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In This Issue

JULY 2026
Volume 93, Number 7

Features



24 Scratchbuild a theater car
This HO scale car is based on Norfolk Southern No. 23, the *Buena Vista*
by M.R. Snell

32 The Pennsylvania RR Buffalo Line
This 30 x 35 foot HO scale model railroad is set in 1956
by Lou Sassi

39 Clean fill wanted
Mike Tylick added an alternative to plaster hardshell scenery in his O scale model railroad
by Mike Tylick



42 The Great Freedom RR
A real escape and a new-found freedom
by Dave Rickaby



50 East Troy Industrial Park: Resin water
Part 7: Using off-the-shelf products to make the river on our project railroad
by David Popp

In every issue

6 On Trains.com
The latest features on our website

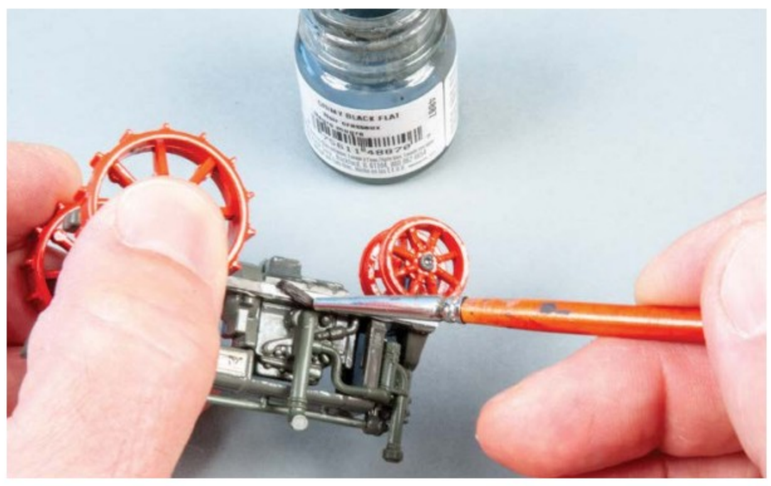
8 From the Editor
Keeping it real in *Model Railroader*



10 News & Products
Hobby industry news



16 Ask MR
Looking for advice on hobby paints

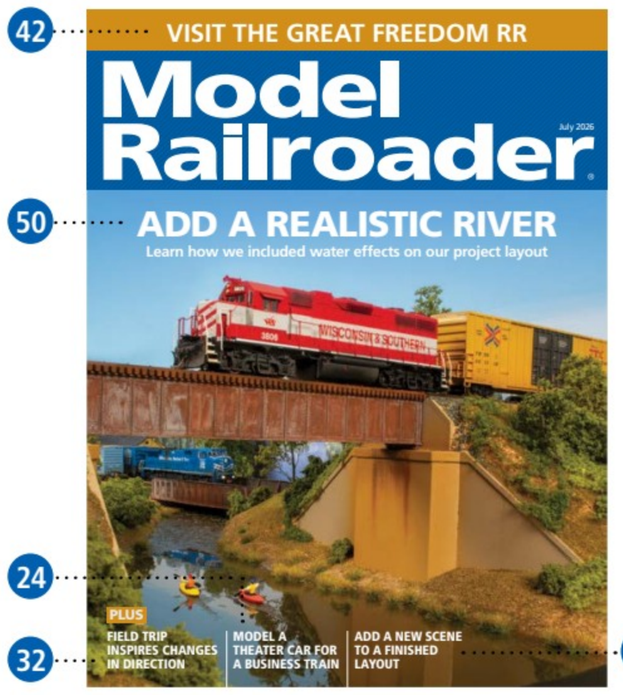


21 Step by Step
Enhancing die-cast metal farm equipment

54 Trackside Photos

65 Index of Advertisers and Cartoon

66 Trains of Thought
Wingate's legacy



On the cover: The Mukwonago River adds interest to our East Troy Industrial Park project.
Cody Grivno photo

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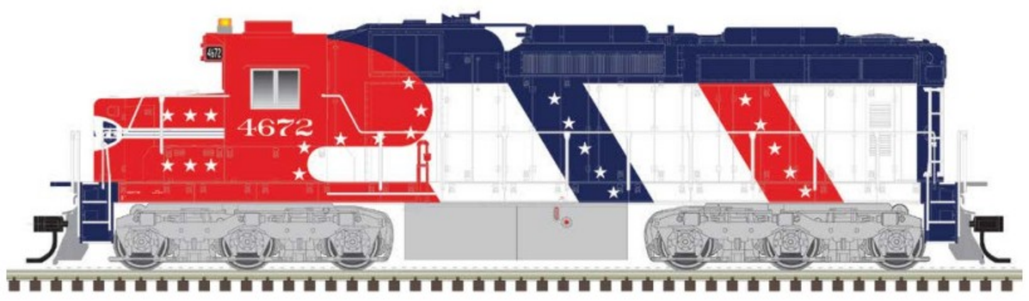
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HO & N RS-1 - Genesee & Wyoming Bicentennial



HO & N GP40 - AAR



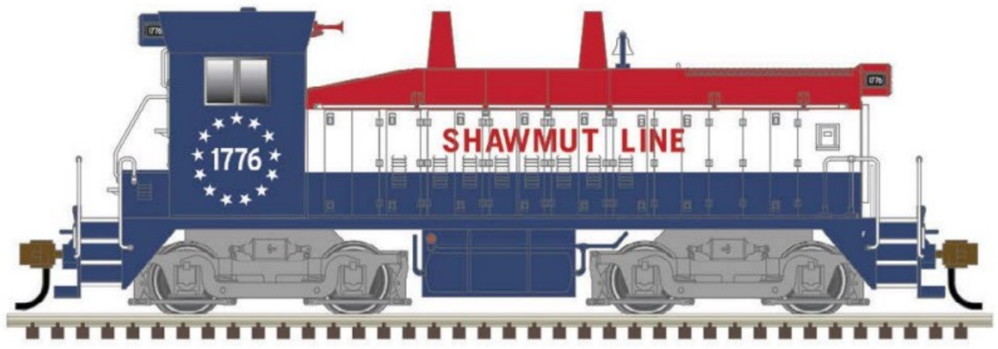
HO & N SD-26 - Santa Fe Bicentennial



HO S4 - Monongahela Connecting RR "Bicentennial"



HO HH660 - American Cast Iron Pipe Co.



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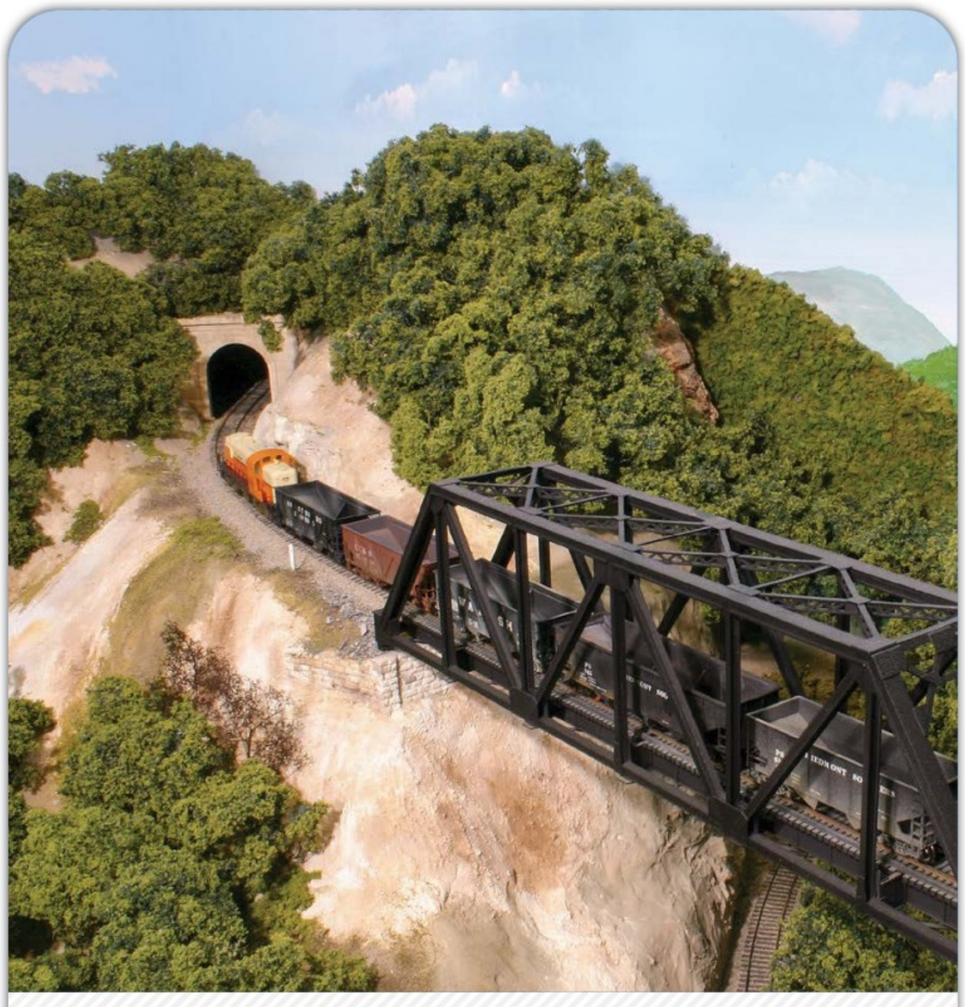
Santa Fe

Check with Your Local Atlas Dealer for Availability on these models and more to be announced throughout 2026!

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Six essential scenery tips

Scenery is something many people put off because they're uncertain how to tackle it. It can look overwhelming, but it's really just a bunch of smaller tasks that, on their own, are all relatively simple to achieve.

Mitch Horner has gathered six essential tips that will make your scenery projects more successful. Check them out at Trains.com.

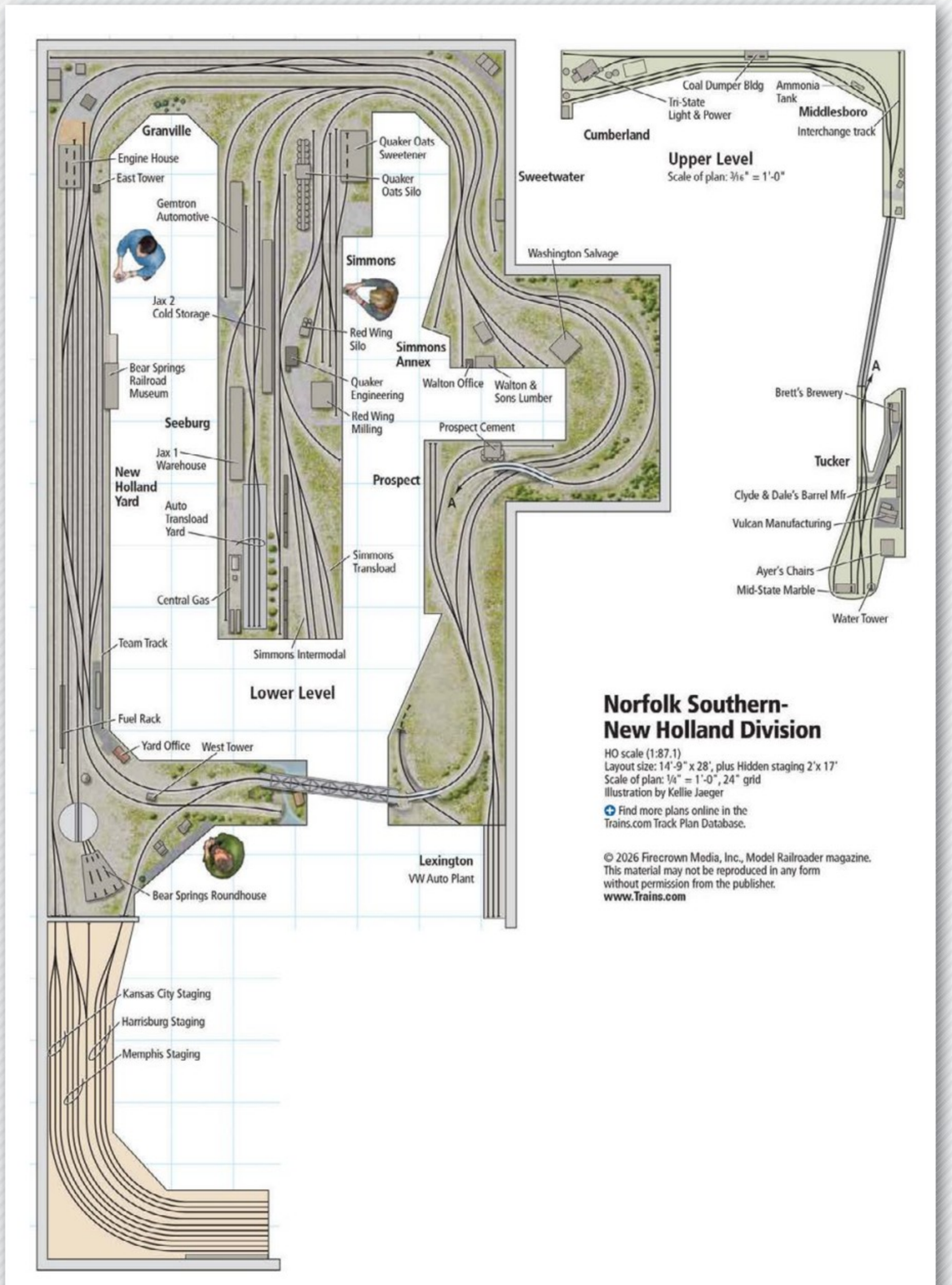


Check out our video reviews

Cody Grivno regularly tests new locomotives when they arrive, then writes reviews that run in *Model Railroader* every month. But wait, there's more! He also puts them through their paces on our project layouts.

One recent posting was the WalthersMainline HO scale Alco RSC2 in Soo Line's black-and-gold paint scheme. See how the six-axle unit runs and listen to the sounds on Trains.com Video!

DIGITAL BRIEFS



Dreaming of a new layout?

Lots of us get out of the basement once summer rolls around, but that doesn't mean we're not thinking about model railroading. If you're considering starting your layout this fall, check out the Track Plan Database on Trains.com for inspiration! You can search the plans by size, style, scale, era, and more.

The track plans can be downloaded as a PDF. In addition, "Facts & features" information is provided for each plan, listing key details like minimum radius and turnout, maximum grade, benchwork, roadbed, and track.

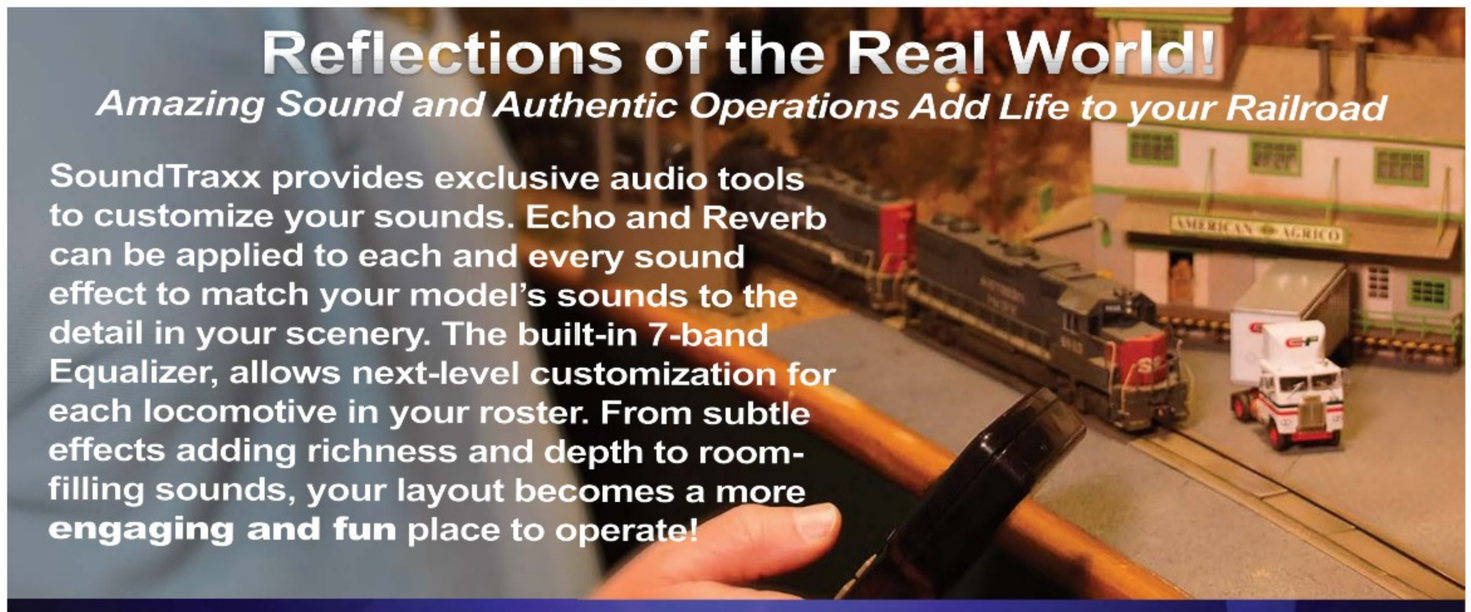
Get into a conversation about model railroading

The *Model Railroader* forum is the place for registered users of Trains.com to ask questions and find answers to problems they're having with their modeling, as well as just reach out and discuss the hobby with others who share our interests. It's free to use after registration. Head over to forum.trains.com to join in the conversation!

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By Eric White

Keeping it real in *Model Railroader*

Back in the winter, we received our first photo enhanced with artificial intelligence (AI). It was a scene that had been updated to represent a snowy day on a model railroad that had been built to resemble one of the greener months.

At first, I was intrigued. Look how easily snow could be added to a scene, and if you didn't want it anymore, it was just a digital addition to a photo — no mess to clean up! But after I looked more closely at the photo, I noticed all the trees still had leaves on them. While certainly possible, that's not usually when the snow falls in most scenes.

After I thought about this some more, I decided this was not an avenue I was comfortable taking *Model Railroader* down. While there were a flurry of AI-enhanced snow scenes last winter, the changing season seems to have reduced their popularity. Before people start staging and sending in new photos for next winter, I thought I should make a few things clear about the photos we use in *Model Railroader*.

To the best of our ability, we won't be publishing any AI-enhanced images, unless it's in a story about how to use artificial intelligence. Yes, there are times AI is appropriate, and a useful tool. However, we want all of the photos purported to show excellent modeling to be exactly that. We want to inspire modelers to do the best work they can, and publishing AI-enhanced photos sets an impossible standard.

Life is for learning, Joni Mitchell said in her '60s anthem, *Woodstock*, and that's a point of view I've taken into everything I do, including modeling. If we take shortcuts to the final result we want, we never learn. If we don't learn, we don't improve, and while I also embrace the Allan McClelland concept of good-enough modeling, I want my level of good enough to get better as the years go by.

By constantly doing, I find it's almost automatic that my skills improve. Every mistake I make is a moment of learning. Every new technique or skill I try results in better models, and better work in general, than I was capable of before I went out and did.

Now, don't think that I'm advocating for just the most basic materials and tools to do "real" modeling. As you've probably read in recent issues of the magazine, we're well aware of advancements such as 3D printing and laser cutting, and digital modeling with CAD programs, and we embrace these technologies in modeling. There's skill involved in creating digital models as well.

And AI isn't forbidden. We have stories waiting to be published about using artificial intelligence to create interior



images for structures, as well as other things that can add another layer of realism to our projects. I'm sure there are other applications where the technology could add to our enjoyment of the hobby, so if you think of something, let us know. We look at every idea that comes in.

Everything has its place, and we'll always be looking for the next big thing to share with you, our readers.



Model Railroader

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N scale



N scale Pennsylvania RR 4-8-2 steam locomotive. Broadway Limited Imports offers this model decorated for Pennsylvania RR (class M1a and M1b in two to three road numbers each and class M1b in fictional Dark Green Locomotive Enamel and Tuscan Red schemes). The N scale Mountain-type steam locomotive is also available in as-built paint but unlettered. Features on the 4-8-2 include a die-cast metal body and chassis; factory-applied grab irons, handrails, ladders, piping, and whistle; and plastic knuckle couplers. The model has a minimum operating radius of 9.75". Direct-current models with a factory-installed speaker sell for $299.99. Versions with a dual-mode Paragon4 sound decoder and GoPack capacitor pack are priced at $399.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com

HO scale locomotives



- **General Electric U25B diesel locomotive.** Burlington Northern, Conrail, CSX (Family Lines patchout), Family Lines (L&N sublettering), Maine Central (U28B), Milwaukee Road, New York Central, Pittsburgh & Lake Erie, Rock Island (maroon), Southern Pacific, and St. Louis-San Francisco (Frisco, high short hood). Road-specific details; improved, thinner front and rear handrails; single or double front window as appropriate; and illuminated step lights. Direct-current model, $239.95; with DCC and sound, $349.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com



- **General Electric U34CH diesel locomotive.** NJ Transit (Platinum Mist and Bluebird schemes), Conrail (American Revolution Bicentennial scheme), and NJ DOT (Bluebird scheme). One to two road numbers per scheme. Heavy, die-cast metal frame with separate details; road-specific fuel tank; cab interior with illuminated control stand lights; etched-metal steps; rubber sanding lines; and metal grab irons and brake chain. Direct-current model, $249.95 to $259.95; with DCC and sound, $359.95 to $369.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com



- **Wabtec C44ACM diesel locomotive.** Union Pacific (Building America with winged nose herald and new small flag scheme with shield nose herald). Factory-applied details; see-through, etched metal radiator intake and exhaust grills; light-emitting-diode lighting; and 5,000-gallon fuel tank. Direct-current model, $229.99; with ESU LokSound V5 sound decoder, $339.99. ScaleTrains, 844-987-2467, scaletrains.com

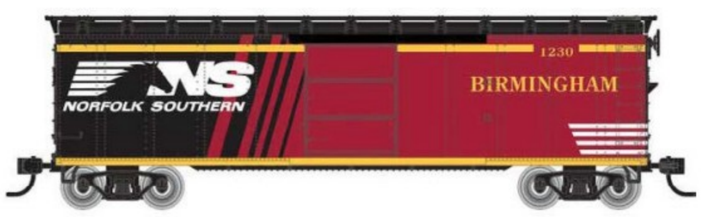


- **Electro-Motive Division SW7 diesel locomotive.** Central RR of New Jersey; Chicago, Burlington & Quincy; Erie RR; Illinois Central Gulf; Louisville & Nashville; and Maine Central. Three to four road numbers per scheme; also available undecorated (Phase II carbody). Dual tall conical exhaust stacks, prototype-specific headlight, large front radiator grill, and six louvered side doors with letterboard gap. Factory-installed grab irons on hood and cab. Direct-current model, $194.98; with ESU Sound & DCC, $264.98. Wm. K. Walthers Inc., 414-527-0770, walthers.com

HO scale freight cars



- **Workhorse Series factory-weathered rolling stock.** Bethlehem Steel 100-ton three-bay hopper — Burlington Northern and Atchison, Topeka & Santa Fe. Bay-window caboose — Milwaukee Road and Norfolk & Western. 40-foot boxcar — CP Rail and St. Louis – San Francisco (Frisco). Models feature faded paint, rust, dirt, grime, and paint patches. Prices to be announced. Bachmann Trains, 215-533-1600, bachmanntrains.com



- **Norfolk Southern boxcars.** Nos. 1230 (*Birmingham*) and 1233 (*Atlanta*). Produced by Lionel, available exclusively from TrainWorld. Contact TrainWorld for additional details and pricing information. TrainWorld, 800-541-7010, trainworld.com

HO scale passenger cars



- **Amtrak Amfleet I passenger cars.** Amtrak (phase 7 scheme). Coach, business, and cafe car. Metal handrails and grab irons, detailed interiors with seating and tables per car type, transparent tinted windows, and detailed underbody. $119. Bachmann Trains, 215-533-1600, bachmanntrains.com

HO scale commuter equipment



- **Unpowered Budd Chicago Transit Authority 2600 series "L" cars.** Chicago Transit Authority (as-delivered, Speedlines logo, and circle logo schemes). Also available painted silver and black but unlettered. Unpowered 2-car sets feature interior lighting, wire grab irons, and detailed interior. Two-car set, $299.95. Rapido Trains Inc., 905-474-3314, rapidotrains.com

N scale locomotives



- **Alco RS1 diesel locomotive.** New paint schemes — Black River & Western; Arkansas & Missouri; Long Island Rail Road; Maryland & Delaware; and Spokane, Portland & Seattle. New road numbers — Central Railroad of New Jersey; New York, New Haven & Hartford; and Vermont Ry. Limited Edition Collectors' Series Models — Genesee & Wyoming and Livonia, Avon & Lakeville. Low-friction drive, dual brass flywheels, golden-white light-emitting-diode lighting, and body-mounted Accumate couplers. Direct-current model with factory-installed speaker, $154.95; with ESU LokSound sound decoder, $269.95. Atlas Model Railroad Co., 908-687-0880, shop.atlasrr.com

HO scale



HO scale naval turret flatcar load. A U.S. Navy 5"/54 Mark 42 gun turret flatcar load ($39.95) is now available from Rapido Trains. The HO scale load, designed for the manufacturer's Magor 53-foot Department of Defense flatcar (sold separately), consists of the main turret, two wood crates for the related equipment, and the local firing dome on a wood pallet. The 3D-printed parts are factory painted. Rapido Trains, 905-474-3314, rapidotrains.com



- **Electro-Motive Division E7 diesel locomotives.** Union Pacific (A unit, B unit, and A/B set), Louisville & Nashville (A unit only), Milwaukee Road (A unit only), Pere Marquette (A unit only), Seaboard Air Line (A unit and A/B set), and Southern Ry. (A unit only). ABS body, die-cast metal chassis, road-specific features, and factory-applied detail parts. A unit: Direct-current model, $199.99; with Paragon4 sound decoder, $279.99 (subtract $10 for B unit). A/B set (powered A unit, unpowered B unit): Direct-current model, $299.99; with Paragon4 sound decoder, $379.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com



- **Electro-Motive Division GP30 diesel locomotive.** Chicago, Burlington & Quincy; Atchison, Topeka & Santa Fe; Baltimore & Ohio; Conrail; CSX; and Norfolk & Western (high short hood). Prototype-specific details; factory-applied wire grab irons, windshield wipers, train line hoses with silver glad hands, and air tanks; and light-emitting-diode lighting. All-wheel drive and electrical pickup. Direct-current model, $154.99; with DCC and sound, $264.99. Rivet Counter line. ScaleTrains, 844-987-2467, scaletrains.com

N scale rolling stock



- **Northeast steel caboose.** Union Pacific (Maintenance of Way Green with Operation Lifesaver logo) and Chessie System (Western Maryland reporting marks). Clear window glazing, E-Z Mate Mark II couplers, and factory-applied smokejack. $50. Bachmann Trains, 215-533-1600, bachmanntrains.com

O scale rolling stock



- **American Car & Foundry 50'-6" boxcar.** New road numbers — Ashley, Drew & Northern and Railbox. New paint schemes — Conrail, Ferromex, Seaboard System (CSXT patchout), and Southern Pacific. Limited Edition Collectors' Series Models — Conrail (with door from Reading Co. car) and Railbox (small logo with graffiti). Non-terminating corrugated ends; diagonal-panel roof; separate, factory-applied end ladders, brake wheel, and end platforms; and die-cast metal roller-bearing trucks with rotating bearing caps. $72.95 to $77.95. Atlas Model Railroad Co., 908-687-0880, shop.atlasrr.com

Atlas N scale Alco C424 diesel locomotive



An Alco C424 diesel locomotive has joined the N scale Master Line from Atlas Model Railroad Co. The model is based on tooling originally introduced by Life-Like in the early 2000s. Since acquiring the model from Wm. K. Walthers Inc. in 2018, Atlas has made improvements to the four-axle road switcher, specifically to the cab and sills.

Alco produced the C424 from April 1963 until May 1967. During that time 190 diesels were built for railroads in the United States, Canada, and Mexico. The road switcher, rated at 2,400 horsepower, had a 16 cylinder, 251B diesel engine.

The sample we received is decorated as Green Bay & Western No. 314. The Phase III C424 was built in April 1965 and assigned to subsidiary Kewaunee, Green Bay & Western, wearing the same road number. The GB&W and KGB&W merged on June 1, 1969.

The C424 was retired on Aug. 27, 1993, after Wisconsin Central took over the GB&W. Later that year, the 314 and two other ex-GB&W units were traded to Minnesota Commercial. In return, WC received a pair of Electro-Motive Division SW1500 switchers.

I contacted Steve Woodward, a member of Atlas' Research & Development team who worked on the C424 project, to learn more about the upgrades. "One of the main issues with the shell was the cab. The roof profile was too 'flat'. The new cab has the correct rounded roof profile.

"The sill needed some work as well," Steve continued. "The original tooling was a Phase I body with later phase, sill-mounted handrails. The deck-mounted stanchions make the model more accurate for a Phase I."

An exploded-view diagram included with the model shows how the C424 is constructed. The short and long hood is a one-piece plastic molding; the cab, rooftop radiator shutters, and sill unit/pilots are separate parts. The handrails and stanchions are engineering plastic.

I removed the front and rear couplers to separate the plastic shell from the die-cast metal chassis. Wires from the cab interior are attached to the motherboard, so remove the shell with care.

The motor, framed by flywheels, is centered in the chassis. A metal weight is located above the motor. The motherboard is secured to the weight with a pair of screws. The SoundTraxx Tsunami2 decoder is attached to the bottom of the motherboard over the rear truck.

Our review model is neatly painted in GBW's red-and-black scheme with checkerboard sill stripes. Though the scheme was introduced in 1968, the 314 didn't get repainted until June 1972.

The full-size GB&W 314 was a Phase III Alco C424, so there are detail differences between it and Atlas' Phase I model. The detail arrangement on the Atlas C424 best matches Reading units.

Prototype drawings of the C424 (Alco specification number DL-640A) were published in a sales booklet for the 2,400 hp road switcher. Most of the dimensions match or are within scale inches of published data. The distance between the pilot faces is approximately 6 scale inches too long.

Trains.com members can watch Product Review videos with this QR code.

I tested the model, which is equipped with a dual-mode SoundTraxx Tsunami2 sound decoder, at our workbench using an NCE Power Cab. At step 1, the Alco moved at 3 scale mph. The model achieved a top speed of 94 scale mph at step 28. Full-size C424s had a speed range between 70 and 86 mph depending on the gear ratio.

The N scale Alco C424 has come a long way since it was introduced in the early 2000s. The hobby world has changed a lot in that quarter century. Kudos to Atlas for investing in tooling and technology to upgrade the four-axle road unit. — *Cody Grivno, senior editor*

Facts & features

Price: Direct-current model with factory-installed speaker, $169.95; with SoundTraxx Tsunami2 sound decoder, $284.95

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

Road names: Green Bay & Western, Canadian Pacific, Conrail, Delaware & Hudson, Erie Lackawanna, Pennsylvania RR, and Reading Co. One to three road numbers per paint scheme.

Era: 1963 to 1990s (varies based on paint scheme)

Features
- Body-mounted couplers, at correct height
- Metal wheel stubs on plastic axles
- Weight: 2.5 ounces

Rapido HO Greenbrier 7780 reefer



Rapido Trains continues to add to its lineup of modern HO scale rolling stock with the Greenbrier 7,780-cubic-foot capacity mechanical refrigerator car. The model, available with and without sound, has prototype-specific details and body-mounted metal couplers.

Greenbrier's 7780 refrigerator car is designed for hauling perishable food items. Sales literature on The Greenbrier Companies website highlights some of the features on the full-size car, including interior posts, polyurethane foam insulation, a fiberglass interior, and multi-purpose lading anchors. Additional prototype details include car tracking via GPS, door sensors, and temperature monitoring.

Our review sample is decorated as Cryo-Trans Inc. 5933, part of the 5900 through 5949 series built by Greenbrier at its Gunderson plant in Portland, Ore., in February 2015. Cars from this series can be found in service today.

An exploded-view diagram included with the model reveals the model's construction. The refrigerator car has a one-piece plastic body with many separate, factory-applied detail parts, including the lower door tracks, door handles, and latch bars. The side and end ladders have freestanding plastic stiles and formed wire rungs.

Details on the B end of the reefer include a separate, factory-applied brake wheel, brake housing, wire crossover handrail, and see-through crossover platform. The formed-wire uncoupling lever is mounted in a plastic bracket.

Unlike most rolling stock, the A end of the car is where the action is on this model. Product highlights include a fuel tank, end cage, Carrier reefer unit, and a diamond-tread-pattern walkway. Rapido offers the Cryo-Trans car with two roof styles (corrugated and diagonal-panel) — car 5933 has the latter.

The die-cast metal underbody has floor board and stringer detail. The body bolsters, bolster blocks, sill extensions, and draft-gear boxes are separate plastic parts. Between the bolsters is another plastic molding that includes the cross-bearers, crossmembers, and center sills. The plastic parts are secured with screws.

The car we received has a MoSound unit that re-creates the noises of the generator that powers the reefer unit. To activate the sounds, pass a Rapido Lighter over the roof near the A end of the car. A green indicator light illuminates when the sounds are activated. The volume can be adjusted using the dial on the bottom of the car.

The Cryo-Trans model has a smooth, even coat of white paint. The color separation lines are crisp, and the orange and yellow paint is opaque. Like the prototype, the Cryo-Trans logo, reporting marks, and road number are a slightly lighter shade of orange than the horizontal stripes. Nice attention to detail!

I turned to the January 2019 *Official Railway Equipment Register* to find dimensional data on the Greenbrier reefer. The Rapido model closely follows published information.

The freight car measures more than 11" long over the coupler pulling faces, so I was curious how it would perform in an operating layout environment. I took the reefer over to our modern era Milwaukee, Racine & Troy East Troy Industrial Park. The car ran without issue while being pushed and pulled.

If you're in the market for modern era HO scale rolling stock, you'll want to check out the Greenbrier 7780 reefer from Rapido Trains. One or more of these cars in a freight train will certainly grab the attention of visitors and operators. — *Cody Grivno, senior editor*

Facts & features

Price: Without sound — single car, $69.95; three-pack, $209.85; and six-pack, $419.95. With sound — single car, $89.95; three-pack, $269.85; and six-pack, $539.95

Manufacturer
Rapido Trains
382 High St.
Buffalo, NY 14204
rapidotrains.com

Era: 2015 to present (as decorated)

Road names: Cryo-Trans (orange and yellow end), Greenbrier Management Services (AOKX), Lineage (shield scheme), Ontario Northland (single car and three-pack), and Union Pacific (ARMN reporting marks, 2013+ and 2015+). Each paint scheme offered as single car and six-pack unless noted; painted white with data only also available.

Features
- Body-mounted metal couplers, at correct height
- Metal wheel stubs mounted on plastic axles, correctly gauged
- Minimum radius, 22"
- Weight: 6.5 ounces (without sound), 6.8 ounces (with), .1 ounce and .4 ounce too heavy, respectively, per National Model Railroad Association Recommended Practice 20.1.

Walthers HO 60-foot hi-cube boxcar



The latest addition to the Walthers Mainline series of HO scale freight cars is a 60-foot Plate F hi-cube boxcar. The newly-tooled, modern-era model uses injection-molded plastic construction. Additional features include 36" turned metal wheels on plastic axles and body-mounted Proto-Max metal couplers.

The WaltherMainline model is based on a prototype boxcar that made its debut in the mid-2010s. The hi-cube car features distinct grid-pattern sides and double-plug doors.

Our review model is decorated as TTX Co. 664231, part of the railcar provider's 663810 through 664998 series built by Greenbrier (Gunderson) at its plant in Concarril, Mexico, in 2016. The prototype cars are used to transport appliances, canned goods, and lumber, among other commodities.

The boxcar is part of TTX Co.'s XGH61B series. To translate the alpha-numeric code: X = boxcar, G = Gunderson, H = hydraulic end-of-car cushioning, 61 = car length in feet, and B = subclass.

The Walthers model has a one-piece body with a separate plastic roof. Freestanding parts on the body include the brake wheel, latch bars, and upper door tracks. Molded details include the side and end ladders, crossover platforms, end handrails, placard boards, billing card holders, and stirrup steps.

On top, the model has a separate plastic roof with 10 tabs (5 per side) that lock into slots molded in the boxcar's interior. Like the full-size cars, the roof has X-panels on the ends and diagonal panels in the middle.

Underneath, the contemporary freight car has molded stringers. The center sills, crossbearers, crossties, body bolsters, and draft-gear boxes are molded as a separate, factory-applied part. Freestanding details include the brake cylinder, control valve, and empty/load sensor. The air reservoir is angle-mounted; the brake lever and support brackets are also modeled.

An unpainted steel weight is located inside the car. It's secured with Phillips-head screws.

The model we received is neatly painted yellow with black doors. The roof is sprayed a grayish-silver color to simulate new galvanized steel.

I found prototype images of TBOX 664231 online. Graphic placement mostly follows the prototype. Similar to the 1:1 car, the operating instructions near the top of the plug doors are in English and Spanish. The font used for the "Railcar Pooling Experts" slogan is different from that on the prototype. A yellow FRA 224 stripe was missing in the lower right corner on both sides.

As part of the Mainline series, some of the printing and painting has been simplified. For example, the smaller data on the car ends was omitted. Also, the trucks don't have blue bearing caps or the reporting marks and road number stenciled on the sideframe.

Dimensional data for the boxcar is published on The Greenbrier Companies website and in the January 2019 *Official Railway Equipment Register*. The Walthers model matches or is within scale inches of published data.

For real-world testing, I put the boxcar in a train on our Milwaukee, Racine & Troy East Troy Industrial Park. The model railroad has No. 5 turnouts and a minimum radius of 28" on the main and 18" on the spurs. Though the boxcar had no problems navigating the industrial trackage on our project layout, it will look best on 22" or greater radius curves.

If you model the modern era in HO scale, the WaltherMainline 60-foot hi-cube Plate F boxcar is a must-have model. Examples of the prototype can be found on short line, regional, and Class I railroads throughout the North American rail network. — *Cody Grivno, senior editor*

Facts & features

Price: $39.98
Manufacturer
Wm. K. Walthers Inc.
5601 W. Florist Ave.
Milwaukee, WI 53218
walthers.com
Era: 2016 to present (as decorated)
Road names: TTX Co. (regular and high lettering), Ferromex, General American Marks Co. (BKTY and LRS reporting marks), and Union Pacific (BKTY marks). Four road numbers per scheme; also available undecorated.
Features
- 36" turned-metal wheels on plastic axles, correctly gauged
- Body-mounted Proto-Max couplers, at correct height
- Minimum radius, 22"
- Weight: 6.3 ounces, 1 ounce too heavy per NMRA Recommended Practice 20.1

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Rail Center is a line of railroad-specific acrylic paints produced by Ammo by Mig Jimenez. The product range includes individual colors, boxed sets, weathering products, and more. Cody Grivno photo

Looking for advice on hobby paints

Q With many of our old favorite railroad paint lines discontinued, I am wondering what Tamiya rattle-can colors are the best match for Santa Fe Red, Santa Fe Yellow, Santa Fe Blue, and SP Lark Dark Gray. Are there any new railroad-specific lines of model paints that are good alternatives for hobby paint brands that are no longer available?

Marcus Lee

A Let's break this question into bite-sized chunks. First, we'll start with the Atchison, Topeka & Santa Fe and Southern Pacific paints. Consulting Editor Tony Koester put me in touch with modelers who are familiar with those two railroads.

Santa Fe modeler and historian Keith Jordan replied, "While I've not investigated the Tamiya rattle can colors (I've only used the primer and Aluminum), it appears that ATSF Red can be replicated with Brilliant Red (TS-86), but it doesn't appear that a good yellow or blue is available in its spray cans. Santa Fe's yellow has a bit of orange or red in it (similar to a pre-WWII Chrome Yellow) and the blue can be quite dark. Tamiya's yellow (TS-16) is quite 'lemony'; its Mica Blue (TS-50) or Racing Blue (TS-51) might work for the ATSF Blue. Since I've not seen these colors sprayed in person, they're only educated guesses."

Don Mitchell, a longtime contributor to *Model Railroader*, learned the following from a member of the La Mesa Model Railroad Club in San Diego: "TS-67 IJN Grey (Sasebo Armory) is a really close match for SP Lark Dark Grey. It matches Athearn perfectly and most manufacturers. TS-34 Camel Yellow is close to ATSF Yellow."

Next, let's look at the current state of hobby paints. It's hard to believe more than a decade has passed since The Testor Corp. discontinued its popular Floquil and Polly Scale railroad paint lines. Knowing that change impacted many of our readers, I teamed up with Aaron Skinner, former editor of our sister publication *FineScale Modeler*, to write "Hobby paint roundup" in the March 2014 issue of *Model Railroader*. In the four-page article, we took a look at more than a dozen hobby paints designed for airbrushing and brush-painting.

Tru-Color Paint produces an extensive line of railroad-specific solvent-based acrylic paints. To translate, the paint is solvent-based, but uses an acrylic polymer to bind the pigment to models. Learn more about the manufacturer's product line, including colors designed for airbrushing and brush-painting, at the manufacturer's website, trucolorpaint.com.

Spanish paint manufacturer Ammo by Mig Jimenez released its Rail Center line of acrylic hobby paints a few years ago. The product range includes individual colors, boxed sets, weathering colors, pigments, washes, and more. Examples are shown in the image above.

In the MR workshop, we use a variety of paints, including Rail Center, Tamiya, and Vallejo (Model Air and Model Color), among others. Even though we have a vented spray booth, we primarily use low-odor acrylic paints because we're in an office building shared with other companies.

Though some of the popular model railroad paint lines are no longer available, keep your eyes open for new options. In addition to the railroad-specific lines, check out paints designed for car and military models and wargaming. We've had good success using colors from non-railroad product ranges to airbrush locomotives and rolling stock, weather track, brush-paint figures, and more.

Q I recently purchased a Suydam steeplecab on eBay. It was manufactured in 1971 and runs fine. However, it has a motor appropriate for its time and slow speed movement is a bit shaky at best. I'd like to try remotoring with current technology, including DCC, but don't know how to get started. I've attached a pic of the current drive. Do you know who might be able to help?

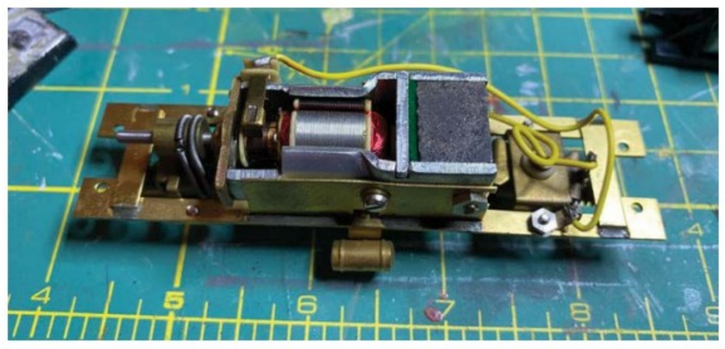
Harvey Simon

A Harvey, the first person I thought of to help was Contributing Editor and former DCC Corner columnist Larry Puckett. Here's what he suggested:

Those old Suydam drives and motors were not the most efficient designs so an updated drive would definitely be an improvement. The problem with these is the coiled springs they used to transfer power to the truck. If you keep the truck then you need to reuse the pulley on the motor shaft since it has slots in it for those coiled springs. However, as I remember, the shaft on the motor was a pretty large diameter compared to what modern motors have. So, you will need to find a motor with the same size shaft or use bushings on the shaft to fit the pulley. Your best bet is to check on the NorthWest Short Line website (nwsl.com) for a motor that will fit in the same location in the trolley and a suitable shaft bushing. They also sell Stanton Drives that are a truck with a motor in them and therefore eliminate the motor in the trolly and drive mechanism.

You also might check Ali Express (best.aliexpress.com) for a suitable replacement motor that will fit the space and purchase the shaft bushing from NWSL. I recently was able to find a replacement motor for an old steam locomotive at Ali Express for only a few dollars and it was a drop-in fit.

In the past I've used silicone sealant to mount can motors in locomotives. In one Athearn model I used 3M double-sided foam tape, which is still holding after 20-plus years. However, due to downward pressure from the tension of the coiled springs, you may need to fashion a motor mount out of brass stock.



Contributing Editor Larry Puckett offers tips for remotoring this Suydam steeplecab kit from the early 1970s to help bring it to modern standards.
Harvey Simon photo

As for a DCC decoder, SoundTraxx is a good starting place for both mobile only and sound decoders. It has an electric locomotive sound package that includes trolley sounds. You can download the company's manuals and listen to a sound sample on its website (soundtraxx.com). Should you choose to keep the existing motor and mechanism you'll want to check the amperage demand of the motor and use a decoder with sufficient capacity. I showed how to do this in chapter 13 of my book *Wiring Your Model Railroad*, available from the book store at shop.trains.com.



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Oct 17-18 Fredericksburg, VA - Convention Center
Nov 1 Wheaton, IL - DuPage County Fair
Nov 7-8 Monroeville, PA - Convention Center
Nov 21-22 Wilmington, MA - Shriner's Auditorium
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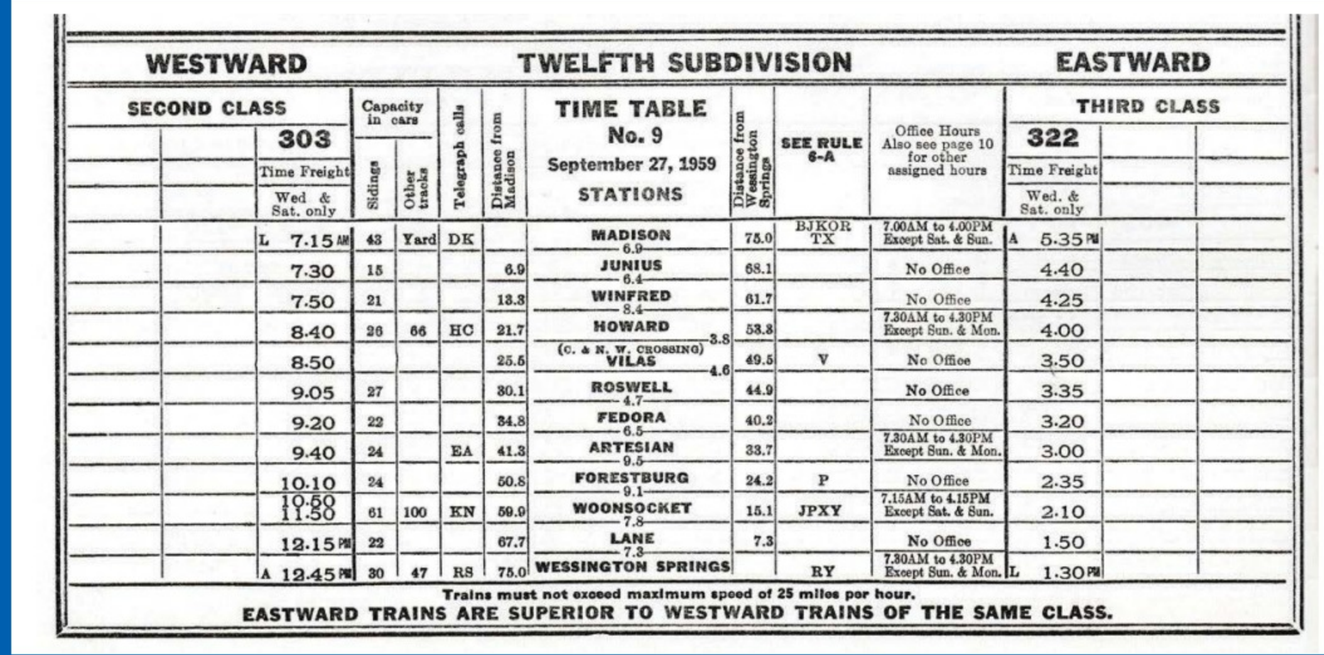
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Ask MR

Q While reviewing several 1950s employee timetables from short line railroads, I noticed rules requiring the conductor to record the train's arrival and departure times in a train register book at certain stations. What was the operational purpose of the train register, and how was it used by dispatchers or other train crews? Additionally, how might a model railroader incorporate a train register into an operating session in a practical way?

Matthew Zuccaro



WESTWARD — TWELFTH SUBDIVISION — EASTWARD

TIME TABLE No. 9 September 27, 1959

SECOND CLASS 303 Time Freight Wed & Sat. only	Capacity in cars: Sidings	Capacity in cars: Other tracks	Telegraph calls	Distance from Madison	STATIONS	Distance from Wessington Springs	SEE RULE 6-A	Office Hours Also see page 10 for other assigned hours	THIRD CLASS 322 Time Freight Wed. & Sat. only
L 7.15 AM	43	Yard	DK		MADISON	75.0	BJKOR TX	7.00AM to 4.00PM Except Sat. & Sun.	A 5.35 PM
7.30	15			6.9	6.9 JUNIUS	68.1		No Office	4.40
7.50	21			13.3	6.4 WINFRED	61.7		No Office	4.25
8.40	26	66	HC	21.7	8.4 HOWARD	53.8		7.30AM to 4.30PM Except Sun. & Mon.	4.00
8.50				25.5	3.8 (C. & N. W. CROSSING) VILAS	49.5	V	No Office	3.50
9.05	27			30.1	4.6 ROSWELL	44.9		No Office	3.35
9.20	22			34.8	4.7 FEDORA	40.2		No Office	3.20
9.40	24		EA	41.3	6.5 ARTESIAN	33.7		7.30AM to 4.30PM Except Sun. & Mon.	3.00
10.10	24			50.8	9.5 FORESTBURG	24.2	P	No Office	2.35
10.60 11.50	61	100	KN	59.9	9.1 WOONSOCKET	15.1	JPXY	7.15AM to 4.15PM Except Sat. & Sun.	2.10
12.15 PM	22			67.7	7.8 LANE	7.3		No Office	1.50
A 12.45 PM	30	47	RS	75.0	7.3 WESSINGTON SPRINGS		RY	7.30AM to 4.30PM Except Sun. & Mon.	L 1.30 PM

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This page from a 1959 Milwaukee Road employee timetable lists the stations on Twelfth Subdivision in South Dakota. Madison and Wessington Springs had train registers (the "R" in the column See Rule 6-A).

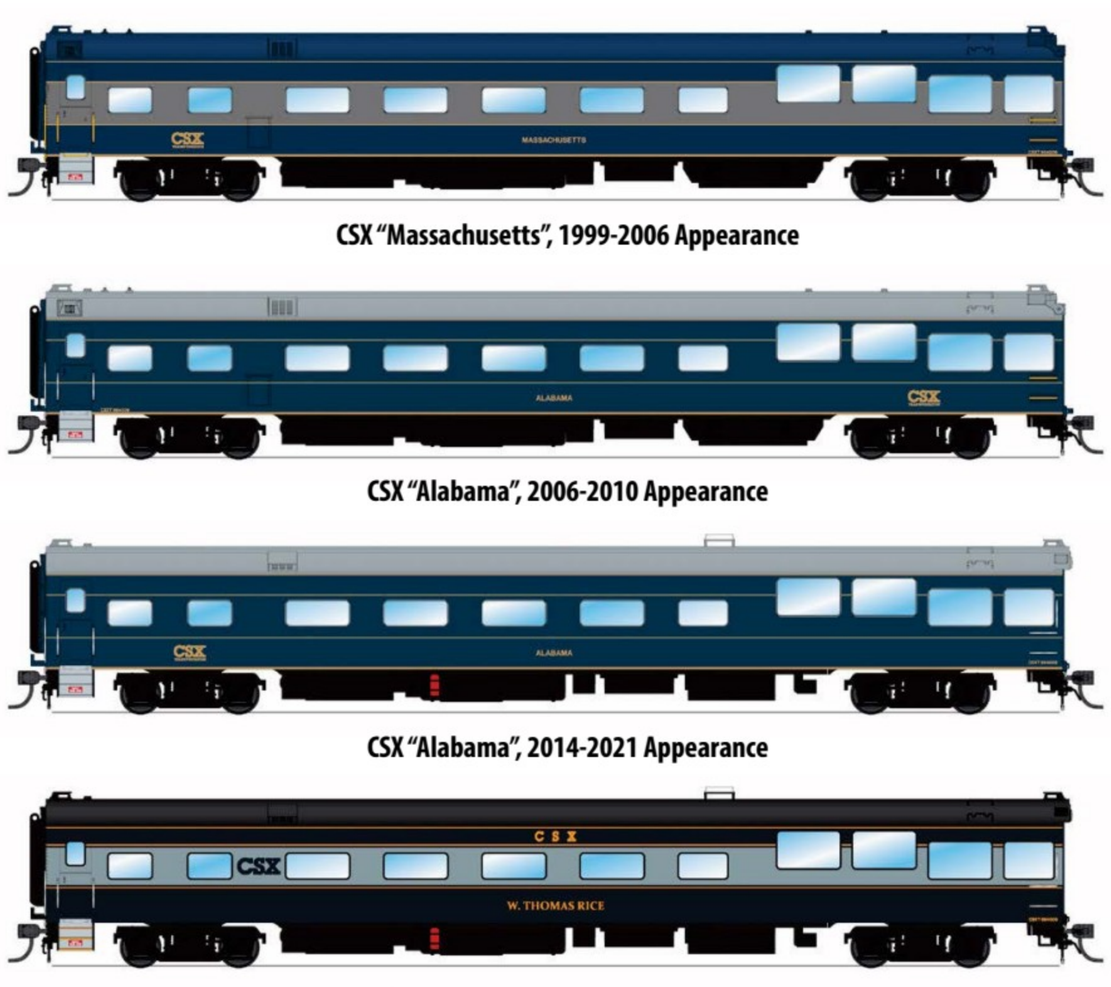
A I asked our former On Operation columnist, Jerry Dzedzic, to share his insights. He replied:

Here's a nugget to help you, Matthew, a 1950s rulebook definition of train register: "a book or form which may be used at designated stations for registering signals displayed, the time of arrival and departure of trains and such other information as may be prescribed." Typically, designated stations were the ends of a division or subdivision. The conductor personally wrote his prescribed information — schedule number or extra, engine(s), and arrival or departure time — to register the train at its initial and final terminals.

Crews were responsible for registers because dispatcher offices were often far distant from register stations. Other crews coming on duty checked the register so they knew which trains were en route between those two points. Critically, the conductor checked to see that superior trains coming in the opposite direction had recorded their arrivals. If such a train had not registered, one could only assume it was barreling down the road just out of sight. You see, crews depended on the register to see if it was safe to depart. My March 2021 On Operation column, "The Ritual of Train Registers," explains more. Also see my May 2021 column "Reading Train Registers."

Working train registers into operating sessions can be as easy as hanging a clipboard with a blank sheet of paper and pencil near the departure and arrival yards or staging tracks and coaching crews on its use. MR

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CSX "Massachusetts", 1999-2006 Appearance

CSX "Alabama", 2006-2010 Appearance

CSX "Alabama", 2014-2021 Appearance

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Initial renderings shown, details still subject to change

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By Lou Sassi



Jim Clark heads to his Farmall Regular with tool bag in hand to do some fine adjustments in the shade across the tracks from the station in Kingfield, Maine. Contributing Editor Lou Sassi shares the techniques he used to make the die-cast metal tractor and manure spreader toys look more like scale models. Photos by the author

Enhancing die-cast metal farm equipment

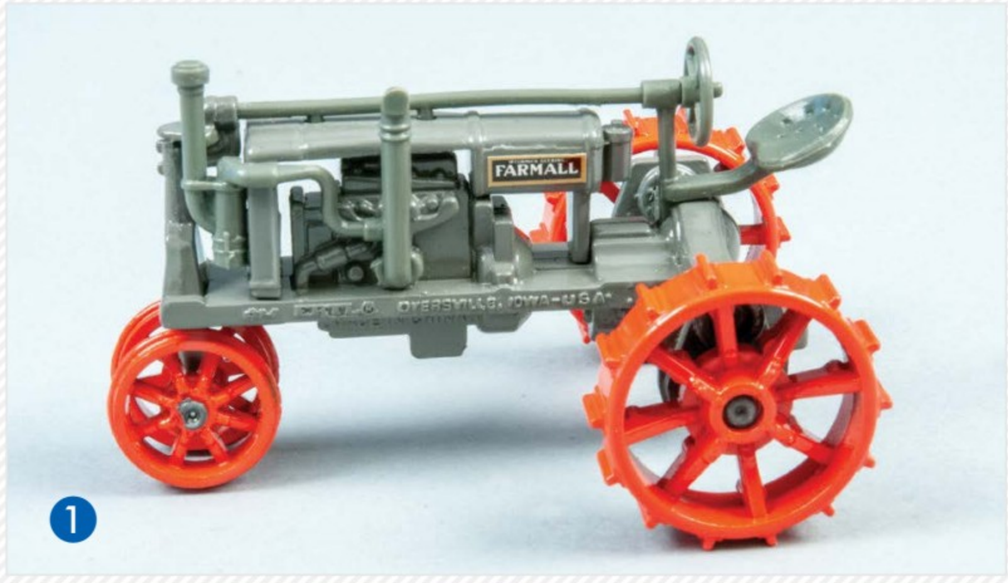
Though my On30 Sandy River & Rangeley Lakes, featured in *Great Model Railroads 2020*, doesn't have a farm field, I felt a few pieces of agricultural equipment would add some visual interest to my 7 x 20-foot layout. As I was searching for items on eBay, I came across two die-cast metal products from Ertl — a Farmall tractor (No. 2527, from the manufacturer's Vintage Vehicle line) and a manure spreader (No. 2846, from the Farm Classic line). The tractor and spreader are toys, so by model railroading standards the details are a bit heavy. However, with some painting and weathering, I found they made acceptable replicas of the real thing.

The Ertl tractor is based on a McCormick-Deering Farmall Regular. The row-crop tractor, introduced in 1924, was mainstay of the International Harvester lineup until 1939. It was a perfect fit for the mid-1930s setting of my layout.

The manure spreader is based on a prototype from the 1940s and 1950s. That's a bit past my model railroad's era, but since I've chosen to bend reality a bit anyway, I figured what the heck — let's go with it.

Though the models shown here are 1:43 proportion, you can adapt my techniques for die-cast metal farm equipment in other scales. If you can't find models for your era online, check at implement dealerships and farm-supply stores, as they often carry these kinds of toys, especially during the holiday season.

STEP 1 GETTING STARTED

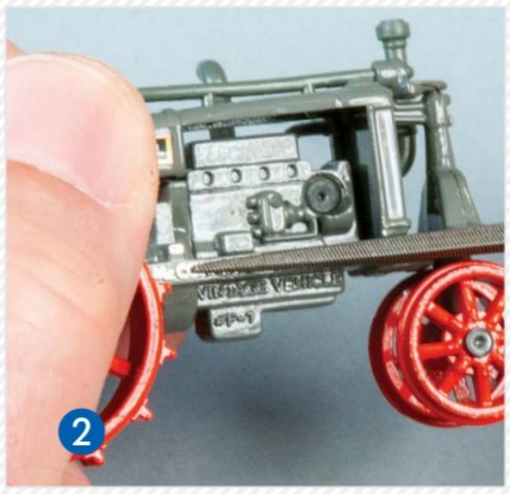


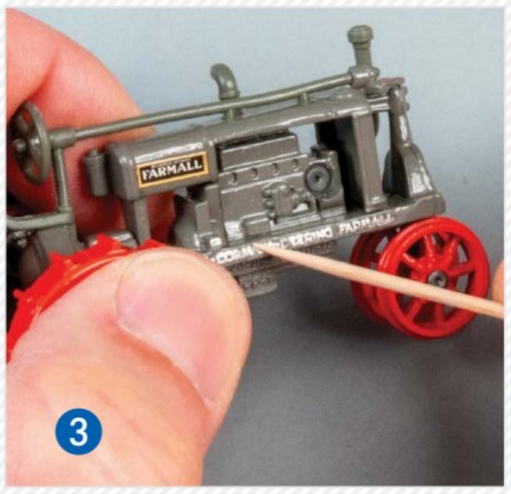
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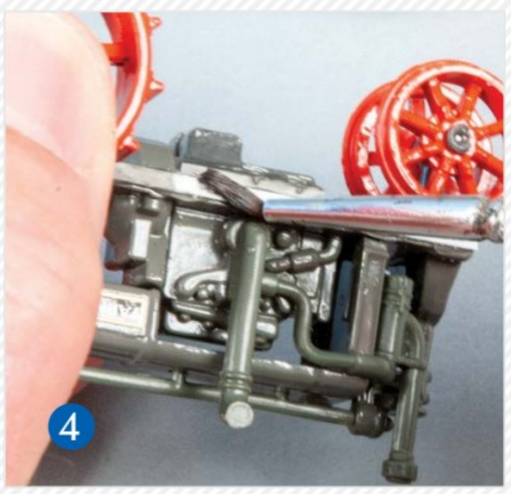
The Farmall tractor had a variety of raised lettering, including the Ertl logo and the name of the product line, on both sides of the frame and motor oil pan 1. I used a jeweler's file to remove the raised lettering until it was almost flush with the surface 2, next page.

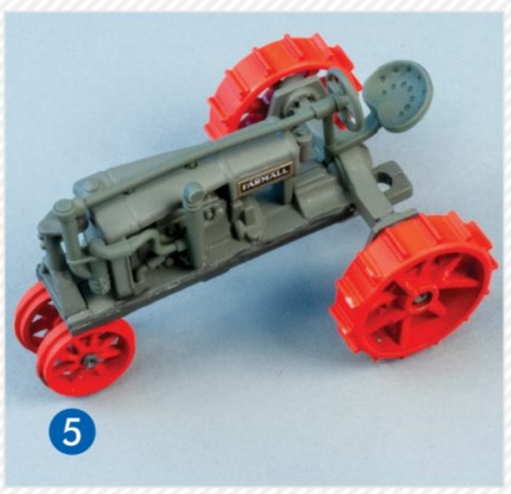
Then I used a toothpick to apply 5 Minute Epoxy to the areas where I'd removed the lettering, as seen in 3.

STEP 1 GETTING STARTED (CONT'D)







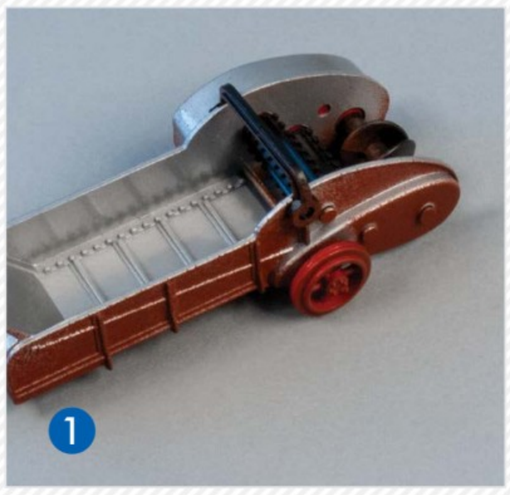


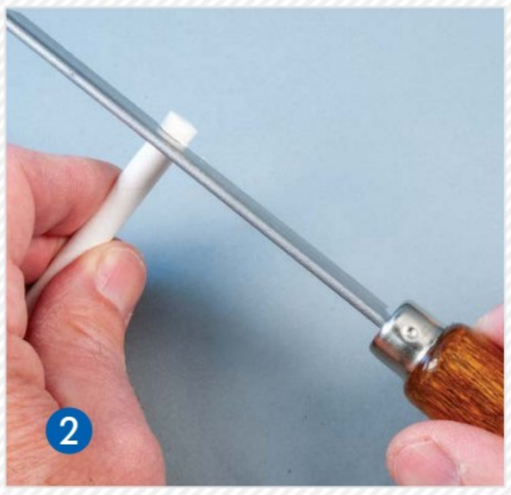
Then I attached a piece of .015" x .080" styrene strip to both sides. I covered the lettering on the sides of the motor oil pan using the same technique. The styrene is thin enough that it doesn't detract from the model.

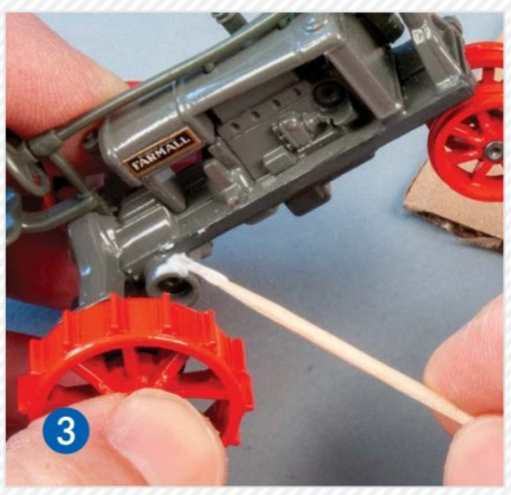
Next, I brush-painted the styrene with Model Master Grimy Black 4. Testor Corp. discontinued the product range, but other hobby paint manufacturers offer similar colors. The Grimy Black is a bit darker than the factory paint, but it blended in after I weathered the tractor.

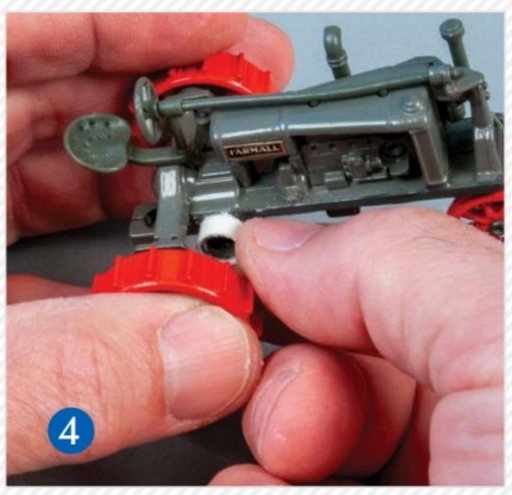
I wrapped up this part of the project by spraying the tractor with Testor's Dullcote 5. Then I set the model aside to dry.

STEP 2 SPREADER PRIMER AND A BELT PULLEY









Next, I turned my attention to the manure spreader. First, I peeled off the rubber tires. Then I spray-painted the die-cast metal spreader with Rust-Oleum Flat Red Automotive Primer (No. 2067830) 1. I did this in a well-ventilated area and wore personal protective gear.

With the manure spreader set aside to dry, I got back to work on the tractor. The model had a cast belt pulley on the right side that lacked definition. To remedy that, I used a razor saw to cut a short length from a cardboard drinking straw 2.

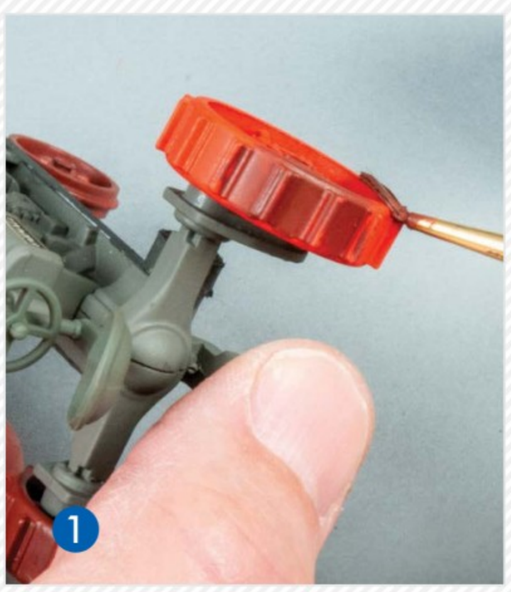
After test-fitting the new belt pulley, I used a toothpick to apply Weld Bond adhesive to the tractor 3. Then I pressed the length of straw into position and let the glue dry 4.

STEP 3 WEATHERING THE TRACTOR...

After studying prototype photos, I decided the orange wheels were a bit too bright. I toned them down with Model Master Oxide Red, applied with a small, soft-bristle brush 1. I worked carefully, making sure I got paint into every nook and cranny.

Once the wheels were painted, I worked on the body, frame, and motor. I brush-painted the block and oil pan Grimy Black. I painted the hoses, radiator, exhaust pipe, and steering wheel Engine Black 2.

With the brushes still wet, I removed most of the paint and drybrushed Grimy Black streaks over the fuel tank and around the seat and rear axle. I applied Engine Black along





STEP 3 WEATHERING THE TRACTOR... (CONT'D)

the bottom of the frame directly under the motor and on the transmission.

To give the area around and below the motor and transmission a dirty, oily appearance, I turned to tube acrylics. When thinned slightly with water, Mars Black tube acrylic takes on a semi-gloss look, similar to oil residue.

I applied the acrylics with a stiff brush, working in a downward motion on and below the engine block and along the body and frame around the seat area 3. After even more thinning, I applied the black to the front and rear wheels to simulate dirt and leaking grease.

The next effect I wanted to simulate was that of worn paint and exposed steel. I drybrushed Model Master Steel onto the wheel cleats, the edges of the fuel tank, around the seat, and on other fine details with a stiff brush 4.

I wanted the exhaust pipe to look rusted. On the prototype, heat would burn off the paint applied at the factory.

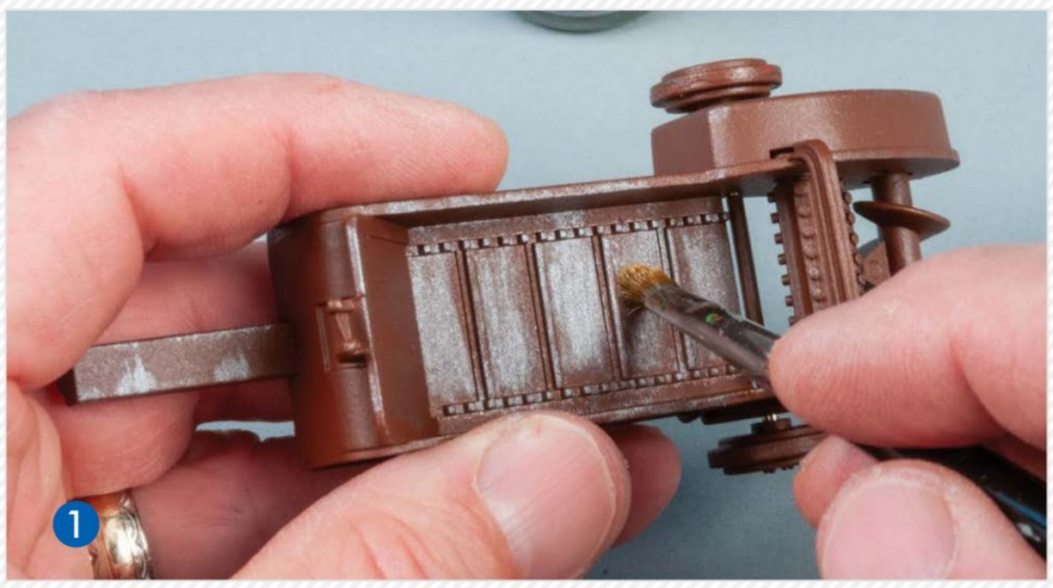


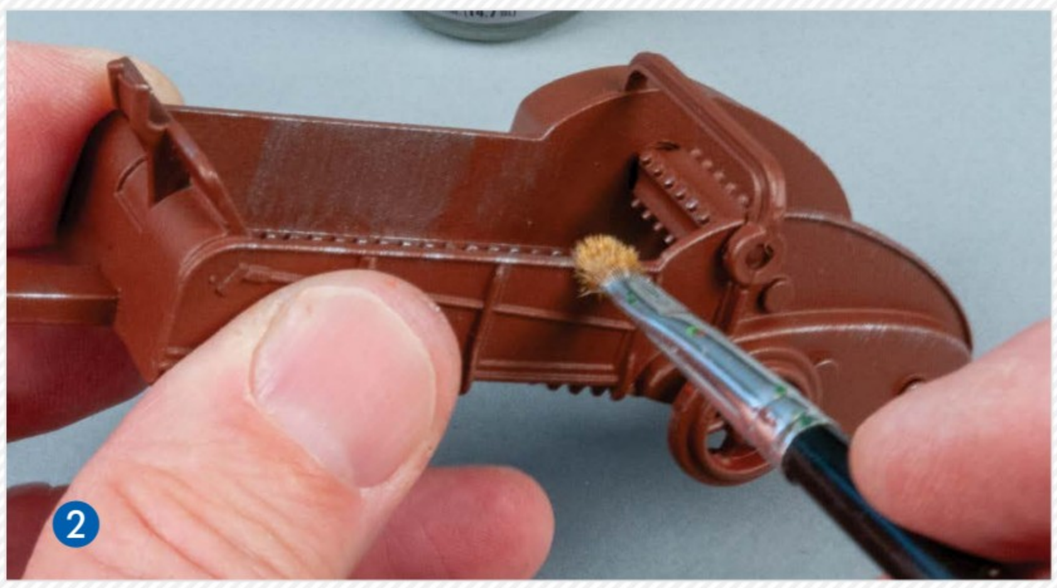
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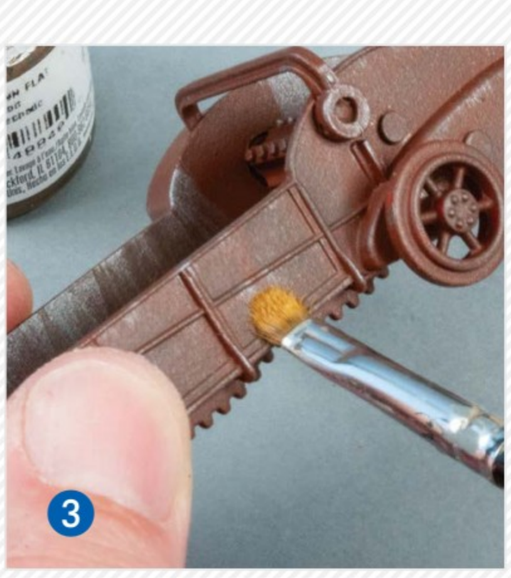

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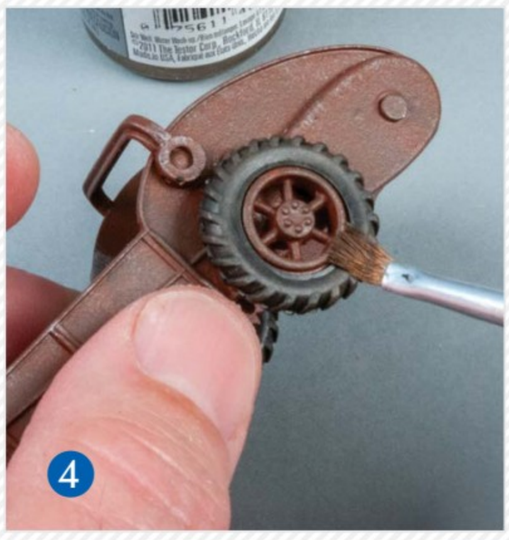
Over time rain and the elements would cause the surface to deteriorate. I re-created this effect with a light wash of watered down Raw Sienna tube acrylic applied over the Engine Black.

STEP 4 ...AND THE SPREADER


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I gave the Rust-Oleum Flat Red Automotive Primer that I applied to the manure spreader plenty of time to dry (at least 24 hours, or until there's no discernible paint odor) before proceeding. Then I used the same stiff-bristle brush to drybrush Model Master Steel to the inside surfaces 1. I also drybrushed the edges of the spreader and operating mechanism with the same color 2. This created the look of worn paint and exposed steel.

To indicate what spreader is used for, I drybrushed Model Master Roof Brown on the interior and exterior flat surfaces 3. After I reinstalled the tires, I drybrushed them with the same color, working out from the edge of the wheels and around the tires 4.

The key to successful weathering is to build up the effects in light layers. If you don't like the results, reapply the base colors full strength and try again.

The finished tractor and manure spreader can be seen in 5. As you can see, with a little bit of work I was able to turn die-cast metal toys into implements that look right and home on my On30 model railroad. MR



Scratchbuild a THEATER CAR

This HO scale model is based on Norfolk Southern car No. 23, the *Buena Vista*

By M.R. Snell • Photos by the author

Few things are neater than the sight of a shiny consist of matched passenger equipment gliding by at track speed. On my HO scale Conrail New Jersey Division layout, which depicts the Shared Assets era with Norfolk Southern and CSX, I can regularly re-create that experience with Amtrak and NJ Transit trains. In addition, a Norfolk Southern business train appears periodically during operating sessions. One of the signature pieces of equipment on the full-size train is theater car No. 23, the *Buena Vista*. With no off-the-shelf option available, I kitbashed the car for my NS train.

Aptly named, a theater car is a conventional passenger car that's been rebuilt with stepped, theater-style seating and a large picture window on the back, affording those in the car a view of the railroad passing behind the train. Though modeling a theater car may seem like a daunting project, I found building NS *Buena Vista* no harder than kitbashing a locomotive or structure.

Since preparing this article, Broadway Limited Imports launched a line of railroad-specific theater cars based on Atchison, Topeka & Santa Fe; BNSF Ry.; Chicago & North Western; Conrail; CSX; and Union Pacific prototypes. The HO scale models are offered in a variety of paint schemes and feature era-specific details. A stand-in model of the *Buena Vista*, based on tooling the manufacturer used for UP theater car *Fox River*, is among the latest offerings. Undecorated models are also available.



Norfolk Southern theater car No. 23, the *Buena Vista*, marks the end of an Office Car Special on M.R. Snell's HO scale Conrail New Jersey Division layout. Follow along to learn how he kitbashed this signature car for his version of the NS business train.

This was an enjoyable project that combined various kitbashing and scratchbuilding techniques. Many of these methods can be adapted to other passenger car types.

M.R. Snell is a popular contributor to the pages of Model Railroader *magazine. His article "Keep those fallen flags rolling" appeared in the September 2025 issue. An exclusive tour of his HO scale Conrail New Jersey Division model railroad can be found on Trains.com Video.*

STEP 1 GETTING STARTED


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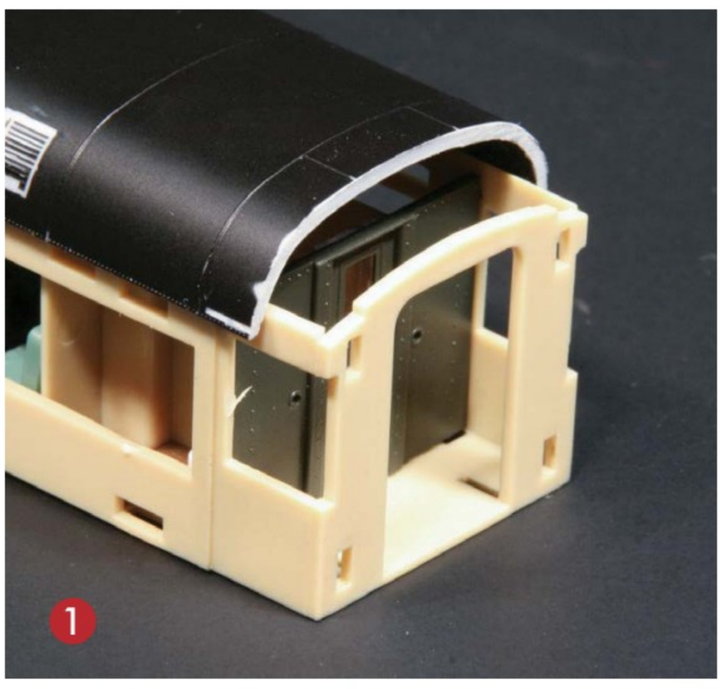
THE FIRST STEP IN MODELING the *Buena Vista* was finding a car suitable for kitbashing. After studying the prototype, I determined the Walthers Pullman-built modernized heavyweight paired-window coach was an ideal starting point. Why? Because it had a balloon roof. In addition, the car featured applique car sides and ends that fit onto a core body, making the model much easier to disassemble into smaller components.

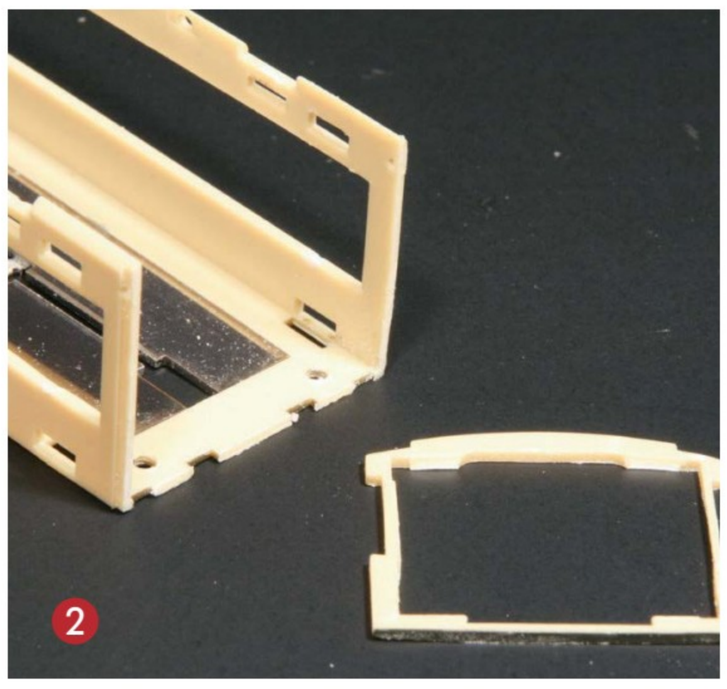
The roof on the version of the *Buena Vista* I modeled slopes at the vestibule (front) end of the car. The rear of the roof is squared off, with a piece of flat metal extending down to the picture window.

After studying a diagram of the prototype car, I determined that I could simply cut off the rounded end at the rear of the roof, shortening the car by only 2 scale feet (approximately ¼"), which would be largely unnoticeable once the theater car was completed.

After separating the roof from the core, I placed it in a miter box and used a fine-tooth razor saw to make the cut, leaving a clean edge that required little clean-up 1. To complete the squared-off end, I attached a piece of .030" to the cut edge. After the glue had dried, I cut and filed the styrene to match the roof contour 2.

STEP 2 CARBODY MODIFICATIONS


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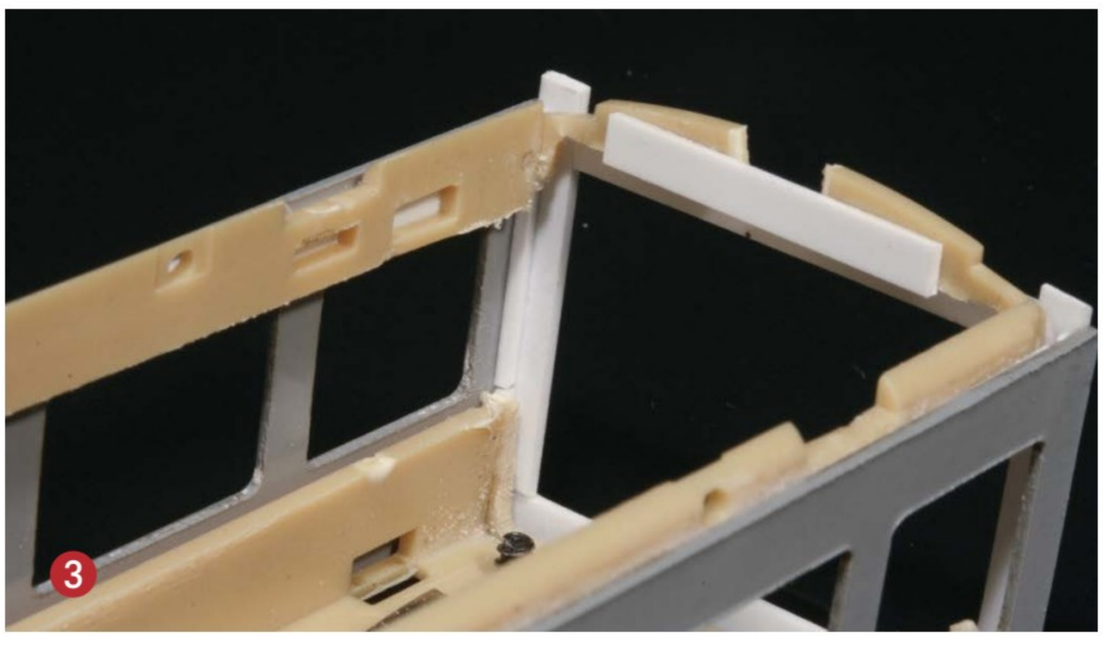
SINCE I MODIFIED THE LENGTH of the roof, I had to change the length of the carbody to match 1. Taking advantage of the design of the Walthers model, I removed the sides and ends from the core. Do this carefully so you don't break the mounting tabs on the backs of the sides and ends. Then I cut the core back to the end of the vestibule doors, a length that would accommodate the styrene strip required to make the window frame.

Then I filed the inside edges of the core end to make it as thin as possible, allowing it to be hidden behind the window frame that I fashioned out of styrene (Check out step 3 to learn more about that process. — *Ed.*) You can see the modified core end in 2. Then I attached the end to the rest of the core and let the glue dry thoroughly before proceeding.

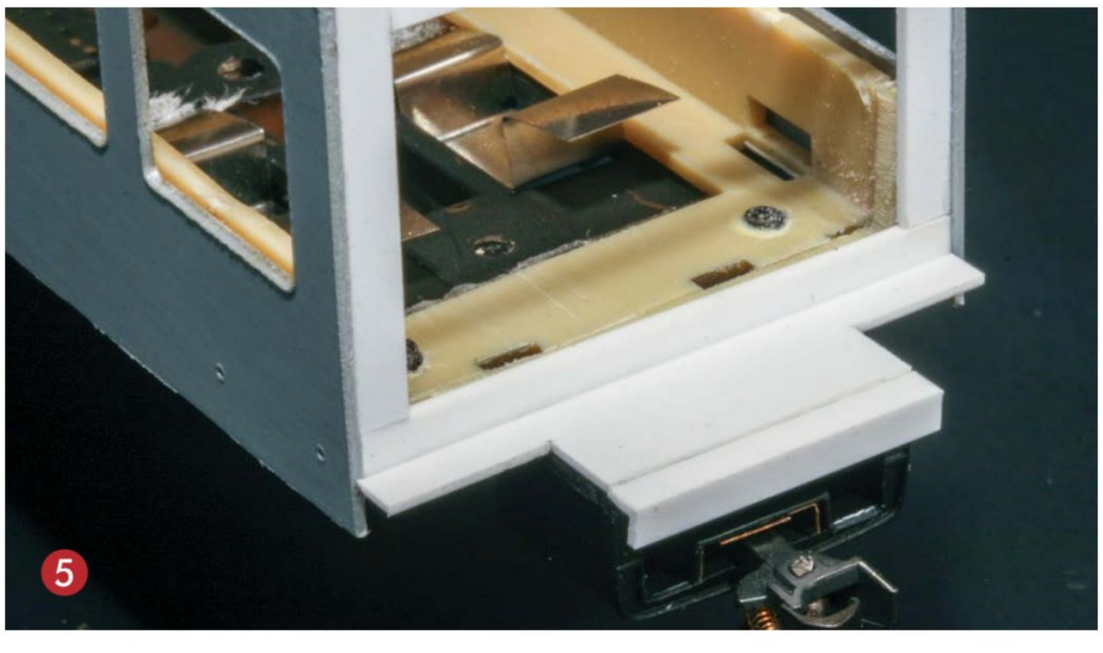
STEP 3 CAR SIDES AND ENDS

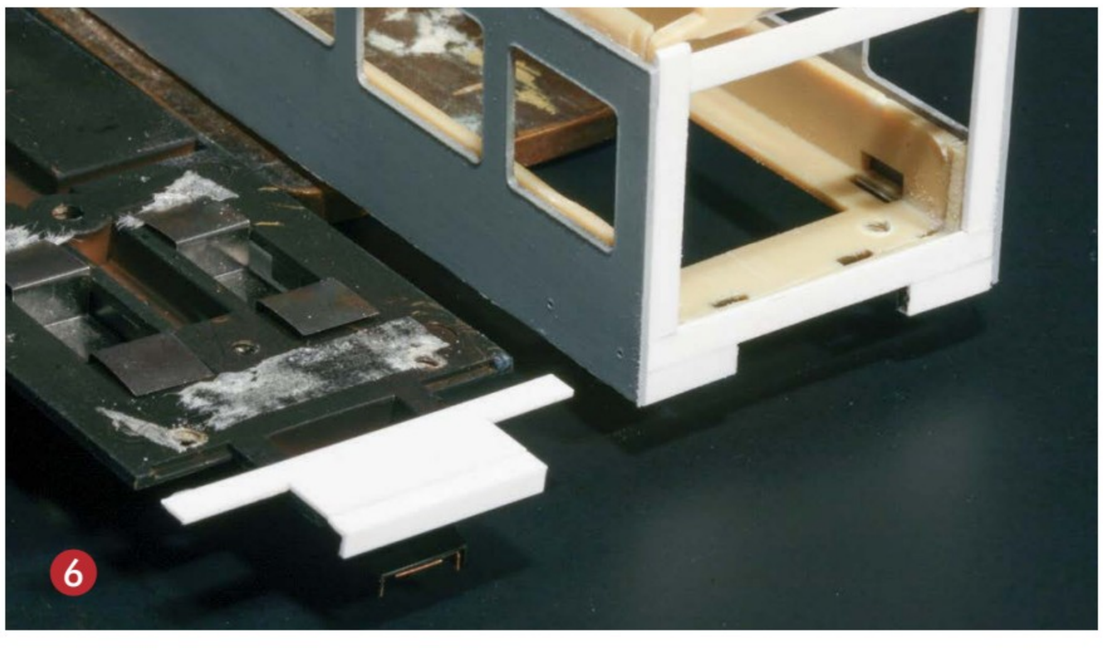

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PERHAPS THE BIGGEST ISSUE passenger car modelers face is dealing with the various window configurations found on full-size cars. While minor variations can be remedied with a hobby knife, styrene sheet or strip, and hobby putty, major changes are often more difficult to re-create.

Replacement sides are a time-saving option that eliminates complicated cutting and filling. The *Buena Vista* was a prime candidate for this approach as the window arrangement is unlike anything available on the mass market prior to Broadway Limited's theater cars. Using diagrams of the prototype car, I had new sides laser cut from styrene that not only had the correct window arrangement but were also proportioned to the measurements of my shortened Walthers heavyweight car.

However, the replacement sides are substantially thinner than the model's original sides, thus require shimming to give them the correct depth when mounted on the core. I added strips of .020" x .125" styrene strip above and below the window openings on the core and on the vestibule doors 1. The shims corrected the depth issue, allowing me to add the sides while using the roof as a guide to ensure they were square and even along the length of the car 2.

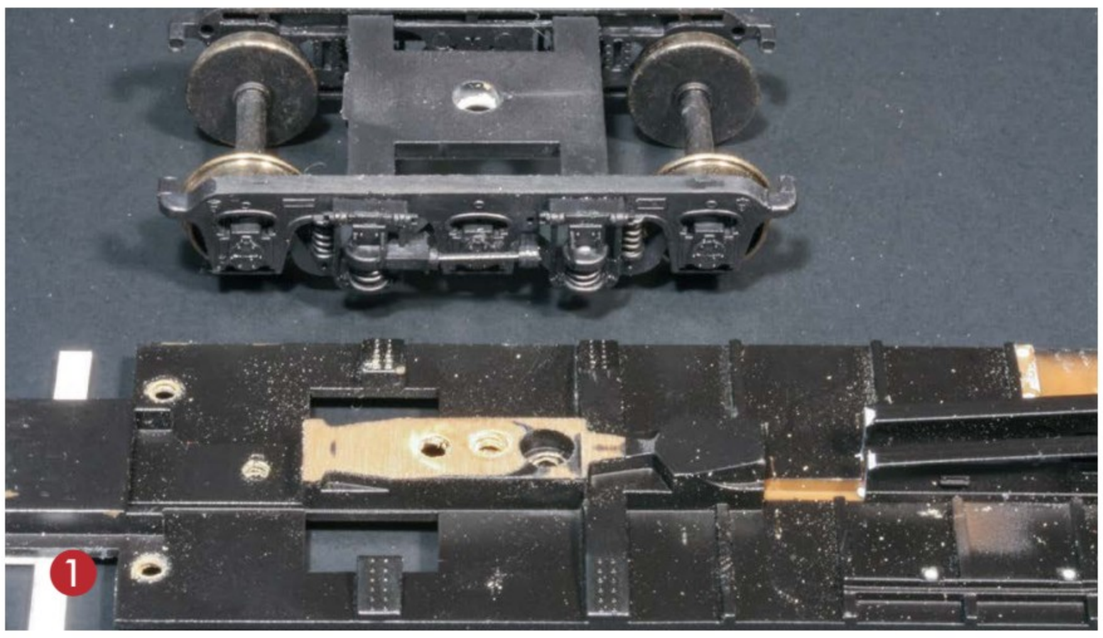
Next, I turned my attention to the rear of the car and the picture window. I made the window frame from .030" x .100" styrene strip. Then I reinforced the corners with .040" x .040" strip along the inner edge 3. To complete the frame, I added .030" x .100" strip along the upper and lower edges, forming the rectangular frame 4.

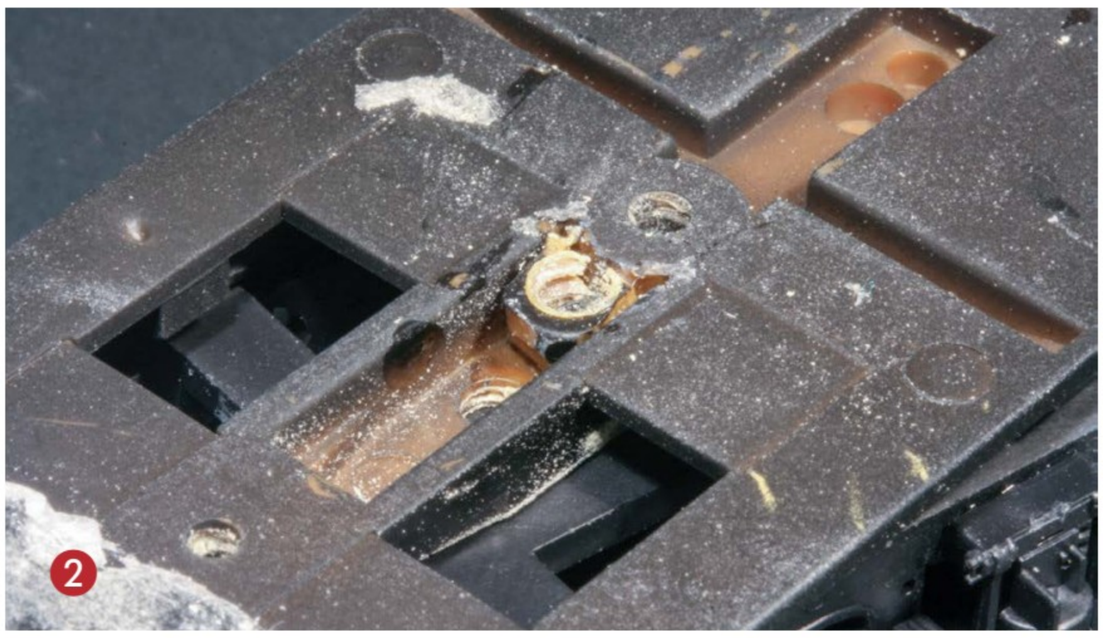
One unique feature of the *Buena Vista* is the T-shaped platform at the rear of the car that provides a small walkway while covering the car's draft gear. This detail allowed me to leave the underframe intact even though I shortened the carbody by 2 scale feet.

I modeled the platform by cutting .020" styrene sheet to a T-shape. Then I attached it to the top of the draft gear and added a small length of .080" angle to the end 5.

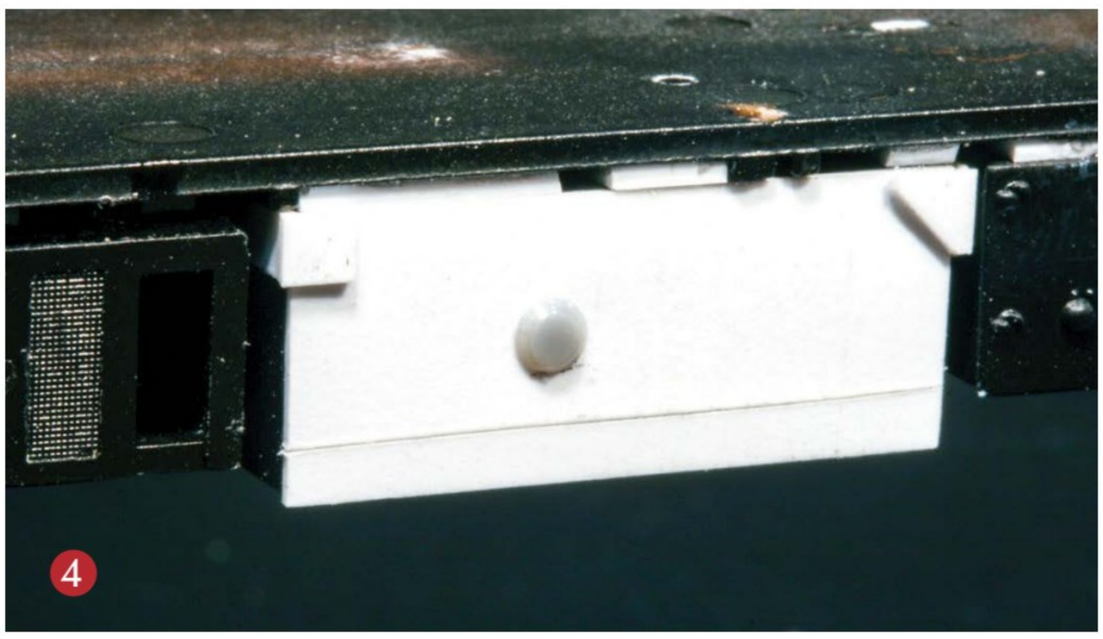
To provide a mounting surface for the stirrup steps under the picture window, I added lengths of .030" x .156" styrene strip below the window frame on each side of the coupler pocket, completing the rear of the carbody 6.

STEP 4 UNDERBODY DETAILS

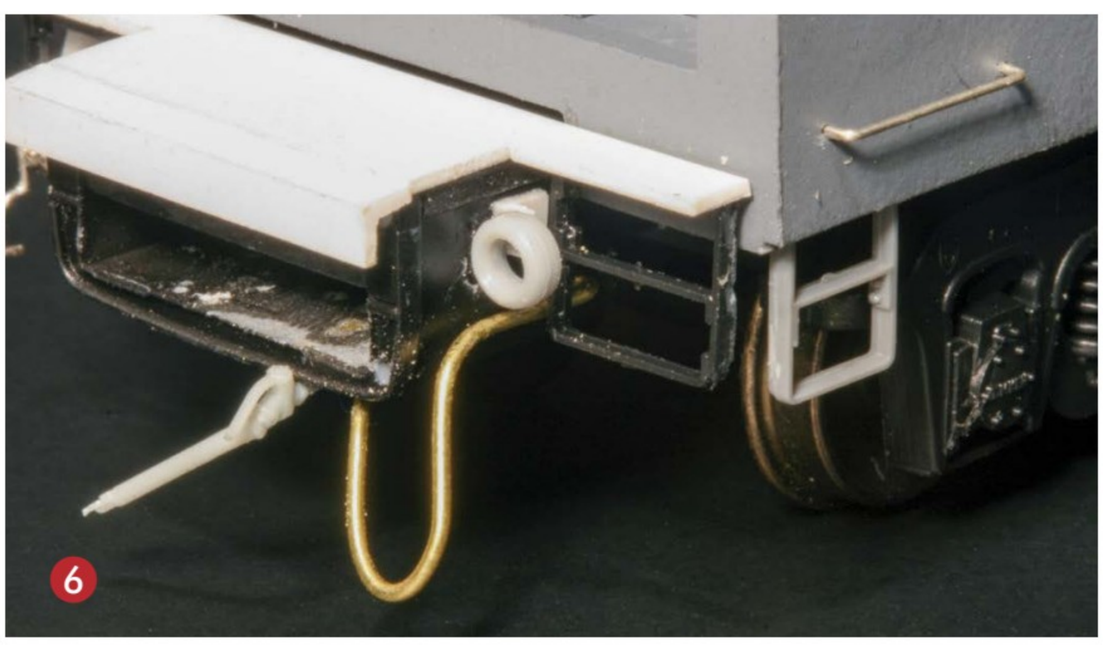

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THE UNDERBODY ON the *Buena Vista* is substantially different than the stock Walthers coach. First, I removed all of the underbody details with a small, flat-blade screwdriver 1. Next, I replaced the Walthers trucks with modern six-wheel Union Pacific-style trucks from Train Station Products. To bring the car to the correct height, I removed the underframe bolster, drilled a new hole, and relocated the bolster to the recess on the top of the underframe 2. This provided a seat for the truck mounting screw.

One issue I faced when working on the modernized car was the lack of contemporary underbody parts. Some details like control and battery boxes are fairly generic. I was able to represent these parts using items recycled from the coach and commercial castings from Bethlehem Car Works, Eastern Car Works, and Train Station Products.

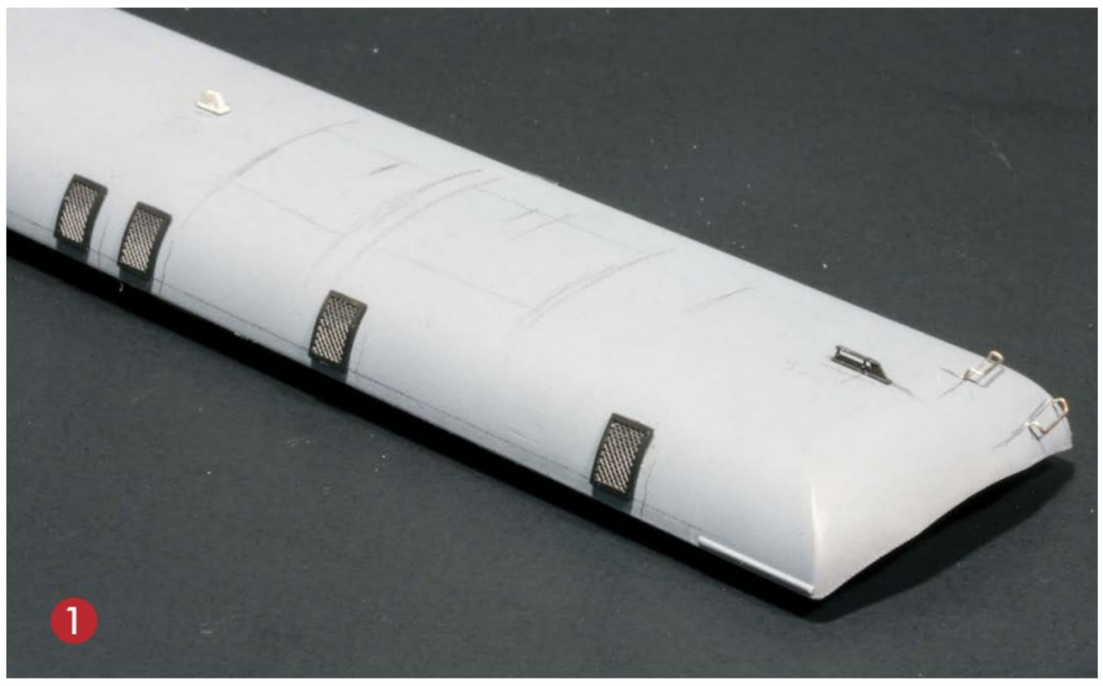
Other, more-visible details like the large air conditioning unit and fuel tanks called for a different approach. However, by breaking these parts into individual shapes, I was able easily scratchbuild them. For example, the air conditioner is nothing more than a long rectangle with several thinner, smaller rectangles and squares on the front. I constructed the main box from .250" x .312" styrene strip. I fashioned the rectangular and square shapes on the face from .030" styrene sheet; the vent is corrugated styrene siding. I again turned to .030" styrene sheet for the mounting brackets 3.

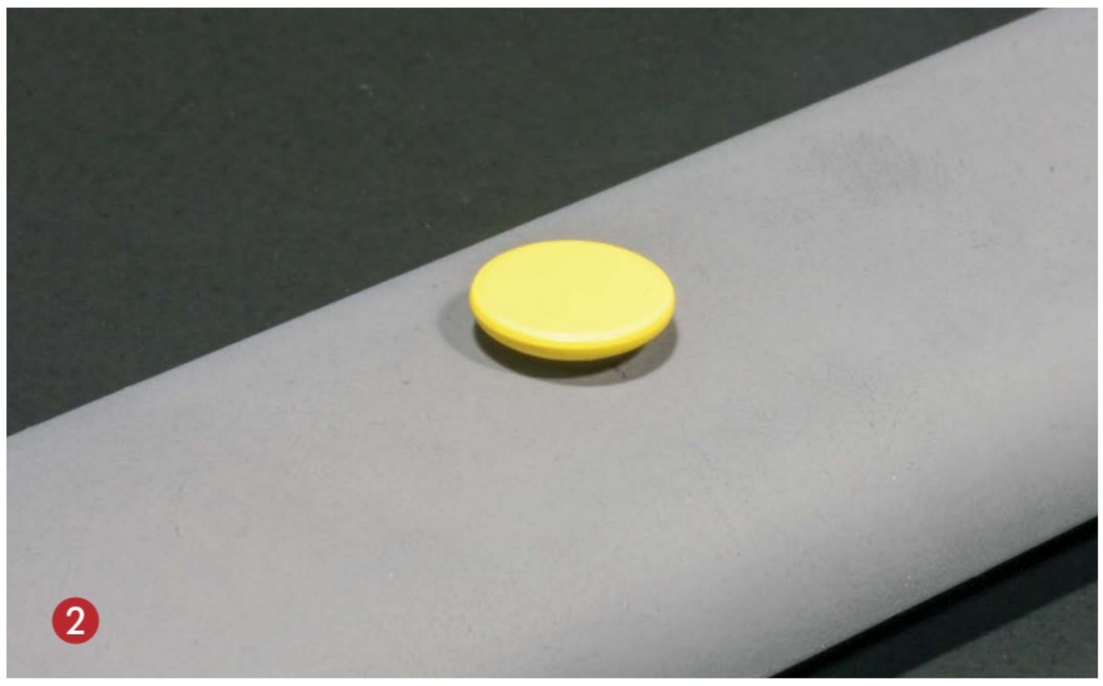
I used a similar approach for the fuel tank. It's a piece of .250" x .375" styrene strip with .030" square and triangular mounting brackets. The fill cap is a round vent 4.

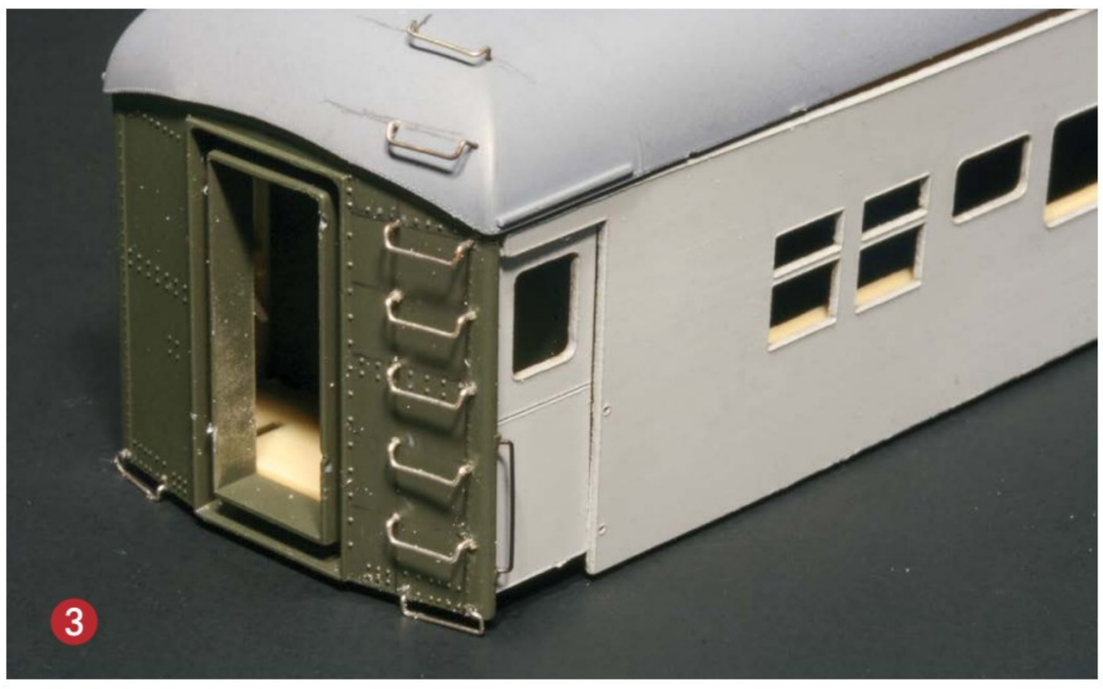
The theater end of the car features a collection of aftermarket detail parts. After adding stirrup steps to the sides of the car, I reinforced the joints between the steps and car sides with .040" x .060" styrene strip. The rear stirrup steps were three-part castings that I cut down to a single step.

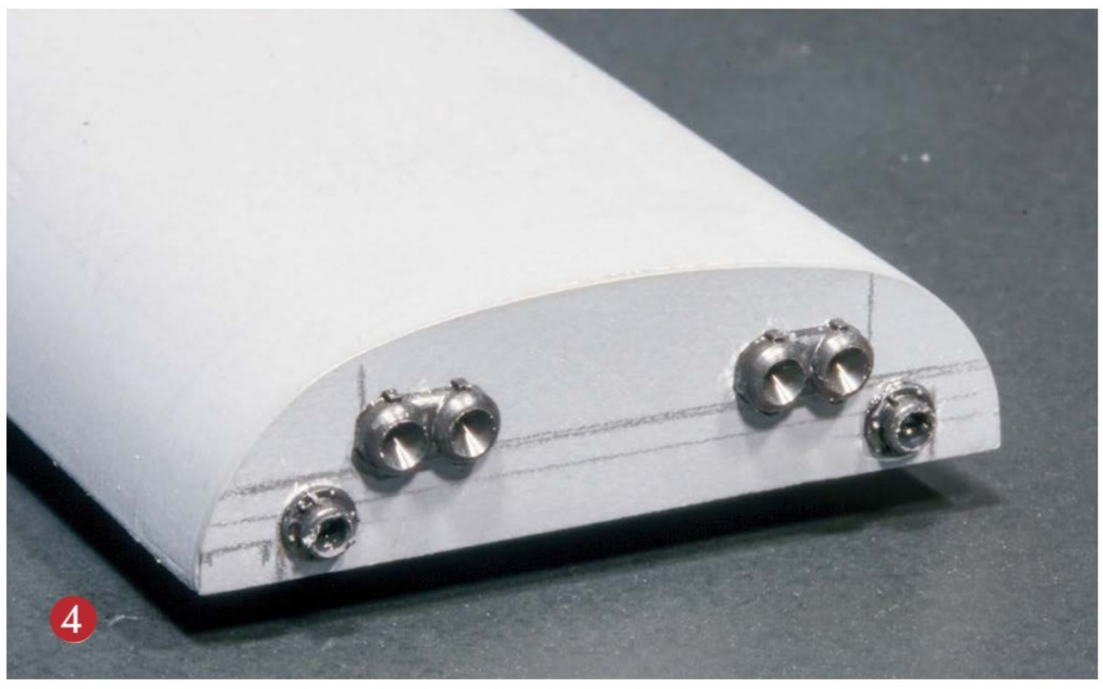
I then added a freight car-style uncoupling lever, attaching it to an eyebolt installed in a styrene strip bracket. The prototype has spotlights mounted beneath the car. I used Detail Associates ditch lights, placed on the sides of the draft-gear box, to simulate those details 5. I completed the underbody with an air hose casting and a length of brass wire bent to form the connection hose leading to the train line pipe 6.

STEP 5 EXTERIOR FINISHING TOUCHES


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THE DETAIL ON THE *BUENA VISTA'S* roof is substantially different than what's found on the Walthers roof. I started by removing the four molded vents using a No. 17 blade in a hobby knife. Then I filled in any rough spots with hobby putty and sanded the areas smooth, leaving a bare roof ready for detailing.

I made two hatches for the front (vestibule) end of the roof from .030" styrene. Then I added four vents from Train Station Products along the sides. I gently heated the parts to help them conform to the roof's contour. I also added Sinclair and wide cone antennas. All of these details can be seen in 1, upper left corner. The satellite antenna is a plastic-covered flat-top tack 2.

Moving down to the carbody, a series of grab irons form a ladder that extends from the vestibule end wall to the roof. I installed vertical 27" grab irons at each of the door locations, as well as horizontally at the rear of the car sides 3.

At the rear of the car, I added vertical 36" grab irons on each side of the picture window. On the flat end of the roof, I installed a set of Detail Associates Pyle rounded dual-beam headlights and two round end mounted marker lights from Train Station Products 4.

Materials list

Bethlehem Car Works
75 brass battery box

Detail Associates
1004 Pyle rounded dual-beam headlights
1013 Canadian-style ditch lights
1803 Sinclair antenna
2202 drop-style grab irons
6206 freight car air hose
6215 freight car uncoupling lever
6601 27" passenger car vestibule grab irons
6605 36" straight grab irons

Details West
277 wide cone antenna

Evergreen styrene (strip unless noted)
126 .020" x .125"
135 .030" x .100"
137 .030" x .156"
142 .040" x .040"
143 .040" x .060"
292 .080" angle
410 .250" x .312"
411 .250" x .375"
4527 corrugated siding sheet
9005 .005" clear sheet
9007 .015" clear sheet
9009 .005" plain sheet
9020 .020" plain sheet
9030 .030" plain sheet
9060 .060" plain sheet

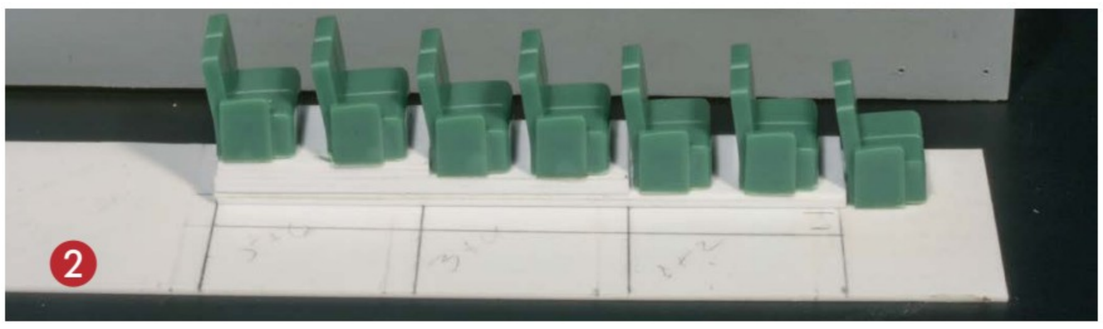
Preiser
17219 banquet tables and chairs

Train Station Products
424 modern six-wheel UP-style trucks
435 passenger car roof vents
436 passenger car stirrup steps
476 battery boxes
477 equipment box
487 passenger car stirrup steps
488 end mounted marker lights

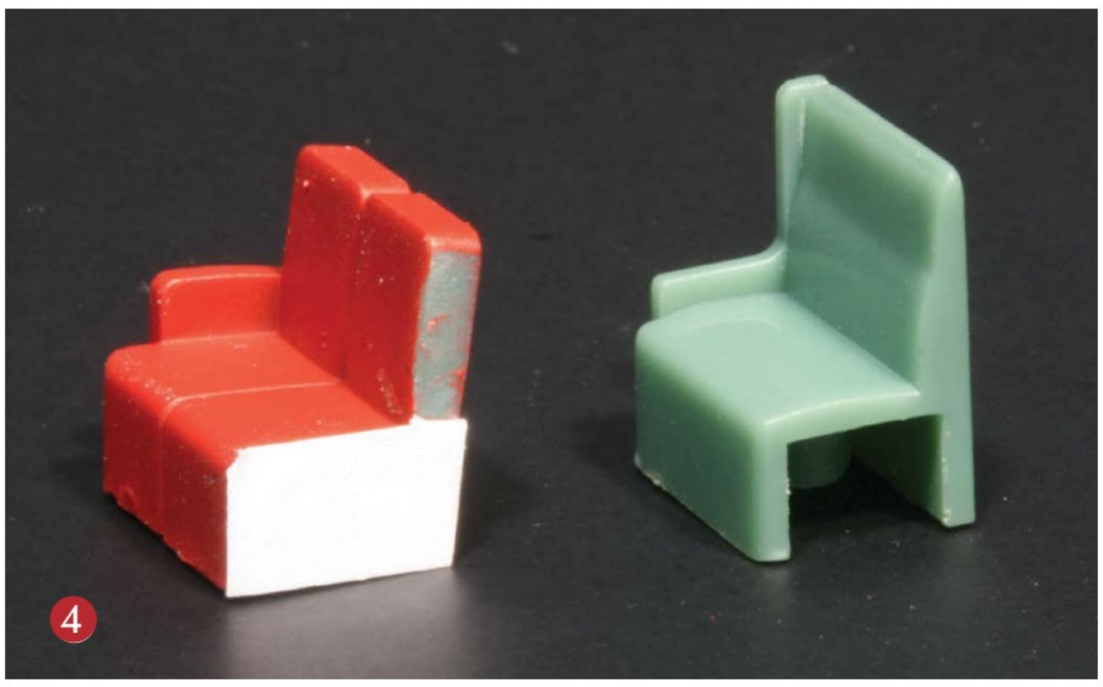
Wm. K. Walthers Inc.
932-10114, 10116, or 10122 paired-window heavyweight coach with balloon roof

STEP 6 INTERIOR DETAILS


1


2


3


4


5



6

USING PROTOTYPE DRAWINGS as a guide, I made a new floor from .020" styrene sheet. I switched to .030" styrene sheet for the walls. To re-create the theater-style seating, I made a pair of stepped platforms using multiple layers of .060" styrene 1. Each layer has two seats 2.

After painting and decaling the car, I reassembled the model. I used .005" clear styrene for the side windows. I switched to .015" clear styrene for the picture window.

I made the window shades from the protective tissue on the clear styrene sheet. I attached the tissue to the inside of the core at varying heights, including several fully extended to conceal portions of the interior that lack detail 3.

The benches from the Walthers coach proved ideal for the theater seating. Prior to installation I covered the open ends of the bench legs with .005" styrene sheet 4. Then I brush-painted the seats brown and added figures 5.

Also unique to the *Buena Vista* is the long table that seats 18. I kitbashed it from Preiser banquet tables, as seen in 3. This completed the basic interior. Then I put the roof on the car. With that, the theater car was ready for service 6.

Using simple kitbashing techniques and a little creativity, you can add this unique, eye-catching car to your business train. Hopefully you can put some of the techniques shown here to use in your next business car project. MR

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Southern Pacific PC&F B-100-32 and -34 Boxcar

- Etched metal coupler platforms
- Scale sized draft gear with Hydra-Cushion underframe
- Full underbody brake rigging
- Real rubber air hoses
- Multiple door styles (Youngstown or Superior)
- Separately applied etched metal coupler cut levers

Southern Pacific • Golden West • Canadian Pacific
Southern Pacific Patch and Fades • NOKL • AZER

All cars feature separately applied metal grab irons and metal knuckle couplers.

Trinity 6221 and 6241 Plastic Pellet Hopper

- Multiple roof hatch styles and arrangements
- Multiple outlet gate designs
- Etched roof walks and end walkways
- Spare hatches and different outlet gates included in polybag to let modeler modify for era
- Full end cage details
- Data only unlettered versions for both styles

6221 hoppers come without conspicuity stripes.



6221: ASRX • GPLX • TILX • XOMX • Data Only
6241: DOWX • EQUX • GACX • GISX • GSOX • SOXX

The suggested minimum radius for each car shown is: 18".



Greenbrier Transverse Coil Car

- Metal underframe gondola for maximum weight
- Etched-metal walkways
- Metal grab irons and cut lever
- Detailed underbody brake piping
- Highly detailed underframe
- Detailed interior padding
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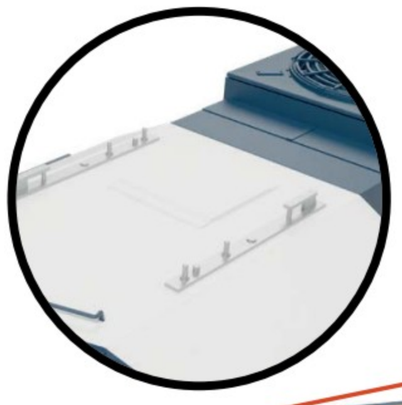
RAPIDO



SD70MAC LOCOMOTIVE

HO SCALE

BIG | LOCOMOTIVES | DETAILS



PTC Antennas
(Appropriate Styles per Roadname)



Raised Dynamic Brake Section
(Rebuilt SD70MACe/SD70AC)

Tier-1 Radiator Section
Rear Doors Accomodate APU



Appropriate Air Horn
per Roadname

Highly Detailed
Cab Interior



HTCR-II Trucks with Rotating Bearing Caps



Metra LED Gyralite, Red
Warning Strobe and PTC

Alaska-specific Features Which
Includes Winterization Hatch,
PTC and More!



Marker Lights and
Buffer Plates



Metra-specific Walkway
Guards



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All locomotives feature the MoPower capacitor for uninterrupted DCC power. Suggested minimum radius: 22"

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RAPIDO

The Pennsylvania RR
BUFFALO LINE

This 30 x 35-foot HO scale model railroad is set in 1956

By Lou Sassi • Photos by the author

David Holl has been interested in model railroading since he received his first Lionel train set for Christmas 70 years ago. During his hobby journey, he's constructed four layouts. The two model railroads prior to the HO scale Pennsylvania RR Buffalo Line shown here, both named Penn Valley, appeared in *Great Model Railroads 1999* and the October 2008 *Model Railroader.*

What led David to change themes? In the mid-2010s, after an operating session at a model railroad in Harrisburg, Pa., David and his good friends Gregg Heeter and Dave Wintermute followed the route of the PRR Buffalo Line to Williamsport, Pa. While there, the group visited the local historical society, where they were shown hundreds of pictures of the railroads and buildings of the area.

From Williamsport, the trio went to Olean, N.Y. This part of the route featured the 2.6% Keating Summit grade. Double-headed trains needed two helper engines to conquer the grade without stalling. Needless to say, the trip changed David's modeling focus.

Inspired to build

In 2016 David started work on the Pennsylvania RR Buffalo Line. The multi-deck, walk-in layout occupies two finished rooms, one 11 x 23 feet and the other 23 x 36 feet, in David's basement.

The model railroad represents the Pennsylvania RR as it existed in 1956 from Harrisburg, Pa., to Erie, Pa., and Buffalo, N.Y. It includes all of the major railroad towns and locations that David, Gregg, and Dave visited on their trip, including Keating Summit grade.

The layout features open-grid benchwork. Carpet backing was added wherever the benchwork rested against the finished, painted walls to prevent them from being damaged. Rail height is between 42" and 60" from the floor.

1 Pennsylvania RR Electro-Motive Division E8 No. 5804 rolls through Franklinville, N.Y., with train 575, destined for Buffalo, N.Y. The scene takes place on David Holl's HO scale PRR Buffalo Line layout.

Scenic highlights

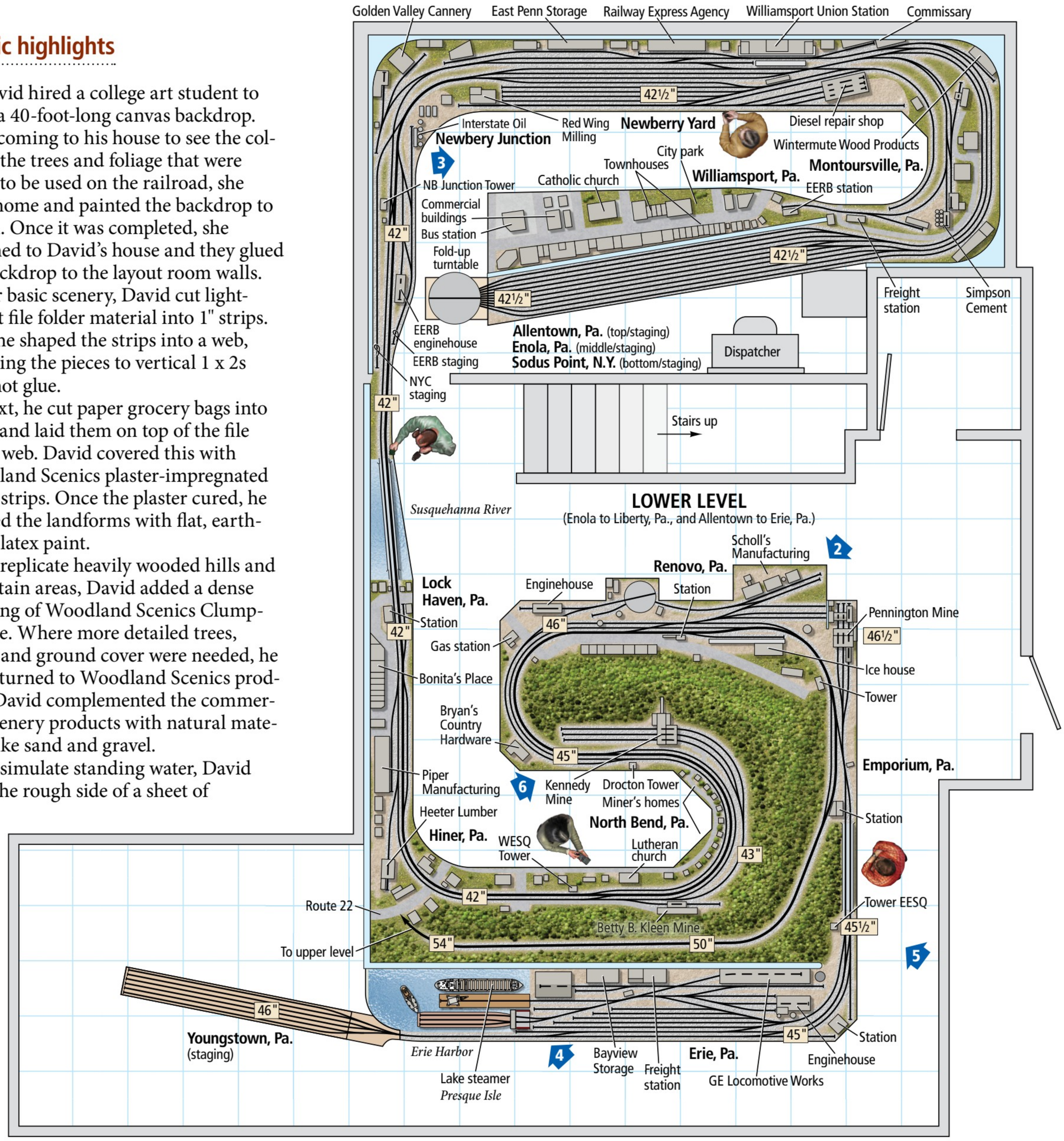
David hired a college art student to paint a 40-foot-long canvas backdrop. After coming to his house to see the colors of the trees and foliage that were going to be used on the railroad, she went home and painted the backdrop to match. Once it was completed, she returned to David's house and they glued the backdrop to the layout room walls.

For basic scenery, David cut lightweight file folder material into 1" strips. Then he shaped the strips into a web, attaching the pieces to vertical 1 x 2s with hot glue.

Next, he cut paper grocery bags into strips and laid them on top of the file folder web. David covered this with Woodland Scenics plaster-impregnated gauze strips. Once the plaster cured, he painted the landforms with flat, earth-toned latex paint.

To replicate heavily wooded hills and mountain areas, David added a dense covering of Woodland Scenics Clump-Foliage. Where more detailed trees, grass, and ground cover were needed, he again turned to Woodland Scenics products. David complemented the commercial scenery products with natural materials like sand and gravel.

To simulate standing water, David used the rough side of a sheet of



2 Penn Valley No. 16, a Fairbanks-Morse H10-44, switches cars in the yard at Renovo, Pa., on the layout's lower level. The ice house and platform behind the locomotive are kits from Wm. K. Walthers Inc.



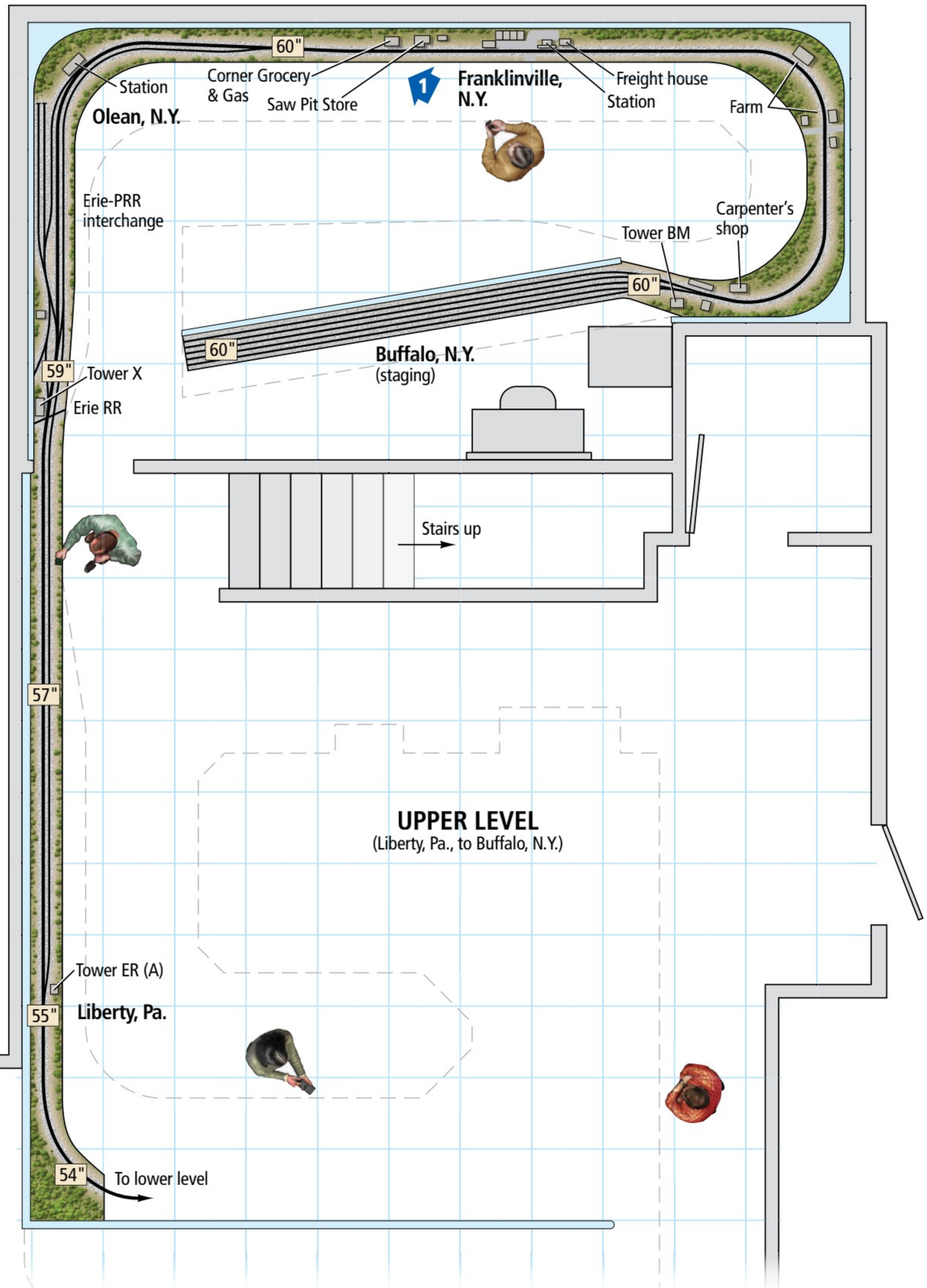
The layout at a glance

Name: Pennsylvania RR Buffalo Line
Scale: HO (1:87.1)
Size: 30'-9" x 35'-0"
Prototype: PRR
Locale: Harrisburg, Pa., to Erie, Pa., and Buffalo, N.Y.
Era: 1956
Style: multi-deck walk-in
Mainline run: 155 feet
Minimum radius: 24"
Minimum turnout: No. 6
Maximum grade: 2.6%
Benchwork: open grid
Height: 42" to 60"
Roadbed: Homasote
Track: code 83 flextrack
Scenery: hardshell
Backdrop: hand-painted and commercial offerings
Control: Digitrax Digital Command Control

Pennsylvania RR Buffalo Line

HO scale (1:87.1)
Layout size: 30'-9" x 35'-0"
Scale of plan: 3/16" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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





3 This overall view shows Williamsport at right, Montoursville at distant center, and Newberry Yard at left. The staging tracks are behind the backdrop at Williamsport, leaving plenty of room for operators working the yard.



4 Penn Valley Alco RS3 No. 30 switches the car float at the harbor in Erie, Pa., one of David's favorite scenes on the layout. In the background is tramp steamer *Presque Isle*, being loaded with goods from the freight cars on the adjacent track.

plywood. After painting it blue, he applied a coating of glaze.

Structures and track

Nearly all of the buildings on David's Pennsylvania RR Buffalo Line are commercial kits. Most have been modified to fit specific locations.

One of David's favorite scenes is the dock in Erie Harbor. It features a tugboat; a railroad barge from Wm. K. Walthers Inc.; and tramp steamer *Presque Isle*, a resin kit from Sylvan Scale Models. The loading dock includes an overhead traveling crane from Walthers.

David also likes to point out the Main Street scene in Williamsport, Pa. It features several large office buildings and heavy street traffic.

Atlas code 83 flextrack was used throughout the PRR Buffalo Line. The layout has a mainline run of 155 feet. The minimum radius is 24", and the maximum is 32".

The Nos. 6 and 8 turnouts are operated with Caboose Industries ground throws and Tortoise by Circuitron switch machines. The Tortoise-operated turnouts are controlled by the dispatcher.

Running trains

There are more than 300 freight and passenger cars on the layout. Roughly half of the freight cars are lettered for the Pennsy. The remaining equipment is decorated for other railroads from the mid-1950s. David uses artist's chalks to weather his rolling stock.

The locomotive roster reflects the layout's late steam-to-diesel transition era, with greater emphasis on Pennsylvania RR's collection of diesels from EMD, Fairbanks-Morse, and Alco than steam.

Operations on the Buffalo Line include passenger trains, locals, unit trains, and bridge traffic. Trains are controlled using walkaround Digitrax Digital Command Control throttles. The layout features operating PRR-style position light signals.

David hosts monthly operating sessions. A crew of eight to 10 operators gather for each three-hour session. Positions include dispatcher; two yard



5 Manifest freight BF-7 climbs the Keating Summit grade near Emporium, Pa. A pair of helper units was added to lift the train up the 2.6% grade.

Climbing the Keating Summit grade

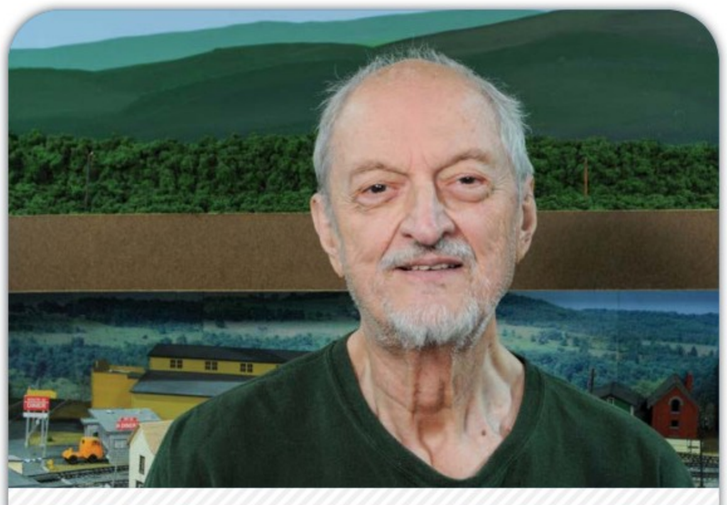
The dispatcher calls Enola Yard in Harrisburg, Pa., giving westbound Pennsylvania RR train BF-7 clearance to depart for Buffalo, N.Y., at 7 a.m. The train, with two Fairbanks-Morse C-Liners and 25 cars, has orders to set out two covered hoppers at Lock Haven, Pa., for the Bald Eagle branch line going to Altoona, Pa.

While train BF-7 is making the setout at Lock Haven, the dispatcher calls the crew of the helper engines assigned there to assist the train on its uphill climb. Though the grade is only 1% between Lock Haven and Renovo, Pa., the Keating Summit grade is 2.6%, so the additional horsepower will be needed.

Upon arrival in Renovo, 10 more freight cars are added to the train. After departing Renovo and passing through the small town of Emporium, Pa., the BF-7 begins feeling the effects of the Keating Summit grade. Slowing to 10 mph, the two engines up front and the helpers on the rear muscle the train to the summit near Olean, N.Y.

After cresting the grade, the dispatcher gives the helper engines permission to return to Lock Haven. Train BF-7 is cleared the rest of the way to Buffalo. — *Lou Sassi*

6 David's model railroad is set in 1956, near the end of steam era on the Pennsylvania RR. Here we see PRR class I1 Decapod No. 4291 leading a solid string of loaded coal hoppers past Kennedy Mine. The train is on its way to Sodus Point, N.Y., on Lake Ontario.



Meet David Holl

David Holl has been an active model railroader since he was 8 years old. The 14 x 16-foot version of his HO scale Penn Valley was published in *Great Model Railroads 1999*. A second, larger version of the Penn Valley appeared in the October 2008 issue of *Model Railroader* magazine.

crew operators for Newberry Yard; yard operators at Renovo and Erie, Pa.; and four road crews. David uses car cards and waybills for car routing. A home-made telephone system allows the dispatcher to communicate with crews.

David, Gregg, and Dave found a timetable with train numbers that they incorporated into the operating sessions. "When we run one of those trains, we feel like were running the actual train on the Buffalo Line," David said.

The schedule of 38 trains is spread over a three-month period. During the first three-hour shift, or "trick," 12 trains are run. The second and third tricks both feature 13 trains. The three-month cycle simulates a 24 hour day on the PRR Buffalo Line.

Mission accomplished

David has constructed a prototype-inspired model railroad that's fun and challenging to operate. "I tried to incorporate the same kinds of problems the real railroads would have encountered, especially for trains climbing the 2.6% grade using helper engines," David said.

David would like to thank Gregg Heeter, Dave Wintermute, and Tom Kennedy for helping with the layout. He also thanks the members of his operating crew for bringing the layout to life each month.

Looking back on a decade of work on the HO scale Pennsylvania RR Buffalo Line, David said, "I would not do anything differently." MR

BIG TURBINES, BIG SOUND

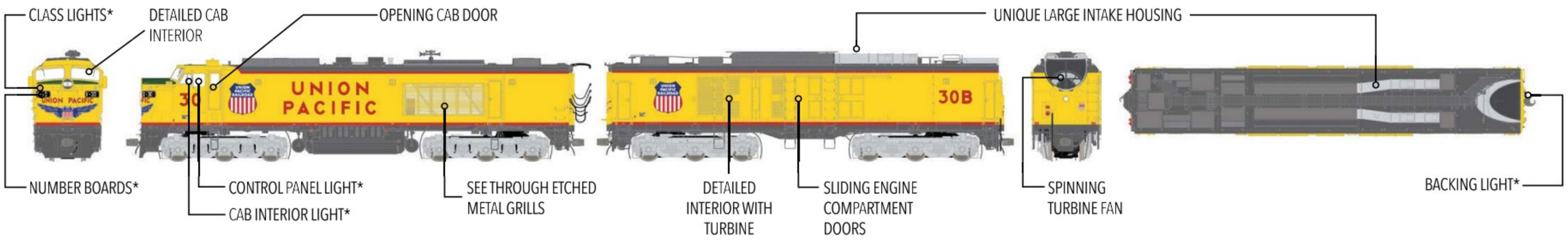
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HO 1:87 SCALE

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Mike Tylick has always loved service stations, and he was looking for a structure to fill this space across from the station at Marshfield Hills. He wanted the structure at a higher elevation than the surrounding scenery, so he needed to add fill to his On30 Marshfield & Old Colony lines. Find out how.

CLEAN FILL WANTED

Mike Tylick needed an alternative to plaster hardshell scenery in a crowded part of his O scale model railroad

By Mike Tylick • Photos by the author

Open-grid benchwork has a lot going for it, but operating over unfinished chasms on my On30 Marshfield & Old Colony lines makes me nervous. If something didn't derail and crash to the floor, it was only a matter of time before a bump on the benchwork or an errant elbow would hit the trains.

The best train equipment protection is to build some scenery, and even rough scenery makes the railroad look considerably better. I'm never going to think of removing everything before I work, and I'll always be clumsy.

I've long preferred hardshell scenery, made by dipping paper towels or newspaper into soupy plaster before covering either crumpled newspaper or a web of cardboard strips. The materials are inexpensive and the work goes quick. A little paint, dirt, and ground foam and my safety net looks even better.

I design scenic effects as broadly as possible; high ground here, low ground there, cliffs here, water there, a structure here, forests there. The plot in front of the Marshfield Hills depot was always planned to be above track level and some sort of structure was going to be erected there.

Over time a commercial structure seemed the most appropriate. When I saw photos of the Bar Mills Town Line Tire Co., I found what I wanted. I've always loved service stations, and this kit combined many of the elements of the old businesses that are now so rapidly disappearing.

I found I could just shoehorn the kit into the area. But it wouldn't be feasible to place the model on top of my rough scenery. Instead, I'd borrow a method often used in real life to prepare a building site; retaining walls and fills. Since the surrounding areas were completed, I didn't want to use plaster fill. Remember, I'm clumsy, so I'd have spent hours masking the finished areas and cleaning up the white splotches that always appear when plaster is involved. So clean fill was desired, and I found it in another old technique, the sawdust, glue, and water filler described in scenery articles by noted modelers Bob Hayden and Dave Frary.

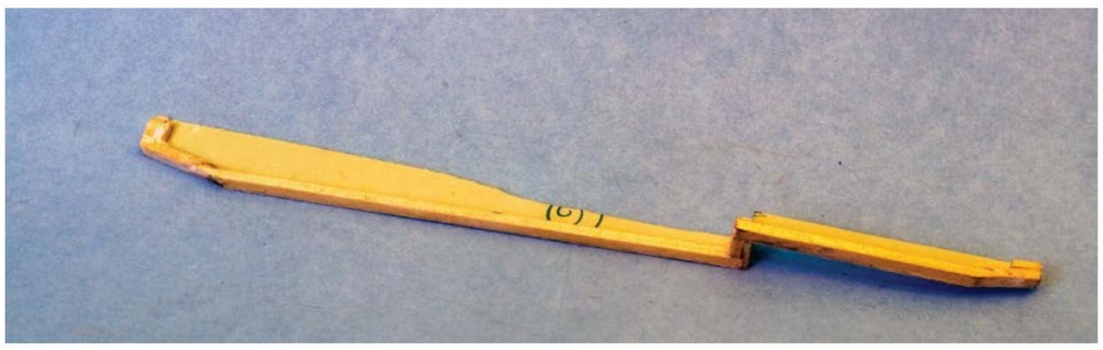
Mike Tylick has been contributing articles to the pages of Model Railroader *for more than 40 years.*

STEP 1

SITE SURVEY AND PREP



Here's an overall view of the garage site showing the rough hardshell. The area to the right is the next phase of scenery. Blue painter's tape is invaluable for protecting track during scenery work. Unlike conventional masking tape, blue tape can remain on the track for months and be easily removed. This location is in the rough scenery stages. Newspapers help protect the basement walls from scenery paint.



A retaining wall is necessary for the backfill for the service station and pump areas. A railroad tie or stone wall would look nice here, but since the wall faces the rear and will likely never been seen, a simple concrete wall made from illustration board and stripwood is sufficient. Since I may someday take video or still photos from track level, I completed the unseen rear sides of structures between the track and the layout edge. The stripwood "cap" stiffens the illustration board and gives the impression of a deep, solid wall. I primed both sides of the retaining wall with enamel spray paint to prevent it from warping.



The bottom of the wall is cut to fit the terrain. A paper template facilitates this. A little white glue on the bottom holds it in place. The jag in the wall allows room for a manual turnout control. With a little paint, HO scale Caboose Hobbies ground throws look and work well for On30. Oh yes, after everything was installed, the ground throw is easier to reach than you might think.

STEP 2

ADDING FILL



A mixture of sawdust, white glue, and water is used to backfill the retaining wall. This will not leave ugly white splotches, and cleans up from finished scenery quite easily. The mixture is about 50-50 glue and water with enough liquid added to the sawdust to keep it from sticking to tools. The Styrofoam packing peanuts are used to add bulk and reduce the amount of filler necessary. It's OK — most clean fills have some rubble at the bottom. I'll also use the little chunks and splinters of wood that end up in the sawdust for bulk. Wet, crumpled newspaper would also work.



The entire site is roughed in with the sawdust filler. Dirt has been sprinkled on top to become the first layer of ground cover. The mixture takes several days to completely dry. Some find this a disadvantage, but I like having the ability to rework things for a few days. I usually have several projects going at one time, so I just move on to something else while waiting for the filler to dry. The center area will be covered by a structure so there's no reason to fill this in.

When the white glue is dry, the fill becomes what is essentially particle board — impossible to drill for trees and other details. A few sprays with water softens the material, allowing holes to be easily poked or drilled, or the fill can be reworked. Yellow carpenter's glue wouldn't let me do this as it doesn't reactivate when it's wet, taking away a great advantage of this material. White glue also wicks up from the fill into later layers of ground cover, resulting in an even, stronger bond. Ground cover additions usually dry overnight.



When the material dries out, everything looks much better, more like the appearance of the background. "Water soluble scenery," as popular modelers and authors Bob Hayden and Dave Frary called it, takes several months to completely dry. It doesn't appear to become brittle, and as it dries, colors lighten and blending becomes more subtle. The "ripples" have yet to be smoothed out.

STEP 3

PUTTING IT ALL IN PLACE

The completed structure is seated on the site and leveled. I added shims where necessary, such as under the gas pumps and the rear shed. The gaps in the fill are not important at this point. It's better to leave everything alone for a few days until the fill hardens.

The Bar Mills Signs were scanned and reworked with a computer. The new name helps to set the locale. The real Marshfield Garage is owned by Wayne Oxner, a family friend. Detail parts are from Bar Mills and Berkshire Valley. I poked a hole into the hardshell for the interior lighting wiring.



Additional fill grades and smooths the site. The steep hill on the right is necessary to meet a road that is planned on the next layout section.



Dirt and a little ground foam has been applied over the wet fill. This area will be mostly dirt, so not too much additional scenic texturing will be added.



I used a Bar Mills S scale fence as a barrier between the service station and the nearby tracks. The fence is described in detail in my article "Good fences make good scenery" in the October 2014 issue of *Model Railroader*.



Final details and ground cover, including weeds and old newspapers, complete the scene. To this day most garages have a ton of junk in their backyards, and in small towns, they're often places where people gather. The figures at left are from Model Power (the cigar even glows red). Other figures are by Atlas Model Railroad Co., Preiser, Woodland Scenics, and Bachmann. MR

THE GREAT FREEDOM RR

A real escape and a new found freedom

By Dave Rickaby
Photos by the author



Americans celebrate freedom on the Fourth of July. Of course this is the historic date our Founding Fathers declared our independence from Great Britain, and of course this year is the 250th anniversary of that declaration. We declared, fought for, and received our freedom. After all this time, many of us probably take that for granted. There are people still seeking to be free and the only way is to escape to freedom. How is this even applicable to our hobby? Because it was the path that future model railroader Arpad Eiler had to follow and which in later years led to his building of the Great Freedom RR.

Arpad's journey

Arpad's family emigrated to the United States in 1951. From New York City, the family took the New York Central to Chicago, the Milwaukee Road to Milwaukee, and The Milwaukee Electric Railway and Light Co. (TMER&LC) interurban to the suburb of Waukesha. His dad, a master wood craftsman, had a job secured at the Manitowoc Church Furniture factory. The owner of the factory had sponsored 20 families to emigrate to America.

In 1962, his dad started his own business, the Eiler Cabinet Shop. Arpad joined him after his graduation in 1963, eventually taking over the business in 1973-74. He sold the business in 1982 and moved north.

Railroading's lasting impression

Arpad grew to love railroading from that original trip across the country and remains with him to this day. He first became interested in model railroading at the young age of 8, when his two older brothers had a Lionel and an HO scale layout. Arpad and his wife, Sue, moved into their current home near Waupaca in 1988, and purchased vacant land 4 miles away. Arpad built his workshop there in 1994 and started the layout in 1995-1996.

The layout

The Great Freedom RR is totally freelanced. Because of his love for America and its history, Arpad decided the layout would be a journey through U.S. history by naming the model railroad's towns and certain industries after former presidents, famous generals, and other notable players.

To Arpad, the Civil War was the defining moment in American history. Therefore, Grant Staging was named after Ulysses S. Grant, while Lee Staging was named after Robert E. Lee. Abraham Lincoln is Arpad's favorite president, and the massive steel mill complex of the layout bears his name.

Arpad also included interchanges with eight railroads on his layout. Two of them are with the Milwaukee Road and the Chicago, Burlington & Quincy in honor of Waupaca (Wis.) Area Model Railroad Club members Jan Treirweiler and Pat Lyons. A third prototype interchange is with the New York Central near Cleveland.

There are also five freelanced railroad interchanges with the Little Wolf Central of Eugene Much, the Evergreen Hills & Allen Creek of Roger Hildebrandt, the Tomorrow Valley Central of Dennis Cook, the Red River Valley of Jim Payton, and the Johnstown & Rose of the late John Poris.

Arpad believes that before you start designing a layout you should really operate on other model railroads so you can get a feel for what you like and don't like. The first iteration of the Great Freedom RR was built in a 26 x 46-foot outbuilding on his property. Half of the space was dedicated to the layout and the other half to his workshop.

Continued on page 46



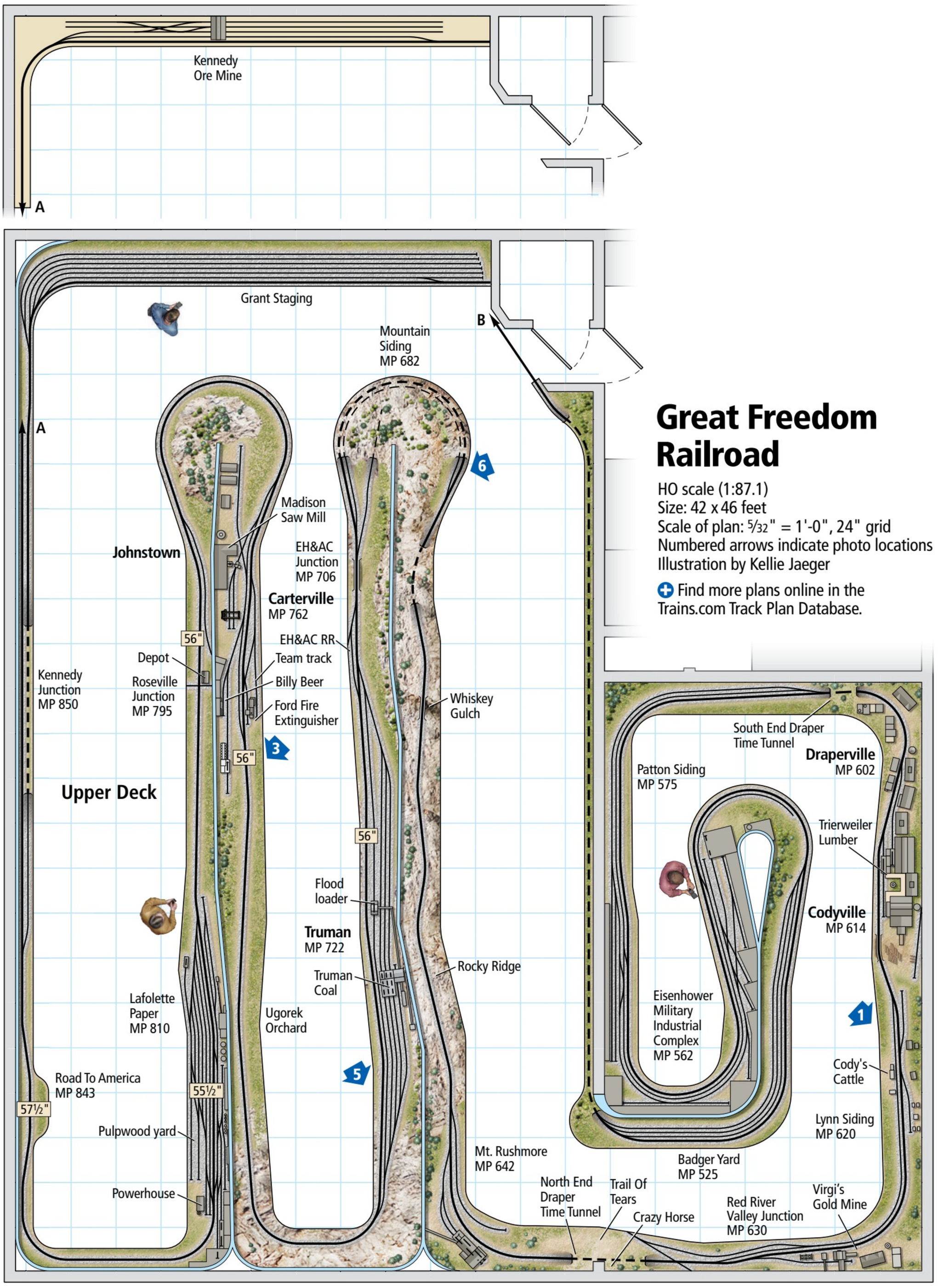
1 After completing its work at Carterville, train No. 182, with Great Freedom RR GP35s No. 1913 and No. 1979 in the lead, passes through Lynn Siding on its way to Marshall Yard on Arpad Eiler's HO scale Great Freedom RR.

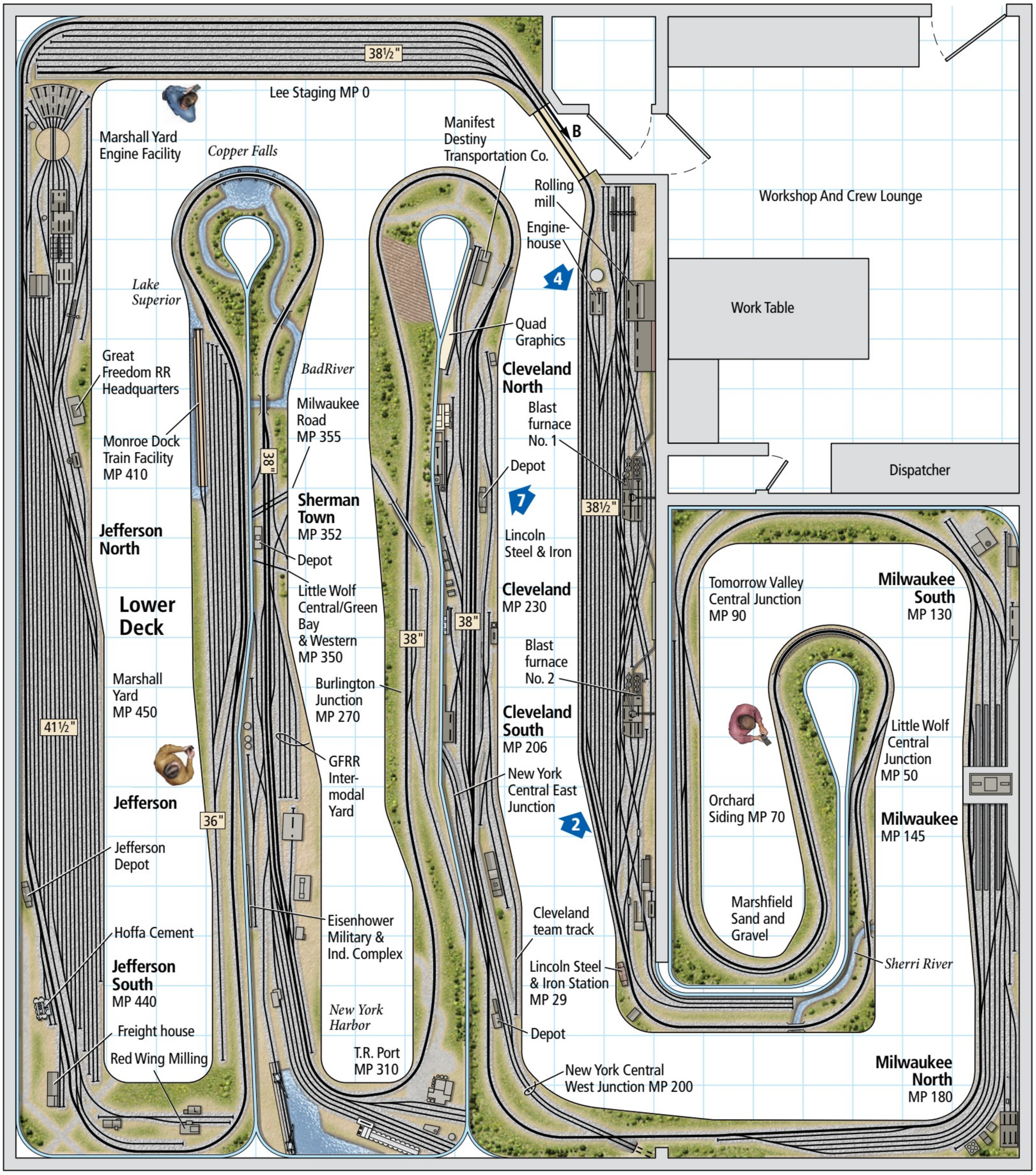
2 At the Lincoln Steel & Iron mill, there are two empty unit trains ready to return to their originating points. Meanwhile, loaded ore train No. 370 and loaded coal train No. 362 are waiting to deliver their loads. Freight train No. 160 will switch the mill and return to Marshall Yard.

Great Freedom Railroad

HO scale (1:87.1)
Size: 42 x 46 feet
Scale of plan: 5/32" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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





The layout at a glance

Name: Great Freedom RR
Scale: HO (1:87.1)
Size: 42 x 46 feet
Prototype: freelanced
Locale: continental United States
Era: 1910 to present
Style: double-deck around the wall with multiple staging yards

Mainline run: 900 feet from staging yard to staging yard
Minimum radius: 28"
Turnout minimum: No. 4
Maximum grade: 2%
Benchwork: open grid
Height: 38" on the lower deck, 56" on the upper deck with the summit at 56.5"
Roadbed: ¾" plywood covered with ½" Homasote
Track: Atlas code 100

Scenery: carved Styrofoam and plaster rocks in rubber molds on screen
Backdrop: ⅛" tempered hardboard painted blue with Scenic Express and Walthers backdrops, and background photos taken by Gordy Sauve.
Control: Digitrax DCC DCS240 and DB210



Arpad's family history includes an escape from the Red Army at the end of World War II. That is depicted in this scene Arpad calls Road to America.

The Great Escape in HO scale

"Road to America" is a scene Arpad has modeled as an homage portraying his family's escape from Hungary. In September 1944, his mother, along with two brothers-in-law and their families, headed west in five wagons pulled by either horses or oxen as the Russian Red Army was approaching from the east.

This scene is depicted with three horse-drawn wagons moving through a battle between Russian T-34 tanks and German Panzer and Tiger tanks along a rail head in Hungary. Arpad is still amazed at the courage that it took to just up and leave their home. There wasn't any choice but to run to freedom!

Arpad's father was ethnic German and was an officer in the Hungarian Army. During the war, Hungary was a German ally. Had his father been captured by the Russians, it wouldn't have boded well for him. While he was still fighting on the advancing Russian front, the rest of the family headed for the American lines in Germany and freedom! By the grace of God they made it. His father survived and the family was reunited. Arpad was born in Germany right after World War II. — *Dave Rickaby*

Continued from page 42

Eventually he caught the common disease most model railroaders are infected with. This is called "the layout is never big enough," and affected him enough to add two additions. The footprint of the layout building is now 42 x 46 feet, including a 16 x 18-foot crew lounge. His wife decreed that this was enough expansion and Arpad agreed. At his age, he wants to enjoy the layout.

When Arpad decided to model a fictional, freelanced railroad he knew he had to come up with a basic color scheme. This was a no-brainer. To honor the country that gave him his home and his freedom he chose red, white, and blue to represent the American flag.

The Hungarian flag just happens to be red, white, and green. To honor his heritage he decide that the lettering on the locomotives would be green. He also decked out his crew lounge with red, white, and blue paint on the walls and ceiling, but painted the trim work green.

The double-deck layout has three peninsulas and staging at both ends. It's laid out in a point-to-point configuration via both Grant Staging (southbound) and Lee Staging (northbound).

Marshall Yard is the geographical center of the layout. Arpad named this yard after World War II Gen. George C. Marshall, who authored the Marshall Plan for rebuilding Europe after the war. Taking a note from railroad lingo, this is where all the of his Great Freedom RR traffic is marshaled, pun intended.

The layout has a progressive grade of 2%, doing away with the need for a helix to traverse between the lower and upper decks. The layout rises from a mean elevation on the first level of 36" at the Monroe Ore Dock to 57.5" at the Road to America scene on the upper level (see sidebar at left). The mainline run is 900 feet between staging yards.

The benchwork is open grid made using 1 x 3 pine. The support structure was built using 2 x 4s from the floor, through the middle of the layout, and up to the second deck. The second deck was cantilevered from that, which created a very stable structure free from wobbling. Arpad used Atlas code 100 flextrack and Peco Nos. 4, 6, and 8 turnouts.

Of the approximately 100 locomotives that Arpad rosters, most of them are from Kato while the others are from ScaleTrains.com. Of these, the bulk of the locomotives are from other railroads, while Arpad maintains a small fleet of roughly 20 locomotives painted and lettered for the Great Freedom RR. These locomotives are numbered for important years in American history, along with personal family birth and death years.

Arpad uses the Digitrax DCS240 and DB210 systems. About 25% of his locomotives have sound units installed. The ScaleTrains units came with ESU LokSound decoders; the Kato units had SoundTraxx units installed by Engine House Services in Green Bay, Wis.

The rolling stock consists of models from Athearn, Roundhouse, Accurail, and Tangent. Arpad has close to 1,200 pieces of rolling stock on the layout, and another 200 to 300 in his storage drawers.

Scenery with friends

Arpad, with the help of his friends from the Waupaca Area Model Railroad Club, created the bulk of his landforms using carved extruded-foam insulation board. The mountains were created using the tried and true method of window screen over risers. The screen was covered with paper towels dipped in a soupy mix of 45 set sheet rock plaster. Most of this work was done by friends Gordy Sauve and the late Lynn Draper.

To make rockwork, the team used rubber latex molds and a soupy mix of 22 set sheet rock plaster. Latex paint, which comes in tubes from Hobby Lobby and Michaels craft stores, was used to color the rockwork. Burnt umber, burnt sienna, yellow ochre, and gray were the primary colors. Diluted black paint was sprayed over the rockwork areas to flow into the cracks and craggy areas to deepen the shadows.

The grasses and bushes on the layout came from both Woodland Scenics and

3 The northbound *20th Century Limited* is easing into the Cartersville station as the arriving passengers scurry to the loading area. The train will terminate at Grant Staging.

Scenic Express. About of quarter of the trees on the layout were purchased premade; many were made from sedum and artificial Christmas tree branches, which they cut to shape and added flocking.

The waterways were made with Woodland Scenics Realistic Water, including the associated products to replicate waves and movement. Mod Podge was also used.

Structure showcase

As many as 85% of the structures on the layout are Walthers products. Some were kitbashed to fit the space. There are several craftsman kits that were built by Lynn Draper. These structures came from Lynn's former layout, the Fremont & South Park, after his passing and now adorn Arpad's layout at Draperville, Codyville, and Lynn Siding. Lynn's layout was featured in Trackside Photos in the December 2007 issue of *Model Railroader* and in the November 2009 issue of *Railroad Model Craftsman*.

The backdrop is ⅛" tempered hardboard painted sky blue. Arpad used backdrops from Scenic Express and Walthers and photos by Gordy Sauve.



4 Looking north at the Lincoln Steel & Iron mill we can see the locomotive facility with an Algoma Central GP7, a Chicago Great Western RS2, and an LS&I GE 70-tonner being prepared for their days work.

5 Loaded northbound coal train No. 362, with BNSF Ry. Electro-Motive Divison SD70MAC No. 8802 and General Electric AC4400CW No. 5615 on the point, is at the flood loader. In the background, a pair of Union Pacific six-axle GE road units leads train No. 366 in the opposite direction.



6 Great Freedom RR train No. 341, with General Electric AC4400CWs Nos. 1783 and 1776 on the point, is heading north with a solid train of military equipment. The train originated at the Eisenhower Military Industrial Complex and will terminate at Grant Staging.

The bulk of the layout is illuminated with light-emitting diode tubes. Arpad is currently replacing the remaining fluorescent lights with LEDs.

Running trains

Arpad tries to keep his operation simple and follows the notion touted by Tony Koester, who basically said that if it takes you longer than 10 minutes to explain your railroad to an operating crew, then it's too complicated. He took that to heart as he developed his operating scheme.

Through this process Arpad realized that some people just like to run trains without having to stop and switch, some like to switch but nothing too complicated, and then there are the die-hard operators who live to do nothing but switch. Therefore he developed jobs to satisfy all three of those operator personalities. For the people who just like to run trains, there are through trains from staging to staging, or from staging to Marshall Yard or reverse.

For more action, take one of the turns — trains that head out of the yard to do



7 Southbound train No. 226, with BNSF General Electric C44-9W No. 1005 and Southern Pacific SD45 No. 7500, highball through Cleveland. The train originated at Marshall Yard and will terminate at Lee Staging. Great Freedom RR train No. 164, with GP35s Nos. 1943 and 2023, is switching the local industries here and will return to Marshall Yard at train No. 165.

some switching at a location on the layout, and return.

For the hardcore gang, who really like to get involved in switching, there's the Lincoln Steel mill, which is quite involved. This complex is massive and includes 62 turnouts, one double-slip switch, and 27 diamonds within the steel mill complex.

An opportunity to work together

Arpad wants people interested in getting involved in the hobby to know that it's a great way to meet people. It's a good way to work together and to help other people. He realizes that not everyone is skilled in all aspects of modeling railroading. The hobby offers the opportunity to get people to work together.

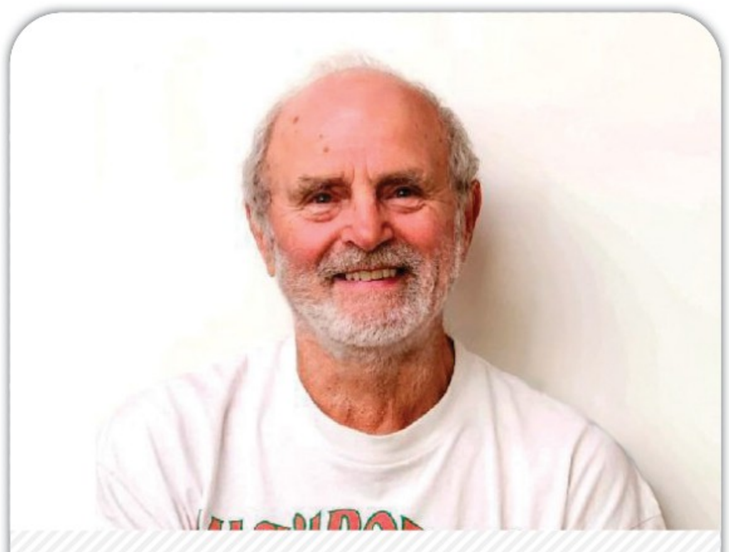
Arpad was never a big enthusiast of going to train shows but did it because the club that he belongs to would display and run its layout at them. He always enjoyed the people and running trains. Arpad wants to especially thank the members of the club, for without their help, time, talent, and support, his layout would not have been as successful as it is.

The thing that Arpad loves most about model railroading is designing and building a layout. It drove him to continually expand the model railroad over the years. He admits to not being a big scenery guy but sure does love building the benchwork, laying the track, and designing where the track is going to go.

For the foreseeable future, operating the layout is foremost on Arpad's agenda. As with any layout it's never finished. True to this point, there are several areas that need to be completed.

Great freedom

One final question to be resolved: Why does Arpad run so many locomotives from other railroads? He does that because he wanted to represent railroads from throughout the United States. It was the railroads that helped build this country and protect our freedom, especially in times of war. The railroads united us as nation, so the layout encompasses the entire country. Because it's his layout, it gave him the great freedom to create what he wanted. This is the real story of the Great Freedom RR. MR



Arpad Eiler

Arpad, his wife, Sue, and cat, Kitty, live on the upper Chain of Lakes in Waupaca, Wis, near Hartman Creek State Park, where they enjoy the hiking and cross-country skiing trails. Besides model railroading, Arpad enjoys woodworking, shooting pool at the Senior Center, and taking roadtrips to visit family and friends. As a heritage footnote, Arpad was named after the King of Hungary, who in 896 brought the Magyars to their current location.

Hopefully the kayakers out on the Mukwonago River are railfans, as they are being treated to not one, but two trains. Modeling water scenes on a model railroad is easy, thanks to readily available products such as those used here. Cody Grivno photo

EAST TROY INDUSTRIAL PARK

RESIN WATER

Part 7: Using off-the-shelf products to make the river on our project railroad

By David Popp // photos by the MR staff

People are drawn to lakes and rivers in real life, so it stands to reason that water features also attract attention on a model railroad. Whether it's a still pond that's smooth as glass or turbulent rapids, a water feature can set the tone for a layout scene. Add some human interaction, such as boats, swimmers, or people fishing, and you can create a scene that tells a story visitors to your model railroad will remember.

Modeling water is actually quite easy, thanks to a selection of readily available materials found at most hobby shops and craft stores. And as long as you are careful when you handle the resin, a water scene such as the Mukwonago River on our East Troy HO layout is an easy project that is well within the capabilities of even the beginning hobbyist.



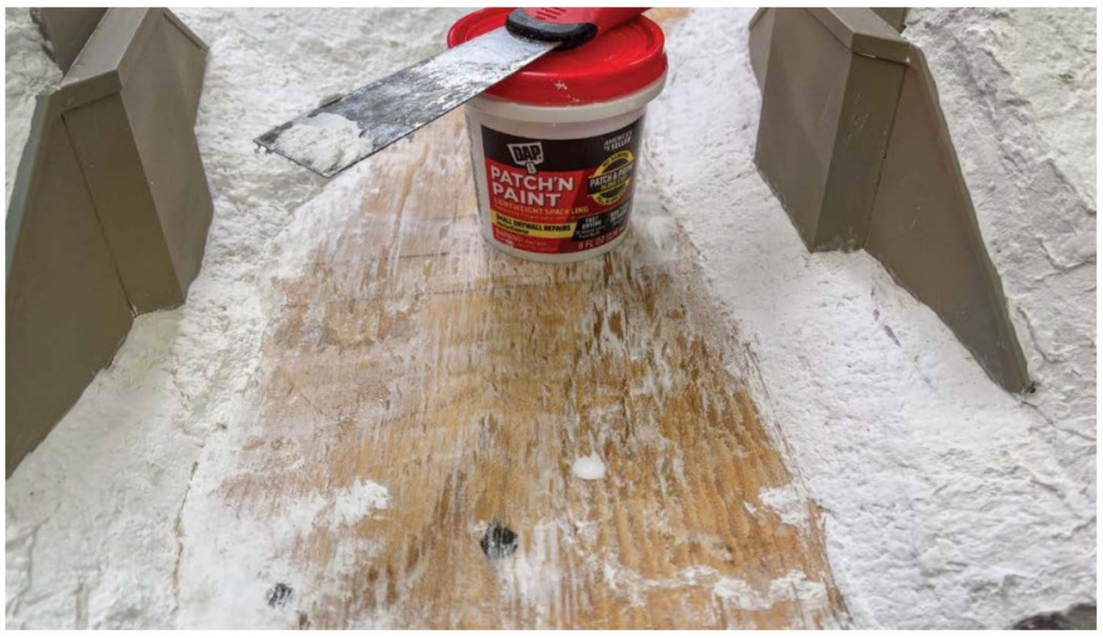
The Mukwonago River is neither wide nor long, making it an ideal size for a model railroad. And its muddy color is easy to replicate using dark paint and a thin layer of tinted resin.

STEP 1 Riverbed prep

Much of the scenery work needs to be complete before adding a river. This prevents you from damaging the finished water surface once the resin is installed.

After I'd completed the plaster cloth hills and formed the banks with Sculptamold, I carefully scrapped away any leftover dried plaster bits from the plywood riverbed. I filled any remaining gaps, screw holes, and open wood grain with spackle. When that had dried, I sanded the surface smooth and painted it with flat tan latex paint.

Next, I painted the riverbed with Woodland Scenics CW4534 Water Undercoat, Olive Drab. I then installed dams at both ends of the river using strips of .080" styrene, which I sealed in place with clear latex caulk.



For the resin river to look its best, it needs to be poured over a smooth surface. David filled in the imperfections in the plywood with spackling compound.



Once the spackle was dry, David sanded the surface smooth, then painted it and the surrounding scenery with flat tan latex interior house paint.



After completing the base layer of scenery, David painted the riverbed an olive drab color and added 080" styrene dams to each end to keep the resin in the river.

STEP 2 Estimating depth

Before mixing and pouring the resin, I needed to know how much material to make, which meant I needed to find the surface area of the river. The river meanders, making measuring it to find its area a bit more complex. However, to simplify the task, I drew a sketch of the riverbed, then I broke it up into easy-to-measure rectangles, triangles, and trapezoids.

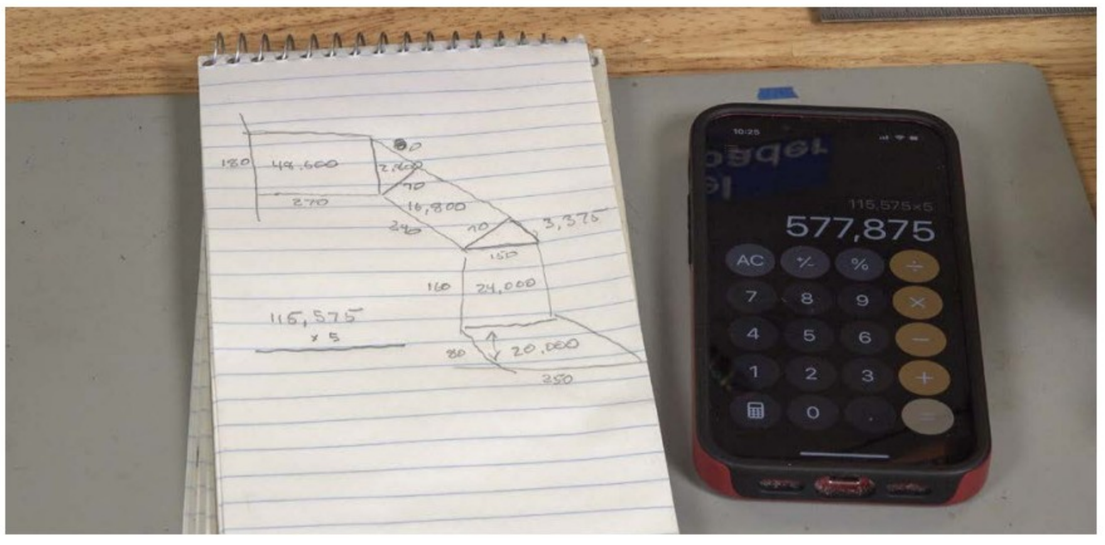
The Woodland Scenics water system works in milliliters, so for the easiest conversion, I used metric measurements throughout. I found the length and width for each river segment in millimeters and then multiplied them together to get area in square millimeters. I then added the areas for all segments together to find the surface area for the entire river.

Next, I determined that I wanted a 5mm river depth, so I multiplied the area by 5. However, that number is in cubic millimeters, which isn't the same thing as the milliliters needed to measure liquids. To convert cubic millimeters to milliliters, multiply the cubic millimeters by .001. I would need 577ml of resin to fill the river to a depth of 5mm.

Having worked with the material many times before, I knew that the Woodland Scenics Deep Pour resin kit didn't include that much material. And while I could buy a second kit, I decided instead to settled for a depth of 3mm, requiring just over 300ml of material, which I knew one kit could handle.



Using a millimeter ruler, David measured each section of the river to determine its area. Breaking the river into smaller shapes made the task much easier.



After finding the area for the sections, David added the totals together to determine the area for the full river in square millimeters. He then multiplied that by 5 for a depth of 5mm.

STEP 3 Mixing and pouring

For this project, I used the Woodland Scenics Deep Pour water material. The 2-part resin is sold in kits, and including enough resin and hardener to make just over 300ml of material. It's available in clear and murky versions, and you can mix them together if you desire.

As we didn't want to model the riverbed, I used the murky kit. The resin isn't dark enough by itself, so I colored it with Woodland Scenics CW4523 Olive Drab tint. Between the murky resin, tint, and olive drab paint used for the riverbed, I was able to produce a water surface that looks every bit the part of a muddy river.

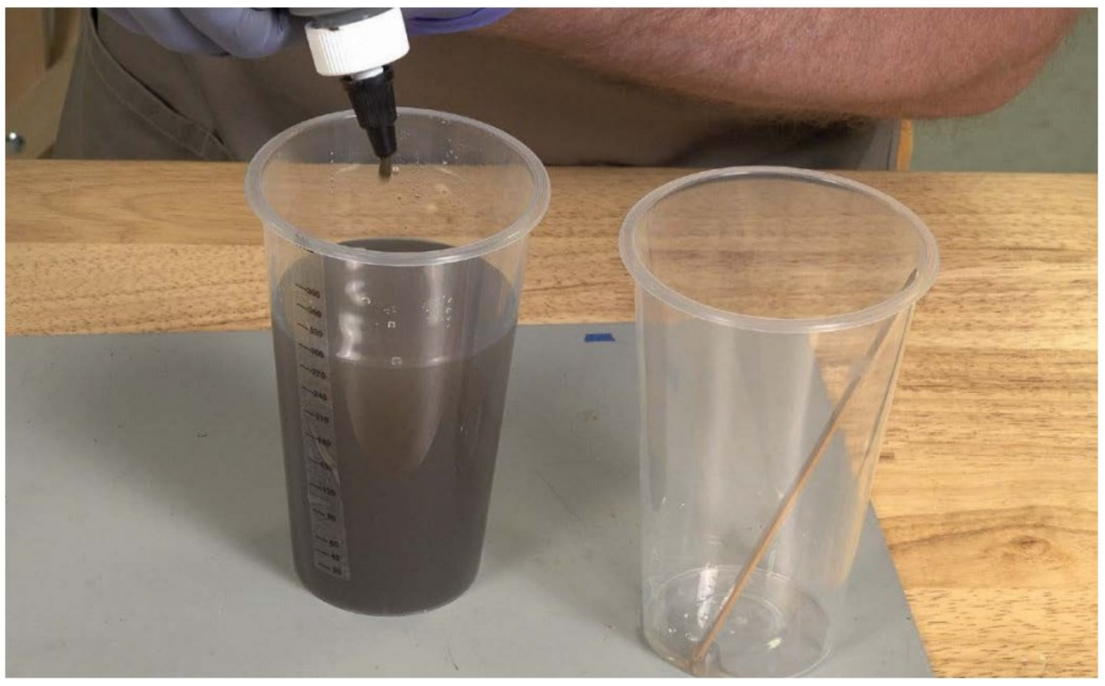
As long as you follow the measuring and mixing instructions in the kit, you should end up with good results. During the mixing phase, I added the tint, choosing to mix the color by eye instead of measuring the tint exactly.

You have about 10-15 minutes of working time, which is typically more than enough to pour the full batch. I poured the resin in the middle of the river, then used the mixing stick to tease it into the shore. Give the material a full 24 hours to cure before proceeding to the next steps.

Although one layer is usually enough, the riverbed was crowned in the middle. Try as I may to level the surface, I knew one end or the other wasn't going to fill in completely. After the first batch had cured, I leveled the layout for the opposite end and poured a second batch. You can add as many layers as you wish. Completely cover the first layer to avoid unnatural ripples.



The Woodlands Scenics Deep Pour water kits include everything you need to mix and pour 300ml of two-part resin material. Need more? Simply add more kits.



During the mixing phase, David tinted the resin using Woodland Scenics Olive Drab water tint, mixing the color by eye as he worked. It doesn't take much to darken the resin.



To pour the resin into the riverbed, David flowed it down the mixing stick into the center of the river. He then used the stick to tease the material into the banks.



After the first layer of resin hardened, David leveled the opposite end of the river for a second pour. This assured good coverage for the entire surface.



Using the stir stick as a guide again, David filled in the lower area first before then coating the rest of the river with a final thin layer of material.



With the bridge removed, you can see how the resin has crept into the sandy shoreline. That can be corrected later by applying white glue and a bit more scenery material.

STEP 4 Modeling waves

The Mukwonago River has a dam at one end, near where our Milwaukee, Racine & Troy RR would cross it, which produces waves on that end of it. However, the rest of the river is fairly placid. To model the waves, I used Woodland Scenics Water Effects C1212 paste. This is a stiff material that is white when applied, but dries clear.

I used a paintbrush to apply it to the surface. I then used a small sculpting spatula to tease it into gentle waves. The paste is very easy to use, but try to avoid creating repeating patterns when working with it. Waves on the water's surface should have a randomness to them to look natural.

Near where the water's surface becomes more still, I used the brush to stipple the material on the resin, allowing it to fade into the smooth water at the wider part of the river as it passes under the CN's high bridge.



David added waves to the water's surface using Woodland Scenics Water Effects paste. It is white when applied but dries clear. You can clean the tools in soap and water.



You can shape the material to represent different sizes of waves using small paintbrushes, sculptor's spatulas, or even a wood craft stick with a round end.

STEP 5 River details

While the river looked good with just the waves and the surrounding scenery, I added a few more details to make it more realistic.

River grass will grow anywhere there is soil and where the water doesn't move too swiftly for it to stay rooted. To simulate this on our river, I used some Peco PSG-74 10mm spring grass tufts. I placed a dot of the Water Effects paste on the bottom of each, and I planted the grass tufts along the banks and out a bit into the water.

I then added some Noch 16809 kayaks. These are water-line models, so I glued them to the river with Water Effects paste. I also added a few swirls on the surface to look as though they were made by the paddles.

The river scene took roughly 10 hours over a couple of weeks to complete, but the interest it provides to the finished layout was well worth the effort. MR



During the summer months, the Mukwonago River is surrounded by abundant vegetation, including tall river grasses. Static grass tufts work great to simulate this.



David glued both the tufts and the kayaks to the resin surface using more Water Effects paste. While there is more to do yet, these two features really add life to the river scene.

Trackside Photos





Porter engine No. 4 leads a short passenger train across a trestle over Blackrock Canyon on Peter Vassallo's HOn3 modular shelf layout. All modules on the layout, including this one, were created using sheets of extruded-foam insulation board. Peter Vassallo photo

Send us your photos

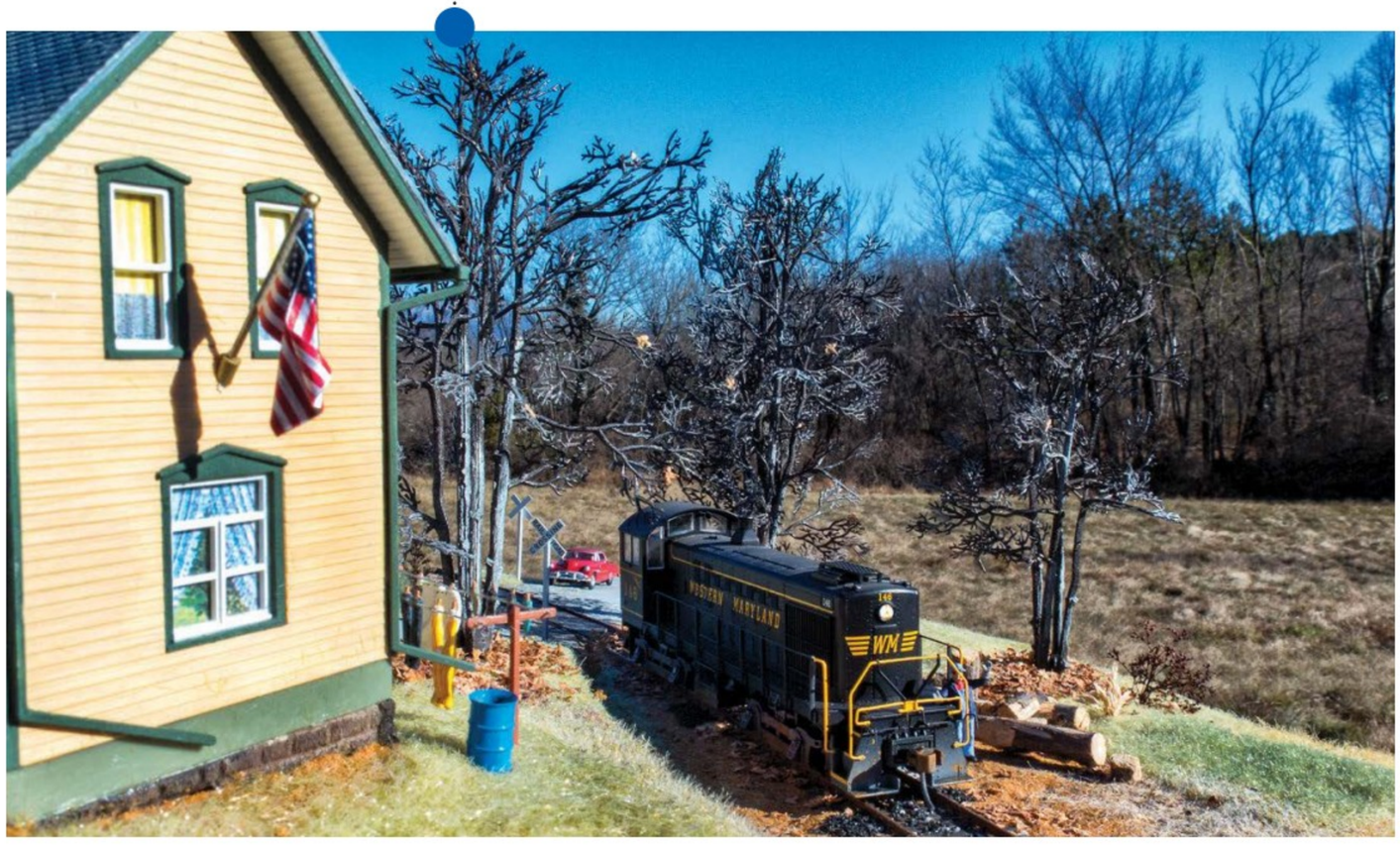
Trackside Photos is a showcase for the work of *Model Railroader* readers. Send your photos (digital images 5 megapixels or larger) on a flash drive to: *Model Railroader*, Trackside Photos, 18650 W. Corporate Dr., Suite 103, Brookfield, WI 53045; or email them to us at editor@modelrailroader.com.

A Reading Co. STAR crew is getting set to head west as the sun sets on another day on Scott Wahl's N scale T-TRAK modules. Reading's STAR used to be able to go from Harrisburg to Bethlehem and return before the crew ran short of its federal hours of service limit. The STAR brought raw materials to Bethlehem Steel and returned west with its finished (or semi-finished) products. Ed Kapuscinski photo





The warm pale light of a late fall afternoon illuminates this scene of quiet provincial atmosphere as a Western Maryland Alco S4 makes its way slowly along a branch line during the end of the 1950s. Davide Raseni of Trieste, Italy, captured the charm of a poor freight branch line and photographed it under a real November light on his 16 x 19 inch HO scale diorama.





Local train G01 sets out an empty scrap gondola at the SLM Recycling transload yard in Carrollton, Ga., on Baxter Barnes' Norfolk Southern Cedartown District HO scale layout. The excavator is by Diecast Masters with a 3D printed grapple, the scrap gondola is a Walthers Mainline model, and the SD60E locomotive is by Athearn Genesis. Baxter took the photo.

Trackside Photos



Forney No. 10 rolls into Strong with a short pulpwood train on a crisp early spring day on Lou and Cheryl Sassi's On30 Sandy River & Rangeley Lakes RR. The trees framing the engine are the work of SR&RL "Company Arborist" Cheryl, and the photo is Lou's.

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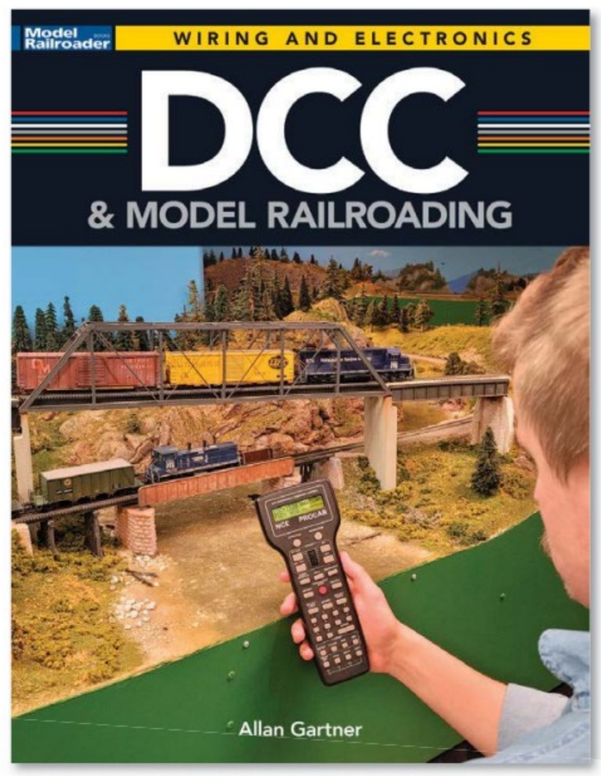
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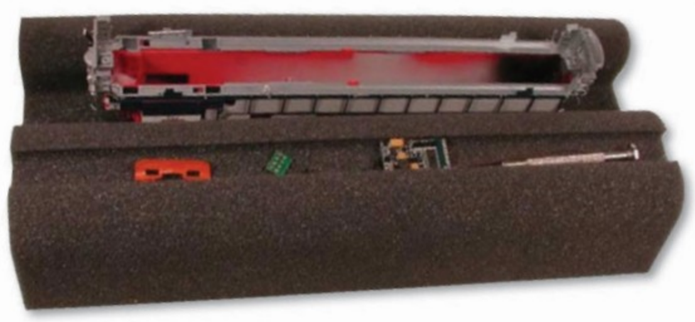
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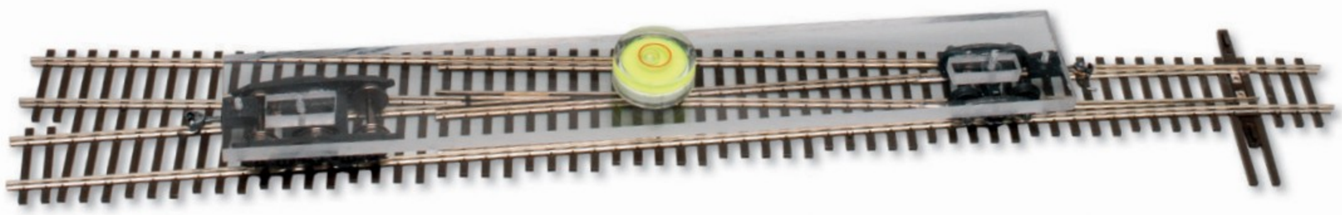












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Schedule of Events

CA, SACRAMENTO: SAVE THE DATES! International Railfair. November 14-15, 2026. Cal Expo, Building C, 1600 Exposition Blvd., Sacramento, CA 95815. Saturday 10am-5pm and Sunday 10am-4pm. Operating Layouts, Vendors, Kids Activities, on-site food and more! For updates, visit: internationalrailfair.com or contact Tom Campbell at tom.c.irf@gmail.com

IL, DECATUR: Celebrate the 35th Anniversary of the Decatur Train Fair! Decatur Civic Center Arena, 1 Gary K Anderson Plaza, Decatur, IL 62523. June 27-28, 2026. Saturday 10am-4pm, Sunday 11am-4pm. Admission $8, kids under 12 free w/adult. Model layouts, various scales. Vendors of all things model railroad. Vendor info provided by request: mdtraxler@hotmail.com. Free parking, wheelchair accessible.

IL, ST. CHARLES: 50th Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, (Front Building), 525 South Randall Rd., St. Charles, IL 60174. Sunday, June 14, 2026, 10:00am-3:00pm. Admission: $6.00 (includes tax). Children under 12 FREE. Tables starting at $65.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

MA, TAUNTON: OLD COLONY MODEL RAILROAD CLUB ANNUAL MODEL RAILROAD SHOW. Sunday, September 20, 2026, 10:00am-3:00pm. Taunton Inn & Conference Center, 700 Myles Standish Blvd., Taunton, MA 02780. Route 495, Exit 25. Admission: $5.00, under 12 (accompanied by an adult) FREE. All gauge show, operating layout and test track. For more information contact: rickcross749@gmail.com

MN, BLOOMINGTON: The 46th National Narrow Gauge Convention. September 2-5, 2026. Doubletree by Hilton Hotel, 7800 Normandale Blvd., Zip: 55439. Admission: $159 (covers all days). More than 75 vendors of all scales, 85 outstanding clinics, 40 home and club layouts on tour, contest room with models and photos. Free parking at hotel. Information: www.2026nngc.com

OH, VAN WERT: 23rd Annual Van Wert Railroad Heritage Weekend Model Railroad Show & Swap. Van Wert County Historical Society, Van Wert County Fairgrounds, 1055 S. Washington St., Zip: 45891. NEW DATES: July 17-18, 2026. Friday 4pm-8pm & Saturday 10am-3pm. Adults $7. Children under 12/Scouts in Uniform: FREE. Info: Chuck White, railcarman@frontier.com, 260-760-1666, https://www.vwrrhw.com

OK, STILLWATER: Heartland Summer Toy Train Show. July 10-11, 2026. Friday 5pm-7pm, Saturday 9am-3pm. Admission: Adult $10, kids 12 and under Free with paid adult. Payne County Fairgrounds Expo Center. 4518 Expo Circle E., Stillwater, OK 74075. Buy/Sell/Trade. Layouts, Vendor tables, Concessions. Sponsored by the Heartland Toy Train Association. For further information visit: www.heartlandtoytrain.org

PA, MECHANICSBURG: Williams Grove Historical Steam Engine Association's Train & Toy Show. June 19-21, 2026. Friday 5pm-9pm, Saturday 9am-4pm, Sunday 9am-12pm (Father's Day Pancake Breakfast 8-10am). 1 Steam Engine Hill. Free Admission. Operating PRR 643 Steam Locomotive & Diesel Engine 52. Trains & Farm Toy Vendors - Model Railroad Display - Food Vendors. Visit: www.wghsea.org

TX, AUSTIN: Austin Train Show. Over 25,000 sq.ft. of railroading fun for the whole family! Palmer Events Center, 900 Barton Springs Road, Austin, TX. August 29-30, 2026. Saturday 10am-5pm, Sunday 10am-4pm. Admission: $9 online, $10 at the door (includes both days), 12 and under FREE w/adult. Kids train ride, vendors, model/Lego railroads, tour, clinics. Visit: austintrainshow.org

WI, ONALASKA: Rail Fair, Omni Center, 255 Riders Club Road. Saturday, July 18, 2026, 10am-4pm. Admission $8.00, under 12 free with adult. Railroad Show–Flea Market–Swap Meet. BUY/SELL/TRADE. Model, Toy & Antique Trains & Memorabilia, Railroad Exhibits & Displays. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-498-9522. www.4000foundation.org

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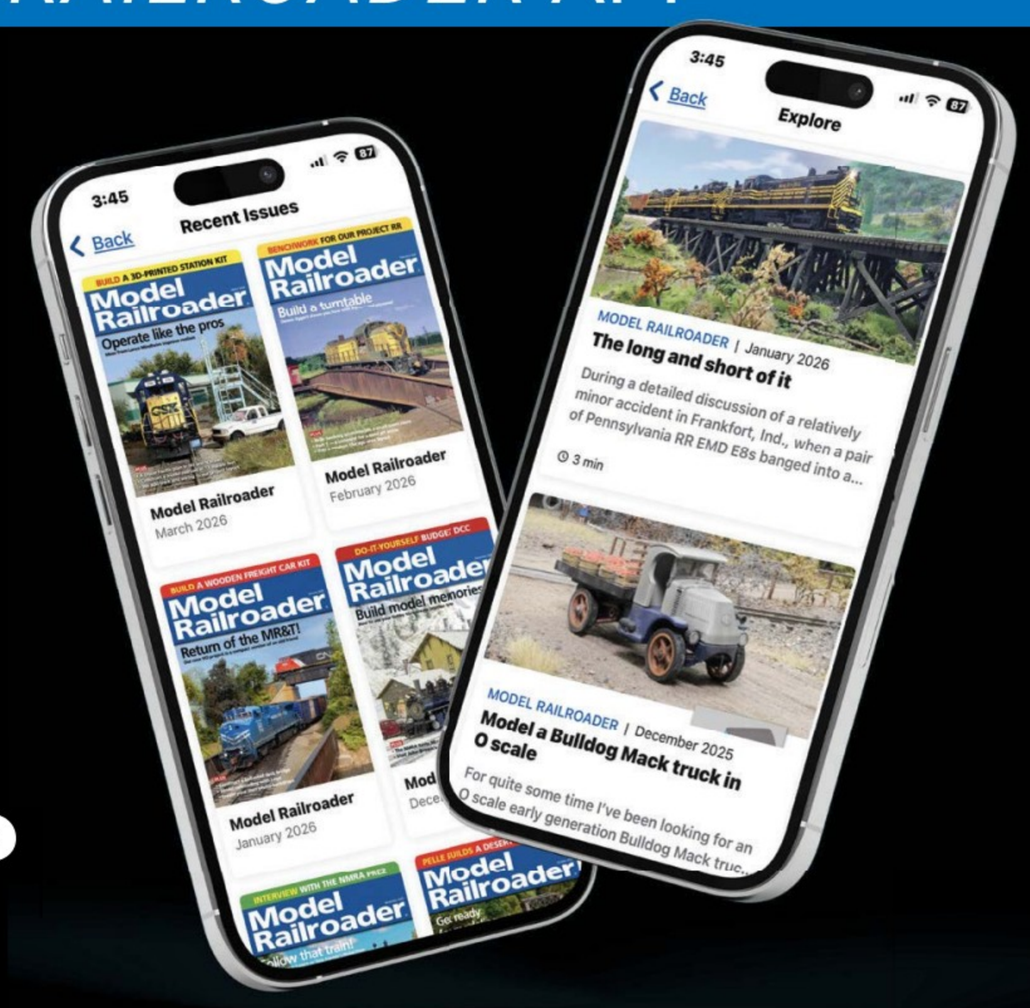
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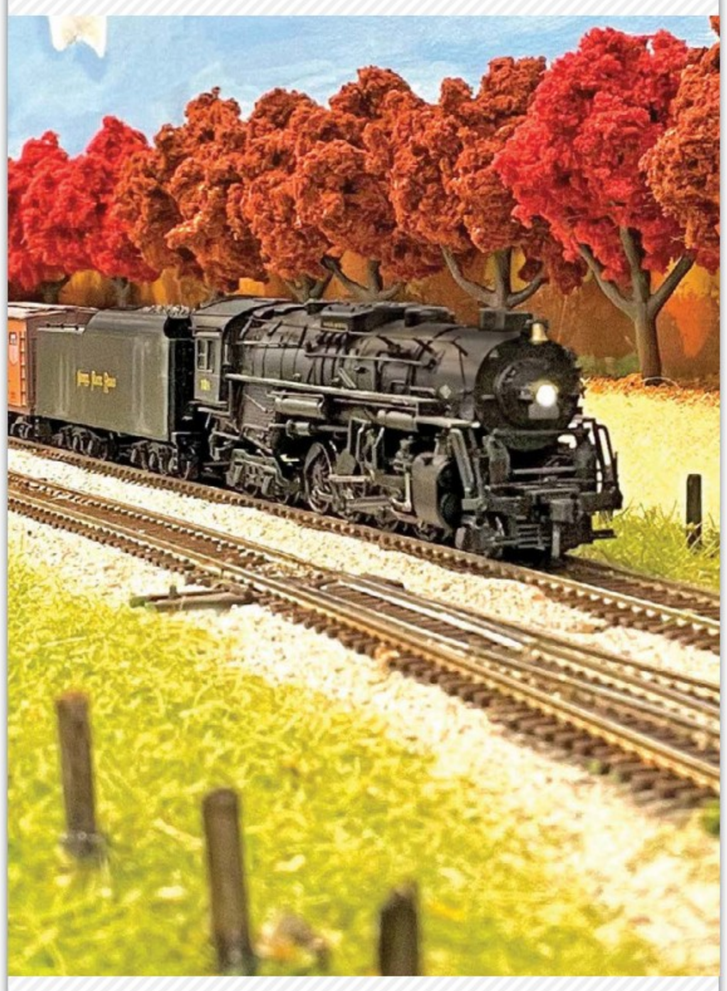
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2B In Trains 15
Atlas Model Railroad Co., Inc. 5
Axian Technology 18
Azatrax 15
Bachmann Industries, Inc. 68
BPL 15
Broadway Limited Imports 19
Central & Western Homaroad Supply 15
Circuitron 9
Digitrax 7
EngineHouse Services, LLC 15
Evergreen Scale Models 18
Great Midwest Train Show 18
Great Train Expo 18
Greenburg Shows 18
JB Wheel Sets 15
Kato USA Inc. 67
Märklin, Inc. 20
Mianne Benchworks 15
Model Train Market 7
Modelers Marketplace 61
National Model Railroad Association 9
PECO Products 17
Penguin 3D Workshop 15
Pre-Size Model Specialties 15
Rapido 30-31
ScaleTrains 2, 38
Showcase Express 18
Signalogic Systems 15
SoundTraxx 7
Spring Creek 18
Subscribe to Model Railroader 64
Texas Trains & Diecast 7
Train World 18
Trains.com 15
Trainz.com 9
Wm. K. Walthers Inc 3
Woodland Scenics 59
Yankee Dabbler 9

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Model Railroader MAGAZINE



Next Issue

Fast freight on the Nickel Plate

A combination of the right locomotives and a surgical wake-up call got Tom Smith moving on his N scale Nickel Plate model railroad

Less turns out to be more — fun

Brian Searles went from two decks to one to make his modern Norfolk Southern layout more fun to run

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By Tony Koester



Wingate's legacy

The original O scale Wingate layout that appeared in January through April 2020 MR is shown with Tony. Its current track arrangement is more operationally flexible; note passenger train No. 9 tucked into the short siding and the turntable at the east end. David Vaughn photos

Those of you who have been reading *Model Railroader* since late 2019 may recall that the January 2020 issue introduced you to my O scale (1:48) sectional depiction of the Nickel Plate Road in Wingate, Ind. There was nothing special about Wingate (see large photo) — a passing track, a spur serving two grain elevators, another to a feed mill, a third to a team track where the local lumberyard could receive lumber and coal. In short, save for a bulk-oil dealer (a surprising omission) and maybe an interchange with a foreign railroad, it was a typical Midwestern town.

But that's exactly what made it worth modeling. Wingate was on the Third Subdivision of the NKP's St. Louis Division. The local switching was done by westbound No. 45, a.k.a. the KC Local (see November 2025 MR), the only local freight that plied the Third Sub. A pair of elevators were located on a siding reached via a trailing-point turnout, which is straightforward to switch. The other two spurs were off facing-point turnouts.

When professional railroaders in the steam and well into the diesel era encountered such problems, they had three weapons to get cars into or out of stub-ended spurs with facing-point turnouts: drops, poling, and run-arounds. Back then, they could "drop" a car into the siding by heading toward it at a slow pace, uncoupling the car, then racing ahead to clear the switch points so they could be lined for the siding before the oncoming freight car arrived.

Getting cars out of the siding was even more hair-raising: The engine would get the car rolling on the spur, race ahead to clear the switch points, brake to a stop, instantly reverse as the switch was lined for the main, and hope they cleared the turnout before the slow-rolling freight car sideswiped them. A brakeman was riding the car in both cases to operate the brake wheel. To the average onlooker, it looked like he was steering.

Another approach called "poling" accounts for the long wood pole with metal end caps found hanging under steam locomotive tenders and the dimples on their pilot beams and on car end sills. Those are pockets into which the ends of the pole were inserted to shove a car when it was positioned advantageously. I'm sure a snapped or slipped pole made for some exciting moments, but the practice must have hung on into the 1960s, as NKP diesels up to the new-in-1964 GP35 and C420 had poling pockets.

Plan C was to run around the car(s), the method we use. But there was no short run-around at Wingate, so I added one.



IT WAS A TYPICAL MIDWESTERN TOWN ... THAT'S EXACTLY WHAT MADE IT WORTH MODELING.
— TONY

I sold Wingate to David Vaughn, who uses it at meets and conventions to promote O scale. If you find that N or HO models are slowly shrinking before your eyes every few months, visit O Scale Central at oscalecentral.com for more information on a fascinating larger scale.

I finally got my hands on a pair of O scale Kemtron Wabash Moguls (see October 2025 Trains of Thought) and am enjoying the scale I started out in on my enclosed porch. Progress is slower than I hoped, but according to the current publishing schedule, it should be ready for its closeup for a Firecrown Media book I'll be writing next year for publication in early 2028.

Meanwhile, David and friends have laid a double-track main through sleepy Wingate, renamed it Koester (which 95% of the viewers will pronounce "Coaster" rather than "Custer" and not have a clue about the name's origin), and are having a ball with it at shows. They even installed a turntable at one end to facilitate more than one-at-a-time east-west movements on a linear layout.

Wingate's mission is being fulfilled. MR



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