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F40 tested** p.56

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**Building
to fit the
scenery** p.30

Lee Marsh's
HO scale Great
Northern battles
the Cascades. p. 30

**10x20-foot
An innovative
logging layout**
p.38

HOW TO

**Upgrade a
ready-to-run car** p.46

**Make your own
grass mats** p.36

**Weather a modern
road locomotive** p.24



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Features



30 Building a trestle from the top down

From temporary 1 x 4s and plywood to a trestle, all while staying operational
by Lee Marsh

36 Make your own grass mats

An electric flocking box turns bridal veil material into easy scenery
by Will Kling



38 New life for a club layout

The HO scale Eastern Loggers exhibition layout is on the move
by John Burchnall and Mike Tener



46 Upgrade a ready-to-run car

A new deck, frames, and load enhance this On30 pulpwood hauler
by Lou Sassi

49 Brush-painting model vehicles

You don't need an airbrush to get realistic results
by Lou Sassi

In every issue

6 On Trains.com

The latest features on our website

8 From the Editor

When is your realism level good enough?

12 News & Products

Hobby industry news

18 Ask MR

Speed matching DCC locomotives for better consist

22 Railway Post Office

Letters from our readers



24 Step By Step

How to weather a modern road locomotive

52 DCC Currents

SoundTraxx Blunami sound decoder

54 On Operation

Run a detour train



56 Product Reviews

Rapido Trains N scale F40PH-2D, HO scale insulated boxcar from Eastern Seaboard Models, and more

62 Trackside Photos

73 Index of Advertisers and Cartoon

74 Trains of Thought

What do you see?



On the cover: Lee Marsh built this HO trestle from the top down so he could run on it during all stages of construction. Lee Marsh photo



Next issue

In January, get your first look at MR's 2023 project layout, an HO scale industrial branch. Plus, visit an HO New England layout, model a steam crane tender, and more!

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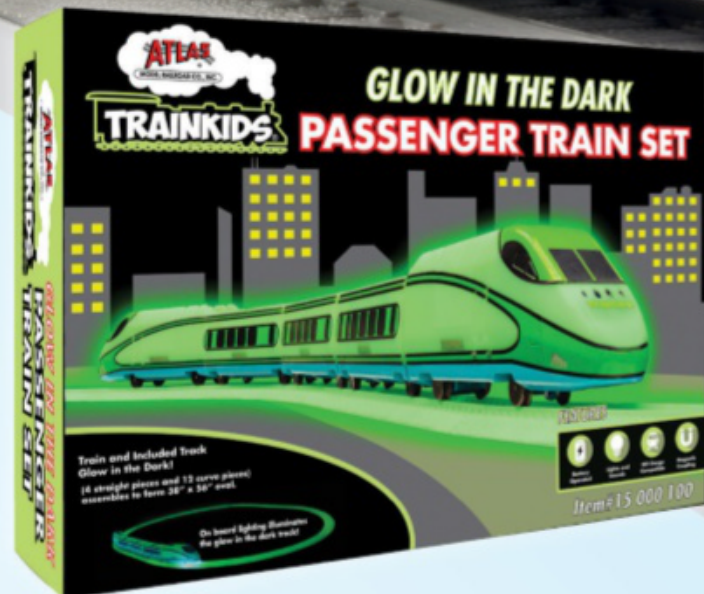


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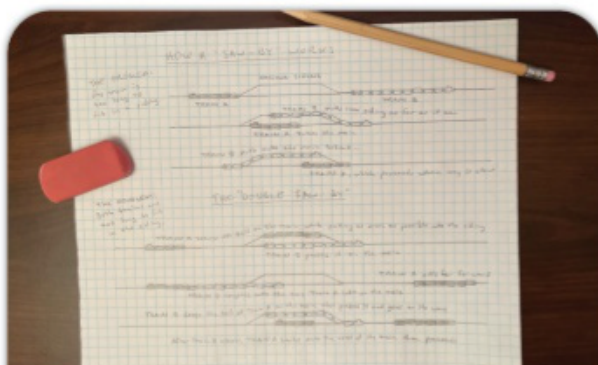
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Behind the scenes

Ever wonder how about how it works when a product gets reviewed at *Model Railroader*? Eric White and Cody Grivno walk you through the process of reviewing an HO scale Rapido F59PH locomotive. From opening the box, taking photos, weighing the engine, writing the text, and more, see how it all comes together in this exclusive video! Find it in the *Model Railroader* product reviews section on Trains.com.



Layout operations

When two trains running in opposite directions on a single-track main have to pass each other, the dispatcher schedules them to meet at a passing siding. What happens when one or both of those trains is too long to fit into the siding? Engineers coped with a maneuver called a "saw-by." Steven Otte discusses the ways a saw-by can add interest to layout operations. Find it in the Operations section of the *Model Railroader* website.

Prototype railroads

During a vacation to Sioux Falls to visit his parents, Cody and his family followed a portion of the former Illinois Central Gulf Sioux Falls District line from Rock Rapids, Iowa, to Sioux Falls. He'll share some of the highlights from the trip in a photo gallery. Find it in the Prototype Railroads area of our website.



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When is your realism level good enough?

Realism is something that gets talked about often in model railroading. It's one of the ways we differentiate our modeling from playing with toy trains. But what is realism, exactly?

One of the first rules we learn as we become hobbyists is "It's my layout, and I make the rules." So that means we each get to set the standard for realism for ourselves.

Well known modeler and innovator Allen McClelland is famous for his "good enough" approach to modeling. That is, choose a standard you feel is attainable, then make every part of your layout reach that standard. His feeling was you don't want superdetailed locomotives and rolling stock rolling through a city made of cardboard boxes. Better to slack off a bit on the trains and put a little more effort into the scenery.

This is an excellent concept, but what if you really don't care about scenery? Other well known modelers, such as David Barrow, found their reward in operation, and they want that operation to be as realistic as possible. If the layout is a series of 2 x 4-foot tables painted tan with track on them, that's OK as long as the track allows you to operate the trains following realistic rules and regulations, copied from your favorite prototype.

When I was younger, and most of my modeling was of the armchair and imagination variety, I thought I wanted everything to be perfectly to scale. Seeing modelers building layouts in Proto87, which is HO scale taken to exacting standards of track and wheel geometry, I thought, this is it; this is how it should be done.

Then I started to think about the skill needed to handlay track to exact scale standards so wheels with scale sized flanges and treads would reliably roll on those rails. I realized I didn't have those skills, nor the patience to develop them.

Back to good enough.

That's what commercial track and wheelsets are to me. I'd like all of my rolling stock to be perfectly detailed, but the cost to buy ready-to-run models built to that standard is more than I want to spend, and the time to make enough freight cars is too much to me to devote. Old Athearn "blue box" cars and Accurail kits are good enough.

I also thought it would be nice to have grass made of individual leaves, not to mention the foliage on my trees, but that's time and effort I could spend elsewhere. A few



highly detailed "hero" trees in the foreground is fine. The rest will have to be good enough.

Now, of course, everyone's good enough is different. Modelers such as Pelle Søborg and Andrew Dodge have levels of good enough I can't reach even on my best days. Where do you stand? Let us know!

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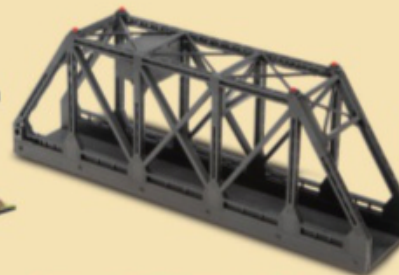
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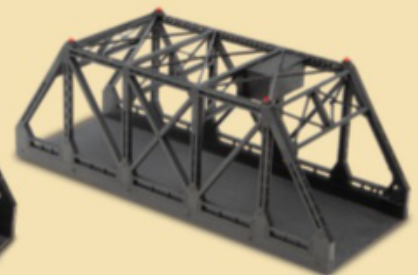
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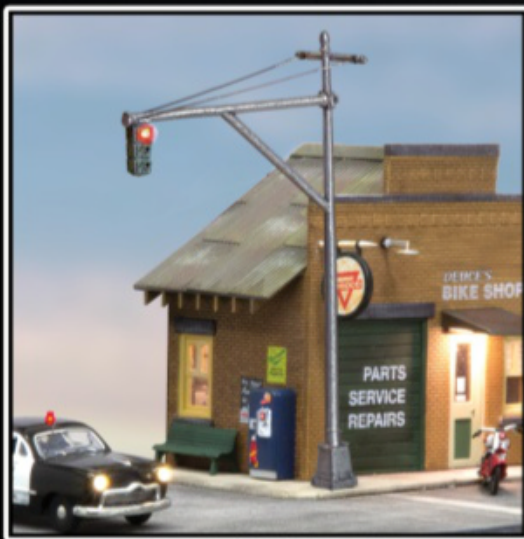
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HO scale



Union Pacific 4-8-8-4 steam locomotive. Broadway Limited Imports has released the Big Boy steam locomotive in its Paragon4 line. Paint schemes on the HO scale engine include No. 4014 ("The Big Boy Tour" excursion scheme with a standard finish and the Promontory Excursion scheme with a gloss finish), 1941 with as-delivered aftercooler and 25-C-100

coal tender, 1944 with Wilson aftercooler and 25-C-100 coal tender, and fictional two-tone gray. The model (\$869.99) is offered in one to three road numbers per scheme and features synchronized puffing smoke with chuff sounds and a dual-mode Paragon4 sound decoder. Broadway Limited Imports, 386-673-8900, broadway-limited.com

Walthers' new name train

Wm. K. Walthers Inc. announced that the *City of San Francisco* will be its next name train. The offering will feature equipment from the various railroads that jointly operated the streamliner from Chicago to San Francisco, including Milwaukee Road, Southern Pacific, and Union Pacific. Electro-Motive Division E9A and E9B diesel locomotives decorated for Milwaukee Road and Union Pacific, both in Amour Yellow and Harbor Mist Gray, will be offered with and without sound decoders.

In addition, Walthers is offering for the first time its Proto-series Alco PA and PB units decorated for Southern Pacific in the orange-and-red *Daylight*

and scarlet-and-gray schemes, as well as Texas & New Orleans 200-series units in the *Daylight* scheme.

Passenger cars will be available with either car name and number decals or with factory-printed names and numbers. All car types from typical *City of San Francisco* consists will be available. Four new cars are being tooled for the name train.

The passenger cars will be available separately and in two Deluxe Edition sets, the latter with figures and light-emitting diode lighting. Three holiday expansion sets with three cars each will also be offered. To see all the available options for this train, visit walthers.com.



The *City of San Francisco* is the next name train from Wm. K. Walthers Inc. Diesel locomotives for the train will include the Alco PAs and PBs and Electro-Motive Division E9As and E9Bs.

Wm. K. Walthers Inc. photo

New coil car from Tangent Scale Models

Pennsylvania RR Samuel Rea Shops class G41A coil cars are now available in HO scale from Tangent Scale Models. This is the third new freight car announcement in 2022 for the company.

Paint schemes on the car include Pennsylvania RR (1966 as delivered with hoods), Conrail (1976 repaint with hoods and 1997 repaint without hoods), Penn Central (1973 repaint with hoods), and Norfolk Southern (2005+ class GP67 repaint). Each paint scheme is offered in six to 12 road numbers. Undecorated coil car kits in three body styles; hood two-packs decorated for Conrail, PC, and PRR; and banded steel coils in four different sizes are also available.

Features on the coil car include road-specific details, different trough bodies, brakewheel housing and uncoupling lever bracket options, see-through cross-over platform combinations, metal stir-rup steps, machined 38" wheelsets, wire grab irons, and Kadee scale couplers.

The coil cars are available now and are priced at \$58.95 (with hoods) and \$50.95 (without hoods). Separate hood two-packs are priced at \$14.95, and eight-piece coil steel loads sell for \$11.95.

To order the HO scale PRR G41A coil car and accessories, visit the company's website at tangentscalemodels.com or visit your favorite Tangent Scale Models retail outlet.



Pennsylvania RR Samuel Rea Shops class G41A coil cars are available in HO scale from Tangent Scale Models. The model is offered in five paint schemes with prototypical body styles, with or without hoods as appropriate, for each scheme. Additional two-packs of hoods and eight-packs of coil steel loads will also be available.

HO scale locomotives



• **Alco PA-1 and PB-1 series diesel locomotives.** New York, New Haven & Hartford (green and gold); Atchison, Topeka & Santa Fe (warbonnet); American Freedom Train; Delaware & Hudson (warbonnet); Denver & Rio Grande Western (yellow-and-silver five-stripe scheme); Lehigh Valley (red); Nickel Plate Road (blue and silver); New York Central (lightning stripe); Pennsylvania RR (Tuscan five-stripe scheme); and Southern Pacific (*Daylight* and scarlet and gray). PA-1 or PA-1 and PB-1 set depending on scheme. Road-name-specific details; underbody piping and conduit; and illuminated number boxes, headlights, and green and white classification lights. B units are powered. Direct-current model: PA-1, \$225; PA-1 and PB-1 set, \$425. With dual-mode sound decoder: PA-1, \$335; PA-1 and PB-1 set, \$625. Rapido Trains Inc., 905-474-3314, rapidotrains.com



• **Alco RS3 "Hammerhead" diesel locomotive.** Lehigh Valley (Tuscan Red and Late Red), Pennsylvania RR (as delivered with train-phone antenna, decal version with train-phone antenna, and decal version without train-phone antenna [two road numbers]), and Conrail (Lehigh Valley Late Red patchout). One number per scheme unless noted. Can motor; light-emitting diode lighting; blackened nickel-plated wheels; and separate, factory-applied detail parts. Direct-current model, \$249.95; with sound decoder, \$349.95. Bowser Manufacturing Co. Inc., 570-368-2379, bowser-trains.com



• **General Electric ET44 diesel locomotive.** Wabtec (red, white, gray, and black in one number), BNSF Ry.

N scale



Pacific Car & Foundry B-100-40 boxcar. These N scale models from Rapido Trains are in stores now. Paint schemes on the Pacific Car & Foundry B-100-40 boxcar include Golden West Service (Ventura County reporting marks), Southern Pacific (as delivered), Amtrak (phase 4 and green), Columbus & Greenville (Southern Pacific patchout), Southern Pacific (Golden West patchout), and Union Pacific (Mineral Red repaint with shield herald and SP reporting marks). Features on the boxcar include a separate, factory-applied door latch mechanism; a detailed Hydra-Cushion underframe; underbody brake rigging; and road-number specific paint patches where appropriate. Single cars are priced at **\$36.95**, three-packs are **\$110.85**, and six-packs are **\$221.70**. Rapido Trains Inc., 905-474-3314, rapidotrains.com

(Heritage III), Canadian National ("wet noodle" herald with website and 100th anniversary scheme in two numbers each; Elgin, Joliet & Eastern heritage unit in one number), CSX (YN3b), General Electric demonstrator (blue, two numbers), Kansas City Southern (*Southern Belle* scheme), Norfolk Southern (Thoroughbred scheme), and Union Pacific ("Building America" scheme). Road-number-specific details, wire grab irons, light-emitting diode lighting, and buffer-mounted Type E knuckle couplers. Direct-current model with 21-pin NEM connector, \$174.99; with dual-mode ESU LokSound 5 sound decoder, \$269.99. ScaleTrains, 844-987-2467, scaletrains.com

HO scale freight cars



• **40-foot American Car & Foundry boxcar.** Lehigh Valley (United States Railway Equipment Green with black diamond herald), Penn Central (Deepwater Green with "worm" herald),

Erie Lackawanna (brown with white lettering), Green Bay & Western (yellow with black lettering), Illinois Central (orange with pre-merger "split rail" herald, "Mainline of Mid-America" slogan, and DF2 stencil), Pennsylvania RR (brown with keystone herald and X46C class stencil), Reading Co. (green with yellow lettering), and Southern Ry. (brown with white lettering and "Southern Serves the South" slogan). Three road numbers per scheme. Undecorated model also available. Injection-molded plastic 10-panel body, tall ladders on the B end, short ladders on the A end, 8-foot Youngstown doors, late Stanray 4/4 Dreadnaught ends, and Stanray diagonal-panel roof without running boards or mounts. \$31.98; undecorated, \$29.98. Mainline series. Wm. K. Walther's Inc., 414-527-0770, walther's.com



• **24-foot wood tank car.** Kit features smaller tank, bands with 3-D printed hose clamps, metal tie rods, Tichy Train

Large scale

General Electric 25-ton diesel locomotive.

PIKO America is now offering this large scale switcher decorated for Knoxville Locomotive Works

("Thumper," black with green and gold stripes) in one road number. The General Electric 25-ton diesel locomotive has an

R/C pocket remote with pre-programmed buttons to control speed, direction, horn, and whistle (remote includes CR2025 battery). The engine is powered by six AAA batteries (not included) and has a 5-pole can-type ball-bearing motor that is isolated from track power. Other features include factory-applied handrails, uncoupling levers, and steps; a cab interior with space for an engineer figure; and hook-and-loop type couplers. The engine sells for **\$449.99**. PIKO America LLC, piko-america.com



Club offerings



• Honeymead Products Pullman-Standard 4,750-cubic-foot capacity three-bay covered hopper.

Accurail HO scale kit produced for the Chicago & North Western Historical Society. Two road numbers. Single car, \$32; two-pack, \$60. Prices are postpaid to addresses in the United States. Illinois residents include 9½ percent sales tax.

CNWS, P.O. Box 1068, North Riverside, IL 60546. Online orders available at cnws.org.

Group details, and Conowingo RR decals. No trucks or couplers, \$40; with Tichy Train Group archbar trucks and Kadde No. 148 couplers, \$45; with Kadde No. 509 archbar trucks and No. 148 couplers, \$50. Conowingo Models, conowingomodels.com

HO scale passenger equipment



• **Bay Area Rapid Transit Legacy Fleet.** BART paint scheme (white and blue). Track-powered direct current- and Digital Command Control-compatible interior lighting and decorated multi-color interior; Euro-style close-coupling system; low-profile drive system in A and C cars; and underbody details, including separate electrical lines, conduit, and electrical boxes. A-B-B-A sets: direct current, \$522.45; with dual-mode sound decoder, \$712.45. C end car: direct current, \$218.45; with dual-mode sound decoder, \$322.95. A end car with display case, \$142.45; B intermediate car, \$85.45. Rapido Trains Inc., 905-474-3314, rapidotrains.com



• **Overland passenger cars.** Denver & Rio Grande Western (gold), Great Northern (dark green), Southern Ry. (dark green), Union Pacific (two-tone

gray), and Virginia & Truckee (yellow and green). One single coach and one four-pack (Railway Post Office, combine, coach with different road number than single car, and business car) per paint scheme. End handrails and ladders, clear (sides) and green-tinted (clerestory) windows, and body mounted McHenry scale couplers. Coach, \$42.99; four-pack (business car, coach, combine, and Railway Post Office), \$149.98. Athearn Trains, 800-338-4639, athearn.com

HO scale structures



• **Sartore & Sons Electrical Supply Co.** Kit features injection-molded and laser-cut components, two clerestory structures, stair stringer assemblies with assembly jig, styrene strip and basswood for bracing and detailing, and styrene tube and piano wire for piping detail and roof vents. Detailed design drawings showing pilot build and alternate configurations included. Measures 11" x 11". \$130. Rail Scale Models, 248-421-6276, rail-scale-models.com



• Chesapeake & Ohio Alleghany, Va., station.

Southern Heritage Models kit produced for the C&O Historical Society. Based on variation of 1920 standard station design. Features laser-cut parts, two waiting rooms, wide eaves, and weather-board (clapboard) siding. C&OHS, 312 E. Ridgeway St., Clifton Forge, VA 24422. Online orders available at chessieshop.com.

N scale freight cars



• **American Car & Foundry 2,980-cubic-foot Center Flow covered hopper.** Milwaukee, Racine & Troy (blue with white lettering). One road number. Separate roof, end cages, and stirrup steps; two-piece outlet gates; pin-mounted roller-bearing trucks with plastic wheelsets; and truck-mounted Magne-Matic couplers. \$44.98. Produced

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O scale



68-foot bulkhead flatcar. Atlas offers this O scale Trainman line flatcar (\$62.95) in new road numbers on models decorated for TTX (yellow with black logo and TTPX reporting marks) and BNSF Ry. (Mineral Red). New paint schemes include TTX (yellow with Forward Thinking logo and TTPX reporting marks) and General American Marks Co. (blue with GAEX reporting marks). Undecorated models (\$59.95) are also available. The O scale bulkhead flatcar has a minimum radius of 36" and features side stake pockets, simulated tie loops, a fish-belly center sill, pull plates, and lift rings. Atlas O, 908-687-0880, shop.atlasrr.com

in the U.S. by Micro-Trains Line Co., available from the Kalmbach Hobby Store, KalmbachHobbyStore.com

O scale freight cars

• **Thrall articulated auto carrier.** New paint schemes: TTX (BTTX and TOAX

reporting marks, both with faded yellow paint); Atchison, Topeka & Santa Fe (fictional white-and-blue scheme); and Norfolk Southern (yellow with Thor-oughbred herald). New road numbers – Norfolk Southern (yellow with black herald). Separate, factory-installed wire grab irons; die-cast metal chassis;

positionable end doors; interior deck; modeler-installed articulated diaphragm and middle truck; brake line details; and 70-ton roller-bearing trucks. \$159.95. Master Line. Atlas O, 908-687-0880, shop.atlasrr.com

Large scale freight cars



• **Ore cars.** Chessie System (black with Baltimore & Ohio reporting marks and Chessie herald) and Denver & Rio Grande Western (black with "Flying Grande" lettering and "Main Line Thru the Rockies" herald). One two-pack per paint scheme. Molded details including ladders and stirrup steps, heavy-duty plastic wheelsets for use in all environments, and hook-and-loop type couplers. Created with weather-resistant materials. Minimum recommended radius is 23.6". Two-pack, \$124.99. PIKO America LLC, piko-america.com MR

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If you want your Digital Command Control-equipped model locomotives to pull together in a consist, it's important to speed match them so they won't fight each other. Larry Puckett photo

Speed matching DCC locomotives for better consisting

Q Can you provide a simple procedure for pairing locomotives in a consist? One locomotive is pulling or pushing the one in front.

Stephen J. Szypula

A Regular readers may be feeling a sense of déjà vu. Yes, I answered Stephen's question in a recent column, discussing the different methods of consisting DCC locomotives together. But an important part of making your consist work is speed-matching the locomotives so they don't fight each other. So this month we're looking at speed matching.

Newer, high-end decoders let you individually tweak your locomotive's response at each speed step. But for most modelers, that level of granularity isn't necessary. We're going to keep things simple and deal with just three Configuration Variables: CV2 (Vstart), CV5 (Vmax or Vhigh), and CV6 (Vmid).

First, we'll address Vstart. That's the CV that governs how much voltage goes to your motor at speed step 1. We're going to be programming on the main, so remove all your locomotives from the layout and make sure your DCC throttle is set to 28 speed steps. Put the first engine you want in the consist on the layout and program CV2 to 0. Then open the stopwatch app on your phone and start your locomotive rolling at speed step 1. When the stopwatch hits 10 seconds, stop the locomotive and mark how far it went with a scrap of paper bearing that locomotive's cab number. Then take the engine off the layout and set it aside. Do this for all the locomotives you want to speed match, and as you finish each one's test run, set them aside in order of speed. You need to know which one is fastest, as you won't be adjusting its Vstart.

Since you set every locomotive's Vstart to 0, whatever speed each produced at speed step 1 is as slow as it will go. You can't slow down the faster locomotives, so you'll have to speed up the slower ones. Take your second-fastest locomotive and program CV2 to a value

of 1 or 2. See if that brings it up to the speed of the fastest locomotive. If not, increase it. When you have that locomotive going approximately the same distance in 10 seconds as the faster locomotive, note the value of CV2 you used and set it aside. Then repeat the procedure with the third-fastest locomotive, starting with that value of CV2 and going up from there.

When you're done, all of your locomotives should go about the same speed at speed step 1. Now it's time to address their top speed. Put each locomotive on the layout one at a time and program its CV5 (Vhigh) to the maximum value, 255. Then do the same test at speed step 28, marking how far the locomotives go. This time, note which engine is the slowest. Since you can't increase its maximum speed, you'll have to slow down the faster ones to match it. Start with the second slowest and lower CV5 until its speed at step 28 is about as fast as the slowest locomotive. Note that value of CV5, set the locomotive aside, and start adjusting your third-slowest. And so on.

Decoders come from the factory programmed with a linear speed curve. That means that if you're successful at setting the low and high points using CV2 and CV5, your locomotives should deliver similar performance throughout all speed steps. Try putting them all on the layout a few inches apart (not coupled), programming them into an advanced consist, and set them all going at speed step 14. If any of them moves markedly faster or slower than the others, zipping along or lagging to couple up with the engine in front of or behind it, then you'll have to adjust its CV6, as well. Known as Vmid, this CV controls how much voltage goes to the locomotive in the middle of the speed step ladder (which is speed step 14 unless you've changed the number of speed steps your system operates on). Increase or decrease its value until it plays nicely with the others.

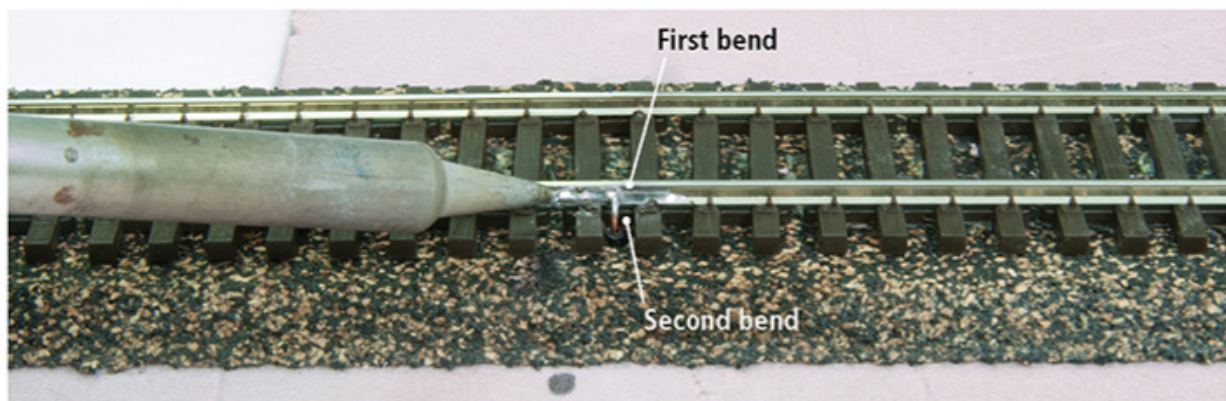
For more, check out Larry Puckett's DCC Corner column "Speed matching for DCC consists" in our September 2016 issue.

Q I was talking to a fellow model railroader about soldering track feeders to the rail. He said to bend the wire, then solder it to the joint between the two rails. Couldn't I just lay the power wire alongside the rail and solder it that way? Or is there a reason that it has to have a bend in it?

Ken Peters

A We actually recommend putting two bends in the end of your feeder wires, to form a dogleg. The point of this is to give your wire good contact along the side of the rail while keeping it as unobtrusive as possible. First, make a 90 degree bend about 1/4" from the end, along the X axis, parallel to the rail. Then, use your pliers to grab that wire just a bit below the first bend, and give it another twist, this time along the Y axis, toward the rail. The result will be a dogleg that comes up through the hole in your roadbed, bends toward the web of the rail, then turns to lie alongside it.

Once you have your wire bent to shape, use your soldering iron to tin



A double-bend in the end of a feeder wire helps ensure the wire nestles snugly against the rail for good contact when soldering. Bending the wire before soldering it to the rail helps reduce strain on the joint. *Cody Grivno photo*

both the wire and the web of the rail where it will attach with solder. Then use your needlenose pliers or a small screwdriver to press the tinned wire against the tinned rail and touch the soldering iron to the joint for two or three seconds, until you see the solder on both surfaces melt together. A good joint will be shiny; a dull one is weak and could pull loose. Paint any exposed wire insulation black or rust color, weather the rail and solder joint, then ballast, and you'll hardly be able to tell it's there.

Q I'm beginning to build a Walther's Cornerstone plastic structure kit and have read where some modelers use India ink mixed in rubbing alcohol to create a weathered effect. In one account the author "slathered" a coat of alcohol/ink and another "floated a wash" of the mixture. Does this mean you lay your plastic piece flat and just use a brush or something to pool the ink on and let it dry, or do you paint it on like you would paint?

Philip Brueck

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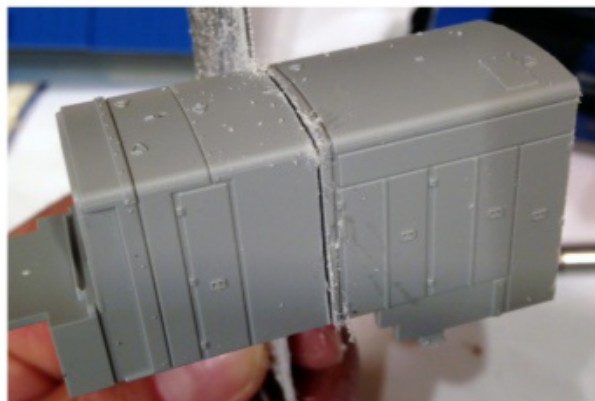


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A We typically use India ink-based weathering washes on more porous materials, like plaster rocks or wood kit components. Alcohol washes are very thin, so if you try to use them on something non-absorbent like a painted plastic structure wall, it will puddle and run if you don't let it dry absolutely level. Brush it on in thin coats so it won't take a long time to dry. You may get better results if you weather plastic with washes of thinned paint, as its pigments will adhere better to the plastic than ink will.

Q I have an HO scale plastic bus. I want to cut out a section in the middle in order to shorten it. I'm looking for suggestions as to what tools and techniques will give me the best results when cutting out the sections of roof, sides, and undercarriage. I'm also looking for suggestions as to the best glues to glue the sections back together and what types of sanding/smoothing techniques to use in order to try to achieve a seamless-looking joint.

William Lightfoot



Whether you're kitbashing a model bus or a diesel locomotive shell, the tools and techniques are the same. Straight cuts, strong joints, and smooth seams are the goal. For that, you need the right tools. Dave Abeles photo

A We've run numerous articles over the years about kitbashing vehicles that may give you some helpful tips for your project. Some recent ones include "Model a propane delivery truck" in January 2022 and "1940s cement mixers from 3-D printed parts" in June 2017.

The most crucial step of your bus bash project will be ensuring straight, square, clean cuts. You don't want to end

up with gaps in your joints or a sway-back bus when you're done. So a miter box and razor saw are vital tools. These will ensure that the two ends of the bus will match up squarely.

The best glue to reassemble the bus depends on the material it's made of. There are many kinds of plastic, and if your bus wasn't sold as a model, it might not be made of the kind of plastic that hobby plastic cement works well on. Try out a solvent cement that works on many kinds of plastic, like Plastruct Plastic Weld or methyl ethyl ketone (MEK).

(Note that in general, the more effective a solvent cement is, the more volatile and toxic it tends to be, and the more safety precautions you should take. Wear a respirator, work in a wide-open area, and turn on a fan. A spray booth with an exhaust to the outdoors is even better.)

For cleaning up those glue joints afterward, get some ultra-fine-grit sanding films and sanding sticks. **MR**

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

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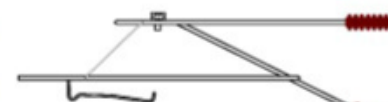
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Article leads to new friendships



Visitors view John Vavra's layout during a National Model Railroad Association San Diego Division event in July. John says publication of his model railroad in the December 2021 MR has led to him making many new friends. John Vavra photo

Before my layout was featured on the cover of the Dec. 2021 MR, I was a loner in the hobby. Only one other modeler had ever seen my layout. I was a happy modeler doing my own thing. I was unprepared for what followed.

After that issue came out, I was contacted by a dozen or more model railroaders, most in my area, who were previously unaware of my layout. They all wanted to see my work, and I gladly opened my doors. Thanks to the article, I have made many new friendships that I expect will last a long time. A few have offered to help with my layout.

The San Diego Division of the National Model Railroad Association also came to visit. They held an open house event at my home a couple of weeks ago, giving me the opportunity to meet many more great folks in our hobby. My layout will be included in the layout tours for the regional convention.

So you see, having my article printed in the premier magazine in our hobby has long-lasting effects. It's truly been amazing. Thanks again for printing my article and giving me the opportunity to make many new friendships.

John Vavra, Escondido, Calif.

Wrap it up, I'll take it

I'd like to make a comment about the article in the last issue, where they spoke of moving a large model railroad to a museum ("All Aboard!", Sept. 2022). I've moved too many times. Once, I had a number of items shipped to someone and watched what the shippers did. When I moved from Chicago to the Washington, D.C. area, I took my Texas module – which was about 3'-6" x 5'-0" and had roads, dirt, and scenery – and used most of a roll of plastic wrap to completely cover it. It survived that move to storage, and then to the new house, and when I unwrapped it, it was almost completely undamaged.

Mark Roth, Silver Spring, Md.

Weather your vehicles, too

Model railroaders, young and old, spend enormous time and energy weathering boxcars, engines, and structures. Hobby manufacturers offer dozens of weathering solutions, powders and chinks. So why is so little time spent on weathering model cars and trucks on our layouts? A survey of even savvy modelers reveals expert weathering on anything related to trains, but less interest in unnaturally shiny model autos. If one wants to achieve a level of realism, one can mask the windows of an auto or truck, then spray the vehicle with Testor's Dullcote. Try it; you'll like it.

Bill Day, Potomac Falls, Va.

Clarification

A photo caption with a review of Bachmann Trains' N scale Pennsylvania RR K4s steam locomotive in our September issue mentioned that unlike the model's metal knuckle coupler, the prototype had a fold-away coupler on the pilot. The model does include a user-installable part to model the front coupler in its stowed position. **MR**

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

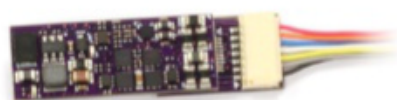
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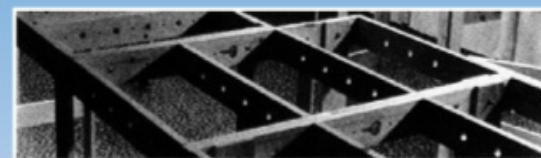
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A Union Pacific employee watches as General Electric C45AH No. 2587 thunders past on the main line. Contributing editor Pelle Søeborg shares how he weathered this HO scale Rivet Counter line model from ScaleTrains. Union Pacific No. 2579, seen at Carson, Calif., on May 11, 2017, shows what a full-size unit looks like after 17 months in service. Model photos by the author, prototype photo by Craig Walker

How to weather a modern road locomotive

I recently acquired a pair of ScaleTrains Union Pacific General Electric C45AH diesel locomotives to use with my Danefield and Midwest Modules, featured in the February 2021 and April 2022 issues of *Model Railroader* magazine, respectively. The Rivet Counter line models looked great, with numerous prototype-specific details, etched-metal grills, and factory-installed and painted wire grab irons. The only thing the six-axle road units needed before I put them in service was weathering.

Since UP's C45AH fleet is relatively new, a little bit of weathering was all that was needed. [The full-size 2587 is part of the railroad's 2570-2669 series built in 2015 and 2016. These units have a squared exhaust compartment roof.

Later versions have an angled exhaust compartment. – Ed.] But even a light weathering coat can make a big difference in a model's appearance.

My well-proven weathering techniques yielded realistic results in a minimum amount of time. Most of the weathering is done with an airbrush, supplemented with powdered chalks and washes.

The supply list is relatively short: gray and grimy brown paint, clear varnish, black and brown powdered chalk, masking tape, an airbrush (I prefer the double-action type), a couple of soft brushes for the chalks, and a fine paintbrush. Though several of the colors I used from the Model Master line have been discontinued by the Testor Corp.,

you can find suitable matches from other paint companies such as Tamiya, Tru-Color Paint, Vallejo, and others.

If you have a modern era locomotive that needs weathering, give these techniques a try. Though my model is in HO scale, you could easily adapt my methods for models in smaller or larger scales.



Looking for more locomotive projects? Check out our special issue *How to Model Locomotives*. Print and digital copies can be ordered online at KalmbachHobbyStore.com.

STEP 1 PREPPING AND MASKING



In preparation for weathering, I disassembled the locomotive ①. Work slowly and refer to the instructions to learn how the model is put together.

Next, I wiped the parts with a cloth dipped in rubbing alcohol. This removes skin oils and other impurities that may cause the paints and chalks to not stick well. The side-frames on my model had quite a bit of lubricant on them.

The most time-consuming part of the process was masking the cab windows, number boards, and lights with Tamiya masking tape ②. The headlight lenses weren't glued, so I was able to remove them. I had to mask the rear lights and ditch lights. As the photo shows, I used several small pieces of tape on each window instead of one big piece.

I then masked the gearboxes and wheel treads ③. Keeping paint out of these locations is important to



ensure reliable electrical pickup. I also wrapped the frame to keep paint off the motor.

Though it's easy to overlook, be sure to mask the area around the cab interior. I stuffed pieces of foam on both sides ④ to keep paint out of the cab and off the glazing.

STEP 2 WEATHERING THE SHELL



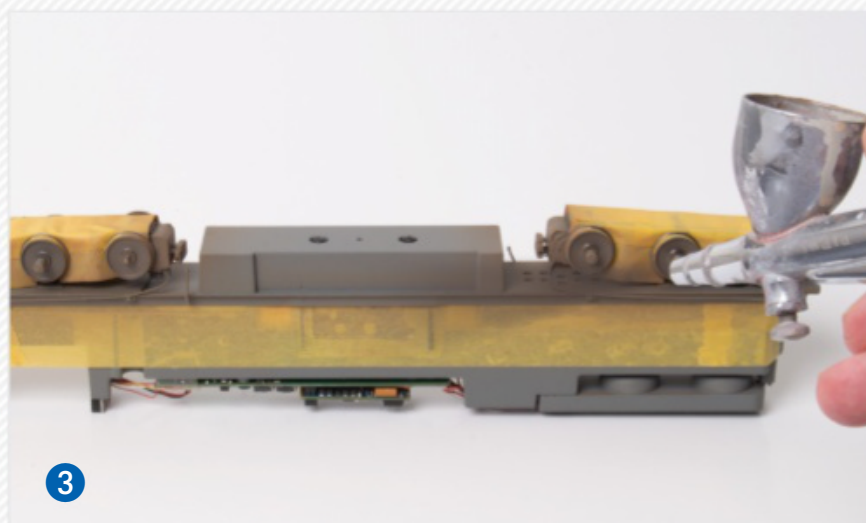
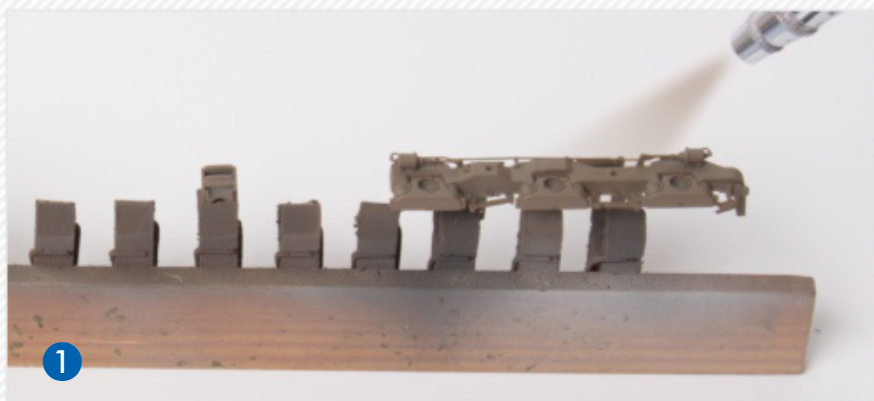
I started the weathering process by applying a light gray wash to the walkways with a paintbrush. I made the wash using Vallejo Model Air Cement Gray (no. 71.045) ①.

Next, I used an airbrush to apply a few coats of light gray wash to the roof and top of the nose ②. For this wash, I used Model Master No. 1733 Camouflage Gray. I thinned the color one part paint to two parts thinner.

Finally, I added road grime to the lower areas using a 1:1 mix of Model Master Raw Sienna (No. 2008) and Earth Gray (No. 2125) ③. I used strips of paper to keep the weathering off the long hood. I applied the paint heaviest above the trucks, as the wheels stir up dirt and grime.



STEP 3 TRUCKS, TANK, AND FRAME

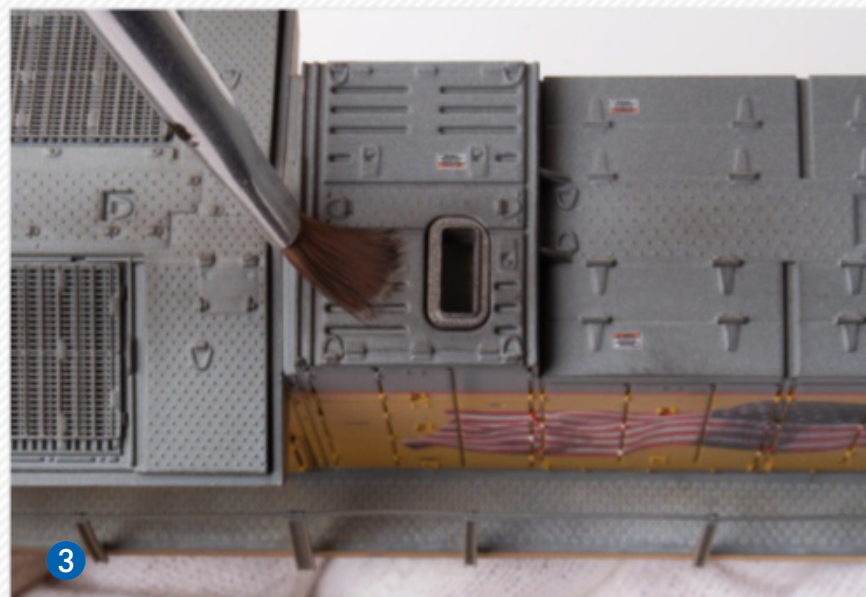


I used the same Raw Sienna and Earth Gray mix to weather the trucks, fuel tank, and frame. I started with the trucks, which I placed in a homemade jig built using a scrap of wood and modified clothespins. I sprayed the sideframes from different angles so they were evenly covered ①.

Next, I weathered the fuel tank. Road grime accumulates heaviest on the ends and bottom of full-size tanks, so that's where I focused my efforts on the model ②. I applied the weathering lighter on the sides.

I finished up by spraying the frame and wheels ③. Removing the fuel tank and truck sideframes made it easier to get the paint into tight spots.

STEP 4 MORE BRUSH WORK



I've noticed that the step edges, vertical handrails, and uncoupling lever handles are normally clean no matter how dirty the locomotive is. That's because these locations are frequent contact points. To simulate that look, I wiped the weathering off with a paintbrush dipped in thinner ①.

Next, I brushed black powdered chalk on the etched-metal grills ②. If you get chalk where you don't want it, you can remove it with a cotton swab dipped in Vallejo air-brush thinner.

Even though these locomotives are environmentally friendly, they still have a little soot around the exhaust stack. I re-created that look by applying black powdered chalk with a paintbrush ③. Be sure to paint the inside of the stack black.

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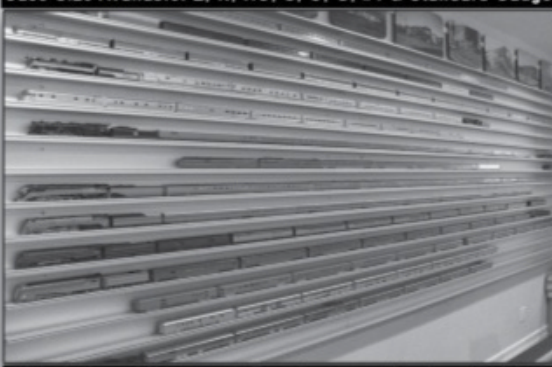
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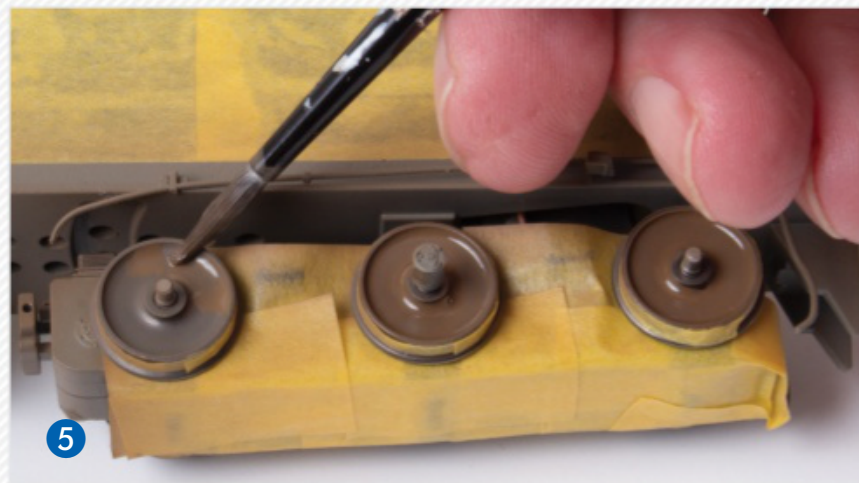
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STEP 4 MORE BRUSH WORK (CONT'D)



I dabbed the truck sideframes with brown and black chalk to break the uniformly applied grimy wash ④. I did the same to the fuel tank, using prototype photos as a guide.



To give the wheels a rusty metal look, I brushed them with a 1:1 mix of Model Master Raw Sienna (No. 2008) and Earth Gray (No. 2125) ⑤. Keep the paint off the tips of the axles and wheel treads.

STEP 5 FINISHING TOUCHES

To seal the weathering, I sprayed the parts with a coat of Vallejo polyurethane matte varnish (No. 27.651) ①. The clear coat holds up to well to regular handling.

The polyurethane matte varnish dries to a slight sheen, perfect for a newer locomotive like this. If you want a flat finish, apply Vallejo matte varnish (No. 70.520) over the polyurethane. Make sure the first application of varnish has dried completely before overcoating it.

Finally, I removed the masking tape. Do this carefully, as I pulled out the glazing on one of the front windows. Then I reassembled the locomotive. A comparison of weathered (front) and unweathered models is shown in ②. As you can see, even light weathering adds realism to a locomotive and helps the details stand out. **MR**





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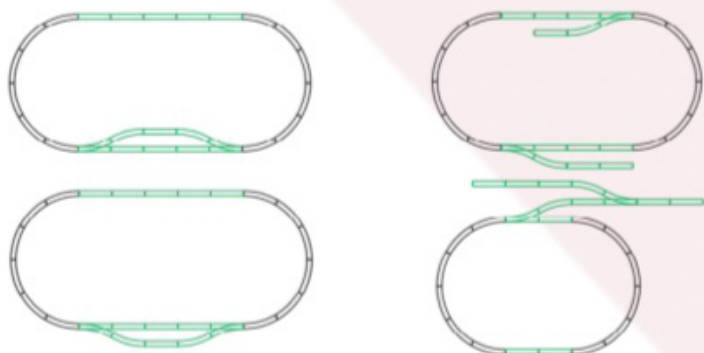
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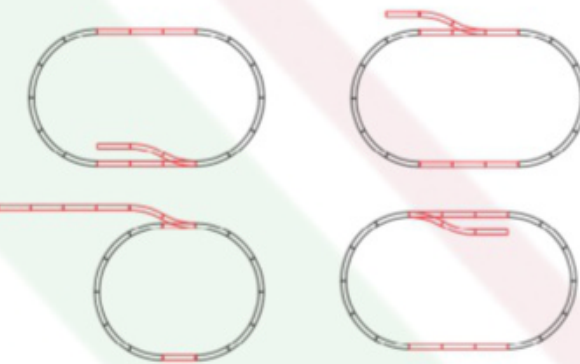
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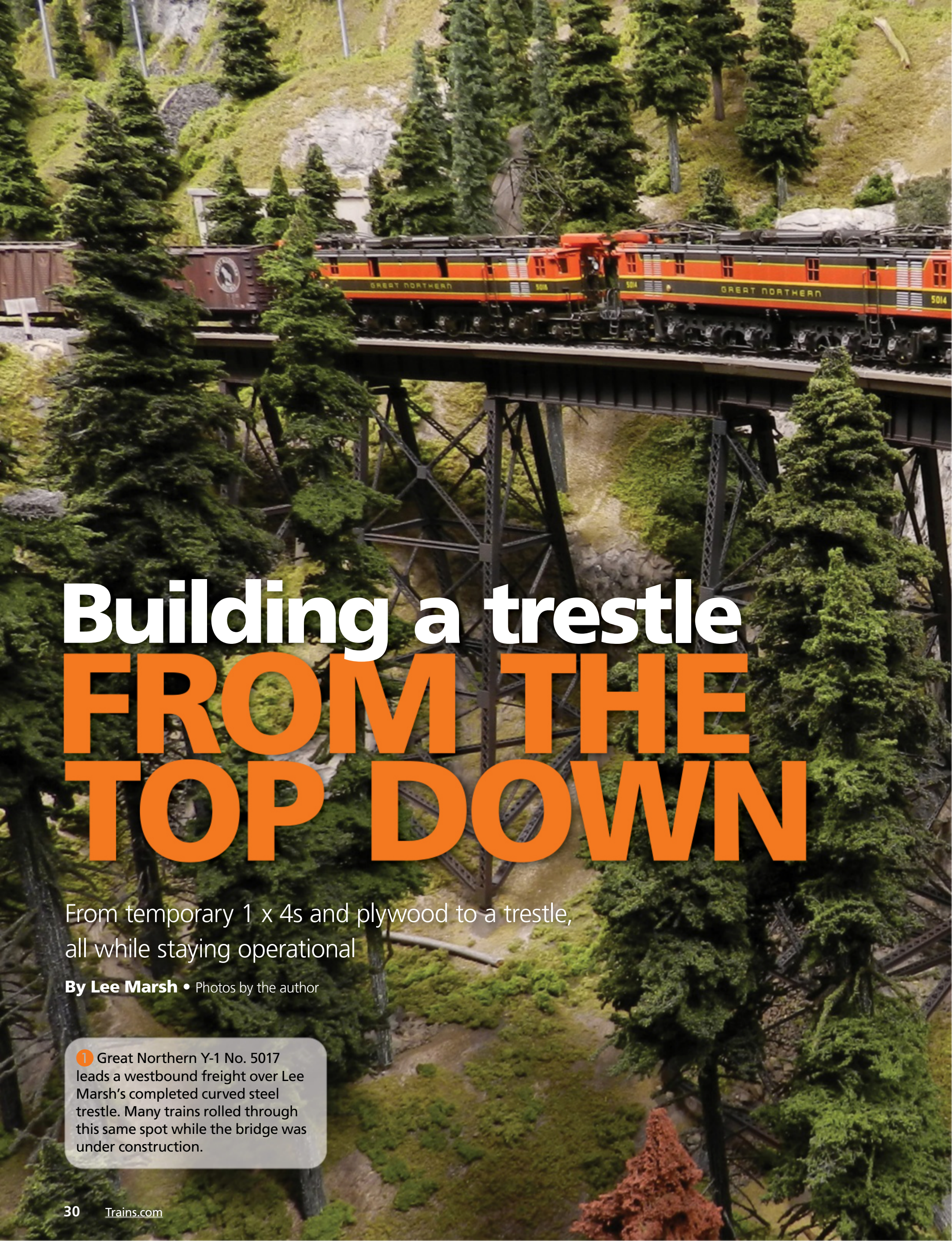


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Building a trestle FROM THE TOP DOWN

From temporary 1 x 4s and plywood to a trestle,
all while staying operational

By **Lee Marsh** • Photos by the author

1 Great Northern Y-1 No. 5017 leads a westbound freight over Lee Marsh's completed curved steel trestle. Many trains rolled through this same spot while the bridge was under construction.





2 Lee knew that the bridge he was planning was going to take a lot of time and kitbashing. In order to get his layout up and running he built a temporary bridge with 1 x 4s and plywood.

The tall, curved steel trestle in this article might look familiar 1. It's a key scene on my HO Great Northern layout, which was the cover story in the June 2020 *Model Railroader*. The trestle crosses a rocky basin inspired by those encountered by the Great Northern in the Cascade Mountain Range in Western Washington.

To make the trestle more realistic, I constructed the hardshell landform first and then built the towers to fit that relief. This is how the prototype engineers and

builders must approach real trestles, after all. A famous example of such construction in steep terrain is the Keddie Wye bridge in Northern California, which I used to inform my design.

Layout construction

When I started construction of the layout in 1996, I knew this trestle would be a signature structure. But I also knew it would take time to build because I'd need to modify kits to achieve the result I wanted. Therefore, I built a temporary



4 Another aerial view of the bridge. Note the rectangular tower girder segments.



3 An overhead view of the bridge shows the curve that Lee was dealing with. Because of this, he worked all of his measurements for the girder span bearing locations and tower locations from the centerline of the track.

stand-in trestle out of 1 x 4s and plywood to support the track and let me get the layout up and running quickly 2.

The temporary trestle was built in 1996, and the first tower and span of the modeled trestle wasn't installed until 2002. Work on the rest of the eight-span trestle didn't begin until late 2016, with completion in early 2017.

By then 20 years had elapsed. How could this be tolerated? The construction technique allowed the trestle to be operational over that entire time frame, except for short outages when new towers and spans were being installed. This continued operation is the key. I literally built the trestle from the top down. The temporary wooden trestle allowed the curved track alignment to be established and the layout to be operational for as long as needed.

The trestle

The modeled trestle is composed of Micro Engineering HO Tall Steel Viaduct kits, including ballasted-deck superstructure girder spans. With those kits in hand, I marked off the girder span bearing locations and the tower locations on the temporary trestle's wooden superstructure 3.

An important detail of the geometry is that the straight superstructure girder spans must be arranged in a chorded

Materials list

Micro Engineering

75-515 HO tall steel viaduct kits (2)
75-546 HO tower height extension kit (1)
75-507 50-foot deck girder bridge –
ballasted deck (5)

Pre-Size Model Specialties

PS144 Abutments – Old Concrete (2)

Various

Styrene car siding sheet
Assorted rectangular styrene stock
Other materials as shown

fashion to produce the final curved shape. To have each segment fit tightly to the next segment, the main span girder segments had to be trapezoidal from the top view. The tower girder segments, though, had to remain rectangular, because the towers are rectangular when viewed from above ④, opposite.

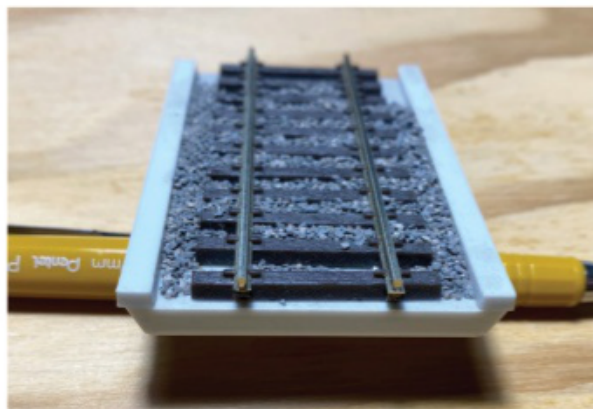
This geometry meant that both the concrete ballast pans and the main span girder segments had to be shortened on the inner side of the curve. I knew that I needed to establish this before I marked off the tower segments on the temporary bridge. Decoupling operations from the trestle design and construction gave me time to work out these details.

Tower fabrication

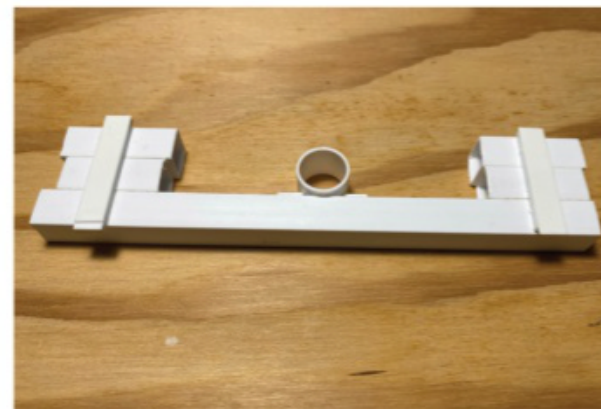
I built a short ballasted-deck mock-up ⑤ and a single girder span assembly from the kits. These allowed me to develop a jig ⑥ that provided both the exact top-of-rail to top-of-tower dimension and a way to attach a partially built tower to the underside of the temporary trestle. This let me measure the remaining height to the scenery shell and to the approximate location where the base of the tower would eventually be located ⑦.

Using this approach, I kitbashed the tower bases into the proper configuration to meet the uneven ground. I used extra tower pieces to fabricate the new diagonals.

Structurally, with level or uneven base elevations, the tower framing should connect just above the tower base to react to outward forces that would tend to displace the foundation. To accept the foundation supports, I cut holes in the hardshell that would allow the tower support and modeled foundation elements to penetrate the terrain ⑧.



⑤ Lee built a mock-up of a short ballasted deck as well as a single girder span assembly.



⑥ Lee developed this jig from the two mock-ups, letting him measure the distance from the bridge to the tower footers at each location.



⑦ The jig allowed Lee to attach a partially completed tower to the temporary bridge in order to measure the remaining distance to the hardshell needed for the tower structures, as well as approximate where the base of each tower would fall.



⑧ A mail train crosses over the bridge during foundation construction, which took place toward the end of the build. The holes cut in the hardshell allow the towers to penetrate the surface and be structurally supported under the layout.

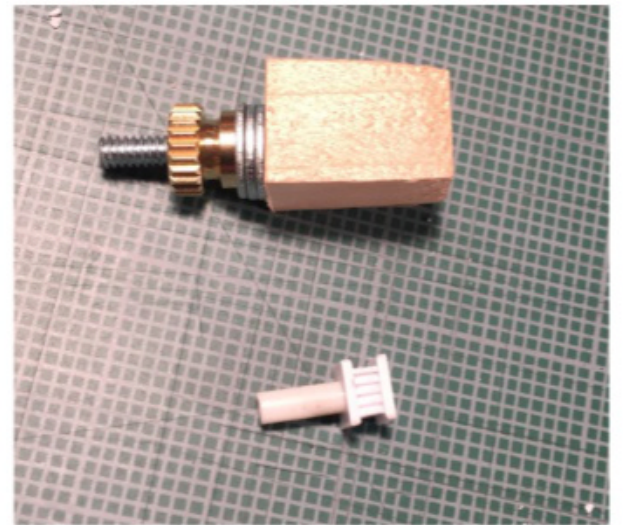


9 A view under the layout shows the towers supported under the layout with 3/4-inch plywood on top of the L-girder benchwork.

I built each tower to be supported beneath the layout by a piece of 3/4-inch plywood that rests on the L-girder. One-eighth-inch diameter threaded rod projects up from this base and via a knurled nut supports the wooden element that serves as the concrete plinths, on which each corner of the steel tower sits 9.

Between the plinths and the tower leg bases sit scratchbuilt bearings made of .040" thick styrene strips. The knurled metal nut allows the vertical position of the bearing of each leg be adjusted 10.

The plywood base with an over-sized hole in the middle and a smaller bolt



10 Lee's scratchbuilt removable bearing and plinth allow for vertical adjustment to each leg.

with wide fender-type washer and wing nut allows the horizontal position of the entire tower to be adjusted. This assembly sits on the horizontal flange of the layout L-girder 11. However, any fixed horizontal support can provide this support.

With the vertical measurements from the jig and adjustment capability of the tower base, I was able to position towers without disrupting train operations. All the tower measurements, tower kitbashing, and support construction could progress "off-line" while trains ran on the temporary bridge above on the pre-determined final track alignment. This was huge with respect to keeping trains running without interruption.



11 The full tower and support assembly is shown attached to its horizontal support.



12 A span of the temporary bridge is being removed for installation of a new bridge segment.



13 Here, the new bridge is being installed. Building the towers off site and only installing one tower and span at a time assured only brief operation outages occurred.

Trestle construction

I advanced the trestle construction by establishing one abutment (the abutment on the right in the photos) that became a starting baseline for span lengths along the bridge superstructure. From this one point I could construct a single 50-foot girder span and a tower in each major construction step. This involved a short operation outage while I cut and removed the plywood temporary superstructure ¹² (opposite) and then installed a tower and single side span ¹³. In the final push after all towers were fabricated, I installed the two last full towers and the one “pony” bent near the far abutment ¹⁴.

Note that to maintain the track alignment, I also glued two thin strips of styrene to the bottom of the track ties so the flextrack curve wouldn't change. I did this before I removed the spikes holding the track to the temporary bridge.

I was pleasantly surprised that I could leave the connection between the tower and the balsa-wood plinth unglued ¹⁵, so I could remove the tower and leave the girder spans unglued as well. I didn't glue the girders to the tower, nor did I glue the girders to the ballasted-deck track “pans” that hold the ballast. I discovered this after I had the trestle essentially constructed full-length and applied the ballast and diluted glue to form a permanent ballasted deck.

Today, if I pull a girder span out from under the ballasted deck, the track and deck hardly move at all. This is significant because I can, if necessary, disassemble the entire trestle – all towers and all superstructure girder spans – and the track work, ballast, and pans all just sit there rigidly as a single monolithic piece. Mind you I can't run trains in this condition, but this allows flexibility for any maintenance work that needs to be done. These same details also allowed me to finish the scenery beneath the trestle, which is composed of ground foam and rock scree.

Finishing touches

After each of the structural elements were in their final position, they were confirmed by successful operation of trains, and the enlarged holes around the tower plinths were closed with new hardshell. This is composed of additional aluminum window-screen material hot glued beneath the layout around the penetration point of the tower



¹⁴ During the final push of the bridge installation, the final two towers and one “pony” bent were installed.



¹⁵ Because of the rigidity of each individual section of the bridge, Lee didn't have to use glue when attaching bridge sections, letting him remove towers or spans during maintenance or scenery work.

plinth along with plaster applied from above ¹⁶.

Following the completion of structural elements, I applied scenery materials, such as rock scree, ground foam, and stream paint. Then, I replaced the trees. I'm very fond of the results. This trestle turned out better than I expected and is



¹⁶ After the first revenue trains successfully crossed the bridge without any issues, new hardshell was troweled in place between the existing hard shell and the tower plinths, finishing the installation.

a truly an eye-catching layout design element for my GN Cascade Division layout. [MR](#)

Lee Marsh lives in Issaquah, Wash., with his wife, Nancy. His Great Northern Cascade Division layout was featured in the June 2020 issue of Model Railroader.



Grass mats are a convenient way to apply static grass to large areas of layout terrain, but commercial products can be expensive. In this article, Will Kling relates how he uses an electric flocking box to make his own large grass mats for only a few dollars' worth of material apiece.

Make your own GRASS MATS

An electric flocking box turns bridal veil material into easy scenery

By Will Kling

Photos by the author

Materials list

White tulle (bridal veil material)
Extruded-foam insulation board
Aluminum foil
Plastic cereal box liner
Pushpins
Matte medium
Foam pin
Static grass

My method of making grass mats was developed as a solution to a problem a fellow modeler and friend of mine, Tim Nicoll, was having. He was trying to apply grass scenery to a riverbank on his layout that was an odd shape and had a variety of different slopes. Complicating the issue, it was made from a variety of materials – painted plywood, Hydrocal, and real rocks and soil.

After thinking about it for a while, I came up with a cost-effective solution. I went through a trial-and-error process, but I came up with a method for making letter-paper-sized static grass mats for around \$4 each.

One specialized tool you will need is an electric flocking box. I found one made by Evemodel for less than \$50 on eBay. It came with a 9 or 12 volt power supply, a sleeve for regular static grass applications, and all the wires needed.

I bought a disposable aluminum pan to house the box and minimize the excess static grass mess around my workbench.

A word of caution: The flocking box generates a powerful static charge. I always wear latex gloves while operating it to minimize the chance for receiving a minor shock.

For the base of my mats, I use sheer tulle, which most people know as wedding veil material. It's very flexible, so it conforms to irregular surfaces better than other materials I tried. It's also easily cut with a small scissors.

I use the finest mesh tulle I can find. I use white material so it's hard to see after the mat is finished. It costs less than \$2 a yard at my local craft store.

Preparation

You need to cut your foam work base a little smaller than your mats will be, so



Will uses a piece of extruded-foam insulation board to hold his grass mat material flat while applying flocking. The foam board is lined with foil to conduct the static charge and a plastic bag to protect the foil. For the base of the mat, he uses tulle, better known as bridal veil material.

you have enough overhang for clean handling of your mat. I cut mine about $\frac{3}{4}$ " smaller than the mats on all sides. Since I make my mats letter-sized ($8\frac{1}{2}$ x 11 inches), that means the foam should be about 7 x $9\frac{1}{2}$ inches.

Next I cut the tulle, aluminum foil, and a heavy plastic liner. The foil conducts the electric charge across the whole mat to make the static grass stand up. The plastic liner is to keep the mat from sticking to the foil. For the liner, I like to use the plastic bags from inside a family-sized box of cereal. I've found that these plastic liners are more durable than wax paper, which sometimes will "melt" to the tulle and need to be cleaned up.

Once I've cut all three pieces to the same size, I place the foil onto the foam. Next comes the plastic cereal box liner. Finally, I top it with the tulle. I insert pushpins where the layers overlap the sides of the foam base to keep all three layers taut across the foam.

I like to mix my static grasses both by size and color, depending on my application, to model the natural variation real grass has. When making N scale grass mats, I typically use 2mm-4mm grass, and for HO, I mix 2mm-6mm grass.

I then sift my grasses onto the flocking box. Make sure the flocking box is turned off while you are adding flock to it. I mix it with my fingers before turning it on to eliminate any impurities and clumping in the final product.

Applying the static grass

Now I'm ready to paint my tulle with matte medium. I like Mod Podge brand.



After topping the flocking box with static grass, painting the tulle with matte medium, and connecting the box's ground wire to a pin inserted in the foil, Will inverts the foam board over the box. The static charge makes the flocking jump onto the tulle and stick to it.

I've found that it leaves my mats softer and more pliable than other commercial grass glues I've tried. This is important when you need your mat to mold to irregular terrain shapes.

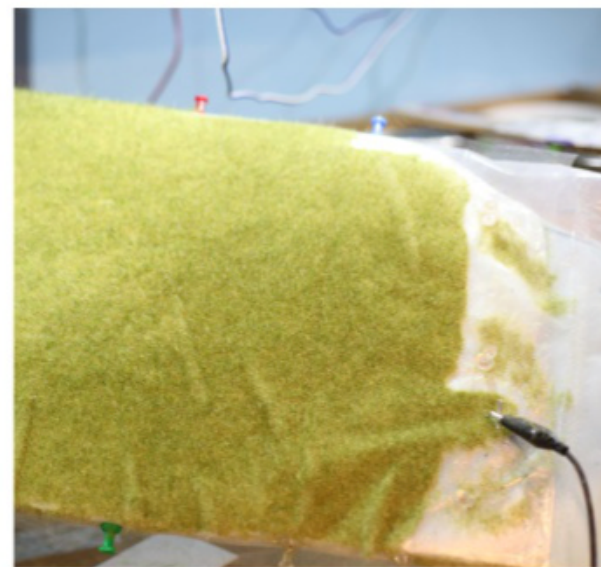
I thoroughly cover the surface of the mat with full-strength Mod Podge using a cheap, disposable paintbrush. I insert a T-shaped foam pin into the foil and clip on the ground wire, then turn on the flocking box.

I invert my assembled mat and hold it over the flocking box, glue side down, and pass it about 3"-4" above the static grass on the flocking box. The opposite static charges makes the grass jump up onto the mat. After a few passes, I inspect my work. If I want more grass, I repeat the process until I'm satisfied.

Depending on your application, you may want to add longer grasses to the mat. I do this as a separate step. First I turn off the box and load it with the longer static grass fibers. I spray thinned matte medium (3 parts water to 1 part matte medium) and spray it on the grass mat where I want the taller grass to stick. (There's no need to let the first layer dry.) Then I turn on the box and repeat the flocking operation.

Once I'm done, I wait a couple hours before peeling the tulle grass mat from the plastic liner. I peel from one end, removing the pushpins as I go and replacing them to hold just the plastic and foil as I remove the tulle. I can then use this assembly over and over again by simply placing a new piece of tulle on it.

I clip the grass mat to a wire I have strung up across my workshop just for this purpose and let it dry overnight.



After a few passes over the flocking box, the areas of the tulle that were coated with matte medium are now covered in static grass fibers. Longer grass fibers can be added after this point by spraying diluted matte medium onto the grass mat and using the flocking box again.

Other tips

I've learned a couple of other helpful tricks for making grass mats. If I'm going to be using part of the grass mat to fit a certain space, I cut a paper template to the desired shape, then place it over the tulle and cut it to match.

If I'm going to be covering an area larger than my mat, I will slightly overlap two mats on my workbench and cut through both with a hobby knife so their cut edges will match.

If you have a structure kit that has a plastic base you want to cover with flock, you can use the same technique to flock the base without using tulle. Just spread your matte medium on the plastic base where you want the grass to stick, clip the flock box's ground wire directly to the base, and follow the same process.

To make a mat fit around a structure without a base, I trace the shape of the building's footprint on the tulle with a brown marker and don't paint any matte medium in that area.

I also put dirt roads or trails into some of the mats by using an old toothbrush to apply dry tile grout mixed with a little sand. I then spritz it with water.

Commercial grass mats are available, but my homemade grass mats are a lot cheaper and take only a little more effort. My technique also lets me make mats in exactly the color, grass length, size, and shape I want. 

Will Kling lives in Nortonville, Ky. This is his second byline in Model Railroader. The first, "Forest in a Flash," was published in our January 2022 issue.

New life

The HO scale Eastern Loggers exhibition layout is on the move

By **John Burchnall and Mike Tener** • Photos by Lou Sassi



for a club layout



① Shay No. 2 is transporting a shipment of rail past the dual-gauge locomotive and car repair facility at Laquin on the Eastern Loggers HO scale club layout. The modular layout – built, operated, and exhibited by club members over the past 42 years – is destined for a new home at the Pennsylvania Lumber Museum in Ulysses Township, Pa.



After more than 40 years of model railroading, our Eastern Loggers group and its innovative portable HO/HOn3 layout are now entering an exciting new chapter. The group was founded in December 1980. Our goal was to build a cohesive, fine scale, sectional model railroad to display at train shows.

The model railroad was based on the highly informative 13-book series *The Logging Railroad Era of Lumbering in Pennsylvania* by Walter Casler, Benjamin Kline, and Thomas Taber. It depicts Pennsylvania logging and related industries in the early 1920s. Over the past 42 years, we've learned a lot about wood products, their related industries, and specialized rolling stock.

When construction began, John Burchnall was developing a new method to build layouts using carved horizontal layers of 2"-thick extruded-foam insulation board. We decided to use that method, as well as to handlay our track and scratchbuild our structures, bridges, and trees.

Early progress on the layout was documented in articles in *Railroad Model Craftsman* (Sept. 1992), *Great Model Railroads* 1998, and *NMRA Magazine* (Sept. 2004). Over the years, the layout has been expanded and improved in

many ways. We've also devised several other innovations to enhance the portability and operations of the layout.

What's new

Enhancements since those prior articles include the completion of two new sections (for a total of 10), revised trackage or scenes on five other sections, adding upper and lower staging yards, installing a novel valance system, and converting to Digitrax DCC. Additionally, we've expanded our roster of geared steam locomotives and other rolling stock, including cabooses, several types of logging cars, and other period freight cars.

The two new sections consist of a highly detailed wood chemicals plant and an extension of our gorge area, including a hemlock grove and landing to source bark for the tanneries. The revised trackage and scene changes added connections to our new staging yards and a massive expansion of the drying stacks area at our signature band-saw mill. The hemlocks, chemical plant, and drying stacks were largely built by Paul Miklos.

Both staging yards are inside the layout, behind the backdrops, and are readily assessable as rare needs arise. The lower staging yard is particularly

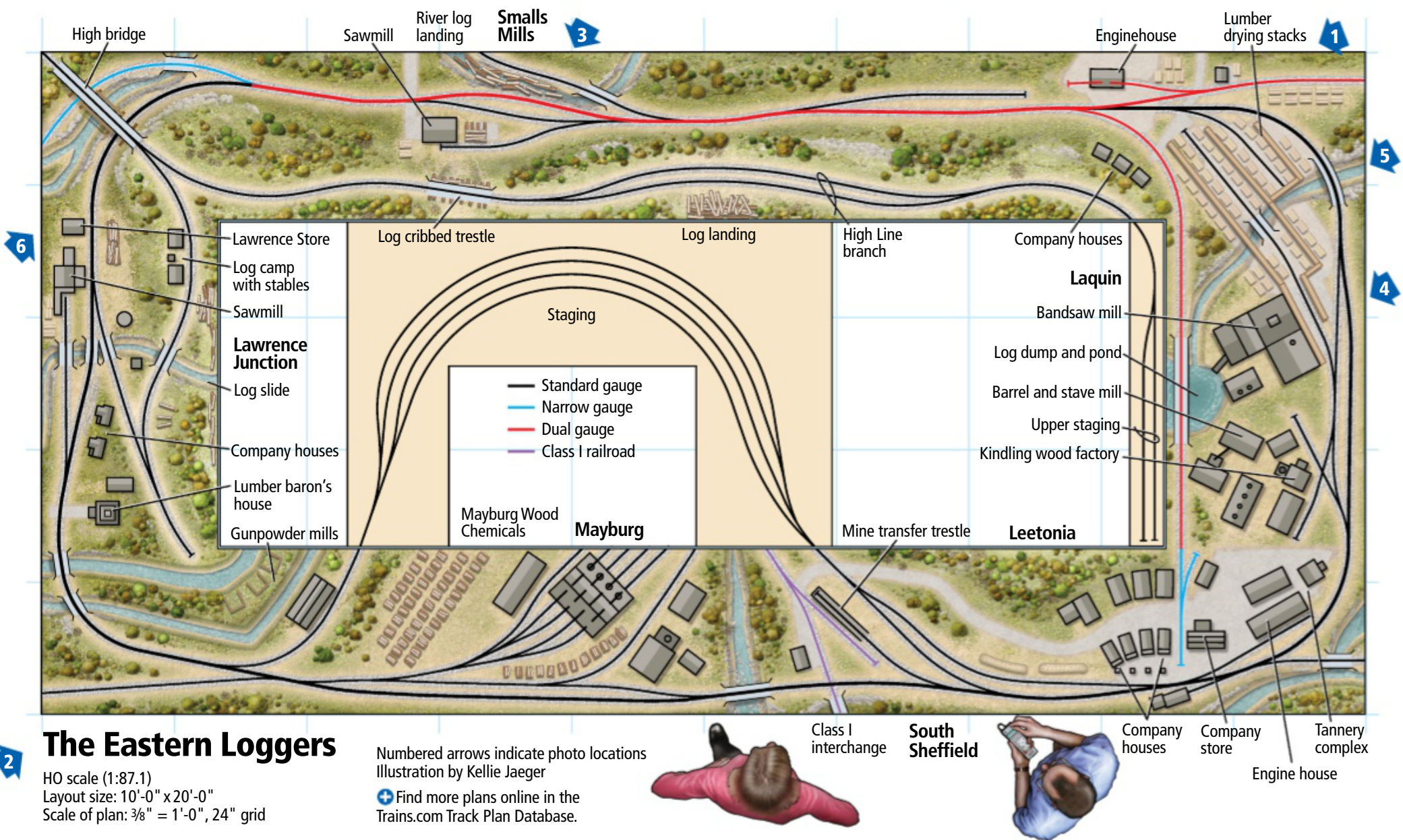
② John Burchnall adjusts a train about to drift downgrade toward the gunpowder mill. In this overall view, Lawrence Junction is on the left and the towns of Mayburg, South Sheffield, and Leetonia are on the right. The recessed color-coded controls and the new PVC board lighting valance are also evident.

interesting as it is a double-ended four track wide horseshoe with two trains stored on each track.

Creative solutions

We've incorporated several novel approaches to improve the construction, portability, and operation of the layout. First is the universal use of the foam board construction method, where thick horizontal layers of foam board make up both the roadbed and scenery bases, replacing plywood, risers, splines, and subroadbeds. This enables rapid and lightweight construction, plus easy forming of the natural undulating curves in our landforms and the seamless incorporation of trees, rock castings, and structures.

Building a portable sectional layout requires robust connections between and within each section, including the tracks, several electrical runs, and mechanical connections like the legs, skirting, backdrops, staging yards, and connections



between sections. Our legs, backdrops, and staging yards are largely held in place by gravity, using wood or plastic dowels, sometimes angled, to provide perfect alignment.

Our most frustrating mechanical connection was between the sections themselves. After struggling with a two-bolt system for years, we found the perfect solution in nested plastic pipes. These make alignment precise, while the old bolts simply hold the sections snug.

One of our most interesting innovations was the implementation of electrical stopping blocks on tracks entering turnouts. This prevents one of the most common operator errors leading to derailments and electrical shorts on any layout – running over a switch lined against you.

These blocks are insulated sections of rail at least as long as our longest locomotive. Each stopping block is wired to the contacts of its switch machine so only the correctly aligned route is powered.

These blocks normally extend to the fouling point of the turnout, but even double-headers can be accommodated by lengthening them to the frog. Similarly, these lengthened stopping blocks work with locomotives having capacitors, if those devices are set to have only a few inches of reserve power.

The layout at a glance

Name: The Eastern Loggers
Scale: HO (1:87) in standard, narrow (3-foot), and dual gauges
Size: 10 x 20 feet
Prototype: Pennsylvania logging railroads
Locale: mountains of Pennsylvania
Era: summer, early 1920s
Style: sectional
Mainline run: 60 feet
Minimum radius: 18"
Minimum turnout: no. 4

Maximum grade: 6 percent
Benchwork: open grid
Height: 46"-52"
Roadbed: 1/4" Upson board
Track: handlaid, code 70 (standard and dual gauge) and code 55 (narrow gauge)
Scenery: Gypsolite plaster over carved extruded-foam insulation board
Backdrop: 1/8" tempered hardboard
Control: Digitrax Digital Command Control with wireless throttles

We extended this idea to enable “no-look” running of trains into and out of our lower staging yard. Both trains on each track are sequentially positioned and retrieved via toggle-controlled stopping blocks in the middle and ends of each staging track.

Other innovations include simple color-coded track diagrams (no text needed) and fully recessed controls on each section; stacking plates to safely package two sections together for transport in a minivan; and a nifty shadow-box effect provided by our lightweight lighting valance system. This last uses a waffle pattern of panels made from satin black 1/8" thick Sintra/Komatex (expanded PVC).

Wood products industries

A key goal in building this layout was to research and model the diverse aspects of Pennsylvania logging and related industries. In the real world, this logging often differed significantly from similar operations in the Western United States, even on the types of log cars and loaders. In general, logging in the Eastern states was more primitive and entailed smaller diameters and different species of trees.

Logging camps often consisted of structures built on the ground, rather than on rail wheelsets, and log slides lubricated with lard were used instead of water-powered log flumes. Perhaps the



3 Climax No. 39 and a recently acquired Ma & Pa caboose sit in the siding at Smalls Mill while sister locomotives No. 37 and 38 double-head a log train across the sturdy, log-cribbed trestle on the high line. Dual gauge trackage is visible in the foreground.

We've also modeled backwoods operations, including two small circular sawmills, a double switchback and junction, log slide, log dump, high bridge, log camp, three log/bark landings, two engine houses, and two log-cribbed trestles. We've scratchbuilt standard, narrow (3 foot), and dual-gauge tracks and turnouts, plus several other fascinating features including a black powder mill (using charcoal from the chemical factory), barrel and stave mill, kindling wood factory, mine prop transfer trestle, Class I railroad interchange, and three areas with company houses.

Locomotives and rolling stock

Our layout, like the prototype, has steep grades (6%), sharp curves (18" radius), and undulating track – all necessitating geared steam locomotives. The Central Pa. Lumber Co. ran all three major classes of geared steam



4 Climax No. 37 brings a train of boxcars into the Laquin mill complex while Tionesta & Sheffield No. 102, a versatile 0-6-0T rod locomotive, shifts lumber flats at the large bandsaw mill. This is the output end of the mill, with a worker seen running the controls of the cut-off saws. The barrel and stave mill is to the left.

biggest difference was the abundance of related businesses, as the wood products industry was the largest in the world until petroleum and automobiles began accelerating during the era we model.

Researching and fabricating many of these industries has been a great joy to

us. Most all the structures and scenes on the layout are part of the wood products industry. A bandsaw mill with drying yard at Laquin and a wood chemicals factory at Mayburg are among our largest modeled scenes, along with the town of Leetonia and its tannery complex.

locomotives – Heislars, Shays, and Climaxes – as well as a few small rod engines. Our roster is similar, with plenty of Bachmann Shays and Climaxes, as well as AHM, Rivarossi, and Hornby Heislars. We also have a kit-bashed gas-powered speeder.

Mike Tener and John Burchnall have developed specialized methods and skills to keep our geared locomotives running. We've added electrical pickups to the Heislars so all wheels pick up current. The Shays required extensive work to replace cracked gears and other parts.

Our rolling stock consists of several classes of log cars, as well as boxcars, logging cabooses, and a few wood coaches and other freight cars. To enhance the realistic effect of the layout, all our rolling stock is intentionally of the shorter varieties – 36-foot boxcars, not 40-foot, for instance.

Our log cars include kit-built white metal log buggies (Keystone, Alexander, and MEW), modified old-timer flatcars (AHM/IHC, Roundhouse/Athearn, etc.), and homemade, cast-metal skeleton cars.

Just like in the real world, Barnhart log loaders roll across rails mounted on top of the log buggies. Our Barnharts are modified AHM/IHC plastic models and white metal kits from Keystone. We also custom-built prototypical bark racks to go onto the log buggies and chemical cordwood racks for the flatcars. Most consists also include modified small two-truck (Keystone) and bobber (Bachmann, AHM/IHC) logging cabooses. We've weathered nearly all our rolling stock and locomotives with powdered pressure-sensitive adhesive chanks from Bragdon, AIM/Monroe Models, Bar Mills, or Doc O'Brien's.

Operations

All these diverse wood products industries provide plenty of opportunities for operations, especially switching. David Keith developed a realistic train schedule and switching scheme for us, and it works well. We tried card cars and fast clocks, but found we prefer switch lists and sequential running.

We have dedicated trains for logs, cordwood, bark, mine props, general freight, passenger, and speeder runs. During operating sessions, we run the main loop as point-to-point from each end of the lower staging. Working log trains through the short tail tracks of the double switchbacks is particularly interesting. This usually is best achieved via the locomotives of two log trains



The materials used in casting and finishing a metal log car are shown. From left to right are a propane torch and metal ladle, the silicone mold, the master, detail parts, cast frames, and cars in various stages of completion.

Cast metal log cars

In developing our layout, we wanted to feature a variety of log cars typical of our region and time period, including log buggies, flatcars, and skeleton log cars. Flatcars suitable for modifying into log cars are available from several sources. Kits for nice cast metal log buggies and "Climax" skeleton log cars are available from Keystone Locomotive Works, but we wanted a different kind of skeleton car, one with a uniformly wide center beam. We tried fabricating these out of basswood or styrene, but they were too light to run well, especially without logs. To maximize the weight, we cast our own cars in lead-free Type 280 metal, available from Micro-Mark. This metal has a low 280 Fahrenheit melting point, making it compatible with silicone-based molds.

We scratchbuilt a master out of wood, styrene, and metal components, then cast a one-sided silicone mold within a hardwood frame. Our subsequently poured metal castings came out great after we learned the mold needed pre-heating to capture all the fine detail. After some cleaning up and adding a few detail parts, our cars were ready for the paint shop. We then added all-metal Kadee trucks (more weight), insulated Kadee couplers (to prevent shorts between cars), and weathering.

These cars look and run great, whether loaded or empty.

working cooperatively while also doubling the hill.

The future

Researching and developing this unique depiction of historical Pennsylvania logging railroads and related wood product industries has been both fun and rewarding. Since the layout is portable and largely complete, and most of us are now also pursuing other modeling interests, we looked into options to relocate the layout to a suitable permanent venue. We're happy to report we found the perfect partner in the Pennsylvania Lumber Museum. By

the time you read this, the layout should already be moved there into a dedicated new exhibit space.

The Pennsylvania Lumber Museum is a most appropriate new home for our model railroad. The museum has grown significantly since we exhibited there in 1989, including the addition of an impressive new visitor center with classrooms, archives, and several new exhibit areas. The 10-acre campus also features a working steam-powered sawmill, a re-created early 1900s lumber camp, a 70-ton Shay locomotive, a 15-ton Brookville Locomotive Works diesel, and the only restored Barnhart log loader in the world.

5 Climax No. 38 traverses the trestle over Mill Creek as mill workers are busy on the extensive tramway system amongst the drying stacks. In the background, a Shay is bringing another train of logs to the mill pond.





6 Laurence Supply is the community gathering place in Laurence Junction. Right behind the store is the top of the grade of the logging main and also the junction of the double switchbacks that climb to log landings on the high line. Heisler No. 14 leads a double-headed bark train upgrade, while two-truck Shay No. 2 traverses the second switchback on the high bridge.

Now more people can enjoy the layout, and we can visit to help their skilled staff and local volunteers maintain and interpret both the infrastructure and the historical depictions. We may also periodically help conduct guest operating sessions. We're very pleased this unique layout now has a great future to take its journey far beyond its over 40 years. 

John Burchnall is a lifetime railroad modeler, a founding member of the Eastern Loggers, and is active in the National Model Railroad Association. He has published articles in several modeling magazines. Mike Tener is a longtime member of the Eastern Loggers whose modeling passions include electronic systems and locomotive drive mechanisms. This is his first article published in a model railroad magazine.



Visiting the museum

The Pennsylvania Lumber Museum is open year-round Wednesday through Sunday, except some holidays. One of its signature special events is the Bark Peelers' Festival held each July 4th weekend. During this event, the Shay and Barnhart are rolled out, the sawmill is run, and several woodhick (as Eastern lumberjacks are called) competitions are held. Visit the website at lumbermuseum.org. Photo courtesy of the Pennsylvania Lumber Museum, Pennsylvania Historical and Museum Commission



Lou Sassi shares how he upgraded Bachmann On30 pulpwood cars by adding new decks, sides, and loads. The inset photo shows a car before the upgrades were made.

Upgrade a ready-to-run car

A new deck, frames, and load enhance this On30 pulpwood hauler

By **Lou Sassi** • Photos by the author

When I started work on my On30 Sandy River & Rangeley Lakes (SR&RL) layout in the early 2000s, a trio of Bachmann pulpwood cars was among my first purchases. Pulpwood cars were almost always in prototype photos of the railroad. Most of the on and off-line industries manufactured assorted products using wood from the thousands of acres of forests surrounding the railroad in Maine.

Though the Bachmann cars aren't exact matches for the SR&RL prototypes, they're a relatively good representation. The first thing I did once I received the undecorated models was send them to my friend George Micklus for painting and decaling.

I did some additional detailing to the cars over time, including painting and weathering the plastic deck and adding uncoupling levers, brake hoses, and brake assemblies. However, I wasn't satisfied with the look of the car's deck, the cast-resin wood load, and the plastic frames built to hold the load. I had previously added wood decking to a few flatcars and boxcars, and the results proved very rewarding.

Based on the success of those projects, I upgraded my pulpwood cars by adding new decks, frames, and loads using assorted sizes of stripwood and branches from my yard. When you compare the upgraded models to the original car, you can see the time spent improving these cars is worth it.



STEP 1 Getting started



The materials required for this project are shown in ❶. I used assorted stripwood (Kappler O scale 4 x 4, Midwest Products O scale 1 x 6, and Northeastern Scale Lumber HO 1 x 4) and Tichy Train Group nut-bolt-washer castings (No. 8144) for the decks and frames. A NorthWest Short Line Chopper II makes it easy (and quick) to cut stripwood to the same size.

Other tools you'll want to have include a hobby knife with a No. 11 blade, a scale rule, tweezers, a razor saw, a pin vise



with assorted bits, a single-edge razor blade, soft-bristle paint brushes, and 320-grit emery cloth. For paints and adhesives, I used Boxcar Red and Roof Brown and Aleene's Tacky Glue. I stained the stripwood with an India ink wash made by adding 2 teaspoons of ink to a 1-pint bottle of 91 percent rubbing alcohol.

I began work on the cars by removing the original plastic frames and cast-resin wood load. Then I pried off the brake wheel assembly with a No. 11 blade ❷.

STEP 2 Hitting the decks

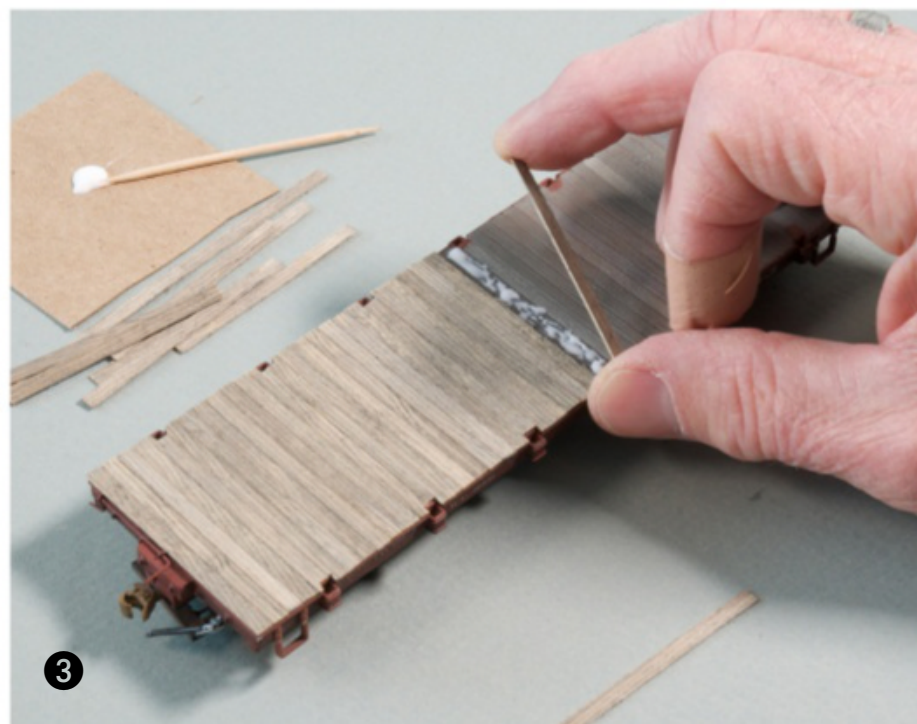


One concession I made that allowed me to save George's painting and lettering was to keep the original plastic deck while adding O scale 1 x 6 stripwood planks over it.

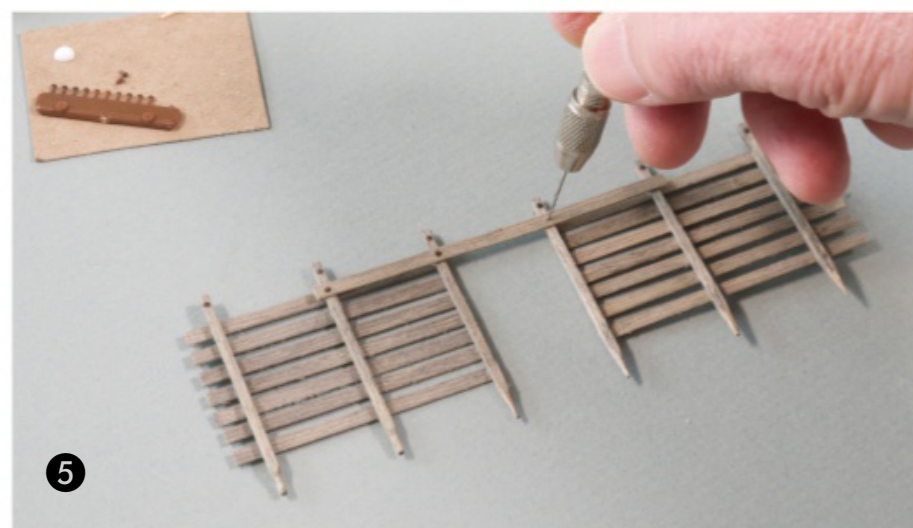
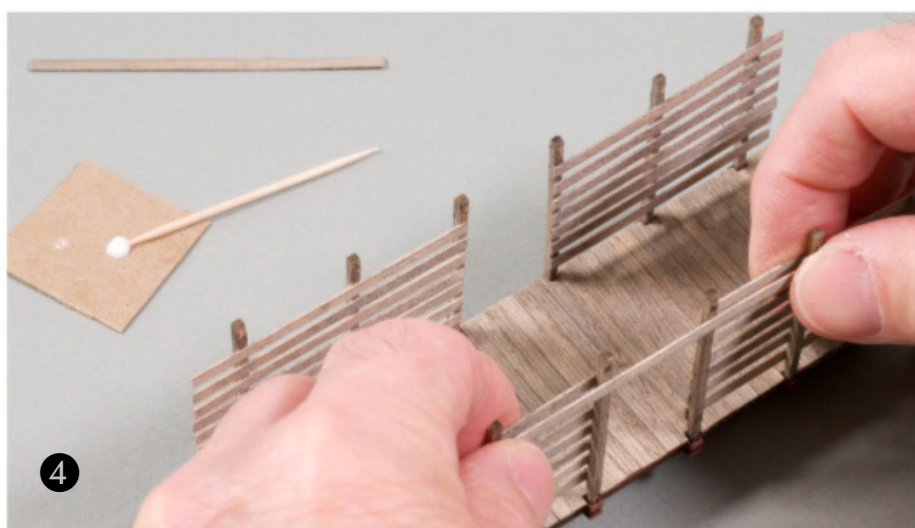
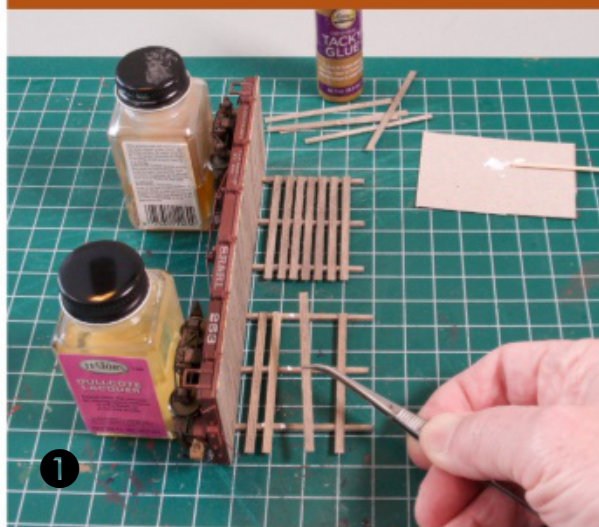
First, I applied strips of Northeastern Scale Lumber HO scale 1 x 4 to the edges of the deck to hide the ends of the plastic boards. I used a No. 11 blade to position the wood, which I painted Boxcar Red prior to installation ❸. Then I brush-painted the ends of the deck Boxcar Red to cover the original gray. I did the same at each stake pocket.

Next, I distressed O scale 1 x 6 stripwood by pulling a razor saw across it lengthwise, ❹, followed by some light sanding with 320-grit emery cloth.

With the 1 x 6s distressed, I stained them with my India ink wash. I then used a NorthWest Short Line Chopper II to cut the stripwood to length. Using a toothpick, I applied Tacky Glue to the back of each plank and set them on the deck by hand ❺. I carefully shortened the planks at each stake pocket with a No. 11 blade.



STEP 3 Fresh frames



I built the stripwood frames using a multi-step process. First, I cut O scale 4 x 4s a bit longer than needed and whittled down one end with a No. 11 blade to fit into the stake pockets. I stained the stripwood with the India ink wash.

Then I laid each car on its side along one of the grid lines on a cutting mat. I inserted the 4 x 4s, three at a time, into the stake pockets. Using both the mat grid lines and either the plastic or already built wood frames as a guide, I cut the O scale 1 x 6s that run horizontally and attached them with Tacky Glue ①.

Next, I trimmed the tops of the side 4 x 4s 1 scale foot above the top horizontal boards using a razor blade ②. I then used a No. 71 bit in a pin vise to drill holes through each 4 x 4, approximately 4 scale inches from the top. On the outside of each I added a nut-bolt-washer (n.b.w.) casting,

painted Roof Brown, to simulate the ends of the steel tie rods that hold the frames together ③.

With the side and end frames assembled, I set them into the stake pockets. Then I used Tacky Glue to attach the 4 x 4 tie boards ④. I attached my wood versions lower than those on the plastic frames. This more closely replicates the look of almost all the SR&RL cars.

While adding the tie boards, I made sure each side frame aligned with the opposite and adjoining pieces. Once the glue dried, I removed the sides and added four n.b.w. castings to each tie board ⑤.

I then glued the end and side frames together. I cut each tie rod, culled from the plastic frames, a bit shorter before painting them Roof Brown and inserting them into the holes between the n.b.w. castings.

STEP 4 Homemade loads



If you're modeling an empty car, use a No. 71 bit to drill a hole in the wood deck and insert the brake wheel assembly. If you want to add a load, leave the brake wheel off for now.

The primary load for these cars was white birch logs. We have river birch trees in our yard, which are in the same family as white birch. I had plenty of twigs lying around that could be made into loads.

I cut the smaller twigs (3" to 18" O scale diameter) into scale 3½ foot lengths using the Chopper II. Then I cut a scale 6 x 21-foot base from .010" plain styrene. I secured the logs, one by one, to the styrene using Tacky Glue. Attaching the wood to the styrene makes the load removable.

While this may not be a quick project, it's relatively easy. Now I can spot the On30 pulpwood cars at Foster's, where the white birch logs will be turned into toothpicks. 



① After brush-painting and weathering with paint washes, a toy-like Corgi Ford Model T delivery truck (inset) became a model suitable for use on Lou Sassi's O scale Sandy River & Rangeley Lakes model railroad.

BRUSH PAINTING model vehicles

You don't need an airbrush to get realistic results

By Lou Sassi • Photos by the author

One day while surfing eBay in search of O scale early 20th-century vehicles for my On30 Sandy River & Rangeley Lakes RR, I happened upon a 1915 Ford Model T delivery van made by Corgi ①.

Corgi vehicles aren't perfectly suited to O scale model railroads. They have a rather toy-like high gloss finish, and many of their body styles mirror British prototypes. Also, they're actually 1:43 proportion, which is a bit bigger than O scale's 1:48. But in my opinion, the difference is negligible.

I did some research about early Model T's, and it seems that it was Henry Ford's habit to provide Ford

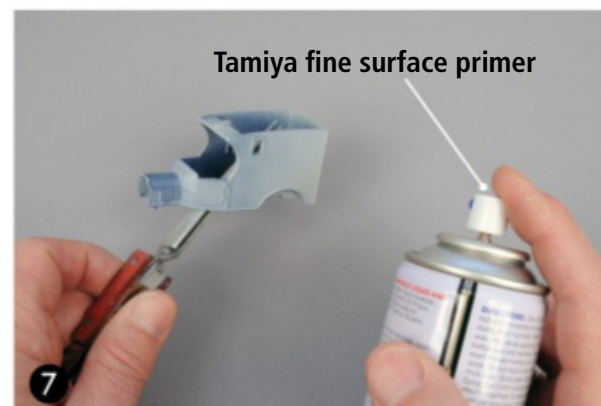
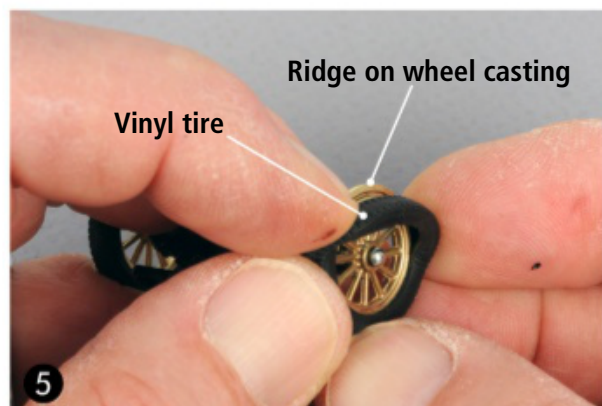
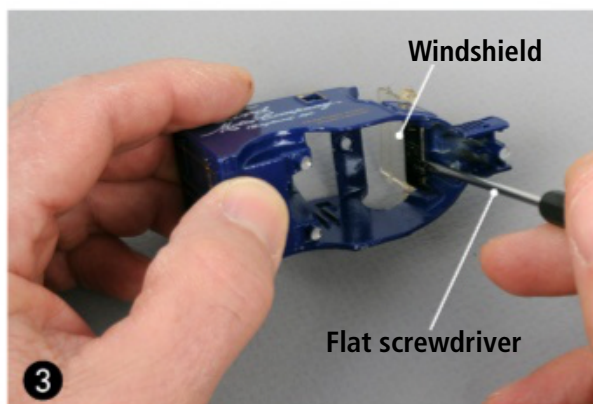
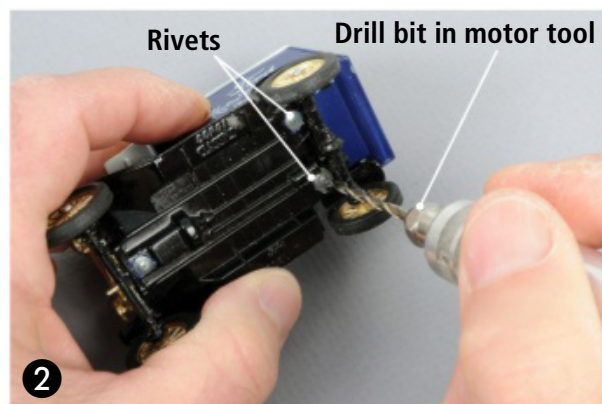
chassis to different body manufacturers. With that in mind, I decided trucks similar to the Corgi model could have plied the roads of Maine in the early 1900s. Besides, the \$8 price tag worked for me!

Since the truck was so inexpensive, I felt comfortable experimenting with painting and weathering techniques. I had just read Mike Tylick's technique of weathering structures with watercolors in the February 2016 issue of *Model Railroader*, and it seemed like his technique might also work for vehicles.

Corgi vehicles are aimed primarily at the youth market, so they're very sturdy. They consist primarily of metal castings

with a few plastic detail parts, such as the windows and interior. They include a metal underframe and fender casting onto which is riveted a similarly cast metal upper body. The roof, also metal, is riveted to the body. The wheels fit on metal axles that are press-fitted into the suspension castings. The vinyl tires are simply stretched over a ridge around the perimeter of the wheel casting. The windshield is snapped in place and held by a separate metal dashboard. The seat and simple interior is one piece of plastic that slides into the upper body casting. The plastic steering wheel is press-fitted onto the steel steering column.

DISASSEMBLY and prep



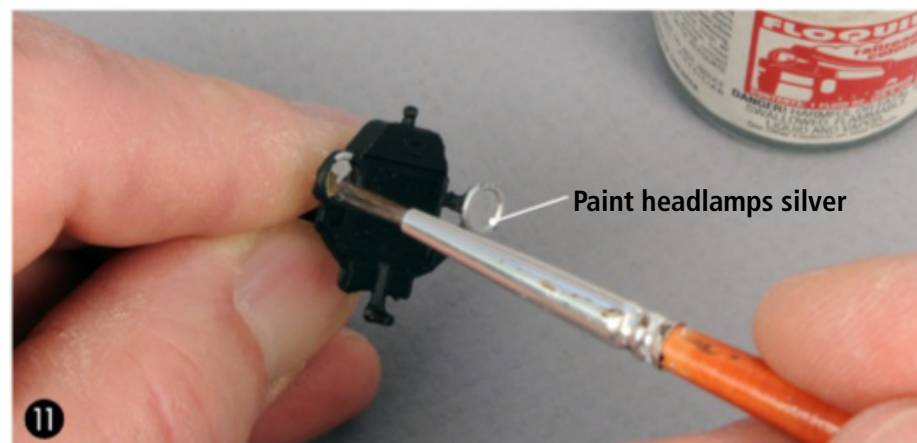
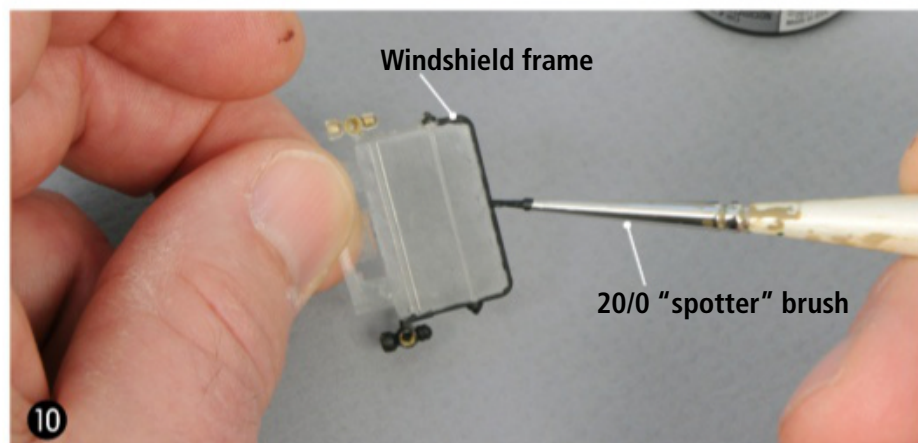
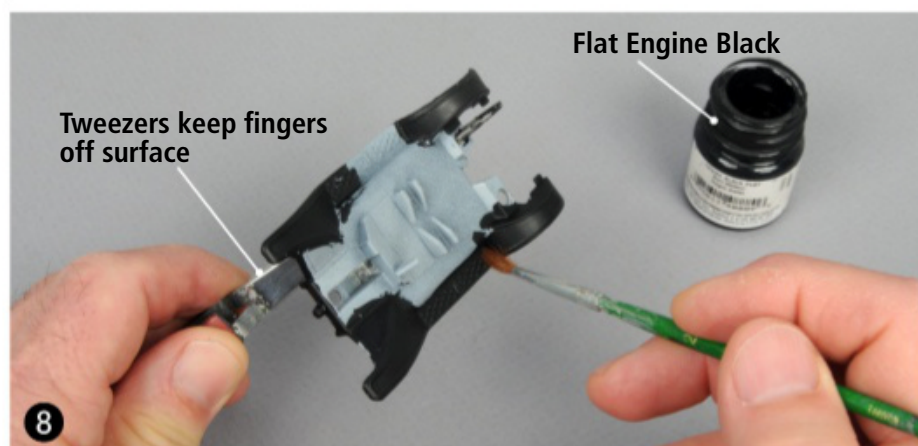
I began **disassembly** by drilling out the rivets holding the upper body and frame together ② using progressively larger drill bits in my motor tool, starting with a $\frac{3}{32}$ " , followed by a $\frac{7}{64}$ " , and finally an $\frac{11}{64}$ " . I used the same procedure to remove the roof from the upper body.

After pulling apart the castings and removing the steering column, I slipped a small straight screwdriver between the front cowling and windshield ③, unsnapped the windshield,

and removed it and the dash. Photo ④ shows all the components of the truck.

After removing the tires ⑤, I prepped things for painting by lightly scuffing the surface of the body, fenders/frame, radiator, and suspension/wheels with no. 00 (fine) steel wool ⑥, then washing them in warm tap water with a drop of dish soap added. I primed everything with light gray Tamiya Fine Surface Primer applied with an aerosol can ⑦.

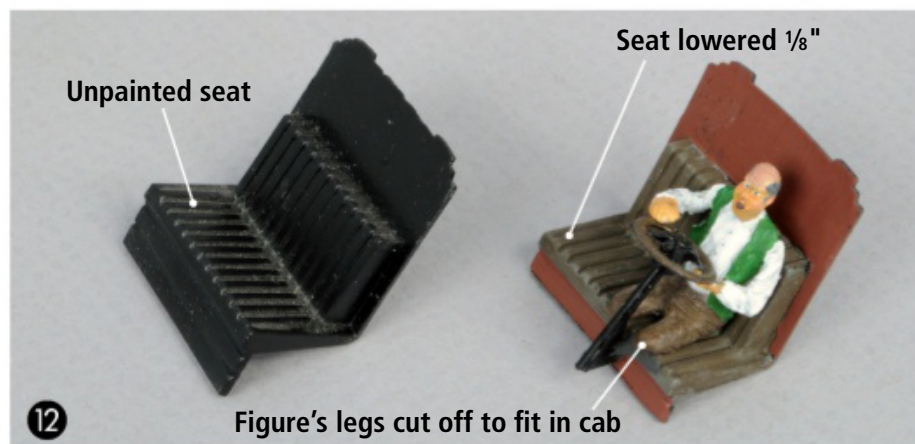
PAINTING



Almost all the brush painting, except where noted, was done with Model Master acrylics. I painted the fender-frame assembly, roof, radiator, and suspension flat Engine Black ⑧. I brushed the upper body and wheels in flat Boxcar Red ⑨. Using a 20/0 "spotter" brush, I painted the windshield frame

and marker lights Engine Black ⑩. I painted the interior seat/floor casting flat gray and the radiator assembly black, then painted the headlamps Floquil Old Silver ⑪. [Both Model Master and Floquil paints have been discontinued by Testor Corp. – Ed.]

INTERIOR and details



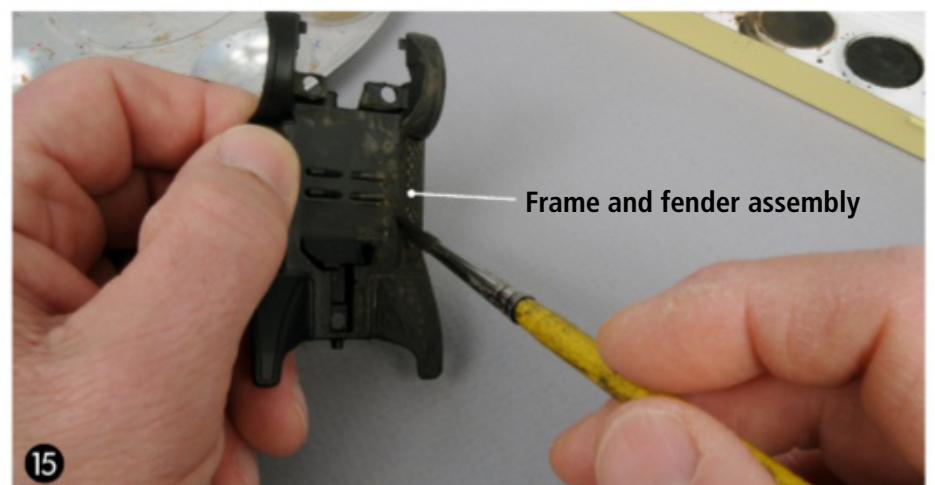
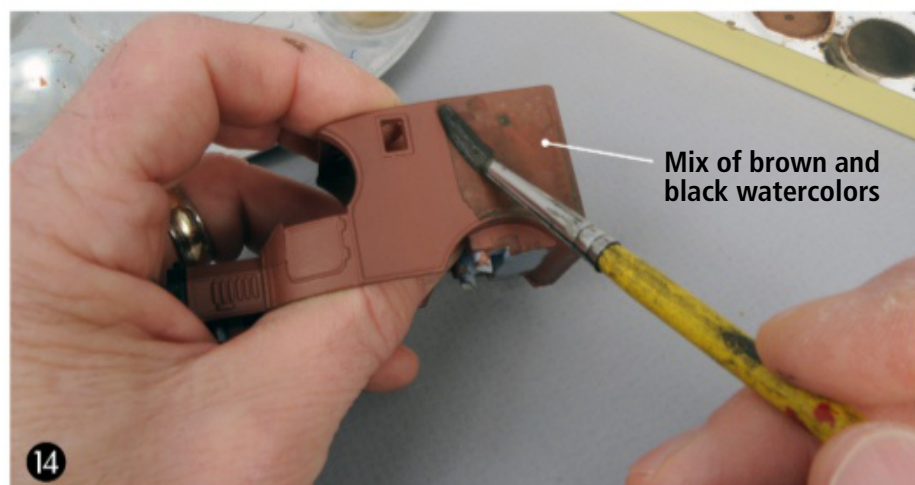
I bent the arms of an Artista truck driver figure (No. 1333) to hold the steering wheel prior to painting him. To make reassembly easier, I cut the steering column shorter and, after trimming $\frac{1}{8}$ " off the bottom of the seat so the driver would fit better (he was a bit too tall), I glued him to the seat and the steering wheel to his hands. I glued the shortened steering column to the plastic floor, all with Weldbond glue. Both



the original and painted and detailed seat-driver assemblies are shown in 12. I glued the radiator to the body with Weldbond and let everything dry for a day.

Since I didn't want my truck driver to get asphyxiated while making deliveries, I drilled a $\frac{1}{16}$ " hole below the cast tailpipe in the rear suspension 13 to add a $\frac{1}{16}$ " diameter brass tubing tailpipe to the truck.

WEATHERING



Using a soft-bristled paintbrush, I brushed a wash of brown and black artist's watercolors (I used Enri Romier, although any inexpensive brand of watercolors you might find at an art or craft store will do) on the body, frame, fenders, and wheels (14 and 15). After letting them dry for a few minutes,

I wiped away the excess watercolors with a flannel cloth lightly moistened with tap water (16 and 17), making sure to leave some residue in the crevices. I wiped the sides of the body of the truck in a vertical motion to mirror the effect of rain-washed grime.

REASSEMBLY

I reassembled the truck, gluing everything together with Weldbond. After inserting and gluing the exhaust pipe in place with two-part epoxy, I painted it Polly Scale Rail Brown. [Polly Scale paint has been discontinued by the manufacturer. – Ed.] I added a license plate bracket (painted

flat Engine Black) made from a length of Evergreen Scale Models .030" x .156" strip styrene, to which I applied a license plate cut from a copy of page 91 of the Jan. 1989 *Model Railroader*. As seen in the photo that opened this article, my delivery truck was now ready for service. 

SoundTraxx Blunami sound decoder



1 A SoundTraxx Blunami, a fresh coat of paint, and a modern can motor breathe new life into this old locomotive painted by Jim Arrasate. Allan Gartner shares what the game-changing Blunami and companion iOS app can do for your model railroad.

Nothing adds more to a model railroad than adding sound to your locomotives. The new SoundTraxx Blunami is a Tsunami sound decoder with the ability to be controlled by your iOS (Apple) iPhone or iPad via Bluetooth, using the free Blunami app. The simple addition of Bluetooth control capability opens a whole new world of possibilities 1.

First, what is Bluetooth? It was developed to allow devices to communicate over short ranges. For example, it connects your wireless ear buds with your cell phone or tablet. It also connects your phone to your car. It's not the Wi-Fi in your home that connects various computers to the internet. It's also not what connects your wireless throttles to your layout.

If you don't have wireless throttles on your layout, don't worry. You don't need them for your Blunami-equipped locomotive. If you don't have a Wi-Fi receiver and aren't currently controlling through one, you don't need to do so now. If you have Wi-Fi control but have maxed out the number of devices you can connect to it, you don't need to expand. If you don't currently have your layout linked to your computer so that you can configure decoders via JMRI's Decoder Pro, you don't need to now.

If you want Digital Command Control (DCC) capabilities like independent control of your locomotives on your direct-current (DC) layout, you can have them now. The same applies if you don't want to wire your track and instead you can run on battery power.

Do you have a basic DCC starter system and can't access the full range of sounds possible with a Tsunami? No problem. This is possible when Bluetooth control capability is added to a Tsunami sound decoder. It is, indeed, a real game changer. You'll wish all your sound-equipped locomotives had a Blunami onboard.

The Blunami BLU-2200 2 is based on a six function Tsunami TSU-2200 decoder. The Bluetooth capability adds about a quarter inch of length over a Tsunami (6.8 x 18.8 x 41.9mm vs. 6 x 18 x 35mm). The first Blunami is a 2A decoder primarily intended for HO. It comes with the typical nine-wire harness with the addition of wires out the back for functions 5 and 6 as well as two wires for the speaker and a connector for a CurrentKeeper. You can remove the nine-wire harness if your locomotive has a connector to fit the standard JST-9 connector, but you may have to trim the shrink wrap

a bit to access the CurrentKeeper and JST-9 connectors. If your locomotive uses a National Model Railroad Association 8-pin connector, you can get SoundTraxx's optional harness for this purpose.

Wiring your Blunami with the supplied harness is easy. Just follow the diagram that comes with the decoder. If you've wired Tsunami decoders before and already know what to do, you won't even need the diagram.

I used NCE (ncedcc.com) WWLEDx20 Warm White light-emitting diodes (LEDs) for the lights because they appear more like a point source incandescent headlight when compared to a diffused LED. Since all LEDs need a current limiting resistor, I put a 1,000Ω, 1/4W resistor in series with each one. If you're using your locomotive's existing incandescent bulbs, each function output can drive up to 100 milliamps. If your locomotive has 1.5V bulbs, you'll need a current-limiting resistor. I'd recommend a 1,000Ω resistor.

At the risk of sounding like a broken record, I always recommend doing an incremental installation of your decoder and test as you go along. Hook up your speaker and motor, one headlight, then the other, and then any other functions you want.

Install the CurrentKeeper last. One nice touch on SoundTraxx Tsunamis is the blue LED that's visible through the shrinkwrap to let you know the Tsunami is powered. If you test as you go along, you'll only spend about five minutes total checking it out. If you have a problem, you'll know it's with whatever incremental step you just completed. This sure beats panic when you're all done.

Also, be sure to use a baffle with your speaker. As I did my incremental install, the sound was just OK. Once I attached the tender shell, it was so loud, I had to turn it down to something more



2 The Blunami BLU-2200 looks like typical Tsunami and installs just like one. The Bluetooth capability adds about a quarter inch of length over a Tsunami (6.8 x 18.8 x 41.9mm vs. 6 x 18 x 35mm).



③ This is the main Blunami app screen. It lists the Blunami-equipped locomotives. The name is stored in the decoder and will come up on other iOS devices.

appropriate. Speaker baffles really work!

At the moment, the Blunami only works with the free Blunami app available on the Apple App store. When your locomotive is wired up, place it on the layout, apply track power, and launch the Blunami app. You'll see the name of your Blunami decoder and version number in the upper left area of your iPhone ③. Press the "connect" button. You can now control your locomotive with address 3. Blow the horn or whistle and put a smile on your face ④.

Click on the gear in the lower right to access settings. Set your address, usually to the road number on your locomotive. You can change the decoder name to something more descriptive for your locomotive. This is stored in the Blunami and will come up on other iPhones and iPads.

Perhaps the slickest capability



④ The blue icon and the thumbs up tell you that you're connected to the Blunami. Beneath that is the track voltage. It even displays when using a CurrentKeeper. The gear icon takes you to the settings screens. The chain link icon at bottom center allows you to set up a consist.

of the app is that all the 28 functions have their names displayed ⑤. Also, all the configuration variables (CVs) can be accessed through the settings gear ⑥ along with descriptive terms for each CV and what options that CV gives you. The changes to the CVs take effect immediately. Go ahead; tweak the volume. In just a couple of minutes, you are in business, all without having to refer to a manual.

Generally, Bluetooth devices have a range limited to about 10-15 feet. That isn't a problem with the Blunami, as SoundTraxx claims a range of about 100 feet. I was able to confirm that I could control the locomotive in my home at a range of about 50 feet and going through several walls and a floor. I left the doors open so I could hear the



⑤ The 28 functions are all listed over two screens. Touch 15-28 to see the second page. Note that you still have control of the throttle when this screen is displayed.

whistle. When I was farthest away in the corner of my living room, I was having trouble consistently getting the whistle to blow. Within my layout room, which is 49 feet long, it worked great ⑦.

At its heart, the Blunami is a Tsunami and can be controlled and consisted like any other DCC decoder with tethered throttles, wireless, or non-iOS cell phones using Engine Driver. You just will not have the slick features of the Blunami app. The Blunami can also be configured using Decoder Pro.

Have no fear, you can't control the Blunami with both Bluetooth and your normal DCC throttle at the same time. When the Blunami app is in control, it will ignore DCC commands coming in through the track. If you want to use a DCC throttle after using the Blunami app, just cycle the power to your locomotive.

You can control your Blunami with the app when DC is applied to your track or even no power on the track at all with battery power. Just use the Blunami app.

Hopefully, I've piqued your interest in the Blunami.



⑥ This is one of the settings screens. Everything can be easily changed. You don't have to use a programming track or use Decoder Pro on your computer. I recommend that you have the "Auto-Connect Option" set so for those times when track power is lost.



⑦ When using Bluetooth to control consists, they're lettered A through D rather than using numbers. Bluetooth consist information isn't stored in the decoder and will have to be set up again when you go to another layout.

There's nothing like seeing and hearing it in action. Watch the SoundTraxx Blunami video at youtube.com/watch?v=oaKojomTPos.

For SoundTraxx manuals, go to soundtraxx.com/reference/manuals/

As always, links in this column appear in my website at WiringForDCC.com/dcc_currents.htm. **MR**



YOU CAN CONTROL YOUR BLUNAMI WHEN DC IS APPLIED TO YOUR TRACK OR EVEN NO POWER ON THE TRACK AT ALL WITH BATTERY POWER. —ALLAN

Run a detour train

Encountering a "Detour Ahead" sign can make a

driver's heart sink, especially in parts of the country where a detour can add hours to a journey, not a handful of city blocks. On the other hand, a railroad detour might attract fans to drive 100 miles or more for a rare shot of foreign power on a host road.

Such an occasion produced a photo of Southern Pacific Cab-Forward 4268 (a "backup Mallet" or simply "Mallet," as Espee railroaders called the type) in unfamiliar surroundings. It heads No. 60, the *West Coast*, at Summit on Santa Fe's Cajon Pass. Overlooking the scene are the depot and the iconic "Descanso," where famed operator Chard Walker lived. A layout owner can arrange an event like this without traveling farther than the basement steps, so let's see how railroads detour.

The *West Coast* and three other name trains reached Los Angeles via Santa Fe rails through Barstow on January 16, 1952, when storm damage blocked SP's main near Saugus, Calif. This was the same weather system that left the *City of San Francisco* snowbound on Donner Pass for three days. Espee officials certainly had their hands full, but they could count on detour relief from a competitor because long before then, railroads recognized the need for cooperation when natural disasters, lengthy maintenance projects, wrecks, and other emergencies struck.

Such cooperation takes the form of standing detour agreements. They detail fees and other conditions so that superintendents can act quickly when a detour is necessary. The railroad requesting a detour (the Foreign Company) informs the Home



Handsome Electro-Motive Division E8s lead No. 2, the *Erie Limited*, as it glides across the Susquehanna diamond at Sparta Junction, N.J., during an August 1955 detour over Lehigh & Hudson River. Richard Young photo, courtesy Anthracite Railroads Historical Society

Company how many trains it wishes to operate and their end points so the home road can determine if it can accept them. Typically, the detouring road's crews operate its trains. A home road's employees may not be familiar with foreign power. However, the home road adds a pilot engineer and sometimes a pilot conductor to assist a foreign crew who is not familiar with the home road's rules, signals, or physical characteristics.

The photo above shows the *Erie Limited*, the road's crack passenger train between Chicago and New York City. Hurricane Diane heavily damaged Erie lines in southern New York, making a rare occasion that varnish visited Sparta Junction on the Lehigh & Hudson River, a freight-only, all-Alco road. This detour's full route isn't known, but the train probably reached L&HR via the Lehigh Valley.

Detours cost money, so they tended to be short in both duration and distance, but there were notable exceptions. A massive mudslide walled off the Rio Grande

main line at Thistle, Utah, in 1983, sending Amtrak's *San Francisco Zephyr* and several Rio Grande freights over Sherman Hill on Union Pacific every day for almost three months while Rio Grande constructed a new main line.

Midwestern flood waters in 1993 were so extensive that "you couldn't get a train across the Mississippi from Minneapolis to Memphis for a week," UP veteran Steve Dolezal told me as he described extraordinary efforts routing unit coal trains to power plants to keep them running.

Modeling opportunities abound.

Routing trains around a wreck on a nearby line can add variety to an operating session. Jim Heidt found another way on his Ogdensburg & Norwood Ry., drawn from his grandfather's memories of Erie

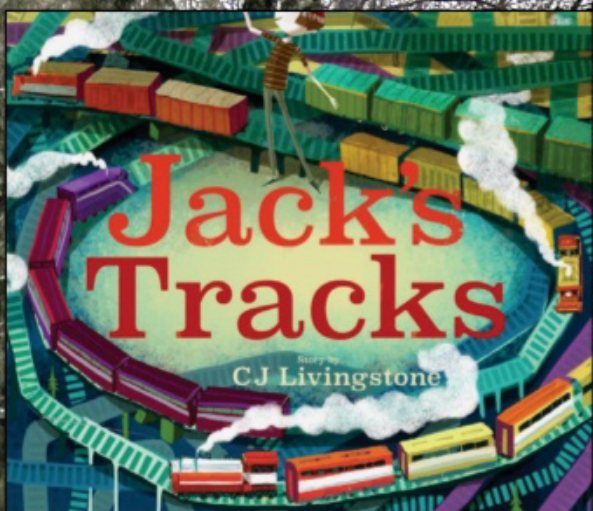
detours over New York, Ontario & Western. The O&N is a bridge line in New York's Adirondack region connecting Canada with southern New England set in 1948. It's freelanced, but two prototype New York Central lines run through its territory. Jim's scenario has a serious washout close one of them, sending NYC traffic over O&N between Norwood and Tupper Lake. Entering O&N trackage involves a difficult back-up move, like prototype

detours where connections over interchange or seldom used tracks required low speed and great care.

This prototype practice is a snap to adapt. Hosts often ask regular crew members who are qualified and experienced on the layout to assist newcomers at operating sessions. Wouldn't "pilot" be a good term, whether a detour is involved or not? **MR**



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THE NEED FOR
COOPERATION
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DISASTERS,
LENGTHY
MAINTENANCE
PROJECTS,
WRECKS, AND
OTHER
EMERGENCIES
STRUCK.
— JERRY**



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Rapido N scale F40PH-2D diesel locomotive

A Canadian rail travel icon has been brought to life in N scale thanks to Rapido. Starting in the mid-1980s, VIA Rail Canada's F40PH-2Ds hauled passengers across the country in such famous trains as *The Canadian* and *The Ocean*. The locomotives earned their keep as staple motive power for the railroad until the delivery of its General Electric P42DC locomotives in 2001. Many are still operating after a rebuild in 2006. This is the first time a correct Canadian version of the F40PH has been offered in 1:160.

VIA Rail Canada's initial order of F40PH-2Ds were purchased from General Motors Diesel (GMD) in 1986, and by 1989 the railroad had 49 units on its roster. Based in London, Ontario, General Motors Diesel was the Canadian subsidiary of General Motors' Electro-Motive Division. The locomotive manufacturer had been producing F40PHs for

more than 10 years before GMD began its production on VIA's units. The Canadian builder also produced standard F40PHs for GO Transit in 1978.

As with the rest of EMD's F40PH-2 locomotives, the F40PH-2D was powered by a 16-cylinder 16-645E3C diesel engine rated for 3,000 horsepower. A large consideration for the order of these locomotives by VIA was their head-end power (HEP) function. Head-end power provides power for lighting, heating, and air conditioning of passenger cars.

VIA's older GMD F units and Montreal Locomotive Works FPA-4 units lacked this ability and relied on steam generators. In the F40PH-2D, head-end power comes from an alternator that requires the diesel engine to run at full throttle while the train is using HEP.

To control the locomotive's speed, the engineer selects the amount of current sent to the traction motors so that

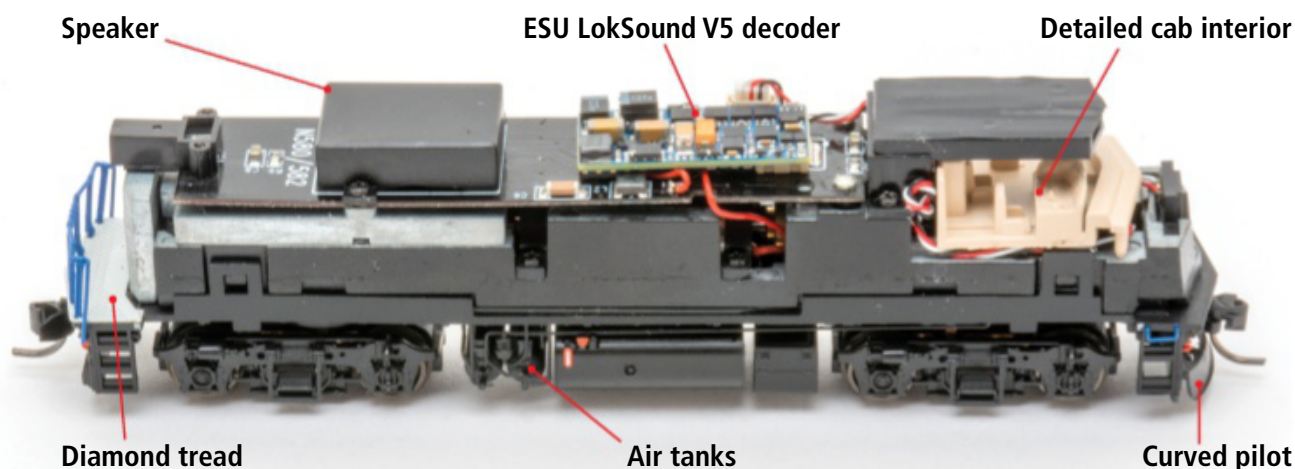
changes in speed don't change the amount of HEP available.

Once delivery started, VIA quickly replaced its GMD F units and MLW FPA-4s and supplemented the MLW/Bombardier LRC locomotives.

In 2001 VIA began taking delivery of its GE P42DC locomotives. Starting in 2006, the as-delivered GMD F40PH-2D locomotives were refurbished with a new, separate HEP engine and an Environmental Protection Agency certified Tier 0 16-645E3C-T1 diesel engine. Other changes included computerized control systems, the addition of a third headlight, and the removal of classification lights. All available units were refurbished into F40PH-3C designations by 2012.

Rapido's model of the F40PH-2D is offered in the as-delivered, rebuilt "Renaissance," and "Canada" schemes. Our review sample is the last of those. The prototypically accurate model includes such details as operating Canadian-style ditch lights under the anti-climber, a cab air conditioner unit, HEP receptacles, a Sinclair antenna, a winterization hatch over one radiator fan, and non-operating class lights.

Other details of the F40PH-2D include a curved passenger-style pilot and unique maintenance door placement. The model features separate, factory-applied m.u. hoses, metal grab irons, plastic handrails and stanchions, and molded diamond tread on the rear platform. Also on the roof is a K3L horn



Here's what the F40PH-2D looks like with the shell removed. The ESU LokSound V5 sound decoder is in the center, and the speaker is above the rear truck.

PERFORMANCE CHARTS	
DRAWBAR PULL	.05 ounces 7 free-rolling N scale passenger cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
8	5
9	18
10	30
11	47
12	63
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
3	1
7	12
14	32
21	61
28	86

that matches the default horn sound on the decoder.

Under the locomotive are a pair of detailed Blomberg M trucks, two air tanks, an air dryer, a fuel tank, and bell. Conduit and piping runs throughout the underside of the engine.

Inside the cab is a full, unpainted cab interior including the desktop controls ("D" in F40PH-2D stands for desktop controls). Figures are not included, but there's plenty of room for a modeler to install them.

Also included with the locomotive is a bag of modeler-installed details such as sunshades and plastic bug shields as well as traction tires and an extra wheelset.

Lighting is critical for safe operation on prototype railroads, and Rapido took no shortcuts when it came to lighting on its N scale locomotive. The headlights are surface-mounted light-emitting diodes (LEDs), while the number boxes are illuminated with light tubes. Ditch lights



Rapido's N scale model has numerous separate, factory-applied detail parts, including a winterization hatch, air conditioner, and m.u. hoses.

and ground lights add to the light package that comes with this locomotive. A rear headlight is also included, but it's not directional. To use the reverse headlight in operation, you must turn on function 12, switching mode.

To separate the shell from the chassis, I first removed the vertical grab irons by the rear pilot. Then I gently spread the shell and lifted it off the chassis. Underneath is an ESU LokSound V5 sound decoder. Direct-current models have a Next18 plug. A speaker occupies the space behind the decoder.

The LokSound V5 decoder is dual-mode, so I tested it in direct current and Digital Command Control. In DC, the headlights, ditch lights, number box lights, and ground lights illuminated and the diesel engine startup sequence began at 6 volts. After the startup sequence completed, the HEP turned on automatically. The passenger unit started moving at 8 volts, running at a scale 5 mph. At 12 volts the locomotive topped out at a scale 63 mph.

While operating the engine with DCC, I had finer control of the model. The engine moved at a scale 1 mph at speed step 3. Throughout the speed steps the locomotive gradually made its way a top speed of a scale 86 mph. This is 9 mph slower than the top speed of a F40PH-2D, which is geared for 95 mph. These speeds can be fine tuned by adjusting configuration variables (CVs).

At top speed, the drawbar pull of the engine is .05 ounces. That's equivalent to 7 passenger cars on straight and level track. However, I tested the locomotive on our relatively flat State Line Route layout and was able to pull 11 cars from Rapido's *The Canadian* set before the engine began to struggle.

When starting the diesel engine with function key 8 (F8), the locomotive takes a few seconds to start up, similar to the prototype. Another prototypical feature is that the engine won't move until the startup sequence is complete, no matter how much you move the throttle. Head-end power can be started at any time after the diesel engine is started with F5.

On the F40PH-2D, the HEP is physically tied to the diesel engine, so turning on the function throttles up the engine to notch 8, almost like a drive hold. While HEP is enabled, dynamic brake

Facts & features

Price: \$279.95 (dual-mode ESU LokSound V5 sound decoder), \$169.95 (direct current with Next18 plug, no sound)

Manufacturer

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

Era: 1986 to 2012 (as decorated)

Road names: VIA Rail Canada (1986 as-delivered scheme, "Canada," and "Renaissance" schemes, all in multiple road numbers)

Features

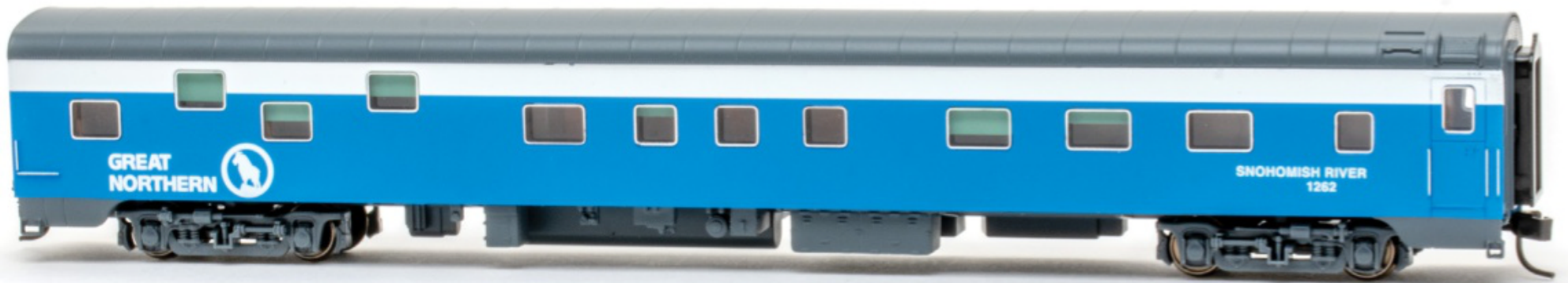
- All-wheel drive and electrical pickup
- Blackened metal wheels, in gauge
- Dual-mode ESU LokSound V5 sound decoder (DCC version only)
- Plastic knuckle couplers, mounted at correct height
- Light-emitting diode headlights, ditch lights, number box lights, and ground lights
- Minimum radius: 9.75"
- Weight: 3 ounces
- Wire hand rails and grab irons

(F4), drive hold (F9), and engine brake (F10) are almost inaudible.

When operating without HEP mode, such as when switching in yards, these functions operate as normal. The bell is on function 1 and the horn is on function 2. The locomotive has two options for Doppler horn sounds, fast (F3) and slow (F11). The default horn is a K3L, used by VIA Rail on its F40PH-2Ds. Rapido has included a different K3L recording that the user can switch to by setting CV 163 to 1.

For anyone modeling passenger operations in Canada from the 1980s to the 2000s, this engine is a perfect fit. Even if you model Amtrak, VIA Rail F40PH-2Ds were regularly used on the *International* between Toronto and Chicago, so a VIA Rail F40PH-2D pulling a train of Amtrak equipment is prototypical.

Rapido has pulled out all the stops to re-create an accurate F40PH-2D in N scale. Not only does it look good, it sounds great and is an excellent runner. – *Bryson Sleppy, associate editor*



N scale sleeper from RailSmith Models

RailSmith Models has added a newly tooled Pullman-Standard (PS) 8-duplex-roomette, 6-roomette, 1-compartment, 3-bedroom sleeping car to its N scale lineup. The model features a molded one-piece interior, printed window shades, and truck-mounted couplers.

The duplex sleeper is based on Plan 4119, built by PS in 1948 under Lot 6781. The full-size cars included Northern Pacific 350-363; Chicago, Burlington & Quincy 480-482; and Spokane, Portland & Seattle 366.

Originally, the order was for 13 cars, all for the *North Coast Limited*. The order was increased to 18 after NP canceled an order for five sleeper-lounge cars. The cars (Plan 4155) were to be similar to the 8-6-1-3 sleepers, but with 12 parlor chairs instead of the compartment and bedrooms.

Cars 353 and 354 were involved in a derailment in June 1962 and scrapped. Cars 350-352, 359, and 361 were renumbered 440-444 in 1965 and used on the *Mainstreeter* as dormitory cars.

The RailSmith Models duplex sleeper has a one-piece injection-molded plastic body with a separate roof and molded stirrup steps and grab irons. The side grabs are picked in a stainless steel color, giving them a separately applied look.

Sprung diaphragms on the car ends are molded in black plastic. All of the window openings are fitted with flush, clear glazing. Our sample has shades printed on the interior of select side windows. The exterior of the side windows have simulated stainless steel trim.

The interior is a one-piece plastic casting molded in a brownish-tan color. The floor plan closely matches a drawing published in *The Official Pullman-Standard Library: Vol. 3* by W. David Randall and William M. Ross (*Railway Production Classics*, 1987).

The underbody uses the same tooling as RailSmith's 10-6 sleeper. A center sill, crossmembers, battery boxes, and brake appliances are some of the features.

The trucks are attached with Phillips-head screws, and the plastic Accumate couplers are truck-mounted. The sleeper rides on metal wheel stubs mounted on plastic axles. Electrical contacts are included for those who want to add interior lighting.

Our sample is decorated as Great Northern No. 1262 (*Snohomish River*), part of the railroad's 1260-1274 *River*-series of 7-duplex-roomette, 4-section, 3-double-bedroom, 1-compartment sleepers. The prototype cars were built by PS in 1950 under Lot 6889. Also included with this group was Spokane, Portland & Seattle No. 702 (*Snake River*).

In 1963, cars 1260, 1262-1264, and 1274 had the four sections removed and replaced with three more double bedrooms. The new designation for the cars was a 7-duplex-roomette, 6-double-bedroom, 1-compartment sleeper. Cars 1262, 1264, and 1274 became part of Amtrak's fleet, numbered 2400-2402, respectively.

The RailSmith Models duplex sleeper is a reasonable stand-in for the GN cars. The full-size GN cars had different side window arrangements, and the vestibule was at the same end as the duplex roomettes.

The duplex sleeper is neatly painted in GN's Big Sky Blue scheme. The color separation lines are crisp, and the lettering is opaque. The placement of the herald, car name, and number all match a prototype photo of the No. 1262 that I found online.

The model's dimensions matched data published in the aforementioned book by Randall and Ross. I tested the RailSmith duplex sleeper with some

other N scale passenger equipment on our Milwaukee, Racine & Troy State Line Route layout. The car looked good on the layout's 18" radius curves and navigated the No. 6 turnouts without incident while being pushed and pulled.

It's been fun to watch the RailSmith Models line grow, first with the acquisition of the former Walthers N scale passenger car tooling and now with the release of newly tooled cars. Thanks to the company's Build-a-Train program, it's easier than ever to re-create famous passenger trains in 1:160. – *Cody Grivno, senior editor*

Facts & features

Price: Great Northern 1967 *Empire Builder*: Single car, \$49; three-pack, \$139. Northern Pacific 1947 *North Coast Limited*: Single car, \$48; three-pack, \$143. NP 1954 *North Coast Limited*: two-pack, \$98.

Manufacturer

RailSmith Models
P.O. Box 188
Prineville, OR 97754
lowellsmith.net

Era: 1967-1970 (as decorated), 1948/1954-1970 (NP cars)

Road names: GN (Big Sky Blue) and NP (pine tree and Loewy two-tone green schemes)

Features

- 36" metal wheel stubs on plastic axles, in gauge
- Era-specific skirting
- Truck-mounted Accumate couplers, at correct height on A end, .015" low on B (vestibule) end
- Weight: 1.5 ounces, .1 ounce too heavy based on National Model Railroad Association Recommended Practice 20.1

Eastern Seaboard Models HO scale insulated boxcars

Eastern Seaboard Models, a hobby manufacturer that has been producing N scale models of cars from Northeastern railroads for years, is entering the HO scale market with a model of a freight car that epitomizes New England railroading. The red-white-and-blue “State of Maine Products” insulated boxcars carried potatoes and paper products on the Bangor & Aroostook (BAR) and New York, New Haven & Hartford (NH) starting in the early 1950s. Though only 550 cars were ever built for two railroads, their vivid paint scheme fixed them firmly in the minds of modelers and railfans envisioning transition-era New England.

Facts & features

Price: \$84.50

Manufacturer

Eastern Seaboard Models Corp.
P.O. Box 301
Waldwick, NJ 07463
esmc.com

Era: Early 1950s to 1980s

Road names: Bangor & Aroostook and New York, New Haven & Hartford. Both in red-white-and-blue “State of Maine Products” scheme, in four numbers per road name.

Features

- Etched-metal running board and brake wheel platform
- Flexible rubber Hi-Tech Details air hoses
- InterMountain ASF A-3 50-ton trucks
- Kadee No. 148 metal whisker couplers, mounted at correct height
- Low-profile blackened metal wheelsets, in gauge
- Minimum radius: 18"
- More than 100 separately applied details
- Road-name-specific details and roofs
- Underbody charcoal heater
- Weight: 4.4 ounces (.4 ounces over National Model Railroad Association Recommended Practice 20.1)



Eastern Seaboard Models’ HO scale version of this iconic car is outfitted with “over 100 free-standing plastic detail parts.” If that’s not enough, the cars also have a finely etched see-through brake wheel platform and running boards with freestanding corner grab irons.

Additional details include Hi-Tech Details flexible rubber air hoses, body-mounted Kadee whisker couplers, and screw-mounted InterMountain Railway Co. solid-bearing trucks with separate brake beam detail and low-profile blackened metal wheelsets. The underbody features a separate, factory-applied charcoal heater and brake appliances, rods, and levers.

Founded in 1891, the Bangor & Aroostook spanned the height of the state of Maine. It extended from the Atlantic port town of Searsport in the south to the state’s sparsely populated northernmost county, Aroostook. The county was mostly timber land and farms, and its two biggest industries were forest products and potatoes.

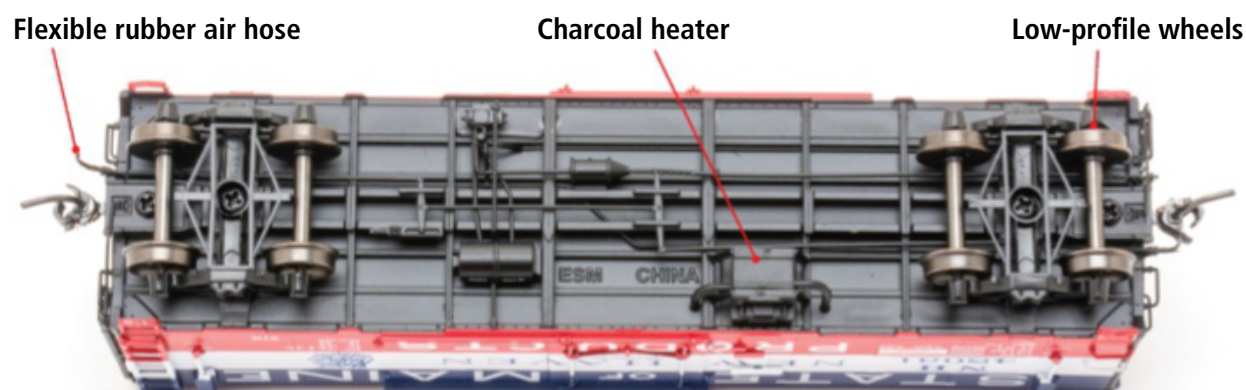
In 1950, BAR ordered from car builder Magor Car Co. 300 40-foot plug-door insulated boxcars to haul potatoes.

The railroad took delivery in late 1950 and numbered them from 2000 to 2299.

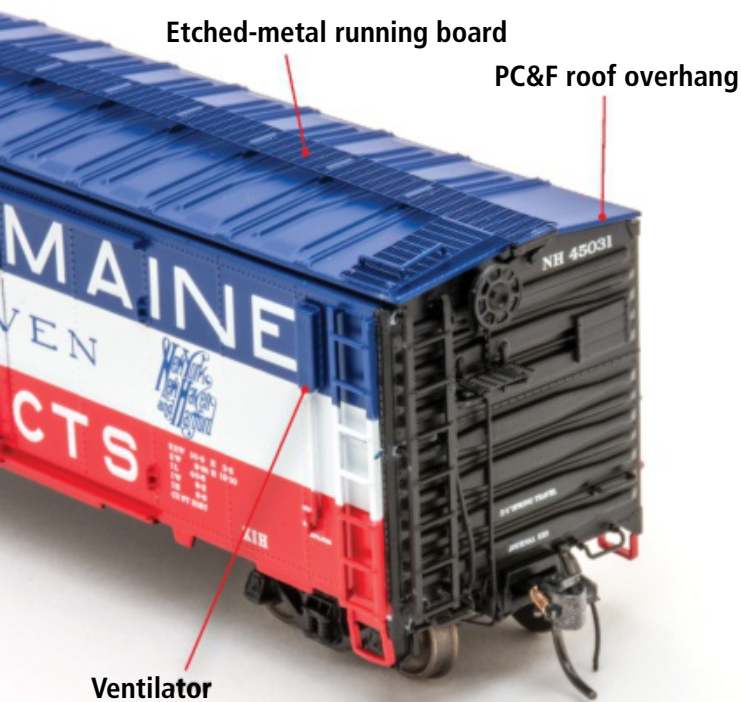
Potatoes don’t need to be kept refrigerated, like some other produce, so the cars didn’t have ice bunkers. However, potatoes have to be protected from the cold, so the cars were equipped with ventilators and charcoal heaters under the frame. Therefore, BAR designated them American Association of Railroads (AAR) class XIH (Boxcar, Insulated, Heated) rather than RA or RS.

The first batch was painted in a bold red-white-and-blue striped scheme emblazoned with “State of Maine Potatoes” in tall white letters. In between potato harvests, the cars were leased to other shippers, including the Pennsylvania RR and Pacific Fruit Express. The distinctive cars brought attention from railfans. The BAR also used the cars to ship paper products in slack times. Later, the red stripe was repainted to change “Potatoes” to “Products” to reflect this.

Bangor & Aroostook bought 150 more such cars in 1953, this time giving the order to Pacific Car & Foundry. Also needing some insulated boxcars, New



The car’s underframe bears a wealth of brake detail. The large boxy detail is the charcoal heater, used to keep the potatoes from freezing.



The most visible difference between the Magor and Pacific Car & Foundry body styles is the roof end overhang.

York, New Haven & Hartford piggy-backed an order for 100 XIH cars of its own onto the BAR order. To save money, NH bought its cars painted in the same red-white-and-blue "State of Maine"

scheme as BAR's, only with the New Haven name and herald.

As might be expected of such photogenic freight cars, it was easy to find color pictures of them in the David P. Morgan Memorial Library. The photos matched the models in every way, including the color scheme, lettering, and detail placement, right down to the vertical ventilators on the sides.

Eastern Seaboard is offering both the Magor and PC&F body styles; the biggest difference I could discern between the two is the separately molded roof. The Magor roof is shorter and has rivets on the end, while the PC&F roof slightly overhangs and has rivets on the top.

The paint and printing were well done, with a smooth finish, opaque colors, and sharp separation between the colors. The smallest printing was legible under magnification.

The trucks were equipped with blackened-metal wheelsets, all of which were in gauge. The Kadee metal knuckle couplers were at the correct height.

I couldn't find a dimensioned diagram of these cars in our library. However, the listing for these cars in the 1953 *Official Railway Equipment Register* (Railway Equipment & Publication Co.) gives the overall car dimensions, and ESM's HO scale version is a very close match for those figures.

To test how well the cars handled tight curves and turnouts, I coupled our two samples together and ran them through the 18" curves, Atlas Snap-Switches, and sometimes troublesome sectional rail gaps of our 2009 Beer Line project layout. The cars handled them all without a hitch.

New England icons. State of Maine insulated boxcars belong on transition-era New England layouts as much as covered bridges, water mills, and rocky terrain. This is an accurately rendered, well detailed, and nicely painted model that bodes well for ESM's prospects in the HO scale market. Pick a peck for your layout's next potato harvest season.
– Steven Otte, senior associate editor

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Central Vermont No. 4550, an Electro-Motive Division GP9, leads a freight train past North Dorset Station. The action takes place on the HO scale Green Mountain Division layout built by Don Janes of Sarnia, Ont. The locomotive is an Athearn Genesis model. The water tower was built from an American Model Builders laser-cut wood kit. North Dorset station is a resin kit from Rutland Car Shops.



Want to see your work in Trackside Photos?

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



A pair of BNSF Ry. diesels led by EMD SD70ACe No. 9374 roars upgrade through Arctic Circle Pass in the San Bernardino Mountains, east of Los Angeles, with an intermodal train in tow. Richard Birkemeier of Roscoe, Ill., photographed the modern-day action on his HO scale layout. Richard shot the panoramic background photo at the full-size Arctic Circle Pass. The SD70ACe is an MTH model.





A Shay brings a load of logs into the mill yard past the water tank and yard office. Greg Smith of Brookings, Ore., photographed the scene on his On30 logging vignette layout, which is just 2 x 7 feet and folds up into a box for transport. The water tank is kitbashed and the other structures are scratch-built. The locomotive and flatcar are from Bachmann.



A young railfan waves to the engineer as a westbound BNSF Ry. freight takes the siding at the Amtrak station in Lillie Rose, Pa. Ryan Bartlett built the 2 x 4-foot HO scale diorama for the Walther's National Model Railroad Build-Off 2022. Ryan saw plastic step stools hanging on the fence at the Alexandria, Va., Amtrak station and 3-D printed versions to reproduce this detail for his diorama. The General Electric ES44AC is an Athearn Genesis model.



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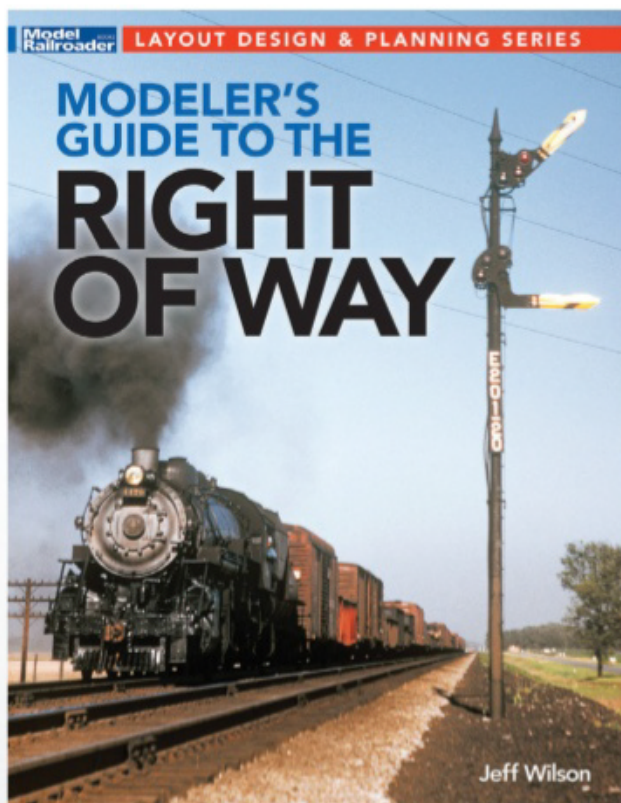
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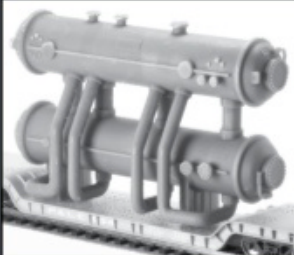
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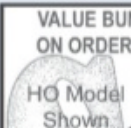
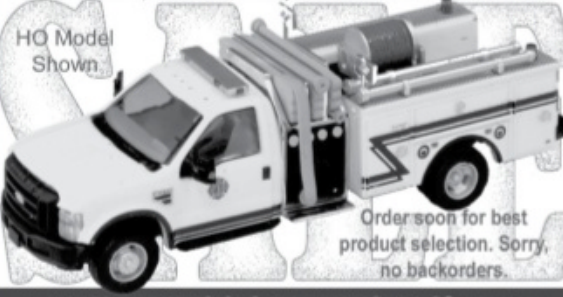



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Schedule of Events

AZ, GLENDALE: ARHS Model Train Swap Meet. Glendale Christian Church, 9661 North 59th Ave., Glendale, AZ 85302. Saturday, November 12, 2022, 9:00am-1:00pm. Everything Trains – Food – Fun. Admission \$5.00. Tables \$25.00 - to sign up send check or money order to: ARHS, PO Box 5816, Glendale, AZ 85312-5816. Contact: Craig Faris, 623-340-3529

CA, ANAHEIM: 2022 TTOS-SP Super Meet. December 9-10, 2022. Friday, 5-9pm; Saturday, 9am-6pm. Brookhurst Community Center, 2271 Crescent Ave. Buy-Sell-Trade Trains, Toys and Railroad Memorabilia. Train races, auction, Santa, and more. FREE Kids train set raffle. 2-day admission: \$5, \$10 family. FREE parking. Vendors: 8-ft tables, \$25, \$35 after 11/08. Visit: TTOS-SP.ORG/THEUPERMEET/ to register. Questions: info@ttos-sp.org

CA, TURLOCK: San Joaquin Valley Toy Train Operators, Inc. Model Train Show. December 3 & 4, 2022. Saturday 10am-5pm. Sunday 10am-3pm. Admission: \$10.00, kids under 12 free with an adult. Operating layouts, vendor tables, free parking. Stanislaus County Fairgrounds, 900 N. Broadway. Information: Ed Cathcart 209-479-4432 or Vernon Cowan 714-686-7165 www.sjvttoinc.com

CO, LOVELAND: Rocky Mountain Train Show, November 26 & 27, 2022. The Ranch Complex, 5280 Arena Circle, Loveland, CO 80538. Saturday, 10am-5pm, Sunday 9am-3pm. 200+ sales tables, 50+ vendors, operating layouts, model trains of all scales. Admission \$10.00, 12 and under free. Free parking. 303-364-0274 www.RockyMountainTrainShow.com Information@RockyMountainTrainShow.com

FL, COCOA BEACH: Prototype Rails 2023. Cocoa Beach Hilton Oceanfront, 1550 N. Atlantic Avenue (Hwy A1A). January 5-7, 2023. Thursday, 7-10pm; Friday and Saturday, 9am-10pm. Prototype Modeling Meet: clinics, modular layouts, models on display, vendors. Registration \$45 before 12/31/2022, \$50 at the door. Contact Marty Megregian at indianfourdoc@aol.com or visit: www.prototype Rails.com

FL, CRYSTAL RIVER: Regal Railways presents a Toy Train, Collectible and Hobby Christmas Sale/Show. Florida National Guard Armory, 8551 W. Venable St., Crystal River, FL 34429. Saturday, December 10, 2022, 9:00am-2:00pm. Admission: \$5.00 adults, children under 12 free. Vendors and operating layout. Lunch items available. Contact Joe: 727-244-1341 or visit www.regalrailways.com for more information.

FL, DUNNELLO/OCALA: "Trains for Christmas" Free train show Saturday and Sunday, December 3 & 4, 2022. Sat. 9am-3pm, Sun. 9am-1pm. Multiple layouts, no vendors, and a spectacular raffle. Collection site for Toys for Tots. Event is located at Holy Faith Episcopal Church, 19924 W. Blue Cove Dr., Dunnellon, FL 34432. Contact Bill Quast: 352-209-5422 or wmquast@gmail.com

FL, FORT MYERS: Scale Rails Holiday Train Display and Sale. Weekends of November 25-27, December 2-4, December 9-11 & December 16-18. Friday, Saturday, Sunday: Noon-5pm. Center Court at the Bell Tower Mall, 13499 US 41, Fort Myers, FL 33907. Train displays and used Lionel, HO, N-Scale equipment for sale. FREE admission and parking. 239-286-2499 www.scalerails.org

FL, MELBOURNE: The Melbourne Train and Toy Show. Azan Shrine Center, 1591 West Eau Gallie Blvd, Melbourne, FL 32935. Saturday, December 3, 2022, 9am-2pm. Admission: \$5, kids under 10 FREE. Vendor tables \$25 each or 3 or more \$20 each. Join us for trains, toys, and fun! Lunch/snacks available. For more information: SchultzSpaceCoastTrains@aol.com or 321-805-1963

FL, PINELLAS PARK: Suncoast Model Railroad Club Train Show/Open House. Saturday, December 3, 2022. SHOW- New venue! Pinellas Performing Arts Center, 4951 78th Avenue N., Zip: 33781. 9am-3pm. Admission: \$7.00, Children \$2.00, under 11-free. Free parking. Food/snacks. Tables: Hugo Sacco: saccohugo459@gmail.com OPEN CLUBHOUSE- 12355 62nd Street North, Suite A, Largo, FL 33773. Admission: FREE. Visit: www.suncoastmrrc.com

GA, ATLANTA: Scott Antique Markets (featuring Anton's Antique Toy & Train Show), November 10 - 13, 2022. Atlanta Exposition Center, 3650 & 3850 Jonesboro Rd., Atlanta, GA 30354. Thursday: 10:45am-6pm, Friday & Saturday: 9am-6pm, Sunday: 10am-4pm. Admission \$5, good all weekend. Contact: Anton 937-397-3499, or email: tweissmann6@gmail.com

IA, DAVENPORT: Model Train Show. November 18-20, 2022. Friday 12pm-6pm, Saturday 10am-4pm, Sunday 10am-2pm. N, HO, O27 & O...NEW & USED. Buying trains, pay in cash. FREE admission & parking! Food and drinks available. Cash and credit cards only. American Legion, 702 West 35th Street, Davenport, IA 52806. Questions, call John at 563-349-0134 or email: JohnsTrainsHobby@aol.com

IN, DANVILLE: Central Indiana Division-NMRA annual Danville Train Show (Indianapolis area) at Hendricks County Fair Grounds, 1900 E. Main St., Danville, IN 46122. Saturday, November 19, 2022. 10:00am-3:00pm. Admission \$3.00 adult, \$5.00 family. Operating Layouts, Vendors, Clinics, Food. Dealer Tables 8 feet at \$16.00. Info: johnporay@gmail.com or 317-627-1660. More info at: http://cidnmra.org

IN, LA PORTE: Duneland Model RR Club Train Show and Swap Meet. La Porte County Fairgrounds Community Building, 2581 IN-2, La Porte, IN 46350. Sunday, November 20, 2022, 9:30am-2:00pm (Chicago time). Adults \$5.00, youths 6-12 \$1.00, 5 and under free. Contact: Dave Novak at trains86@frontier.com or 219-778-1186. (Masks are optional.)

KS, TOPEKA: Train, Toy & Railroadiana Swap Meet. Sunday, November 6, 2022, 9am-3pm. Venue: The Woodshed, 1901 N. Kansas Ave., Topeka, KS 66608. Admission: \$2.00 (children under 10 free.) Early Bird Buyers (7am): \$4.00. Buy, Sell, Trade trains, toys and railroadiana. Specially to have fun! For more information, contact: Bruce Beach 217-251-1430 or email: beach.bobo@yahoo.com

MA, MARLBOROUGH: Hub Division NER/NMRA. Royal Plaza Trade Center, 181 Boston Post Road West (Rte. 20 West), Marlborough, MA. Saturday December 3, 2022, 10am-5pm and Sunday December 4, 2022, 10am-4pm. Admission: \$12.00; Children under 12 and Scouts in Uniform FREE. Admission good both days. Information: Mark 508-528-8587; E-mail: TE.info@hubdiv.org; website: www.hubdiv.org

MI, EAST LANSING: Lansing Model Railroad Club Show and Sale. Michigan State University Pavilion. Sunday, November 13, 2022, 10:00am-4:00pm. Admission \$6.00, under 12 free. Michigan's largest train show: layouts, demonstrations, and 500+ tables. Free parking. Flyer, table forms and map, visit: www.lmrc.org or call Ron St.Laurent 517-256-3588.

MO, JOPLIN: Joplin History & Mineral Museum Model Train Show and Swap Meet. Saturday, November 26, 2022. 9:00am-3:00pm. Schifferdecker Park, 504 South Schifferdecker Ave., Joplin, MO 64801. Admission: \$5 adult, 12 and under free with paid adult. Swap Tables \$15 each. Contact Steve Gardner, 119 West Jefferson Street, Pittsburg, KS 66762; 620-230-9545 or email: sogardner1@att.net

NJ, WAYNE: ECTP and Collectibles LLC presents The Wayne Special Holiday Train Show. P.A.L. Hall, 1 Pal Drive, Wayne, NJ 07470. Sunday, December 18, 2022, 9:00am-2:00pm. Admission: \$7.00; under 12 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on The Wayne Show.

NY, ALBANY: December 4, 2022, "Great Train Extravaganza"™. Largest model train show in Capitol Region. Empire State Convention Center. 10am-4pm. \$7 adults, children free. Operating layouts, all scales, plus Legos. 300+ tables: model trains, train sets, craftsman kits, buildings/scenery, accessories/parts, books/DVDs, railroad memorabilia/prints, switching puzzle, test tracks, educational/NMRA displays. Door prizes. Refreshments. www.gtealbany.com, 518-668-9892, trains@gtealbany.com

NY, HAMBURG: TCA Upstate NY Chapter Holiday Train Meet! St Mary's of the Lake Church School Hall, 4737 Lakeshore Rd (Rt 5), Hamburg, NY 14075. Saturday, November 26, 2022. TCA Members: 9:00am. General Public: 9:30am-2:30pm. Admission: TCA Members, free. Non-members, \$5.00, children 12-17, \$3.00, under 12 free w/ paid adult. Contact: Bob 716-440-3156, Email: tca.upstatenychapter.events@gmail.com

OH, DAYTON: Dayton Train Show, The New Montgomery County Fairgrounds, 645 Infirmary Road, Dayton, OH 45417. November 5-6, 2022. Saturday 11am-5pm and Sunday 11am-4pm. Admission: \$8.00 per adult, children 12 and under free with paid adult. Gail Yarnall, PO Box 341233, Beavercreek, OH 45434, 937-424-6413. Email: NMRA.Div.3@gmail.com or visit: www.DaytonTrainShow.com for updates.

OH, MASSILLON: CJ Trains Winter Train and Toy Show. Massillon Knights of Columbus Hall, 988 Cherry Road NW, 44647. Sunday, December 11, 2022, 10:00am-3:00pm. Admission: \$5.00, 12 and under FREE. \$25/dealer table, 152 - 8' dealer tables. Jon Ulbright, PO Box 446, Wooster, OH 44691, 330-262-7488, cathijon@sssnet.com www.cjtrains.com

PA, ALLENTOWN: ATMA First Frost Train Meet. Allentown Fairgrounds Agri-Plex, 1925 W. Chew Street, Allentown, PA 18104. November 12 & 13, 2022. Saturday 9am-4pm, Sunday 9am-3pm. Advance tickets, admitted at 8am. \$10 adults, 12 and under FREE with adult ticket purchase. For more info, visit: www.allentowntrainmeet.com or call 610-442-2859

PA, MONACA: Beaver County Model RR Fall Train Show & Sale. Monaca Turners, 1700 Old Brodhead Road. Sunday, November 20, 2022, 10:00am-3:00pm. Adults \$5.00, under 12 free. All scales, 50/50 raffle, food, fun for the whole family! Sponsored by Beaver County Model RR & Historical Society. Contact: Walt Steiner 724-843-3783 or www.bcmrr.railfan.net or beavercitymrr@gmail.com

TX, HOUSTON: Greater Houston Train Show presented by the San Jacinto Model Railroad Club. Saturday, February 18, 2023, 10:00am-4:30pm. Pasadena Convention Center, 7902 Fairmont Parkway, Pasadena, TX 77504. Operating Layouts, Classes on Railroads and Modeling Subjects, NMRA Contests, and Vendors from across the Southwest. Admission: \$5 adults, under 12 FREE, \$10 Family. Concessions, free parking. Info: http://sanjacmodeltrains.org/

WA, KENT: Boeing Employees Model Railroad Club Annual Swap Meet. November 12, 2022, 9:30am-4:00pm. Kent Commons Community Center, 525 4th Avenue North, Kent, WA 98030. Admission: \$10.00, under 16 free. Ed Sherry, 550 SW Colewood Lane, Normandy Park, WA 98166; 206-244-3884; swapmeet@bemrrc.com

WI, LA CROSSE: The 31st Annual Great Tri-State Rail Sale. La Crosse Center, 2nd & Pearl Streets. Saturday, January 28, 2023. 9:00am-3:00pm. Admission \$5.00, under 12 free. 300 vendor tables. All Scales; Model, Toy & Antique Trains & Memorabilia. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-781-9383. Visit: www.4000foundation.com

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

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2023 Railroading Calendars.....	27	Modeler's Guide to the Right of Way.....	67
Amherst Railway Society.....	55	Model Railroad Planning 2023.....	60
Atlas Model Railroad Co., Inc.....	5	Model Rectifier Corp.....	7
Axian Technology.....	10	Modelers Marketplace.....	68-69
Azatrax.....	21	NCE Corp.....	16
Bachmann Industries, Inc.....	76	Nicholas Smith Trains.....	17
Circuitron.....	10	PECO Products.....	21
CTI Electronics.....	20	Proxxon, Inc.....	17
Custom Model Railroads.....	20	Rapido Trains.....	2
Dallas Model Works.....	55	Right on Track Models.....	23
Digitrax.....	23	Showcase Express.....	27
Dwarvin Enterprises.....	21	Sievers Benchwork.....	23
Entertainment, Inc.....	10	SoundTraxx.....	22
Evergreen Scale Models.....	27	Spring Creek Model Trains.....	27
Exactrail.....	55	The Coach Yard.....	10
Factory Direct Hobbies.....	19	Tichy Train Group.....	55
Great Midwest Train Show.....	20	Train Life.....	15
Great Train Expo.....	20	Train World.....	21
Greenburg Shows.....	20	Trainfest 2022.....	61
Halfpricehobby.com.....	21	Trains.com.....	66
Innovative Electronic Solutions LLC.....	55	Trainz.com.....	10
Kato USA, Inc.....	75	Trix Trains.....	6
LayoutPrinting.com.....	55	WifiTrax Model Science.....	17
LGB.....	29	Wm. K. Walthers, Inc.....	3
Livingstone Infrastructure Advisors LLC.....	55	Woodland Scenics.....	11
Loco-Boose Hobbies.....	23	Xuron Corporation.....	27
Mainline Hobby Supply.....	55	Yankee Dabbler.....	10
MB Klein.....	55		
Menard, Inc.....	6		
Micro-Mark.....	17		

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What do you see?



This photo is a case study in good model railroad design and execution, and the result is two operators happily switching Zearing on Clark Propst's HO railroad. Clark Propst photo

When we look at a scene or photo, we tend to see what we're looking for: a threat, perhaps, a friend, a familiar object, or something we have been looking for. So when you looked at the accompanying photo of Clark Propst's HO railroad, what immediately caught your eye?

Clark is an excellent modeler, so there are a lot of things that might attract your attention. I'll list some of the things that I noticed but save what I consider to be the most important one for last.

Obviously, Clark's two guest operators, Nate and Lucas Chowen, are having a good time. Nate, at left, is acting as the conductor and using a pick to uncouple a car from Lucas's new Milwaukee Road SDL39, an ideal branch-line locomotive visiting Clark's late-'40s railroad for the day. Lucas, having a laugh

at his brother's expense, is using a wireless walkaround throttle. That, the pick, throttle, and lack of switch-point controls on the fascia, plus the waybill boxes, tell you everything you need to know about how Clark's railroad is operated.

Note, too, the clear signage on the fascia and structures. The location of the in-the-aisle industry in the foreground is denoted by an unobtrusive label. The fascia is painted a color that blends in well with the Midwestern terrain.

You can't do what you can't see, and Clark has angled twin-tube fluorescents above the layout that obviously provide even, relatively shadow-free illumination. It's not dramatic "theater-style" lighting, but it's ideal for switching cars and reading waybills. The ceiling is white, reflecting

more light down on the railroad and preventing dust from upstairs from raining down on it. Overall, it appears to be a comfortable work, and play, environment.

I'm also impressed by the relative youth of Clark's visitors. This speaks well for the hobby's future as well as for what its veteran modelers like Clark are offering to it. Clark didn't build his railroad to entertain guests, yet these two young gentlemen obviously made the effort to stop by not only to see but to operate Clark's railroad. I'm sure they left delighted with both its appearance and performance.

Now, then, let's get to what first

caught my eye when I saw this photo. One of the major evolutionary steps that we took as layout design and construction progressed through the decades was to raise the height of the railroad to an elevation that allowed us to view our models more realistically. In the formative train-set era, trains tended to run on the floor or at Ping-Pong table height, which afforded a view similar to an airplane flying overhead or from atop a distant peak.

But as HO and then N gained popularity, we wanted to see our trains "up close and personal," which meant raising the height of the benchwork. I advise modelers to consider layout elevations in the 48" to 58" range; Clark's railroad measures 54" above the floor at Zearing.

As you can see, this is not only a good viewing height for these two modelers but also a practical height to uncouple cars, as long as the width of the railroad is constrained. Reaching to the most distant track won't be a problem because of depth or any foreground structures getting in the way.

This elevation also allowed Clark to erect a backdrop of modest height that doesn't interfere with an existing

ceiling light fixture or block air circulation. But it does isolate the towns on one side of the peninsula from those on the other, thus virtually increasing the length of the railroad.

Overall, I'd give Clark an A+ for the design and execution of his railroad. **MR**





2021 Marked the 50th Anniversary of the founding of Amtrak®, and they celebrated with the production of a number of special anniversary paint schemes that celebrated both Amtrak's past and its future. Now, in 2022, Kato USA has produced HO scale models of all five of Amtrak's P42 special paint engines: The modern "**Phase V**", sleek "**Midnight Blue**", retro styled **Phase I** and "**Dash-8 Phase III**", and the brand new "**Phase VI**", a new paint scheme that will adorn Amtrak's newest engines!

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