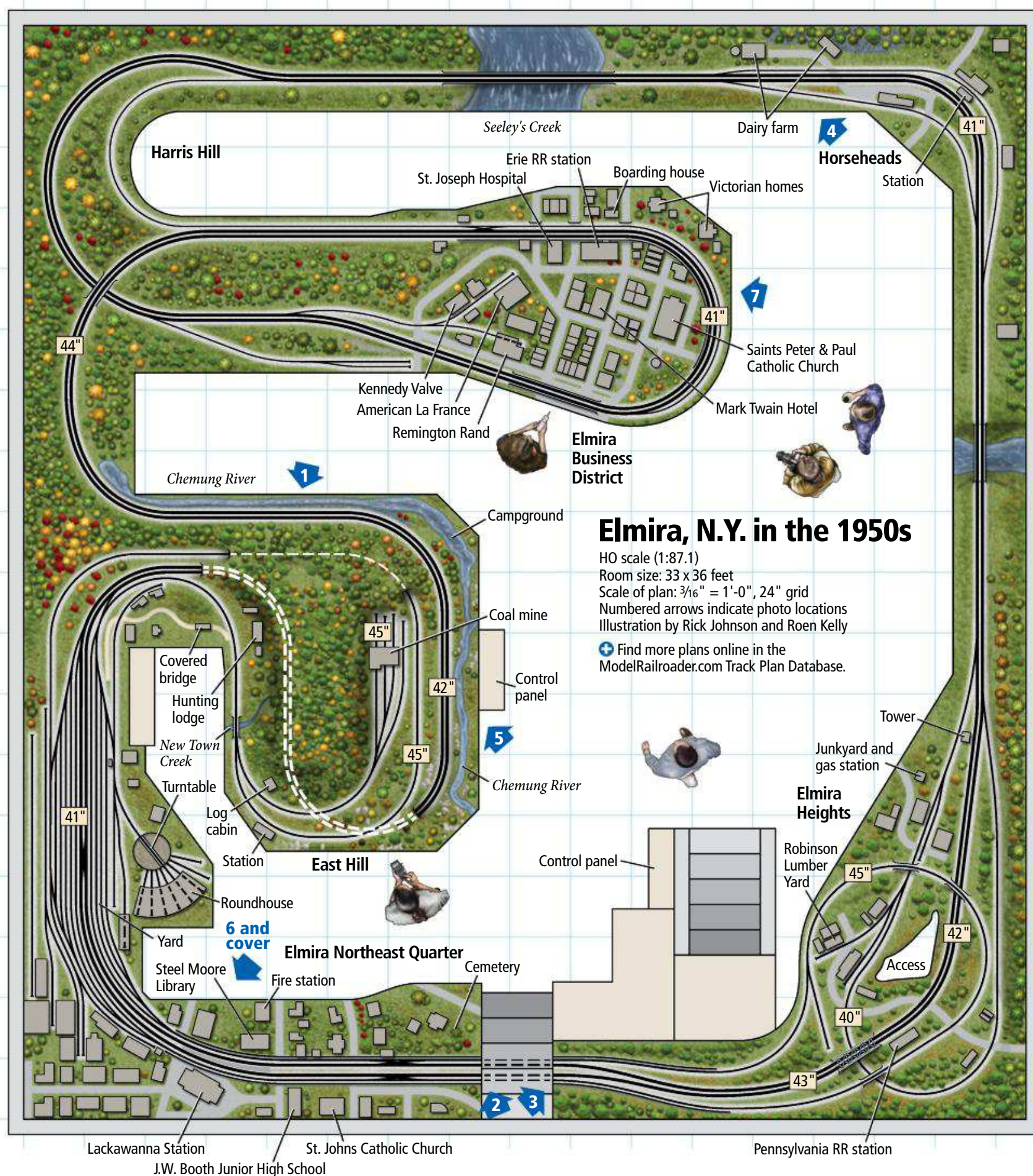
My current track plan focuses on the city of Elmira, N.Y., and the surrounding area in the early 1950s. There are essentially two Elmira city settings: one centered around the Erie RR station and the other centered around the Lackawanna RR station. Other notable scenes include a large yard and engine terminal and an anthracite coal mine on a mountain.

The basic plan features a double-track main line with reversing loops. This

allows me to run two separate trains while I work on the layout. There's also enough mainline run for me to run long trains. It takes about 15 minutes for a train to complete its run around the main line at a prototypical scale speed.

Lessons learned

In 1995 my wife, Tori, wanted to build a barn on our farm where she



could keep her horse. Since my father had recently passed, we also decided that my mother should come live with us. Therefore we modified the barn to include a wheelchair-accessible apartment for her to live in. Building the apartment gave me the opportunity to add a 33 x 36-foot bonus room above it, which became my train room.

At this time my dear friend and fellow modeler John Lazar helped me begin building the layout benchwork. In hindsight, we should have spent some time preparing the train room first.

Access to the train room is provided by a central staircase. The room's

The layout at a glance

Name: Railroads of Elmira, N.Y.

Scale: HO (1:87.1)

Size: 33 x 36 feet

Prototype: Delaware, Lackawanna & Western; Erie RR

Locale: Elmira, N.Y.

Era: early 1950s

Style: walk-in

Mainline run: approx. 210 feet

Minimum radius: 30"

Minimum turnout: no. 6 (main), no. 4 (sidings and secondary track)

Maximum grade: 2 percent (main), 4 percent (coal mine branch)

Benchwork: open-grid and plywood tabletop

Height: 40" to 45"

Roadbed: cork

Track: Atlas code 100 flextrack

Scenery: cardboard web covered with plaster

Backdrop: painted on wood and 1/2" extruded-foam insulation board

Control: Digitrax Digital Command Control



4 Lackawanna no. 1134, a 4-6-2 Pacific type, speeds milk cars past a dairy farm just outside of Horseheads, N.Y. Milk trains were an important source of revenue for the area's railroads in the early 1950s.

cathedral ceiling peaks at 12 feet and features exposed scissor trusses. I was still working at the time and anxious to finish my mother's home. Unfortunately I didn't notice the trouble these trusses would cause until layout construction was well underway.

The trusses have limited my roadbed options, made it impossible to install backdrops in some areas, aren't very photogenic, and have hit many unsuspecting people in the head. I've even had a structural engineer out to see if I could modify the most problematic trusses, but he couldn't provide any good options.

We made the best of the situation and managed to install and paint a permanent ceiling over the layout to help with dust management. We also painted the plywood floor and walls. My wife is an artist, and she painted backdrops that we could fit in some areas. In the yard, we installed mirrors to add depth to scenes.

We also made sure to provide access to all sections of the layout for cleaning and maintenance. There are hidden access doors in the back corners of the room as well as openings on the layout. There's also crawl-under access to the hidden track inside the mountain.

Roadbed and track

The main line has a 30" minimum radius and a 2 percent ruling grade. The branch to the coal mine has a 4 percent grade. Longer trains heading up to the mine often require helpers.

The cork roadbed is stapled and glued to 1/2" plywood subroadbed that's 3" wide on single-track lines and 5" wide for the double-track main. For wider-radius curves, I used cardboard templates to help me accurately cut the plywood. I used wood risers to attach the subroadbed to the open-grid benchwork.

I attached the Atlas code 100 flextrack to the roadbed with 18 gauge 5/8" brad nails. I also installed Peco and Shinohara no. 6 and no. 8 turnouts on the main line. For sidings and secondary lines, I used Peco no. 4 turnouts.

Most of the turnouts are connected to Peco switch motors and lined via push buttons on the control panels. A few sidings have manually operated turnouts.

We also added three grade-crossing signals along the main. All have operating flashers and one has operating gates.

DC to DCC

When we started building the layout, Digital Command Control (DCC) was still in its development stage, so we wired the railroad for direct-current (DC) control. Each section of track between two turnouts constituted a separate electrical block.



Each block could be powered by one of four 10A 16V filtered DC power supplies, which allowed me to run three separate trains on the layout. John built two control panels: one for the mainline blocks and one for the yard.

Four years ago I converted the layout to DCC, primarily for better speed control over individual trains. I also enjoy the bells, whistles, and other sounds offered by DCC. The first locomotives I installed decoders into were two Proto 2000 E8s that I use to lead my *Phoebe Snow* passenger train.

I wish I'd converted to DCC sooner. However, having the layout wired for individual blocks has its advantages. It's easier to set up signals and lets me trace electrical problems more quickly.

A rolling landscape

My scenery skills got better as layout construction progressed. I started scenicking less prominent areas first as I got



5 Joe's friend, John Lazar, scratchbuilt the anthracite mine at East Hill. Leading a string of loaded hoppers, the class Q-4 4-8-4 Pocono is a custom-painted brass model from Nickel Plate Products.

comfortable with various techniques. However, after spending years working in a dental lab, I was already fairly proficient working with plaster.

The scenery base is made of cardboard strips covered with plaster-soaked paper towels. For the large mountain, I cut profile boards from plywood that I attached to the open grid benchwork first.

Once this scenery base dried, I covered the surface with Perlite plaster, which has vermiculite aggregates in it. I like this material because it's easy to achieve a variety of textures with it. While the plaster is still wet, it can be smoothed easily with a trowel or worked with a wet paintbrush to leave a rough, grainy texture. I also mix up a stiff batch, the consistency of biscuit dough, and form it into balls to make rock formations. When the plaster is almost set, I use plaster knives to add final touches.

Once this Perlite layer dried, I painted the surface with earth-colored latex paint. Then I painted most of the rock formations with dark gray and black shades to represent the abundant shale of the region. For ground cover, I used Woodland Scenics and Scenic Express foliage, flock, and turf in a variety of textures.

I used some natural materials for layout scenery, including tree bark for some rock faces. I also used clumps

of lichen that I've gathered from the sides of the road near my home. I soaked the lichen in a mixture of wood glue, water, and vinegar. Then I sprinkled in various colors and textures of ground foam to create shrubs, small trees, and other vegetation. The material sets up hard, unlike the preserved lichen I used on my model train layouts as a child.

On my densely wooded mountain, I used Scenic Express SuperTrees around its periphery and filled in the middle with my lichen and foam Clump-Foliage to simulate a thick tree canopy. I find making evergreens to be too time consuming, so most of my pine trees are ready-made models.

John modeled the layout's rivers by blending paints of different colors, then applying them to the river bottom to simulate depth. To simulate water, he then covered this painted surface with Mod Podge gloss medium.

Tori painted our streams and waterfalls using shades of white for rapids and darker colors for the deep pools.

I then flowed in fiberglass resin at different stages of its curing process to model the flowing water.

Detailed structures

The layout features kit-built, kitbashed, and scratchbuilt models. I especially enjoy building wood

MORE ON THE WEB

Model Railroader magazine subscribers can see video of Joe Leahy's HO scale Elmira, N.Y., layout at ModelRailroader.com



6 Led by two Electro-Motive Division E8As, the Lackawanna's *Phoebe Snow* arrives at Elmira, N.Y. The station is a modified Walther's kit, and the platform and other details are scratchbuilt.

craftsman kits, and there are several of these on the layout from Campbell Scale Models, Laser-Art by Branchline Trains, and others.

We built the Elmira business district on plywood tabletop benchwork. This made installing sidewalks and structures easy, but we were disappointed that the wood grain texture was still visible even after painting the surface.

We had better-looking results in the Elmira Northeast Quarter by building the town on sections of foam board that were then mounted on open-grid benchwork. The streets in these sections were also made of foam board.

Many town structures have interior lighting and animated light-emitting diode (LED) signs. There are also some blue overhead lights in the train room that we turn on to simulate nighttime.

Between the two city sections is the mountain with a large anthracite mine

scene cut into one side. On the opposite side of the mountain are a hunting lodge reminiscent of my uncle's cottage in Seneca Lake, N.Y., and a covered bridge based on a well-known prototype in Newfield, N.Y. Inspired by our own log home, I also scratchbuilt a log cabin out of toothpicks.

A tale of two stations

The Erie RR station in the Elmira business district and the Lackawanna RR station in the Elmira Northeast Quarter with its adjacent yard are two of my favorite scenes. In the 1930s both railroads had elevated their station tracks in Elmira to avoid grade crossings, so I included elevated platforms at both stations.

For the Erie station, I combined two Kibri no. 9354 Railway Office Building kits. I modeled the station's clock tower,

using one of my wife's old wristwatches. Following the prototype, I added the second floor entrance from the raised station platform through a former window.

The Lackawanna Station is essentially a Walther's Cornerstone no. 933-3094 Union Station kit. I modeled the raised platform to be on a curved section of track, just like its prototype in Elmira.

I used cork roadbed painted a concrete gray color for the platform slab. The roof and its supports are from a Walther's Cornerstone kit; I built the elevator and stairway from scrap box parts left over from other projects. The interior floor of the model is made from floor tiles that I collected from the site where the prototype station once stood.

Locomotives and rolling stock

Appropriate for the layout's 1950s timeframe, I run both steam and diesel



7 Electro-Motive Division FT diesels haul a freight past Elmira's Erie Station. Joe combined two Kibri kits and his wife's old wristwatch to model the structure.

locomotives. My motive power fleet includes some brass steam locomotives, including a custom-painted Lackawanna class Q-4 "Pocono" 4-8-4 from Nickel Plate Products.

My rolling stock is a variety of kit-built and ready-to-run models. In addition to general freight, I model other prominent traffic that ran through Elmira in the 1950s.

Anthracite coal was the mainstay of the Lackawanna and other railroads in the area. In most of my coal hoppers I use loads made from the creosote swept from my woodstove's chimney cleanout. I attach the material to foam bases with a wash of isopropyl alcohol followed by an application of a 60:40 mix of water and white glue. No two loads are identical, adding a realistic touch to my hopper fleet.

The transportation of milk and dairy products was another important source of revenue for the area's railroads. I have some custom-painted and decalated

Pfaunder milk cars, so I can model this industry. There's also a dairy farm scene.

The Lackawanna introduced piggyback or trailer-on-flatcar service in 1954. I have a train of piggyback flatcars that runs along my HO main line.

I painted and decalated two Proto 2000 center cupola cabooses. My son David, an electrical engineer, designed a reed-switch-controlled interior lighting circuit for these models.

In addition to freight I also run *Lackawanna Limited* and *Phoebe Snow* passenger trains. My passenger car fleet includes older, modified IHC models with track-powered interior lights and newer Rapido Trains models equipped with the firm's battery-powered Easy-Peasy lighting system.

Relaxing challenges

My HO scale Railroads of Elmira, N.Y., layout is the furthest that I've ever progressed on a model railroad. The track is operational and there are many fully scenicked sections. However, as of this writing, we still have plenty of work to do.

So far, we have scenes representing the spring, summer, and fall seasons. I'm continuing to add scenery and structures to the Harris Hill and other areas, including a viaduct over Seeley Creek.

In addition, I'd like to go back and upgrade some of my earlier scenery efforts, as my skills have improved over the years.

Ever since I was a child building my first O gauge layout, model railroading has provided me with hours of enjoyment and mental stimulation. These days my HO scale railroad continues to provide me with relaxing challenges. With scenes inspired by my best childhood memories, my layout also takes me back to a time with few worries. It's like I'm a kid again, riding the *Phoebe Snow*. 



Meet Joe Leahy

Born and raised in Elmira, N.Y., Joe Leahy went to dental school in North Carolina and settled in the Tar Heel state. Retired since 1999, Joe and his wife, Tori, live in a log home they built on their farm in Kitrell, N.C., and spend summers in Atlantic Beach. They have five children and five grandchildren. In addition to model railroading, Joe enjoys volunteering, playing keyboard with his church choir, hunting, fishing, and gardening.

Traveling through NORTHWESTERN WISCONSIN



Family vacations inspired the location and feel of this HO scale model railroad

By Eric White

Photos by Cody Grivno

Traveling along U.S. Highway 8 across northern Wisconsin, Mark Digerness found himself chasing a train between Ladysmith and Tomahawk on his way back from a family vacation in Hayward, Wis. Mark liked the mood of the train going through the woods and countryside, and it made an impression on him and his family. He decided that was what he wanted to re-create on his layout.

The West Wisconsin RR was an HO scale model railroad depicting Chicago & North Western Ry. operations in northwestern Wisconsin in the early 1990s. The layout in these photos is gone

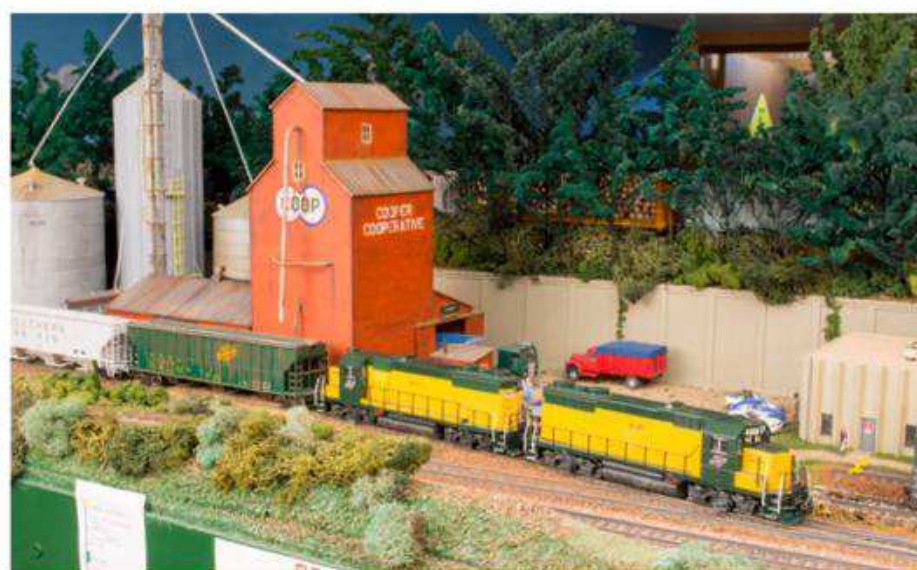
now, the result of a move to a new home, where it will be reborn. The 27 x 27-foot double-deck model railroad filled about two-thirds of Mark's basement. "The railroad's purpose was getting freight from Chicago to Superior, Wis., with lots of switching along the way," Mark said.

The layout was a walk-in design that went around the walls of the basement room, then out onto a peninsula that ended in a helix connecting the two decks. The C&NW main line started in lower level staging, rose through a helix to the first level, passed through four towns – Jefferson, Beaver Dam, Merrilan, and Altoona – then entered the yard at Eau Claire. After Eau Claire,

1 A Chicago & North Western grain train passes the Minong Elevator on Mark Digerness's HO scale West Wisconsin RR. Mark includes through trains as part of his operating scenario to keep the sessions interesting.



2 Ironwood System Alcos pull a bulkhead flatcar load of wrapped lumber from the Louisiana Pacific sawmill in Cable. Ken Rodig, an operator on Mark's layout, sold off equipment for his Ironwood System model railroad when he switched to G scale.



3 Chicago & North Western Geeps switch the Cooper Cooperative in Rice Lake. The town is one of the busier spots on the West Wisconsin RR.

it crossed a lift-out section, which allowed access to the train room, then passed through Chippewa Falls before entering the main helix for the climb to the upper deck.

At the top of the helix was Rice Lake. The main line passed through Trego, Minong, and Gordon before reaching the Wisconsin Central interchange at WC Junction. The end of the model railroad came at Superior, which had several industries along with its open staging.

The Wisconsin Central folded back past Gordon and Minong, then passed over the Hayward Branch of the C&NW that split off at Trego. Wisconsin Central staging was hidden atop the ridge that

separated Rice Lake on one side of the peninsula from Hayward on the other. Trains to Hayward then had a short run to Cable and the sawmill there.

"My space limitations were the biggest inspiration for building and designing the layout," Mark said. "I was part of a round-robin group at the time, and I had them all here. I said, this is the footprint (27 x 27 feet). My criteria are a yard, two levels, and no trains appearing in the same scene more than one time."

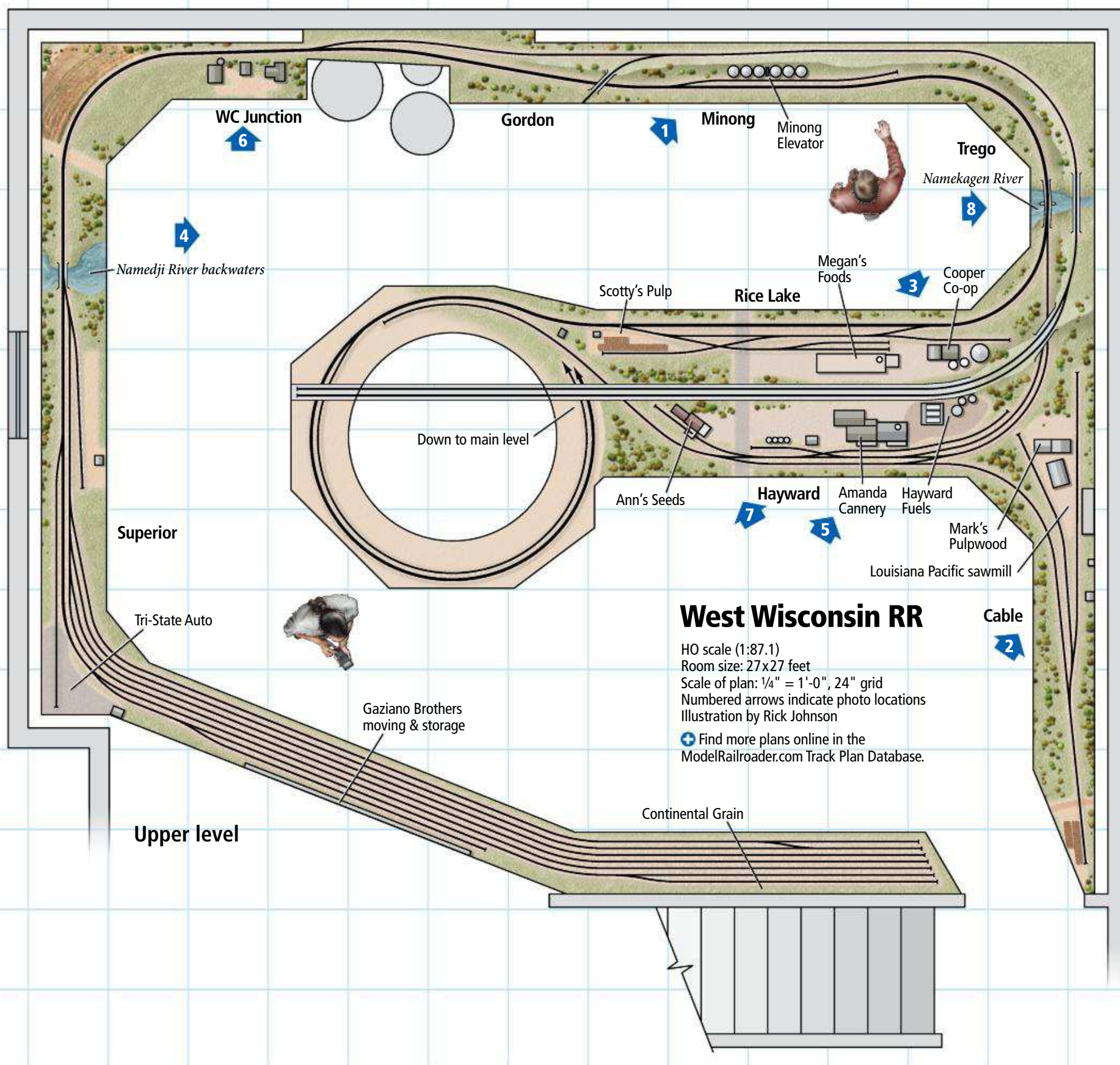
Personal experience was also a factor in shaping the layout. That feel of pacing the train through northwestern Wisconsin while on a family vacation, and the many trips Mark and his wife

and daughters took to the Hayward area, stuck with him.

"I like to research an area and industries. When I was sitting down and designing the layout, I knew I wanted paper, pulpwood, sawmills; that's what was up there [in Hayward]. I filled in the rest along the way."

Inspiration and encouragement

Mark has been a model railroader since he was in 5th grade. His first exposure to model trains was in the former Henry Clay Middle School library in Whitefish Bay, Wis., a suburb of Milwaukee, where he found the April



The layout at a glance

Name: West Wisconsin RR
Scale: 1:87.1 (HO)
Size: 27 x 27 feet
Prototype: Chicago & North Western
Locale: northwest Wisconsin
Era: early 1990s
Style: walk-in
Mainline run: 300 feet
Minimum radius: 30"
Minimum turnout: no. 4

Maximum grade: 2.5 percent (helix)
Benchwork: open grid
Height: 36" (lower deck), 59" (upper deck)
Roadbed: cork over Homasote
Track: code 100 flextrack
Scenery: Hydrocal and plaster on extruded-foam insulation board
Backdrop: hand-painted and photo murals on tempered hardboard
Control: NCE Digital Command Control

the apartment, why don't you do something there?' Affectionately, she now said that was her mistake," Mark said.

Learning lessons

Mark had a layout in his previous home. He tried to take the layout with him when he moved, but the benchwork was nailed together, so it didn't take moving too well. One section he wanted to keep was too large to get out of the basement, so on moving day, he had to leave it behind in the trash.

When Mark moved into his home in 1993, the first thing to do was build a rec room in the basement for his daughters so they'd have a place to play. Once that was done, Dad got to work on his stuff.

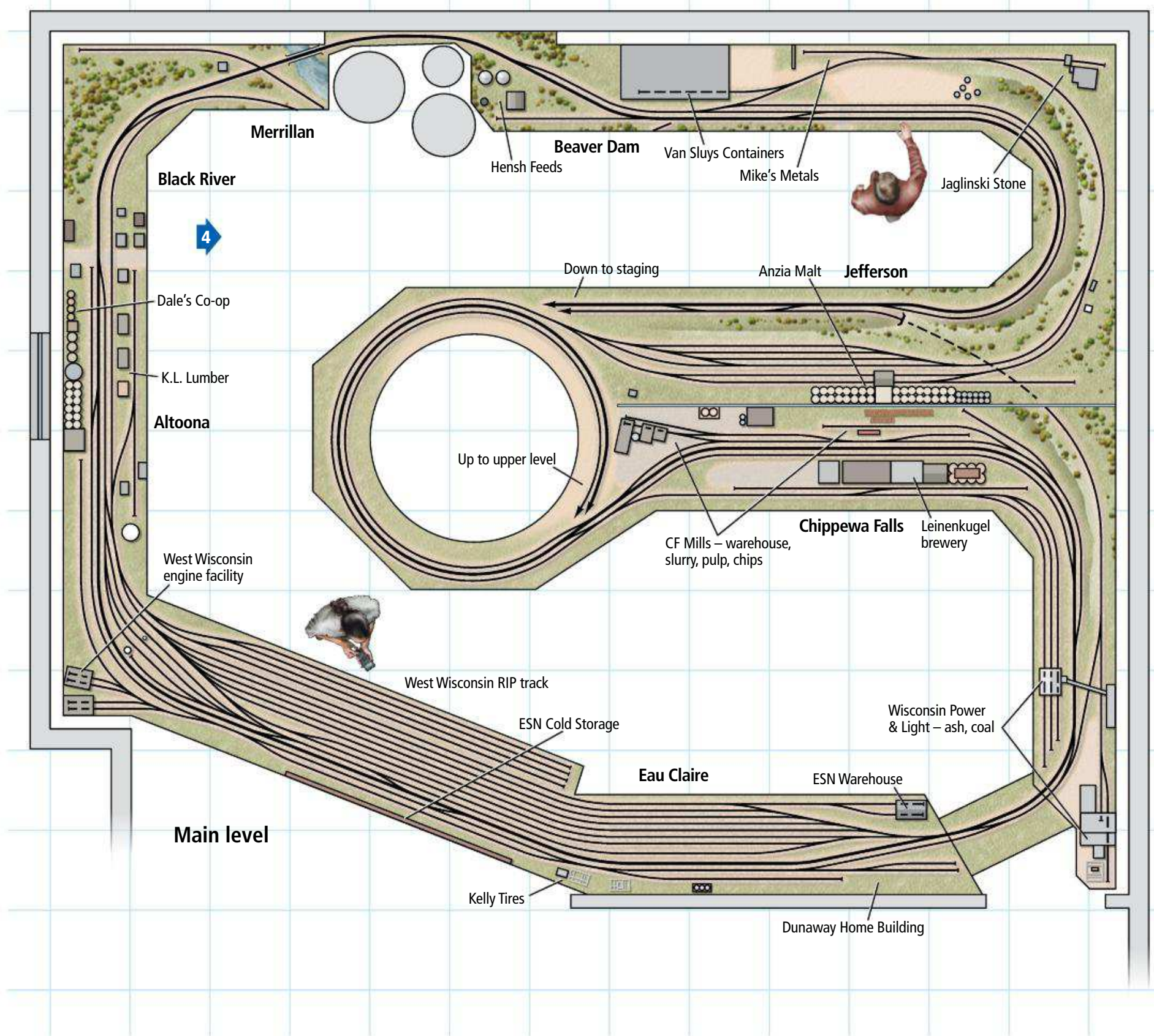
He put 2 x 4 furring strips on the walls, installed a drop ceiling with

1972 *Model Railroader* with Bruce Chubb's Sunset Valley Ry. on the cover. In 2013, Mark got the chance to go and operate on the Sunset Valley.

"My parents made the mistake of buying an HO train set back in the early

'70s. I graduated to a 4 x 8, but I went on hiatus in high school and college, women got in the way.

"In 1983, a year after I got married, my wife knew I was interested in trains and said, 'We have an extra bedroom in



fluorescent lights, and added halogen and light-emitting diode (LED) accent lighting. Carpeting covered the aisles in the layout room.

Mark switched to LEDs a couple of years ago for the lower level lighting.

Vintage sawdust

Mark started work on his layout in 1995. Dec. 27, 1995, to be exact.

"I knew that because I have a sample of sawdust in a bag. To commemorate the beginning of construction, I bagged up the sawdust from the first session and gave one bag to each of the guys who helped. I just noticed an extra bag I had taped to the heater the other day, so I knew the exact date."

Mark had a helix he bought from a modeling friend, Ed Novit, and he



4 An overview of the rear half of the layout shows Jefferson on the lower right above staging with Beaver Dam across the aisle. Above Beaver Dam is Minong and the elevator there, then Trego in the center, with Rice Lake above Jefferson.



5 A pair of Alco RS-11s switches Amanda Cannery in Hayward. The town is a favorite of operators on Mark's layout.



6 The Vandersanden Farm pays tribute to Mark's wife's grandmother. She loved the scene, but pointed out the cows were the wrong color.

wanted to figure a way to incorporate it into the layout. The helix has been added onto and modified. It was three tracks on Ed's layout, but it's two tracks on Mark's.

The West Wisconsin RR was built on open-grid benchwork. Mark started building the layout near Beaver Dam and used 1 x 3s and 2 x 2s, but it wasn't very rigid.

"I haven't had to stand on it, but I wanted benchwork that would support my weight," Mark said. He switched to 1 x 4s in the yard at Eau Claire with 2 x 4 supports. The upper deck was all 1 x 4 framing.

The track was Model Power code 100 in the scenicked areas and Atlas code 100 in the staging and helix. The turnouts were mostly Peco. Mark chose the Model Power track because he liked the tie detail better than the Atlas track.

About 80 percent of the turnouts were manually operated. The staging had Tortoise by Circuitron switch motors, and a couple of hard-to-reach areas on

the layout had powered turnouts of various kinds. Mark also installed some Blue Point switch machines on the upper deck around Superior.

"I had tons of help," said Mark. "I couldn't have done it without the help building benchwork and trackwork. I had some help doing scenery, but I love to do scenery and have done most of that myself."

Solo scenery

It's not that Mark didn't want help doing scenery. "The last few years, I did most of the scenery myself because I'd have people over, and they'd spend most of their time waiting for glue to dry," Mark said.

"They could do 5 minutes of work, then they'd have to wait 30 minutes for the glue to dry. It was just more efficient to do it myself." Mark got a bit of help on the home front, but his family has avoided catching the model railroading bug.

Meet Mark Digerness

Mark is a radio frequency engineer with a cell phone provider, and has lived in the Milwaukee area since 1963. He's been married since 1982, has three grown daughters, and two grandchildren. Besides model railroading, Mark also enjoys hiking, bicycling, and do-it-yourself home improvement projects, which is part of the reason he and his wife are building their third (and final, he says) house.



"My wife dabbled in scenery, but not much," he said. "Twenty years ago the kids helped screw the benchwork down. They're all girls, so they're not very interested in model railroading, just in helping Dad."

Mark said about 90 percent of his scenery is plaster over extruded-foam insulation board. Hydrocal had been getting hard for him to find, so he used plaster of paris and whatever he could get at the home center.

The landforms were covered with ground foam and ground-up leaves. A lot of the trees were painted goldenrod. Mark used dried flowers and things from the local Michaels craft store. "I don't know what this even is, but when you cut the tops off, it makes cattails," Mark said while holding an unidentified dried plant.

The sandstone cliffs from Trego through Minong to Gordon on the upper deck featured sand from the area being modeled. Mark got it by the side of the road where a new cut was going in.

"We were on a family trip, and I'd seen it the last time we were through, so I brought along a 5-gallon bucket and a shovel," Mark said. "I told my wife I had to make a quick stop, pulled the bucket out of the car and quickly shoveled sand as fast as I could."

"Now you know, every time I went past that spot, there was no one around, but when I stopped, there was all this traffic, and I was just waiting for someone to stop and ask what I was doing." Mark survived the episode without any further complications.

Another scene with a story attached is the Vandersanden farms near WC Junction. The farm is named after Mark's wife's grandmother, who came to



7 Ironwood System Alcos have a train of wood-chip gondolas heading through Hayward as a Chicago & North Western train hauls a high-wide load on the viaduct above.

see the model. “She was very touched and really enjoyed the scene, complete with farmhouse, barn, silo, milk house, and pasture with grazing cows. She thought it was really sweet that it was included on the layout.

“‘But there’s one little thing,’ she said. ‘You used the wrong color cows.’” The cows are brown, but they should be black and white.

Most industries are named for family members and people who helped build the layout. Anzia Malt honors Mark’s wife, and Megan’s Foods is named for one of his daughters.

Mark does a lot of structure kitbashing. He also likes to repurpose items. Continental Grain in Superior is a Walthers kit in the middle with PVC pipes ripped in half on a table saw for extra silos on either end. In other locations, Mark stacked, scribed, and painted cellophane tape roll centers to make vertical tanks.

Backdrops are painted scenes and photo murals on tempered hardboard. Some photos are from Backdrop Warehouse, while others are from Realistic Backgrounds. There are also scenes from Walthers Instant Horizons.

Ken Jaglinski, a modeling friend, painted some of the scenes, Mark

painted others, and Mark painted most of the clouds on the backdrops.

He’s proud of the way he used his high school art class lessons to incorporate the perspective of the conveyors at the power plant in Chippewa Falls as they transition to the backdrop.

The scene in Trego, a favorite, featured two bridges crossing the Namekagen River and a waterfall. The river, like the other water effects on the layout, was cast with Unreal Details’ Magic Water two-part resin.

Hayward was always a favorite of all the people who operate on the layout. It’s the most challenging, but because it’s a branch line, they weren’t pressured. It wasn’t based on a prototypical scene, Mark said. There was a co-op, Ann’s Seeds; Amanda Cannery; a fuel dealer; sawmill; and Mark’s Pulpwood, but the layout isn’t a copy of the town.

The scenes weren’t meant to represent prototype locations, with the exception of Anzia Malt, which represents Froedtert Malt in Jefferson.

If you build it, they will operate

This was built to be a modeler’s layout, Mark said. But it’s also an operator’s layout.

Mark used sequential operation on the West Wisconsin RR, where operators do one job at a time, whether it’s a local train, a through train, or an “all-night job.” Each operating session was a half day, either a morning or an afternoon.

Each train in the sequence had a train card. The train card had the purpose and destination of the train, the locomotive(s) assigned, and any special instructions. For example, on some of the turns, or local trains, certain industries needed to be switched either on the way out or in, depending on turnout orientation. There was also a list of specific industries served by the train.

When guests operated, they got a nailing apron (Mark found his at The Home Depot) where they could carry their train card, car cards, stack of waybills, and their throttle when it wasn’t plugged in. The West Wisconsin RR moved bridge traffic between Chicago and Minneapolis and local freights out of Eau Claire. The bridge traffic was through trains.

Mark thought about creating a dispatcher position, but he didn’t want to have someone sitting at a desk. “We use a roving dispatcher, that’s usually



Mark's yard operators use these tabs to keep track of cars being worked. The tabs are removed before a train is sent out on the line.

Keeping tabs on the yard

To keep the yard at Eau Claire fluid and to simplify switching, Mark's operators use a tab system to sort cars for their trains. The tabs, made from sections of styrene I-beams, are color-coded for different routings.

"West is yellow, because it's heading towards the sunset, north is blue because it was cold 'up nort,' WC is red because their engines were red, east is green because the two words 'sorta' rhymed, locals are all black, and white (unpainted) is TBS," Mark said.

" 'TBS' is a kick me. It stands for 'To Be Switched.' Typically for inbound cars that need to be matched up with other cars going in the same direction."

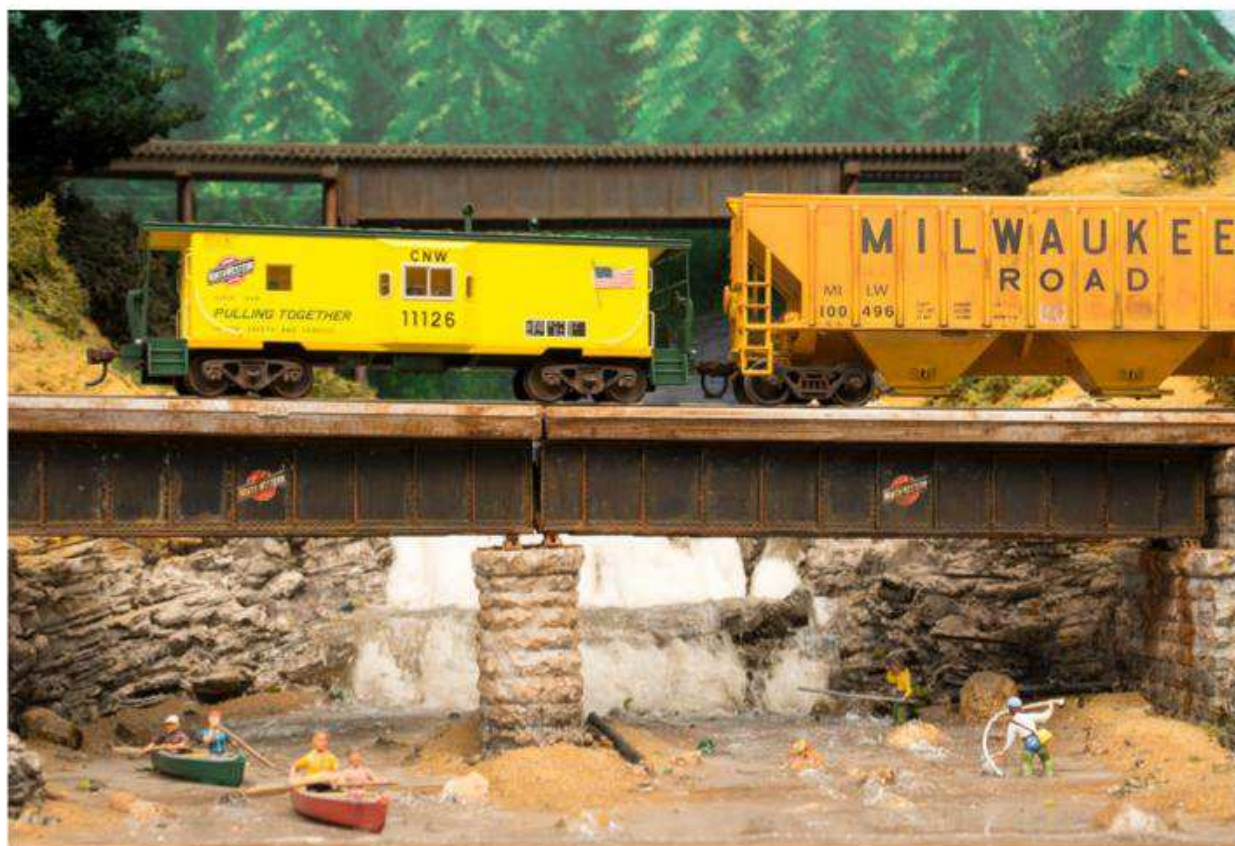
The locals usually have two- to four-letter abbreviations for the cities that the turns go to, like RL for Rice Lake, HAY for Hayward, JEFF for Jefferson, CF for Chippewa Falls, and SUP for Superior (local, not staging). – *Eric White*

me," Mark said. There were no signals on the layout; it was what's referred to as "dark" territory.

"Someone will say I need to go from Eau Claire to Beaver Dam. I'll look and see there's no one there, ask the guy in Beaver Dam if he's planning to go. If not, I'll say to the first guy, 'You're clear from Eau Claire to Beaver Dam.'"

Local trains ran out of Eau Claire yard. Some of the run-throughs were included in the sequence just to have enough traffic for an operating session. Sessions had a crew of five to seven.

Mark used NCE's Master Series Digital Command Control (DCC). "It's



8 A Chicago & North Western caboose crosses the Namekagen River while people take advantage of the recreational activities in Wisconsin's Northwoods.

their original system, and it's worked great ever since I installed it."

The biggest emphasis for operation is it's supposed to be fun, Mark said. "Nobody's frantic. We like to have a good time – a fun, loose time."

One thing Mark's crews noticed is when you've done a road job and you pick a train card for your next job, usually you get the same type of train. If you start with a run-through, your next train is likely a run-through. If you start with a turn, your next train is likely a turn. Mark didn't set it up that way, but it seemed to be how it works out more often than not.

Rolling stock

Mark's locomotive roster has been modernized over the years. When he started, he had a lot of GP and SD7s and 9s because that's what was available from Proto 2000. He took what he could get. They were replaced by models of GP40s and GP38s as they came out, then he bought a "boatload" of SD60s. Those things are tanks, Mark said. "They can pull the couplers right out of a train."

Rolling stock followed the "good-enough" concepts of well-known modeler W. Allen McClelland. "I like the new high-end freight cars, but I'm not going to spend \$30 on a boxcar," Mark said.

"And I don't think when people are operating the layout they're noticing the separate lift rings on a locomotive, but instead are focusing on whether the wheels are slipping or not."

Abandoned plans to enlarge

"I thought of building an ore dock in the rec room above some cabinets in there. The track would've left the yard in Superior, wound past the furnace, then entered the next room," Mark said. "But I didn't want to spend a lot of time fiddling around with an ore dock, and there's plenty to keep me occupied here."

"Friends suggested I add an iron ore mine on top of the helix, but that never happened."

Mark was looking forward to the next layout when we visited, and a busy year. He has three daughters. The oldest and the youngest recently had their first children, within a month of one another. In addition to becoming a grandfather, Mark was in the first stages of building a new house. The day of our visit, he finally got his building permits issued. The house is now finished and planning for a new layout has begun.

"I'll have about three times the space, but part of it will be a storage area for household items. Mostly, I plan to spread things out more," Mark said. "Now, when a long train is coming into Eau Claire yard, the caboose is still in Beaver Dam."

"I also like the helix, as it adds some mainline distance, but I might use an around-the-walls climb with a 1½ turn helix instead. Some guys swear by the helix, some swear at it."

"I love this hobby because it's everything. It's carpentry, it's electrical, it's mechanical, it's artistic, so I get to do them all." **MR**




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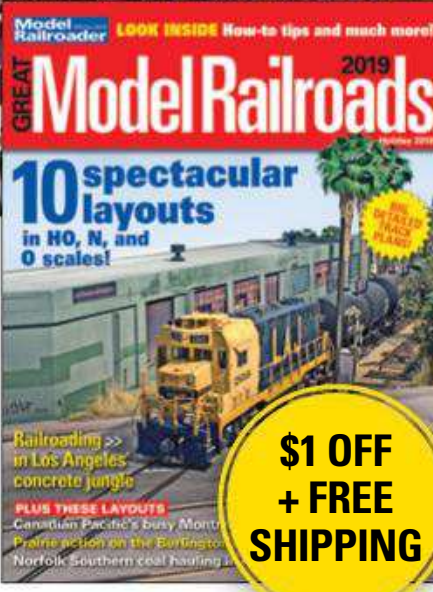
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 Model Railroader October 2018

Adding sound to an N scale steam locomotive



Larry Puckett's friend wanted to add sound to his N scale Bachmann Baltimore & Ohio EM-1 2-8-8-4. Larry took on the project, twice. The locomotive is shown on Larry's HO scale Piedmont Southern layout.

One of the realities of installing sound decoders in N scale locomotives is it can be challenging unless the model was designed with this in mind. In some cases even when there appears to be plenty of room, say in a large tender, there may not be room for extras like a stay-alive capacitor or a large speaker.

I ran into this problem installing a sound decoder in the Bachmann N scale Baltimore & Ohio 2-8-8-4 I used for this project. I'm going to show you two ways to do this installation, one that's relatively easy but doesn't produce the loudest sound, and a second approach that gives more sound by using a speaker in an enclosure.

My friend Bill Dye is a B&O fan who has several of the popular EM-1 2-8-8-4 models. These locomotives come with large tenders. When I offered to install a sound decoder, I figured it would be

an easy drop-in project. After scanning the various decoder sound packages available, I ran across one for the EM-1 in the Digitrax sound depot.

I chose the Digitrax SDXN136PS sound decoder and PX108-6 Power Xtender stay-alive capacitor **1**, and downloaded the EM-1 sound package from the Sound Depot on the Digitrax website (www.digitrax.com/sound-depot/list).

Removing the tender body is easy. I backed out four



IT'S A GOOD IDEA TO TAKE A PHOTO OF A FACTORY INSTALLATION BEFORE DOING ANY WORK ON IT. — LARRY

screws and lifted off the shell, revealing a circuit board that runs the length of the inside and carries the motor-only decoder. A bundle of six wires from the engine terminate with a socket that mates with a six-pin plug on the circuit board.

Let me warn you about this socket. Printed on one side of this socket is the word "Up." However, as I later found after wasting a lot of time trying to figure out why the locomotive ran backwards and the headlight wouldn't work, "up" was actually "down."

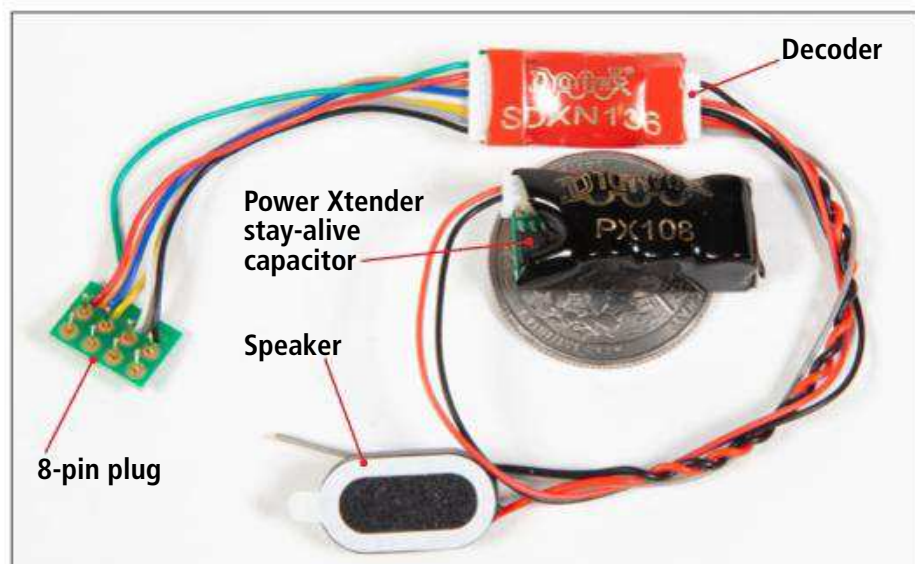
At any rate, make sure to note which way the socket and the word "Up" are facing before disconnecting. Matter of fact, it's a good idea to take a photo of a factory installation before doing any work on it.

With the wires disconnected, I was able to separate the engine from the tender and begin some serious work.

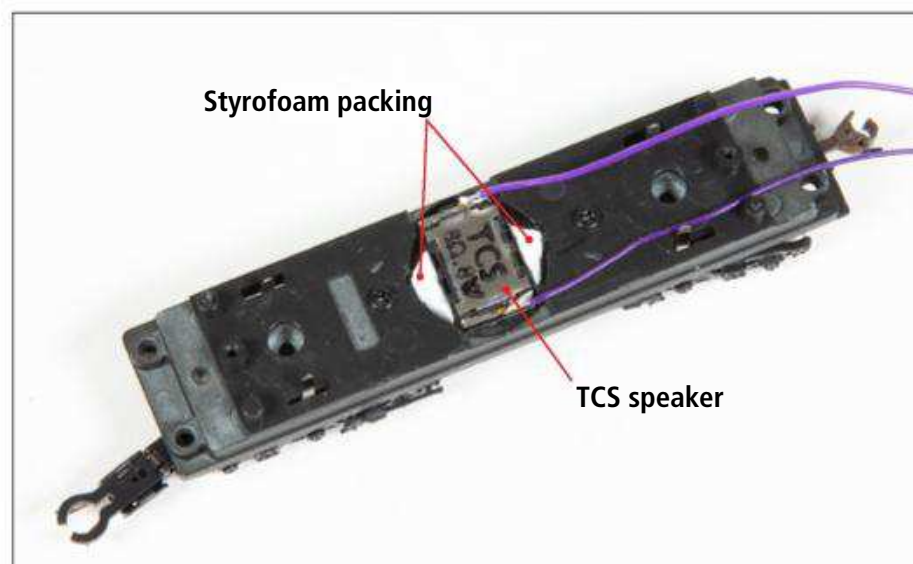
I removed the two small screws that held the circuit board to the tender floor and set them aside. The floor consists of a metal chassis overlaid with a plastic sheet to prevent shorts. A small circular opening for a speaker was cast into the floor.

Since the Digitrax oval speaker was too big, I chose one of the small sugar cube speakers I've been using the last couple of years for many of my HO diesel installations. I did some test fits and found a Train Control Systems (TCS) UNIV-SH6-C speaker, which is rated at 8 ohms and .8 watts, to be a good fit. I had to remove a little of the plastic liner to give me a drop-in fit.

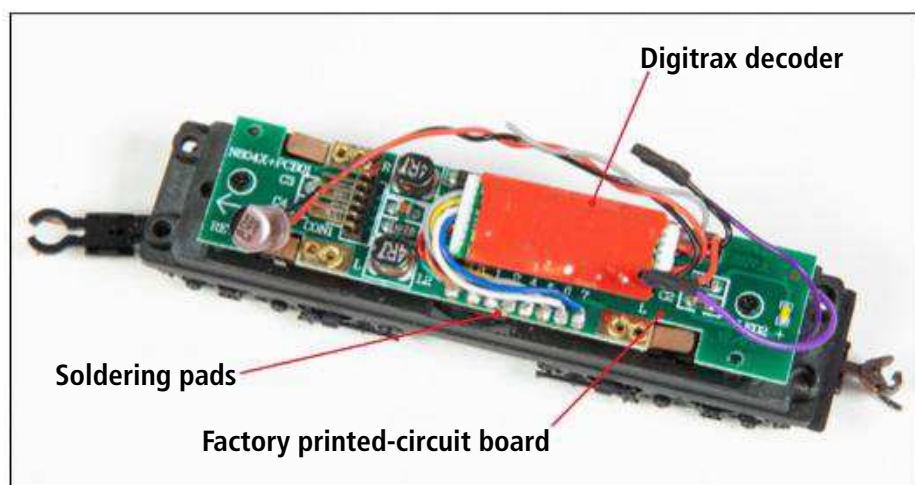
A quick check with the circuit board confirmed there was just enough clearance. To seal the sides of the rectangular speaker in the round opening, I inserted a couple pieces of Styrofoam cut to fit **2**. With the speaker firmly in place, I added a couple



1 A quick solution? The Digitrax SDXN136PS sound decoder and PX108-6 Power Xtender stay-alive capacitor looked like a good fit. Try as he might, though, Larry couldn't fit the Power Xtender into the large tender. The speaker was too large, also, and the 8-pin plug wasn't used in this installation.



2 Change one, a different speaker. The Digitrax speaker was too large to fit the hole in the tender floor. To seal the sides of the rectangular Train Control Systems UNIV-SH6-C speaker in the round opening, Larry inserted a couple pieces of Styrofoam cut to fit.



3 Done the first time. Larry carefully removed the factory wires and soldered the wires from the Digitrax decoder in their place along the bottom of the circuit board. The speaker is mounted below the factory circuit board.

wires to the contacts and moved on.

The wires from the factory-installed motor-only decoder were soldered through holes in the circuit board. Fortunately, Bachmann included a list of the wire functions along with hole numbers, and the holes in the board are also numbered.

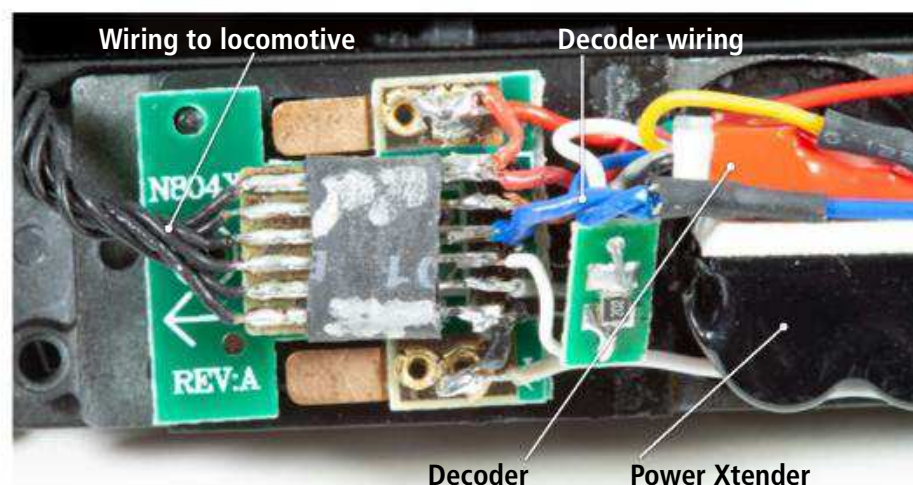
I carefully unsoldered the factory-installed wires and replaced them with the wires from the Digitrax decoder **3**. I reinstalled the circuit board and connected the wires from the speaker to those on the decoder.

At this point I turned my attention to installing the Digitrax Power Xtender stay-alive. First, I tried placing it

alongside the decoder, but it was too tall for the tender body. I also tried squeezing it under the coal load casting, but the connector from the engine was in the way there.

The rear of the tender looked like a possible option until I noticed there's a small surface-mount light-emitting diode (LED) there that illuminates the rear light. So even in such a large tender, the space just wasn't adequate for both the Power Xtender and decoder.

With everything in place, I reconnected the plug from the engine and screwed the tender body back in place. On the programming track, I installed the sound package downloaded from the



4 Round two. Larry soldered the wires from the decoder to the pins on the remaining part of the circuit board. The wire functions are (top to bottom) right rail pickup, motor +, headlight +, headlight -, motor -, and left rail pickup.

Digitrax Sound Depot. I used the Digitrax Soundloader software and the USB interface in my DCS240 command station (a Digitrax PR3 or PR4 USB interface and decoder programmer will also work).

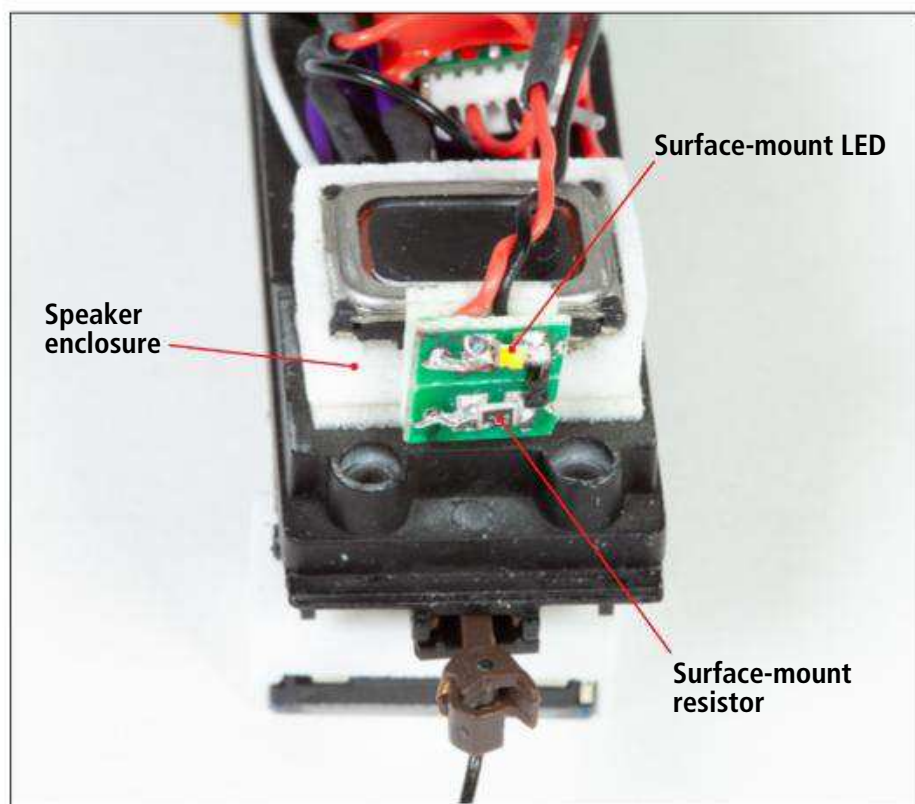
After a little tweaking, I got the sound output maximized without creating any of the telltale crackling that's symptomatic of overdriving the speaker. On a small layout or a quiet room the sound was reasonable, but when Bill ran the locomotive on his large layout with a room full of visitors, the sound almost disappeared, so I volunteered to make some changes. On to method two.

After opening the tender again, I removed the circuit

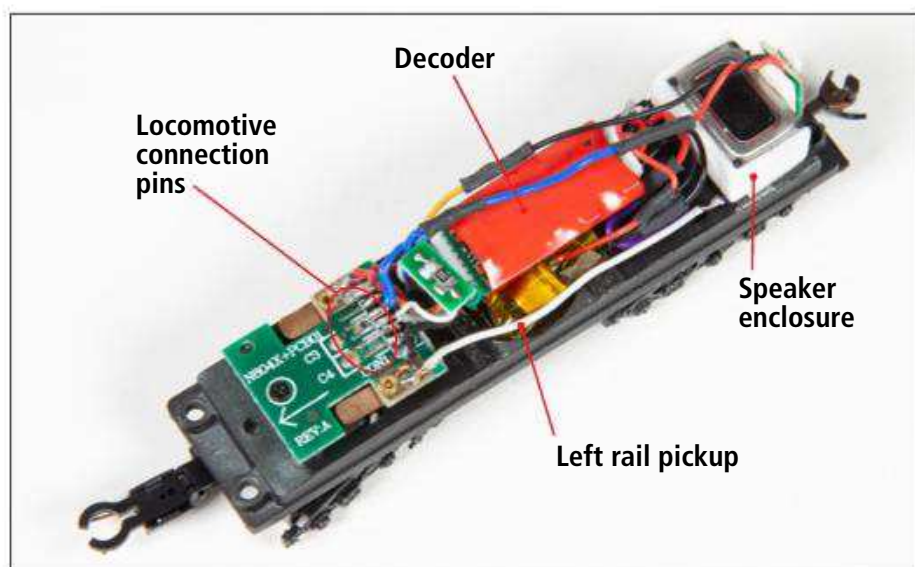
board and unsoldered the decoder wires from the first attempt. Next, using a razor saw, I cut the board just behind the six-prong connector. Using my volt-ohm meter on the resistance setting, I isolated the right and left power pickup wires coming from the engine (these were the two outside wires).

The next step is a bit trickier, since I didn't have a connection to the motor or headlight. To keep from blowing out the headlight LED, I used a single AA battery, giving me 1.5VDC.

With the battery in a battery holder, I touched the wires to the pairs of socket openings, working from the outside in. The 1.5VDC was enough to turn the motor



5 Fixing the lights. Larry connected a 2KΩ resistor to a surface-mount light-emitting diode and attached them to the speaker enclosure beneath the rear light tube. The TCS sugar cube speaker and enclosure fit neatly in the rear of the tender.



6 Done again. Larry soldered wires between the rear truck contacts and the bronze wipers on the remaining circuit board, then attached the wires from the decoder to the wipers. The white wire shown is for the left rail pickup.



7 Release the sounds. To allow more sound out, Larry drilled a series of small holes in the plastic coal load.

when I touched its contacts (the second and fifth wires). By observing the direction of the driver rotation, I could tell which wire was positive and which was negative. This meant the two inside wires were the headlight wires.

Since 1.5VDC isn't enough to illuminate a white LED, I switched to a pair of AA batteries in a holder, giving me 3VDC. Just to confirm this wouldn't blow the headlight LED, I first touched the wires to the backup LED still attached to the severed section of the circuit board.

Once I confirmed that was safe, I went ahead and touched the wires from the batteries to the center wires in the socket. When the headlight LED lit up, I noted the positive and negative wires. I added a 2KΩ resistor on the negative (white) wire to protect the LED and soldered the correct wires from the decoder to the pins on the remaining part of the circuit board **4**.

The resistor is necessary since the original one was on the section of circuit board I removed. For the backup light I unsoldered the LED from the circuit board, added a 2KΩ resistor to the yellow (negative) wire, and glued the LED to the rear of the speaker enclosure next to the clear plastic light lens **5**.

With most of the circuit board removed, I had to provide connections for power pickup in the tender. The trucks have metal prongs that stick up through the chassis floor and contact bronze wipers attached to the circuit board.

The remaining section of the circuit board had the wipers for the front truck. I ran a wire between them to the prongs coming up from the rear truck. I then attached a wire from the decoder track wires (red and

black) to the wipers on the circuit board **6**.

I figured with most of the old circuit board removed, I now would have room for the Power Xtender. However, a quick test-fit with the tender body shot that idea down. The final arrangement did leave me with room at the rear end of the tender for the sugar-cube speaker and its intended enclosure **5** and **6**.

One by-product of this new arrangement was the hole in the tender floor was now mostly covered by the decoder. To allow more sound out, I drilled a series of small holes in the plastic coal load **7**. If the holes are distracting, they can be disguised by applying a thin coat of contact cement and then sifting on a fine coal load, making sure not to seal the holes. This arrangement seems to allow more sound to escape upward, whereas the hole in the tender floor directed the sound down onto the track and ballast.

After installing the tender body, I gave the locomotive a test drive, and the increase in volume was satisfying. You can't expect the same output as from a 1" high-bass speaker, but the output from these sugar cube speakers is always surprising.

To wrap this up, let me warn you that neither of these methods is easy. You'll need good soldering skills and a fine-tipped soldering iron. I also ended up setting my drugstore magnifying glasses aside in favor of an Optivisor with the highest magnifying lenses. However, with patience and the right tools, you should be able to do the same or a similar installation. I also strongly recommend testing this and any new installation on a current-limited programming track just in case of shorts. Good luck! 

Keeping Locomotives Ready to Roll

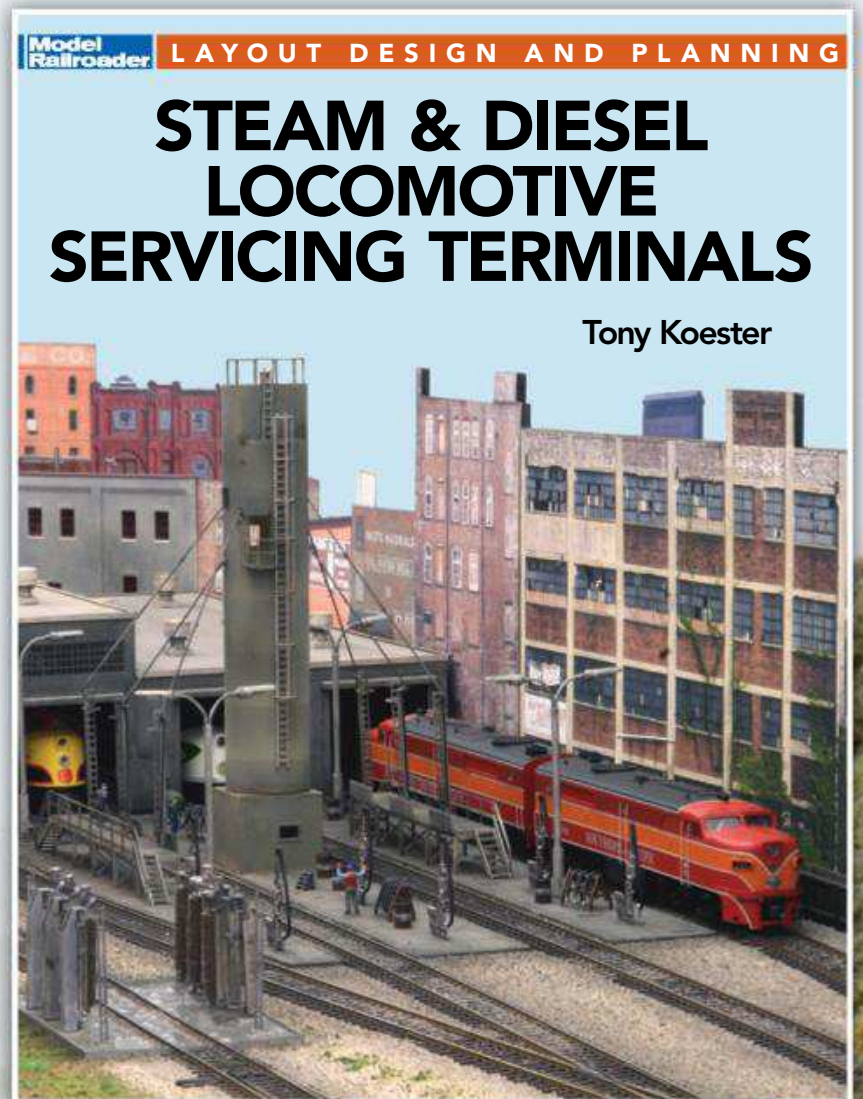
In the all-new book, *Steam & Diesel Locomotive Servicing Terminals*, Tony Koester explains how various locomotives and servicing facilities work, with details on the processes and equipment that can be replicated on model railroad layouts.

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Athearn HO scale 'early' Challengers

For the first time in plastic, ready-to-run models representing Union Pacific's first two classes of 4-6-6-4 Challenger locomotives are available in HO scale from Athearn Trains. Part of the firm's Genesis series, these steam locomotives feature prototype-specific detail that rivals brass models.

No shelf queens, these locomotives are also available with an ESU LokSound Select dual-mode decoder that offers realistic sound on Digital Command Control and direct-current layouts. The decoders are also the first we've tested with the ESU Full Throttle Steam sound and effects package.

The prototype. The American Locomotive Co. delivered the first 4-6-6-4 locomotives, numbered 3900 to 3914, to the Union Pacific RR in 1936. These were dubbed the Challenger Simple Articulated or CSA-1 class. The

following year the railroad received 25 near duplicates, classed CSA-2.

Unlike compound Mallet articulateds that crawled along with drag freights, the Challengers had two sets of high-pressure cylinders and could reach passenger train speeds. The locomotives also had an impressive starting tractive effort of 97,400 pounds.

Although originally built to haul fast freight up the UP Wyoming Division's Wahsatch grade, the CSA-1 and -2 Challengers would hold a variety of assignments over their long careers, including passenger service. Depending upon their operating territory, they could also be equipped to burn either coal or oil. These first Challengers would influence the development of the 65 larger "Jabelmann" Challengers built in the 1940s.

The model. Our review sample is decorated for no. 3707, using the correct aluminum-colored printing. The model's prototype was built by Alco in 1936 as no. 3907 and burned coal for fuel. In 1944 it was converted to burn oil and renumbered 3807. In 1949, the locomotive became no. 3707 when it was converted back to coal and sent along with several other Challengers to serve on the Nebraska and Wyoming Divisions, where an unexpected traffic surge caused a motive power shortage. After less than a year, the UP converted these Challengers back to oil burning and gave them their old numbers. Number 3807, formerly 3707, was scrapped in 1957.

The major dimensions of the Athearn model are within scale inches of official Union Pacific prototype diagrams found in *The Challenger Locomotives* (Kratville Publications, 1980).

The locomotive and tender feature well-defined molded detail, including boiler bands and rivet seams. Our review sample also has a cast pilot that's correct for no. 3707, as well the large domes and single smokestack of the prototype. Other road numbers offered by Athearn have footboard, boiler-tube, or steel-bar pilots as well as double smokestacks or original smaller domes as appropriate for their prototypes.

Separately applied details include all piping and handrails. The whistle and bell are painted to simulate brass, and the ashpan dump wheel, on the engineer's side under the firebox, is painted red. There are also opening cab roof vents and a cab apron. The cab interior features seats, but no figures, and a painted and detailed backhead.

The mechanism. A die-cast metal insert surrounds the flywheel-equipped motor inside the plastic boiler. Worm shafts connect the motor to the second axle on the first engine and the third axle of the rear engine. The metal siderods transfer power to the other driver axles.

After removing three screws from the tender deck (one concealed under the coal bunker and two under separate water hatches), I easily lifted off the plastic tender shell. The tender houses the ESU LokSound decoder and two

PERFORMANCE TESTS	
DRAWBAR PULL	10.4 ounces 145 HO scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
6.5 (start)	1
8	13
9	25
10	38
12	70
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	1
7	18
14	41
21	65
28	70

downward-facing 28mm round speakers in plastic enclosures. An eight-pin wiring harness connects the decoder to the electronics in the locomotive.

So it can negotiate tight model railroad curves, the model's front and rear engines pivot. On a prototype articulated locomotive, only the front engine pivots.

Performance. As you can see in the charts on the previous page, the model performed well in DC and DCC tests. In both modes the model accelerated smoothly from a scale 1 mph crawl to a prototypical top speed of 70 scale mph.

The model is factory equipped with four vinyl traction tires. These are installed on the second drivers of the first engine and the third drivers of the rear engine. Out of the box the model has a tremendous drawbar pull on straight and level track, also shown in the performance charts.

However, on the 3 percent climb to Skyridge on our staff layout, the Milwaukee, Racine & Troy, the front traction tires dug in, causing the Challenger's front engine to lift up. The longer the train, the worse this bobbing became. This motion would eventually derail the pilot wheels, since the pilot truck is connected to the front engine.

To solve the issue, I removed the traction tires from the front engine. The locomotive then hauled a 20-car train up the 3 percent train without incident. Even with the front traction tires removed, the locomotive had an 8 ounce drawbar pull that's equivalent to 112 HO freight cars on level track.

Full Throttle Steam. Like the diesel version, the ESU LokSound Full Throttle Steam effects package includes a function-button-controlled brake and DRIVE/HOLD. The latter feature disengages the exhaust sound from speed control. When DRIVE/HOLD is applied the speed remains constant, while the throttle adjusts the intensity of the chuffs.

The steam version also includes HEAVY LOAD and COAST functionality that can be used with or without DRIVE/HOLD. The varying intensity and volume of the chuffs (or lack thereof in the case of COAST) can also be programmed.

By default the Challenger is programmed for HEAVY LOAD with DRIVE/HOLD. COAST wasn't enabled, so I programmed it on function 6 without

DRIVE/HOLD. On a long downgrade, I pressed function 6, the chuffs diminished to a whisper, and I heard prominent rod clanks and snifter valves. The throttle knob then controlled only the locomotive speed.

Using an ESU LokProgrammer (sold separately, although the software is available for free) made programming the decoder a much simpler task. For other detailed configuration variable (CV) lists and programming tips, free online user manuals are available for download at www.esu.eu/en.

As with other LokSound Select decoders, there are CVs that can be programmed to adjust every aspect of the decoder's sound, lights, and performance. For example, I used CVs 57 and 58 (programmed to values of 77 and 121, respectively) to synchronize the exhaust chuff sound to the motion of the locomotive drivers.

The exhaust is also correct for a simple articulated locomotive. I could hear double chuffs, simulating the sound of the front and rear steam engines.

The default whistle sound was recorded from UP 4-8-4 Northern no. 844. In addition to long and short whistle blasts, user-triggered features include the bell, coupler, injector, grade-crossing signal, and several other effects.

The attention to detail of the automatic sound effects is impressive. After braking to a stop, the air pump sounds would come on. When starting out, the cylinder cocks would open automatically, and I heard the sounds of blowing down the cylinders.

On a DC layout, the sounds are limited to exhaust chuffs as the locomotive was in motion and brake sounds when I decreased the power pack voltage. The headlight and tender backup light

Facts & features

Price: \$629.98 (DCC sound), \$529.98 (DC no sound)

Manufacturer

Athearn Trains
1600 Forbes Way, Suite 120
Long Beach, CA 90810
www.athearn.com

Era: 1936 to late 1950s (1949 to 1950 as no. 3707)

Road numbers (all Union Pacific):

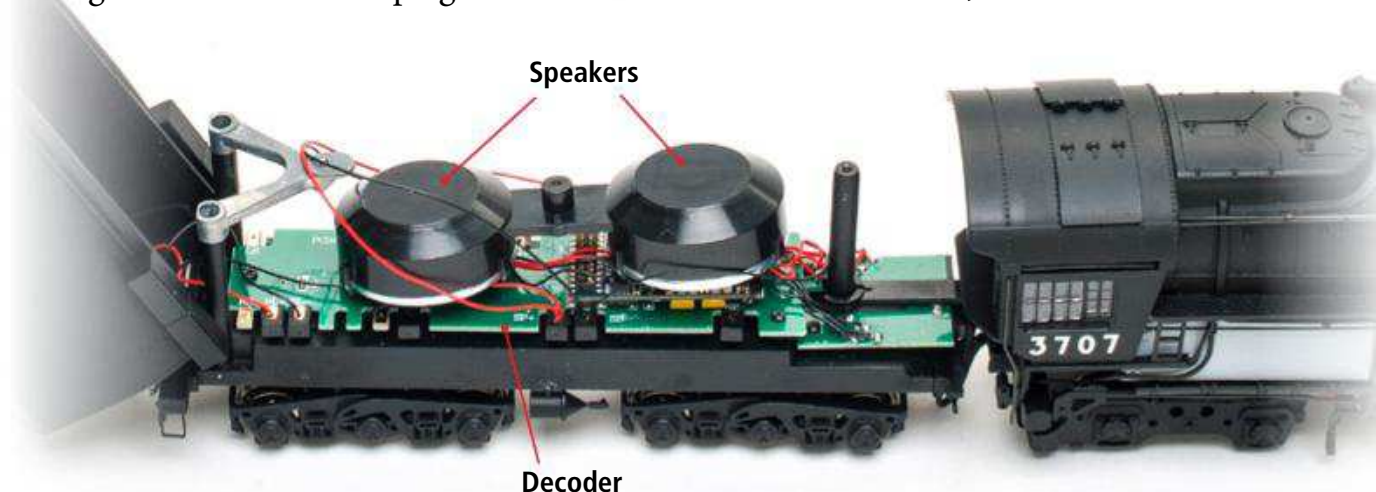
CSA-1 (coal): nos. 3707, 3710, 3901. CSA-1 (oil): nos. 3802, 3813. CSA-2 (coal): nos. 3923, 3937. CSA-2 (oil): 3827

Features

- Electrical pickup on eight drivers and all tender wheels (pickup on 10 drivers with traction tires removed)
- ESU LokSound decoder (DCC version)
- Five-pole skew-wound motor with dual brass flywheels
- Light-emitting diode (LED) headlight and tender backup light
- McHenry plastic knuckle coupler on rear of tender at correct height
- Minimum radius: 18" (22" recommended)
- Red emergency stop light on tender
- Weight: 2 pounds, 3.5 ounces (engine alone weighs 1 pound, 8 ounces)

operated according to direction. The red emergency light also came on in reverse. Running the locomotive with an analog sound controller, such as a Model Rectifier Corp. Tech 6, allows access to more user-controlled effects.

Athearn's early Challengers will fill a hole in the rosters of many UP steam fans. Especially for DCC users, the ESU LokSound Full Throttle decoder ensures that the sound is as superdetailed as the model. – Dana Kawala, senior editor



The locomotive tender houses the ESU LokSound decoder and two well-enclosed speakers. An eight-pin wiring harness runs between the locomotive and tender.



ScaleTrains.com N scale GE ET44AC diesel

ScaleTrains.com brings the modern era to N scale with its General Electric (GE) Tier 4 GEVo diesel locomotives in several variations. The Rivet Counter line model features railroad-specific details, factory-installed and painted wire grab irons, and light-emitting-diode headlights and ditch lights.

Going green. The ET44AC is part of GE's Tier 4 lineup of diesel locomotives, including the ET44AC (Canadian National and Norfolk Southern), ET44AH (CSX), ET44C4 (BNSF Ry.), and C45AH (Union Pacific). The locomotives are compliant with the Environmental Protection Agency's emission standards that went into effect in January 2015.

The full-size locomotive is 74'-6" long and 16'-1" tall from railhead to the top of the antennas. It features a GE GEVO-12

engine with 12 V-type cylinders. The ET44AC features a C-C axle configuration, while the ET44C4 has an A1A-A1A configuration (each truck has two powered axles with a center idler axle).

The safety cab design on the ET44AC is similar to that found on AC4400 and Dash-944CW diesels. The distinguishing feature of GE's Evolution Series locomotives are the radiators at the back of the long hood. Though the radiators overhang the walkway like earlier six-axle GE road locomotives, the new ones are taller and look like an upside-down V.

Our sample is decorated as Canadian National no. 3019, part of the railroad's 3000 through 3039 series built by GE at its Erie, Pa., plant between July and September 2015.

In GE terminology the locomotive is an ET44AC, but on CN it's an EF-644t.

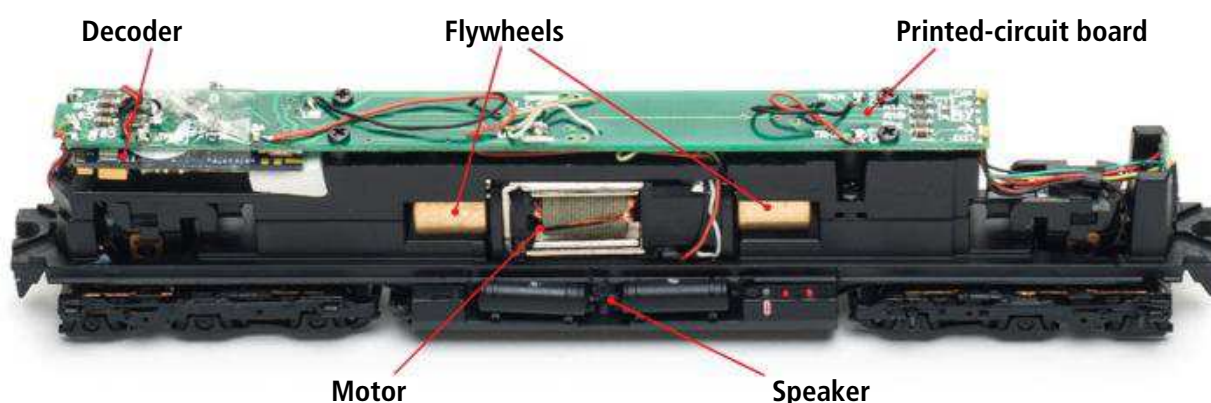
What does the alpha-numeric code mean? E stands for General Electric, F indicates freight service, 6 is the number of axles, 44 is the horsepower (x100), and t indicates the subclass.

ScaleTrains.com offers the CN ET44AC in six road numbers and two versions. Units 3019 and 3000 are based on the 2015 prototype with a square exhaust compartment roofline. The other four numbers have an angled roofline in the same area. All of the CN models have operating front and rear ditch lights, a rear rock pilot, and tinted side cab windows.

The model's dimensions closely follow prototype drawings published in the *Trains* magazine special issue *Locomotive 2017*. The lettering and detail placement matches prototype photos of no. 3019 that I found online. The two vertical handrails on the back of the hood should be white, not red. This is an easy fix with paint and a fine brush.

The paint on the model is smooth and evenly applied, with crisp separation lines between colors. The model has several appropriately placed labels on the sides, ends, and roof. Some are legible under magnification, others aren't.

Strong puller. Our sample features a dual-mode ESU LokSound Next18 Select sound decoder. I tested the model in Digital Command Control using an



The motor and flywheels are located between the chassis and a weight above. The downward-facing speaker is located in the fuel tank.

PERFORMANCE TESTS	
DRAWBAR PULL	1.28 ounces 31 N scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
6.6 (start)	2
8	20
10	79
12	137
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	2
7	27
14	71
21	117
28	118

NCE PowerCab. In 28 speed steps, the locomotive crawled along at 2 scale mph at step 1. The model achieved a top speed of 118 scale mph at step 28. That's nearly 50 mph faster than the prototype's maximum speed.

I was able to achieve a more realistic high speed by adjusting Configuration Variable (CV) 5. From the factory, CV5 is set to 255. After some trial and error, I set CV5 to 86 to achieve a top speed of 70 scale mph.

The decoder also features ESU's Full Throttle diesel sound and effects package. Function 9 is set up for DRIVE/HOLD, which allows users to set the model's speed and adjust the engine rev independently with the throttle. Function 4 controls the dynamic brakes, which works when the locomotive is moving. Function 11 is the independent brake.

I used a Model Rectifier Corp. Tech 4 power pack to perform the



A distinctive radiator section, factory-installed wire grab irons, and working rear ditch lights are just some of the highlights of the ScaleTrains.com model.

Facts & features

Price: Direct-current model with ESU Next18 connector, \$124.99; with dual-mode ESU LokSound Next18 Select Micro sound decoder with Full Throttle, \$204.99

Manufacturer

ScaleTrains.com
7598 Highway 411
Benton, TN 37307
www.scaletrains.com

Era: 2015 to present (as decorated)

Road names: Canadian National, BNSF Ry., CSX, General Electric demonstrator, Norfolk Southern, and Union Pacific. Six road numbers per scheme.

Features

- All-wheel drive and electrical pickup
- Body-mounted plastic semi-scale E Type couplers, mounted at correct height
- Directional light-emitting-diode headlights
- Five-pole skew-wound motor with dual flywheels
- Illuminated number boxes
- Weight: 4.0 ounces

direct-current test. The sound effects started at 6V, and the model moved at 2 scale mph at 6.6V. At 12V, the six-axle road unit achieved a top speed of 137 scale mph.

The ScaleTrains.com model has a drawbar pull of 1.28 ounces, equivalent to 31 freight cars on straight and level track. The real test came when I put a 25-car train of modern freight cars behind the N scale model and had it climb the helix on our Canadian Canyons project layout. The wheels slipped in a few spots, but the locomotive never stopped moving and it ultimately made it to the top of the nearly two percent grade. Quite impressive!

We see a steady parade of ET44AC diesels passing through Waukesha, Wis., on the Canadian National. ScaleTrains.com did a great job capturing the lines of the prototype. The model looks spectacular crossing Cisco Bridge on our Canadian Canyons layout. The sounds of the GEVO-12 engine echoing in the tunnels and off the canyon walls transports us to British Columbia without having to leave the workshop.

— Cody Grivno, associate editor

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Chassis with cab and hood removed

Walther's HO scale Plymouth ML-8 with ESU LokPilot DCC

It wasn't long ago that we reviewed the Plymouth ML-8 locomotive from Walther's Mainline (June 2017). But Walther's has reissued the switcher equipped with an ESU LokPilot Digital Command Control (DCC) decoder, so we put this version through its paces.

The model. Walther's model uses the same tooling as the version we reviewed last year, which matched prototype photos and builder's drawings. The die-cast metal hood, which adds to the weight of the diminutive model, is well done, especially the raised "PLYMOUTH" lettering on top of the radiator grill.

Our model was decorated for Burlington Northern, but those wanting a more generic model to work an industry on their layout have a rainbow of painted but unlettered options to choose from. The package includes decals with more than a dozen industry heralds, both prototypical and freelanced. Many match Walther's HO scale industry kits.

Testing. Our sample was equipped with an ESU LokPilot DCC decoder, which handles motor and lighting functions, but has no sound capabilities. There likely wouldn't be room for a speaker in the cramped cab, anyway.

As the LokPilot is a dual-mode decoder, the engine will run on either direct-current or DCC layouts. I tested it

first under direct current. The lights came on at about 2.5V, and it started rolling steadily at 3V, moving at a nice and slow 1.7 scale mph. At 12V, it zipped along at 68 scale mph, more than twice the prototype's top speed of 25 mph.

The model performed equally well under DCC. The speed ranged from 1 scale mph at speed step 1 to 51 scale mph at step 28. The decoder features several configuration variables (CVs) for fine-tuning the performance, including lowering the top speed, adjusting the speed curve, and adding deceleration and acceleration momentum. An extensive user manual is available as a free computer download at www.esu.eu/en.

One function I appreciated was what the ESU manual called "Shunting Mode," accessed by pressing function key 3. This mode cut the model's speed in half for finer slow-speed control.

In addition to the directional headlight, I could turn the cab interior light on or off with a DCC throttle.

Our workbench force meter measured the engine's drawbar pull at .8 ounce, which is surprisingly high for such a diminutive engine. That's equivalent to 11 free-rolling HO scale freight cars on straight and level track.

The ESU version also comes with an onboard capacitor that stored enough energy to keep the model's lights and motor on for 4 seconds with no track

Facts & features

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

Manufacturer

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

Era: 1920s to present

Paint schemes: Direct current or DCC: Burlington Northern; Bicentennial (red, white, and blue); black with pilot stripes; green; red; orange; and yellow with pilot stripes. DCC only: Atchison, Topeka & Santa Fe; blue; Union Pacific; and United States Army Transportation Corps.

Features

- All-wheel drive and electrical pickup
- Die-cast metal frame and hood
- Directional light-emitting-diode lighting
- Etched-metal radiator guard
- Skew-wound motor with flywheel
- Proto-Max couplers, at correct height
- RP-25 blackened metal wheels, in gauge
- Separately applied wire and engineering plastic handrails
- Weight: 3.6 ounces

power. That's more than enough power to cross an insulated turnout frog.

Good thing in a small package. If your HO scale layout has a busy industry that moves a lot of cars internally, an industrial switch engine like the Plymouth ML-8 would come in handy. This reliable, smooth-running engine would be right at home on any layout from 1920 to today. – *Steven Otte, associate editor*

QUICKLOOK

Accurail HO scale 36-foot Fowler boxcar

Price: \$17.98

Manufacturer

Accurail Inc.

P.O. Box 278

Elburn, IL 60119

www.accurail.com

Era: 1910s to 1950s

Road names: Soo Line; Baltimore & Ohio; Bangor & Aroostook; Canadian National; Canadian Pacific; Chicago Great Western; Erie; Georgia RR; Grand Trunk Western; Illinois Terminal; New York, Susquehanna & Western; Monon; Nashville, Chattanooga & St. Louis; Nickel Plate Road; Pacific Great Eastern; Quebec Central; Toledo, St. Louis & Western; Toronto, Hamilton & Buffalo; and Wabash.

Comments: Another important steam-era freight car, the Fowler-patent single-sheath 36-foot boxcar, joins

Accurail's lineup of easy-to-build, accurately detailed plastic kits.

Originally designed by W.E. Fowler, master car builder of the Canadian Pacific Ry., these boxcars used a steel underframe and structural members and single-sheath wood construction.

More than 75,000 36- and 40-foot Fowler boxcars were built from the early 1900s through the 1920s. Some rebuilt cars lasted into the 1950s.

This kit features an enhanced underframe with separate crossbearers, center sills, and KC brake system. The running board, brake platform, corner steps, and brake wheel are also separate plastic parts. The brake staff is a piece of unpainted wire that I painted black. Ladders and grab irons are molded into the one-piece plastic body.

The finished model's dimension's match those of a prototype drawing from the *Car Builder's Dictionary*

(Simmons-Boardman, 1912). Oversize HO couplers make the car's overall length about 2 scale feet too long.

Our review sample came decorated for Soo Line no. 13124, part of a nearly 1,500 car order built in 1912. The car is also stenciled with a rebuilt date of 5-47. The model matches prototype photos of cars in this number series.

The boxcar weighs 3 ounces, which is .6 ounce too light according to National Model Railroad Association Recommended Practice 20.1. However, the car easily rolled through no. 4 turnouts and 18" radius curves. The plastic Accumate are at the correct height.

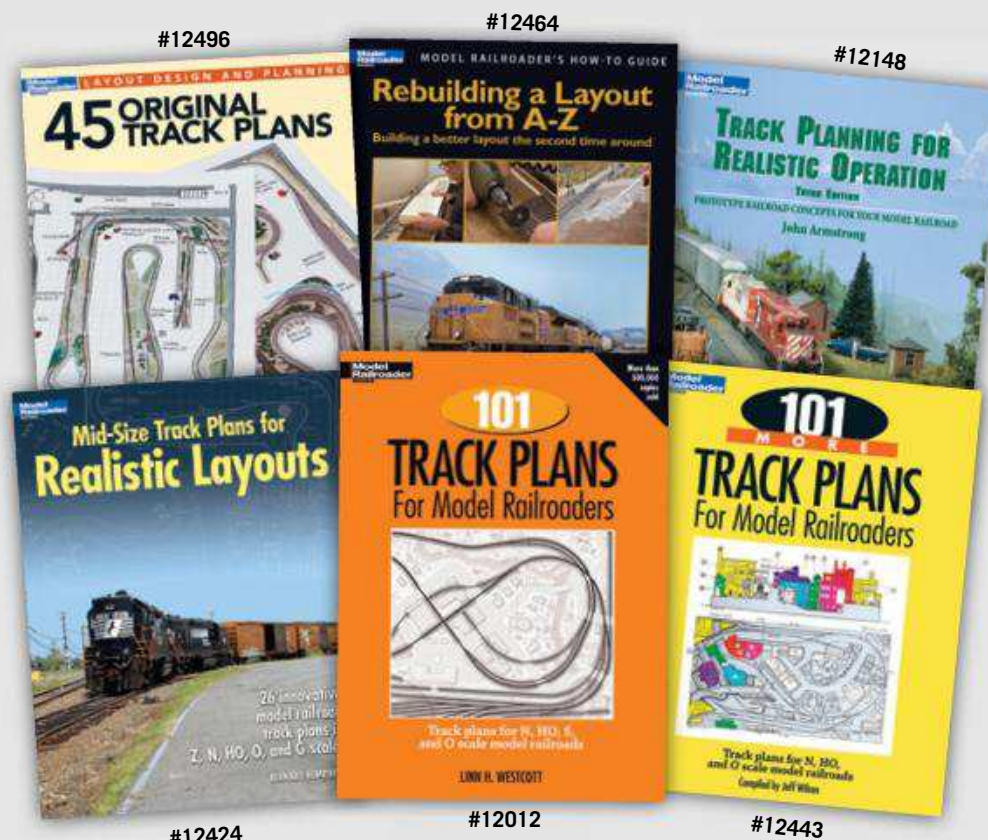
The kit includes plastic NMRA RP-25 contour, scale 33"-diameter wheelsets in plastic Andrews-style sideframes.

These single-sheath boxcars make an interesting addition to a steam- or transition-era fleet. As a bonus, you get to build it yourself. — Dana Kawala



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Mini Metals Coca-Cola HO scale vehicles

Price: 1941/1946 Chevy tractor-trailer set, \$32.95; 1941/1946 Chevy box truck, \$19.95; 1953 Ford Sedan Delivery, \$16.95; 1941/1946 Chevy stake-bed truck, \$19.95; stacked bottle cases, \$9.95

Manufacturer

Round 2 LLC
4073 Meghan Beeler Court
South Bend, IN 46628
Classicmetalworks.com

Comments: Looking for some vintage Americana to add to your HO scale model railroad? Check out these officially licensed Coca-Cola delivery



vehicles from the Classic Metal Works Mini Metals Collection by Round 2. In addition to the tractor-trailer set shown at the bottom of the previous column, the models include (clockwise from upper left) 1941/1946 Chevy stake-bed and box trucks, a 1953 Ford Sedan Delivery, and stacked Coca-Cola bottle cases.

The models match the major dimensions of their prototypes and are officially licensed from Ford and General Motors. The plastic vehicle bodies have well-defined door and hood seams and underbody detail. The free-rolling wheels are mounted on metal axles and have vinyl tires with treads.

Chrome grills, as well as bumpers in the case of the delivery sedan, are separate parts. The trucks also include user-installed side-view mirrors.

Each vehicle includes an interior with seats and a steering wheel. All windows

have clear plastic glazing. I could easily disassemble a vehicle by removing a single Phillips-head screw on its under-frame. This makes it easy to add drivers and other figures.

All the models are smoothly painted in Coca-Cola red and yellow. The graphics are clearly printed.

Each vehicle also includes separate "matchboxes" with the particular vehicle illustrated on two sides.

The stacks of Coca-Cola bottle cases would work well as a load for the stake-bed truck or as an interesting addition to a team track, small-town grocery, or other model railroad scene.

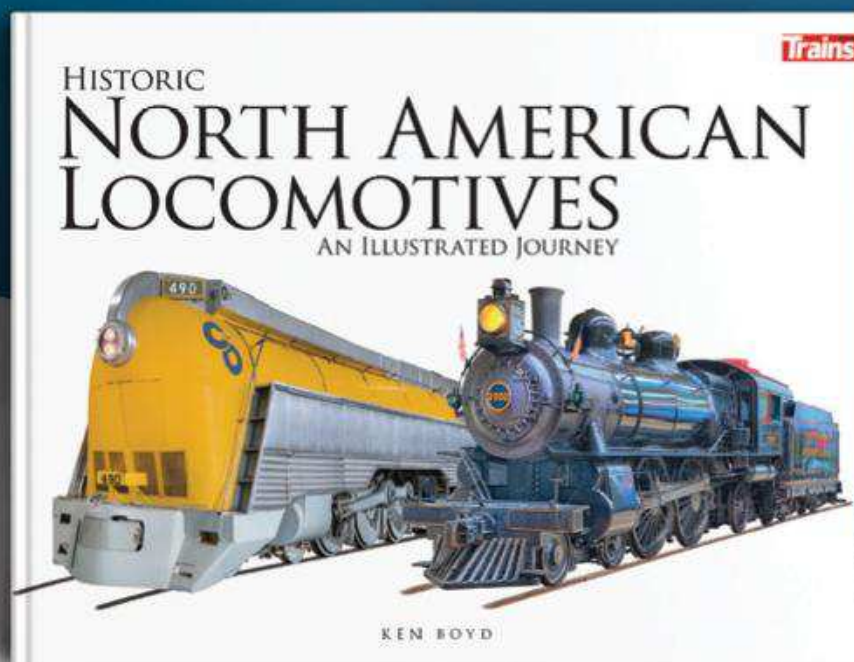
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— Dana Kawala



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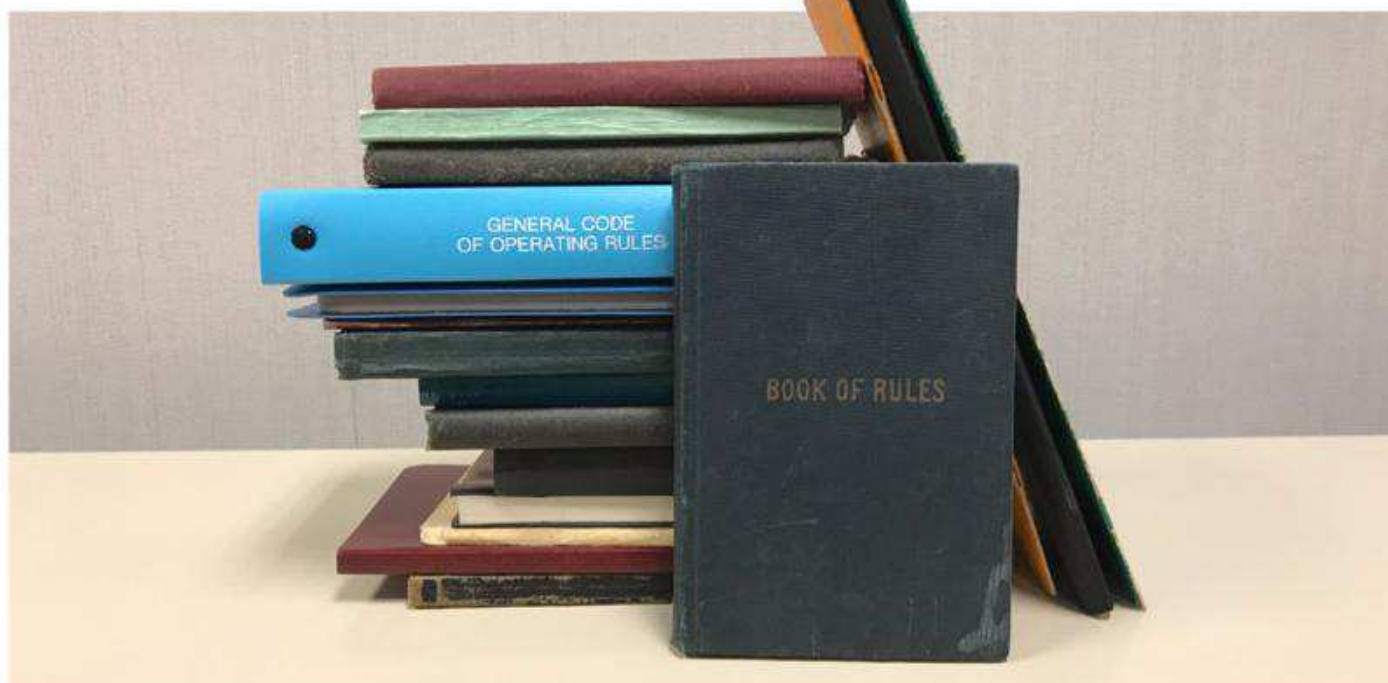
Eager to begin an operating session, the gang often gathers for a meal and, depending on the hour, other refreshments. These gabfests usually find their way to episodes punctuated with “Well, they didn’t do it that way on the old Bacon & Eggs,” one of which gave me a good laugh.

Occasionally, I spread out my rulebooks on the kitchen table and thumb through them, comparing different versions of rules. It’s interesting to ponder how rules varied from railroad to railroad.

The discussion that prompted me to dust off the collection this time touched on a common, simple train order, NO 5 MEET EXTRA 95 EAST AT AURORA. Care to guess how many ways different railroads played this tune?

Erie’s 1930 and Boston & Maine’s 1961 editions give the wording just shown, as does the 1967 *Consolidated Code* used by Great Northern, Northern Pacific, Milwaukee Road, and others. However, Jersey Central’s 1946 rules expand the order to “NO 5 ENG 29 MEET EXTRA 95 EAST AT AURORA.” The engine number helps an opposing train properly identify No. 5.

The *Consolidated Code* allows a further modification: NO 5 MEET EXTRA 95 EAST AT AURORA EXTRA 95 EAST TAKE SIDING. Extra 95 East must head in on the siding because it’s inferior to No. 5, a regular train. The “take siding” phrase is redundant, but using it gives another measure of protection.



While the contents of railroad rulebooks are similar enough to seem universal, minor variations in procedures make each one unique. Steven Otte photo

Missouri Pacific, Rock Island, Cotton Belt, and others followed the Uniform Code. Following its 1950 edition would see this variation: NO 5 MEET EXTRA 95 EAST AT AURORA NO 5 HOLD MAIN TRACK AT AURORA.

Let’s examine the way the order reads for regular trains. “No 5” wasn’t enough for New York, Ontario & Western in 1913, which demanded “NO FIVE 5.” Railroad Morse assigns — — — to the numeral 5. Spelling “FIVE” first guarded against errors.

The 1943 Nickel Plate Road rulebook goes a step further, with the numbers identifying a train in the body of an order written out after the figures. Another twist has the direction of an extra precede its engine number. This would have an NKP dispatcher dictate NO 5 FIVE MEET EXTRA EAST 95 NINE FIVE AT AURORA.

Practiced telegraphers sent and copied whole words, not individual letters. The audible patterns of clicks were as easily recognized as minor chords by good musicians.

On the other hand, early phone circuits suffered from low volume and noisy lines. Saying and spelling stations and numbers when telephoning orders helped avoid mistakes. But the familiar cadence of AURORA, A-U-R-O-R-A, as pleasing as a spelling bee, wasn’t universal. Erie rules as recent as 1952 demanded the opposite order: A-U-R-O-R-A, AURORA.

All the rulebooks I examined require that a foreign road’s initials precede the engine number. NO 5 ENG CB&Q 29 would then begin our order. However, Illinois Central practice differed. Its 1958 rulebook contains typical foreign initials language, but they used a different order: NO 5 CB&Q ENG 29. It’s a valid interpretation of the requirement.

This opens another can of worms. Rulebooks could be amended, with revisions pasted over affected paragraphs. Two rulebooks that

appear to be identical may not be, if one contains pages with revisions. Rules were also subject to other measures such as bulletin orders and timetable special instructions.

Here’s what made me chuckle. Looking over Rule 14 whistle signals in the 1961 B&M book, I noticed that it gives long, long, short, short for grade crossings. Who doesn’t whistle for a crossing with two longs, a short and a lo-o-ng? Hmmm, let’s see. Both the 1930 New York Susquehanna & Western and 1932 Lehigh & Hudson River rulebooks, which govern operation on my own layout, show the same version. This had me reach for Peter Josserand’s *Rights of Trains*, Third Edition, 1945. It gives the familiar grade crossing signal we hear today.

In his foreword to the Third Edition, Josserand notes that any railroad may vary from the Standard Code on which all rules were based at that time. He warned: “For this reason, no book can be cited as absolute authority for all rules on all roads.”

You see, individual results may vary. Always consult your rulebook. 



RULEBOOKS COULD BE AMENDED, WITH REVISIONS PASTED OVER AFFECTED PARAGRAPHS. TWO RULEBOOKS THAT APPEAR TO BE IDENTICAL MAY NOT BE. — JERRY



A pair of well-worn Alcos waits in the early morning light for their next assignments at White Pass Landing. Kenny Ravenscroft of Fremont, Wis., photographed the models on his HO scale Pilar Valley Ry. The FA-1 is made in Brazil by Fratesch and was detailed with grab irons, air hoses, wipers, horns, and more, as well as custom paint. The RSC-2 is by Kato. Both were weathered with acrylics, oils, and powders.

MORE ON THE WEB

The photo on this page by Kenny Ravenscroft is this month's wallpaper. Download it free at ModelRailroader.com



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The engineer of Rio Grande Southern no. 455 clears the cylinders before departing with the evening passenger train from Trevillian. Inside caboose no. 1, the crew is finishing paperwork from the day's run. The scene takes place on Jim Clements' dual-gauge HO scale Sugar Spring Mining Co. layout. The locomotive is a brass K-27 from United. Brooks Stover shot the photo.



Vandam Coal Co. was built as a tribute to the retirement of George Sellios, proprietor of Fine Scale Miniatures, by Chuck Stewart of Norton Shores, Mich. The HO scale coal bunker is a late-1960s vintage craftsman kit from FSM, and the office is a kitbashed East End Grocery kit from B.T.S. The vehicles are by Ricko and details are from Tichy Train Group. Chuck also shot the photo.



Bad Water Western RR "War Baby"

4-6-6-4 Challenger no. 1244 eases up to the water tank at Keane Junction to fill up while waiting for its next helper assignment. Tom Daniel of Kanab, Utah, kitbashed the locomotive from an AHM Challenger body and an ex-Great Northern brass tender. John Olson shot the photo on Tom's HO scale Keane Junction module.





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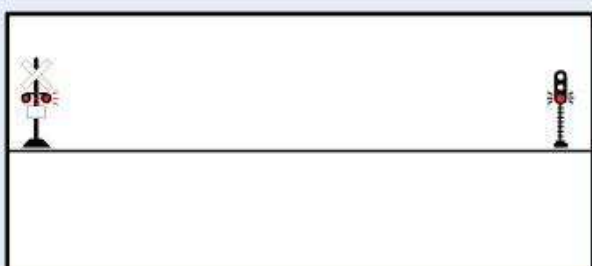
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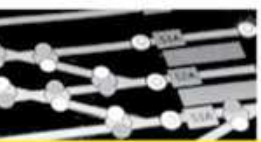
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Classified Advertising

Schedule of Events Rate: \$35 per issue (45 word maximum). Ads will contain the following information about the event: state, city, sponsoring organization and name of event, meet, auction or show, dates, location, times, admission fee, name and/or telephone number and/or email of person to contact for information. Name, daytime telephone number and street address of the person providing the information is also required but need not be included in the ad. Unless otherwise requested, ads will be published in the issue month that the event occurs in. Additional months are available at the \$35 per issue fee. Please specify issue date(s).

Word Ad Rates; per issue: 1 insertion — \$2.03 per word, 6 insertions — \$1.89 per word, 12 insertions — \$1.77 per word. \$30.00 MINIMUM per ad. To receive the discount you must order and prepay for all ads at one time. Count all initials, single numbers, groups of numbers (i.e. 4-6-0 or K-27), names, address number, street number, street name, city, state, zip, phone numbers each as one word. Example: John A. Jones, 2102 South Post St., Waukesha, WI 53187 would count as 10 words.

For MR's private records, please furnish: a telephone number and, when using a P.O. Box in your ad, a street address. *Model Railroader* reserves the right to refuse listing.

All Copy: Set in standard 6 point type. First several words only set in bold face. If possible, ads should be sent typewritten and categorized to ensure accuracy.

Send your submissions to: *Model Railroader* — Classifieds 21027 Crossroads Circle, P.O. Box 1612 Waukesha, WI 53187-1612 Toll-free (888) 558-1544 Ext. 440 Fax: 1-262-796-0126 E-mail: onlineclassads@kalmbach.com

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

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

Schedule of Events

AZ, TUCSON: Tucson Toy Train Show & Swap Meet. Tucson Expo Center, 3750 E. Irvington. November 9-10, 2018 Friday, 1:00pm-6:00pm and Saturday 9:00am-2:00pm. Admission \$6.00, kids under 12 are free-proceeds support the Gadsden Pacific Toy Train Operating Museum. www.gpdtoytainmuseum.com or call Jeff, 520-310-1392.

CA, SACRAMENTO: T.T.O.S. River City Toy Train Meet. Scottish Rite Center, 6151 H Street, Zip Code: 95819. Saturday, September 29, 2018, 10:00am-3:00pm. Single \$5.00, Families \$9.00, children under 12 free with adult. Free parking. For information or table reservations, contact John DeHaan, 707-642-8023

CO, COLORADO SPRINGS: Train Expo Colorado (TECO) hosts its next model train show at Chapel Hills Mall Events Center, October 13-14, 2018. Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Admission: \$6.00/person or \$10.00/family. Senior and military discounts. Contact Mike, 719-640-2076 or <http://www.tecoshow.org>.

CT, ESSEX: New Haven RR Historical & Technical Association train show September 8, 2018 at Valley Railroad Co. Modeling clinics, dealers, film & slide shows. Contact Rick Abramson 203-372-0818 or nhrr379@att.net. Information at www.nhrhta.org

CT, GREENWICH: Southern Connecticut Model Train Show, Greenwich Civic Center September 23, 2018, 9:00am-3:00pm. Adults \$7.00, under 12 free. Valley HO-Trak Layout & more. Clinics, 150 tables; trains, books, artwork, DVD's. Door prizes, free parking, refreshments. Ron's Books, PO Box 714, Harrison, NY 10528, 914-967-7541. ronsbooks@aol.com, www.southerncttrainshow.com,

CT, WALLINGFORD: Classic Shows, LLC will hold a Train and Toy Show, Sunday, October 28, 2018 from 9:00am-1:00pm at Zandri's Stillwood Inn, 1074 South Colony Road, (U.S. Route 5), exit 13 on Interstate 91. Admission \$6.00, children 15 and under are free with an adult. Information 203-926-1327 or www.ClassicShowsLLC.com

DE, ROXANA: Indian Summer Train & Toy Show. Roxana Fire House, Route 20, between Millsboro & Fenwick Island. Saturday, September 29, 2018, 9:00am-3:00pm. Admission: \$5.00 adults, children 10 and under free. Operating layouts, refreshments, door prize. For information contact Bill Ziegler, 302-537-0964 or www.delawareseasiderailroadclub.com

FL, DELAND: 65th FLORIDA RAIL FAIR. Volusia County Fairgrounds (Tommy Lawrence Arena), 3150 E. New York Ave., (SR44 and I-4). Saturday, October 6, 2018, 9:00am-4:00pm. Adults: \$7.00 under 12 free. Operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954, Email: rrshows@aol.com

FL, KISSIMMEE: Regal Railways Presents Toy Train Collectible & Hobby Show, 2000 Neptune Road. Saturday, October 13, 2018, 9:00am-2:00pm. Admission: \$5.00 adults. Vendors, operating layout, videos playing. Lunch items for sale. Contact Joe: 727-244-1341 or visit: www.regalrailways.com for more information.

FL, LARGO: Suncoast Model Railroad Club Train Show/ Open House, September 29, 2018. SHOW- Minnreg Hall, 6340 126th Ave. N., Largo. Saturday 9:00am-3:00pm. Admission: \$7.00, Children \$2.00 and under 11-free. Free parking. Food/snacks. OPEN HOUSE- Clubhouse, 12355 62nd Street N, Unit A. Visit www.suncoastmrrc.com Contact: irvbatten@yahoo.com

FL, PLANT CITY: Sunshine Limited Annual Convention, on October 11-13, 2018 at John Trinkle Center of Hillborough Community College, 1206 N. Park Rd. 8:00am-10:00pm. See registration and information on website, www.sunshineregion.org. OR Jim Robertson, 352-746-4039 or jnr@tampabay.rr.com

FL, PLANT CITY: Sunshine Limited Annual Convention, on October 13, 2018 at John Trinkle Center of Hillborough Community College, 1206 N. Park Rd. 9:00am-3:00pm. Adults: \$7.00 under 17 free with adult. Information: Gilbert Thomas, 863-412-3090, Thomas_12399@msn.com or go to club website: www.sunshineregion.org.

FL, PORT RICHEY: Toy Train Collectible & Hobby Show, New Lake Civic Association, 8330 Civic Rd. Port Richey, FL 34668. Saturday, October 27, 2018, 9:00am-2:00pm. Admission: \$5.00 adults, 12 and under free. Vendors, operating layout, Lunch items for sale. Contact Joe, 727-244-1341, visit: www.regalrailways.com for more information.

IA, HAMPTON: NCIMRRC Train Show, Franklin County Convention Center. 1008 Central West, Sunday, October 28, 2018. 9:00am-3:00pm. Admission \$5.00. Trains (all scales), memorabilia and collectibles to buy, sell and trade. Individual tables welcome. For information or table reservations contact. Eastside Trains, 641-456-1998, e-mail eastsidetrains@gmail.com

IL, KANKAKEE: Kankakee Model Railroad Club Train Show. Gov. Small Memorial Park Civic Center, 803 South 8th Ave. Sunday, October 21, 2018 9:30am-3:00pm. Admission: \$3.00, under 5 free. 8' tables \$15.00 and 6' tables \$12.00. Operating layout. Contact lrv at 815-465-2420 or daswoodwerkhaus@yahoo.com for more information.

IL, ORLAND PARK: Fall S Fest 2018, Georgios Quality Inn & Suites, 8800 W. 159th St. Orland Park, IL 60462. November 2-4, 2018. CASG, Inc. Be part of the greatest S, 1/64 event! Registration \$30.00. 170 tables! Clinics! S-Fest Cars! www.trainweb.org/CASG or call Joel 847-212-3541

IL, ST. CHARLES: 27th Annual Chicago Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd. Sunday, October 21, 2018, 10:00am-3:00pm. Admission: \$6.00 (includes tax). Tables \$60.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

IN, AUBURN: RxR Mania Train Show & Antique Show. Kruse WWII Museum, (National Military History Center), 5634 County Road 11-A; from Interstate 69, Exit 326; Saturday, October 20, 2018, 9:00am-3:00pm. Adults \$5.00, under 12 free. \$20.00 per table, 5+ tables \$15.00 each. Info: www.RxRMania.com or 260-715-2519

IN, INDIANAPOLIS: The Indianapolis Model Railroad Show and Open House. Manual High School Gymnasium, Saturday, December 8, 2018, 10:00am-3:00pm. Admission \$5.00, children 12 & under free. Boy Scouts in uniform free. Free parking. Naptown & White River Model Railroad Club. Contact: Michael Roderick 317-833-3556, E-mail: naptownmrr@gmail.com

IN, SOUTH BEND: NMRA Michiana Division Education and Training Conference. September 21-22 at Aloft Hotel, \$35.00 both days. (\$5.00 off before August 31) Great clinics - Interactive Workshops - Free-mo Layouts for operating-Layout tours! Questions? Email dbrr@comcast.net or call Bob Blake: 203-788-1342. See website for details: <http://michiana-nmra.org>

MA, TAUNTON: OLD COLONY MODEL RAILROAD CLUB 18th ANNUAL MODEL RAILROAD SHOW AND SALE, Taunton Holiday Inn, Myles Standish Industrial Park, Exit 9 from Route 495. September 23, 2018, 10:00am-3:00pm. Adults \$5.00, children under 12 free with scout uniform. Contact Dennis Ingalls, 508-285-3963, email dingalls@comcast.net

MA, WAKEFIELD: North Shore Model Railroad Club Show, October 20, 2018, 10:00am-3:00pm. American Civic Center, 465 Main St. Dealers, white elephant, etc. Club layout October 20-21, 10:00am-3:00pm. Suggested donation \$5.00 adults, \$2.00 seniors/children 5 and up, \$10.00 family max., covers both locations and dates. Information: 781-245-4742 www.nsmr.org.

MI, LANSING: NCR-NMRA Regional Convention, Lansing Lashup. Thursday-Sunday October 11-14, 2018. Ramada Convention Center. Includes 30+ clinics, 20 home layouts, prototype tours, operating sessions, layouts on site, model showcase room, banquet with speaker and more. Visit our website nmrancrdv5.com or email nmrancrdv5@gmail.com

MI, WYOMING (GRAND RAPIDS): Grand River Valley Railroad Club Fall Train Show. Largest Train Show in Western Michigan. Saturday, October 13, 2018. Home School Building, 5625 Burlingame Avenue SW. 10:00am-3:00pm. Adults \$5.00, under 12 free. 208 vendor tables of Trains, and supplies. Contact Ken Skopp, 616-667-9680, kwsopp@outlook.com. www.grvrrc.org

MN, WOODBURY: Newport Model RR Club Flea Market & Train Show. Woodbury High School, 2665 Woodlane Drive, Zip: 55125. October 20, 2018, 9:00am-2:00pm. Admission \$5.00. Future shows to be announced. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Ed, 651-233-3310

MO, SEDALIA: 6TH Annual Sedalia Rails Train Show. Liberty Park Convention Hall, 3rd Street & Highway 65. November 3, 2018 9:00am-3:00pm. Admission \$5.00 Children under 12 free. Dealer tables \$15.00. Operating layouts, ride outdoor steam railway, door prizes and refreshments. Call 660-525-1741 or Email: klbird530@gmail.com

NJ, EAST RUTHERFORD: METCA/NYSME Train Show, St. Joseph's School, 120 Hoboken Road, Zip: 07073. Saturday, November 3, 2018 METCA/NYSME members 8:00am, Public 9:00am-2:00pm. Admission: \$5.00 Adults 16+, FREE for METCA families. NYSME Club layouts open FREE to attendees. Info: www.METCA.org; Bob Amling, Secretary@METCA.org - 718-541-8619 or contact modelengineers.org

NY, ALBANY: Albany Train Show, Polish Community Center, 225 Washington Avenue Extension, Albany NY. Saturday November 17, 2018, 9:00am-3:00pm. Admission \$5.00 adults, Kids under 12 FREE.O, HO and N gauge working layouts. Over 100 vendor tables of trains-train related items. www.albanytrainshow.com or Jeff Stedje 518-852-7725.

OH, CLEVELAND: Great Berea Train Show, Cuyahoga County Fairgrounds, 19201 E Bagley Rd. Middleburg Heights, OH 44130. NMRA MCR Div. 4. October 6-7, 2018, NEW SHOW TIMES 10:00am-4:00pm. This is an all gauge Train Show with over 300 tables. 440-785-9907, www.thegreatbereatrainshow.org

OH, HOLMES COUNTY: Old Eli's Train & Toy Show. Heritage Center, 3558 SR. 62, Millersburg, OH 44654, between Berlin-Winesburg, Saturday, October 20, 2018, 10:00am-3:00pm. Adults \$5.00, under 12 free! \$10.00/table, no refund, 150+ tables. Contact: Galen Hoover, PO Box 45, Mt. Hope, OH 44660, 330-763-1184.

OH, MT. HOPE: CJ Trains Fall Train and Toy Show. Mt. Hope Event Center, 8076 St. Rt. 241, Zip 44660. Saturday, November 3, 2018, 10:00am-4:00pm. Admission: \$5.00, Free under 12. \$25.00/dealer table. 600+ tables. Contact, Jon Ulbright, 330-262-7488, cathijon@ssnet.com. www.cjtrains.com (GPS directions: Millersburg, OH 44654)

OH, NORWALK: Norwalk Model Train/Toy show, at Ernsthause Center, 100 Republic St. Sunday, October 21, 2018 10:00am-3:00pm. Admission \$5.00 per person. Sponsored by: Lake Erie & Southern Railroad. For information contact: Larry Noftz, 9 1/2 E. Main St., Norwalk, OH 44857. 567-424-5619.

OH, WEST CHESTER: Monon Railroad Historical Society 2018 Annual Convention Train Show is being held at Entertrainment Junction 7379 Squire Ct., 45069 (Cincinnati Area). Sunday September 23, 2018 10:00am-3:00pm. Admission: \$3/person, \$5/family, children/free. Dealers still welcome. Open to the public, all scales. Information: Ron Simunic, 812-322-7306.

PA, HAWLEY: Model Train Show & Sale. Hawley Fire Department, 17 Columbus Ave. Sunday, October 7, 2018, 9:00am-3:00pm. Admission \$3.00, under 12 free with adult. Bill Delling, 618 Fern St., Hawley, PA 18428, 570-226-3206.

PA, HORSHAM: 13th Annual Main Street Hatboro Train Show. Keith Valley Middle School, 227 Meetinghouse Rd. Saturday, December 1, 2018, 9:00am-3:00pm. \$5.00 adults, under 12 free. 145+ vendor tables in cafeteria and gym. Contact Al Zollers, azollers06@verizon.net or Joe Lutz J040440@verizon.net or www.hatborotrainshow.org

PA, NEW CASTLE: BLRHS Fall Train Show. Shenango Twp VFD Social Hall, 2424 E. Washington St., 16101. Next to Dunkin Donuts, Sunday, October 7, 2018, 10:00am-3:00pm. Adults \$5.00 (\$4.00 if you mention Model Railroader ad) Children under 12 free. Info: blrhs.org, or Clark McKim cmckim1@verizon.net 412-974-0935

SC, CHARLESTON: Charleston Area Model Railroad Club Train Show. Danny Jones Armory Park, 5000 Lackawanna Blvd., North Charleston, SC. November 17-18, 2018. Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Adults \$5.00, Children 12 & under FREE. For table information contact the club at trainshow@chamrc.com or www.chamrc.com

SC, COLUMBIA: Jamil Temple, 206 Jamil Road. Saturday, October 13, 2018, 9:00am-3:00pm. Admission \$5.00, under 10 FREE. Over 200 vendor tables. Large variety of G, O, HO, S/AF, N gauge. Contact Todd at 843-307-8674, sctradeshows.com

SC, MURRELLS INLET: 9th Annual Myrtle Beach Model Train Show, Inlet Square Mall, 12125 Hwy. 17 Bypass, November 10-11, 2018. Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Adults \$5.00 under 12 FREE. Operating Layouts, All-Scales, Clinics and door prizes. www.gsmrrc.org or Call Joe 843-297-7162 or 443-520-2600.

TX, PLANO: NTC 4th Annual Fall Plano Train Show. Plano Center, 2000 E. Spring Creek Parkway. September 29-30, 2018 Saturday, 10:00am-5:00pm and Sunday, 10:00am-4:00pm. Adults \$10.00, under 12 free w/paid adult. All scales & Tin Plate. Dealer tables and How-To-Clinics. Information: Chris Atkins, chris@railroadmodeler.com 469-438-0741. www.dfwtrainsshow.com

TX, TEMPLE: 36th Annual Temple Model Train Show by Central Texas Area Model Railroaders, Frank Mayborn Convention Center, 3303 North 3rd St. September 15-16, 2018, Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Adults \$7.00, Seniors & Military \$6.00, under 12 Free. FREE Parking! Contacts: Ron Miller, 254-749-0700.

VA, GRAFTON: Fall Open House, Chesapeake Bay and Western (CB&W) Model Railroad Club. 110 Dare Rd, Grafton, VA. Saturday November 17, 2018 10:00am-4:00pm. and Sunday November 18, 2018 12:00pm-4:00pm. Free admission, White Elephant table. Call 757-898-0717, <http://cbw-mrc.com>

VA, VIRGINIA BEACH: Tidewater Division 29th Annual Train Show & Sale October 13-14, 2018, 10:00AM-4:00PM. 1000 19th St. Virginia Beach, 23451. Admission \$9.00, under 12 Free w/paid adult. 150+ Vendor Tables, White Elephant table, Train Doctors, Test tracks and more! Contact Bill Miller 757-409-3623, Ktsdad1994@cox.net

VT, RUTLAND: Vermont Train Show & Swap Meet, September 29, 2018, Holiday Inn, South Main Street (Route 7). 10:00am-3:30pm. Admission \$6.00, children under 13 FREE. Info/dealer tables: Paul 802-259-2123 e-mail p_a_r@vermontel.net or John 802-774-8412 phone/text.

WA, PORT ANGELES: North Olympic Peninsula Railroaders' 19th Train Show & Swap Meet. Clallam County Fair Grounds. October 13-14, 2018. Saturday 10:00am-5:00pm, Sunday 10:00am-3:00pm. FREE Admission & Parking. Operating layouts. First table \$25.00, additional \$20.00. Contact stevenstripp@juno.com or call 360-582-1316

WA, SPOKANE: River City Modelers Fall Train Show, Spokane Fairgrounds, 404 North Havana. Sunday, October 14, 2018, from 9:30am-3:30pm. Adults \$6.00, Free under 12. 200+tables of Railroad items for sale, operating layouts, Free-MO, Operation Lifesaver & more. Free parking. For information: Shirley Sample, 509-991-2317 or email shirley@busnws.com

WI, EAU CLAIRE: West Wisconsin Railroad Club, 17th annual Train Show at Eau Claire Indoor Sports Center 3456 Craig Road, October 13-14, 2018. Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Admission: Adults \$6.00, 6-12 \$3.00, under 5 free. Sellers, Displays, Operating Layouts and Concessions. John 715-834-6475 or wwrc1723js@gmail.com

WI, MILWAUKEE: Trainfest, 9am to 5pm Nov. 10-11, 2018 at Wisconsin State Fair Park. Exhibitors include operating layouts, major manufacturers, modeling clinics, and hobby vendors. Admission information, discount tickets and PRIME ACCESS tickets available at www.trainfest.com Staged by NMRA WISE Division. Contact us at info@trainfest.com

WI, MONROE: Green County Model Railroaders 40th Annual Model Train Show & Swap Meet. The Stateline Ice and Community Expo, 1632 4th Avenue West. Saturday & Sunday, September 29-30, 2018, 10:00am-4:00pm. For information contact Kevin Johnson, 608-558-9332, www.gcmrrinc.org

Classifieds

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For Sale - Miscellaneous

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Looking under the wrapper

We've all pondered, somewhat maliciously, what the heartthrob movie star looks like without makeup. By extension, you may be interested to see what an active steam locomotive looks like when some of the cosmetics are stripped away.

What's missing from the locomotive pictured at right, reported to be the smallest standard-gauge Pacific (4-6-2) ever built, is the asbestos lagging and the thin sheet-metal jacketing that covered it. The lagging helped to retain the heat that the fire-box imparted to the boiler, thus increasing efficiency. The jacketing kept rain and snow out of the soft lagging while giving the locomotive a more refined appearance.

As you can readily imagine, several inches of lagging and the jacketing increased the diameter of the boiler by quite a few inches. Many erecting drawings don't show the extra thickness, and this has led more than one manufacturer and importer to produce models that looked a bit too lean in the boiler department. As I recall, the old Hobbyline Nickel Plate Road Berkshire, an unpowered plastic kit, had an undersized boiler diameter.

The Little River's 4-6-2 was running around half naked on the September 1978 occasion when Doug Leffler took its portrait in Pleasant Lake, Ind. The Pacific was preparing for another day of hauling tourists and railfans between the railroad's headquarters in Pleasant Lake and Angola, Ind. It graced track that was originally part of the Ft. Wayne & Jackson RR, later to become a segment of the Lake Shore & Michigan Southern Ry. and then part



Avert your eyes – this smallest of standard gauge Pacifics isn't properly attired for public viewing! Lacking lagging to retain boiler heat and jacketing to dress it up, the 4-6-2 was ready for another workday in 1978. Fully dressed, no. 110 continues in steam in 2018. Doug Leffler photo

of the New York Central System, Doug reports.

The engine had been in near-derelict condition when the Bloom family acquired it as Smoky Mountain 110 from Tennessee. The jacketing was badly rusted and needed replacing, as it later was, but they ran it sans jacket for several years.

Good news with regards to no. 110: It's still in operation, pulling trains over the LS&MS "Old Road" main line between Coldwater and Quincy, Mich. (visit www.littleriverrailroad.com). And it's now more suitably dressed for the occasion.

Wet lagging and asbestos are two of the primary concerns when preserving a steam locomotive. If the asbestos is left in place when the engine is "stuffed and mounted" for outdoor display in a park or museum, it becomes soaked with water, causing a lot of deterioration. And we're all now aware of the dangers that asbestos poses if inhaled, so removing

and replacing the lagging is no small matter.

Seeing no. 110 reminds us that nothing is forever. We put off seeing steam in action at our peril. Regardless of the era of railroading we prefer, learning about how we got here from there adds a foundation to what we're modeling and how we model it. Fortunately, the story of no. 110 remains ongoing. It writes history with every turn of its diminutive drivers.

Imagine a sound-equipped model of this or a similarly petite locomotive – especially in a larger scale where every detail, every pipefitting, every swing-motion of its valve gear could be enjoyed – puttering around a model railroad. It's an ideal candidate for a one-horse operation.

Confining the roster to a single locomotive reduces costs in terms of acquiring, kitbashing, or even scratch-building the requisite model. The validity of complaints that a scale is too big and expensive fades away when there's a need for only one piece of motive power.

More savings: Such pint-sized engines also pulled pint-sized trains. So the need for a cast of hundreds winnows down to a roster of perhaps a dozen freight cars and maybe a caboose and a combine.

And the rivet counters among us could have a field day with no. 110 as it appeared back on that fall day in 1978. For the rest of us, however, I think it would look better with its clothes on. **MR**



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– TONY

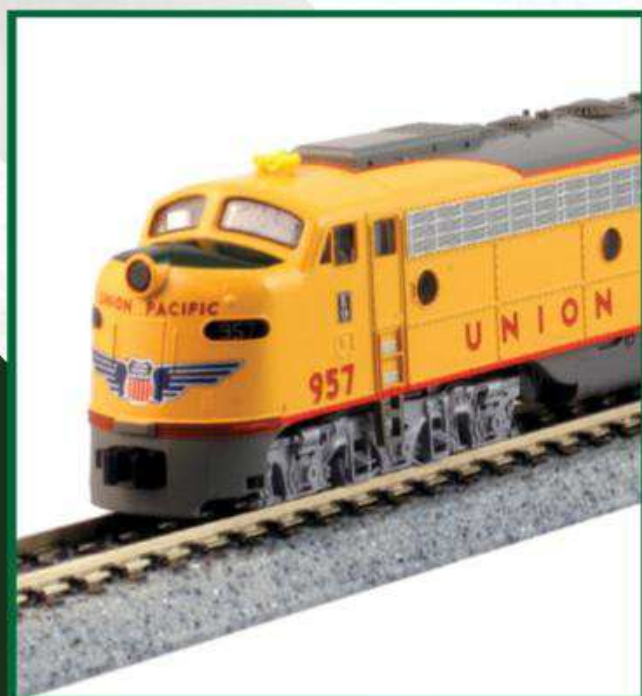
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