

TURNOUT TIPS MOTOR AND FROG POWER p.52



**New Athearn
Genesis 2.0
Dash-9** p.56

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Santa Fe in the '60s

Realistic structures and rolling stock highlight this HO scale freelance layout p.22

**N scale layout
in a coffee table**

p.46



John Acosta models
the Santa Fe in the
1960s. p. 22

HOW-TO

Scenery for our project layout p.28

Kitbash a diner from a streetcar model p.41

Covered hopper drawings p.37



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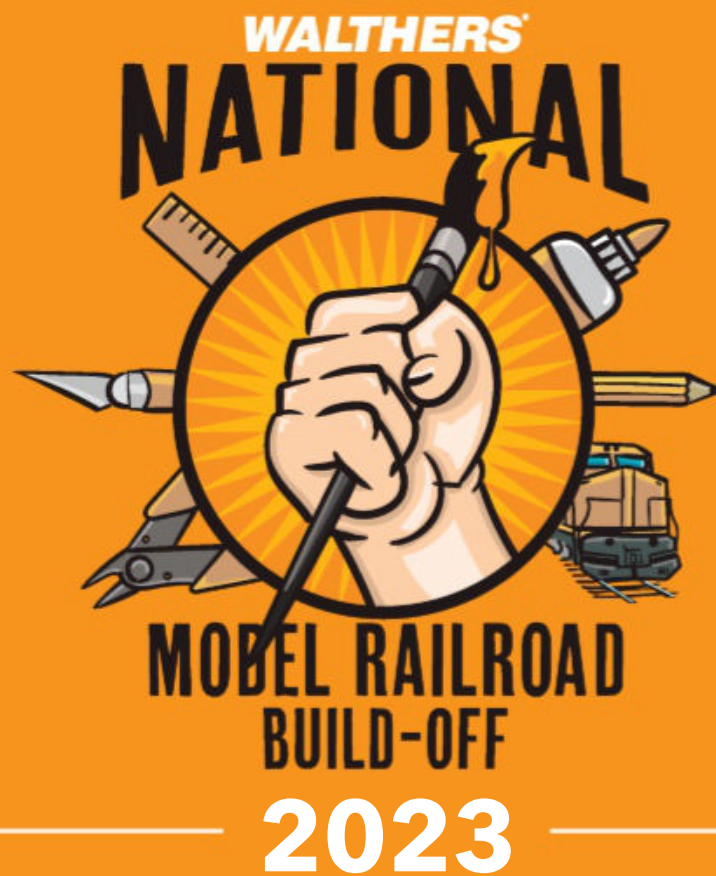
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Features



22 Twilight on the Gulf & Pacific

John Acosta's freelanced HO scale railroad is lighted for night operations
by John Acosta



28 Guilford's Bishop Street Branch

Part 3: Scenery base, trees, scrub and underbrush, and an abandoned quarry
by Lance Mindheim

34 Want an adit? Add it!

You can incorporate a mine entrance scene even on finished scenery
by Gregg Condon

37 Trinity's popular 5,161 covered hopper

Drawings of a car that debuted in 1995
by Cody Grivno



41 Build a vintage streetcar diner

A photo in an Indiana railroad history book led to this O scale display
by Daniel Kleine

46 Rural New England in a coffee table

An N scale layout that showcases what can be done in a small space
by Jared Duclos

In every issue

6 On Trains.com

The latest features on our website

8 From the Editor

Model railroading could save your life

10 News & Products

Hobby industry news

14 Ask MR

What goes into modeling a breakfast cereal factory?



18 Step By Step

Painting figures with acrylics

52 DCC Currents

Powering turnout motors and frogs



56 Product Reviews

General Electric Dash 9-44CW in HO scale by Athearn, Prairie Shadows N scale covered hopper, and more

60 On Operation

Working the Ford Drill

62 Trackside Photos

73 Index of Advertisers and Cartoon

74 Trains of Thought

The learning never stops

56

52

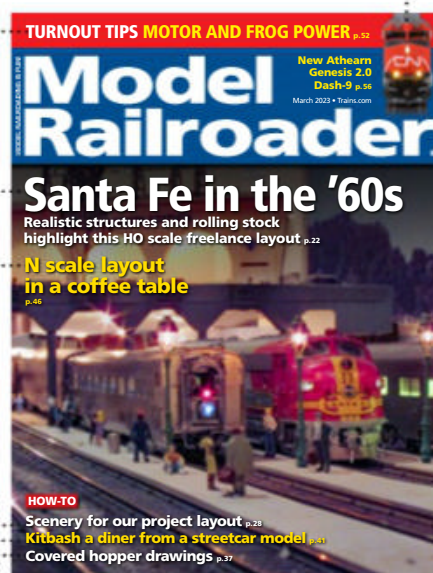
22

46

28

41

37



On the cover: Passengers board the *Chief* at Hannah Vista Union Station on John Acosta's HO scale Gulf & Pacific. John Acosta photo



Next issue

In April, we take you on a visit to an HO scale coal hauler set in the 1950s. Plus, structures for the Bishop Street branch, weather with gouache paints, and more!

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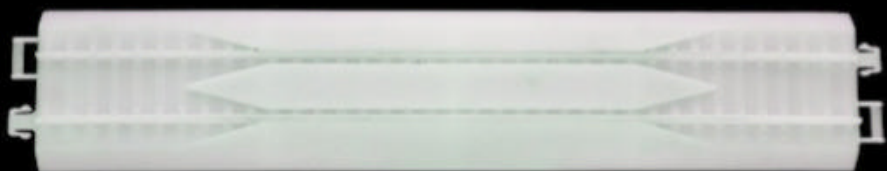
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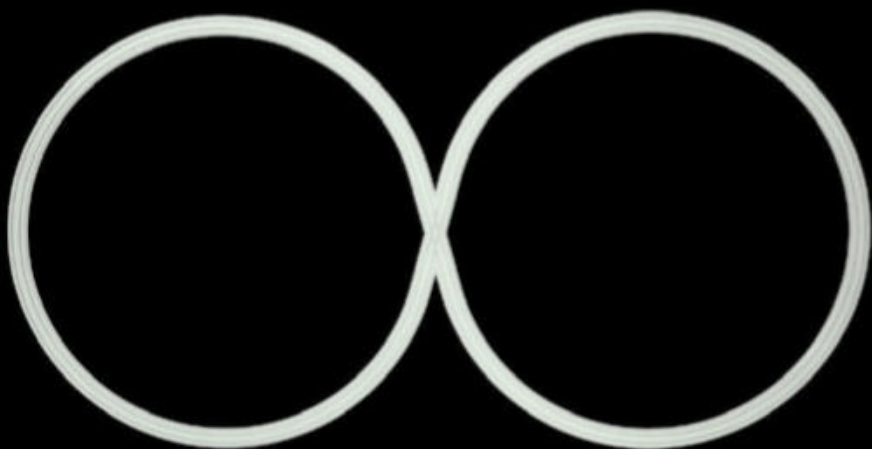


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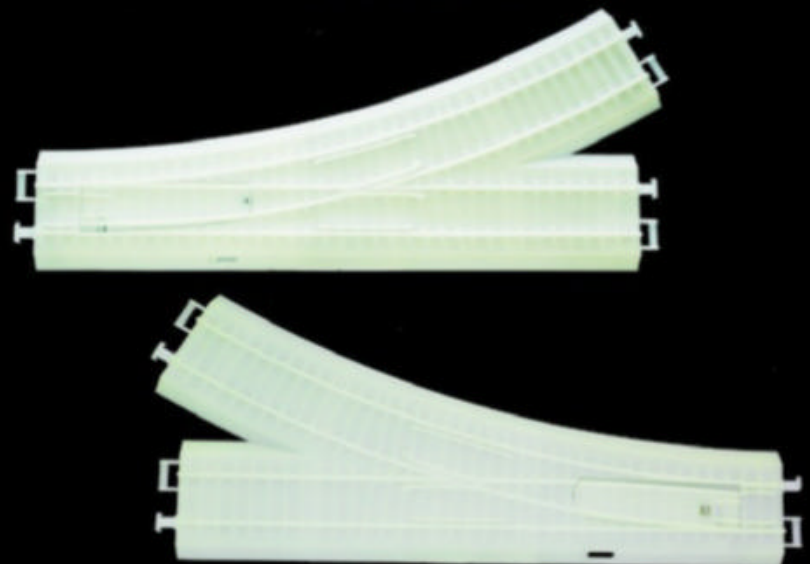
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Should you include graffiti on your layout?

Model Railroader Editor Eric White discusses the merits of including graffiti when modeling the modern era. This contentious topic is the source of frequent discussion in the model railroading world, with some prioritizing realism, and others opting not to include the graffiti for aesthetic purposes. While no definitive answer exists, this piece includes opinions from contributors on both sides of the question. Add your opinion on the topic in the Comments section.



Athearn HO scale General Electric Dash 9-44CW

Watch the Athearn Genesis 2.0 HO scale General Electric Dash 9-44CW diesel locomotive, shown in the Canadian National red, white, and black paint scheme with "wet noodle" herald, in action on *Model Railroader's* Milwaukee, Racine & Troy layout, with commentary from *Model Railroader* Senior Editor Cody Grivno. Find more modeling and railroading videos on our website at Trains.com/vid/



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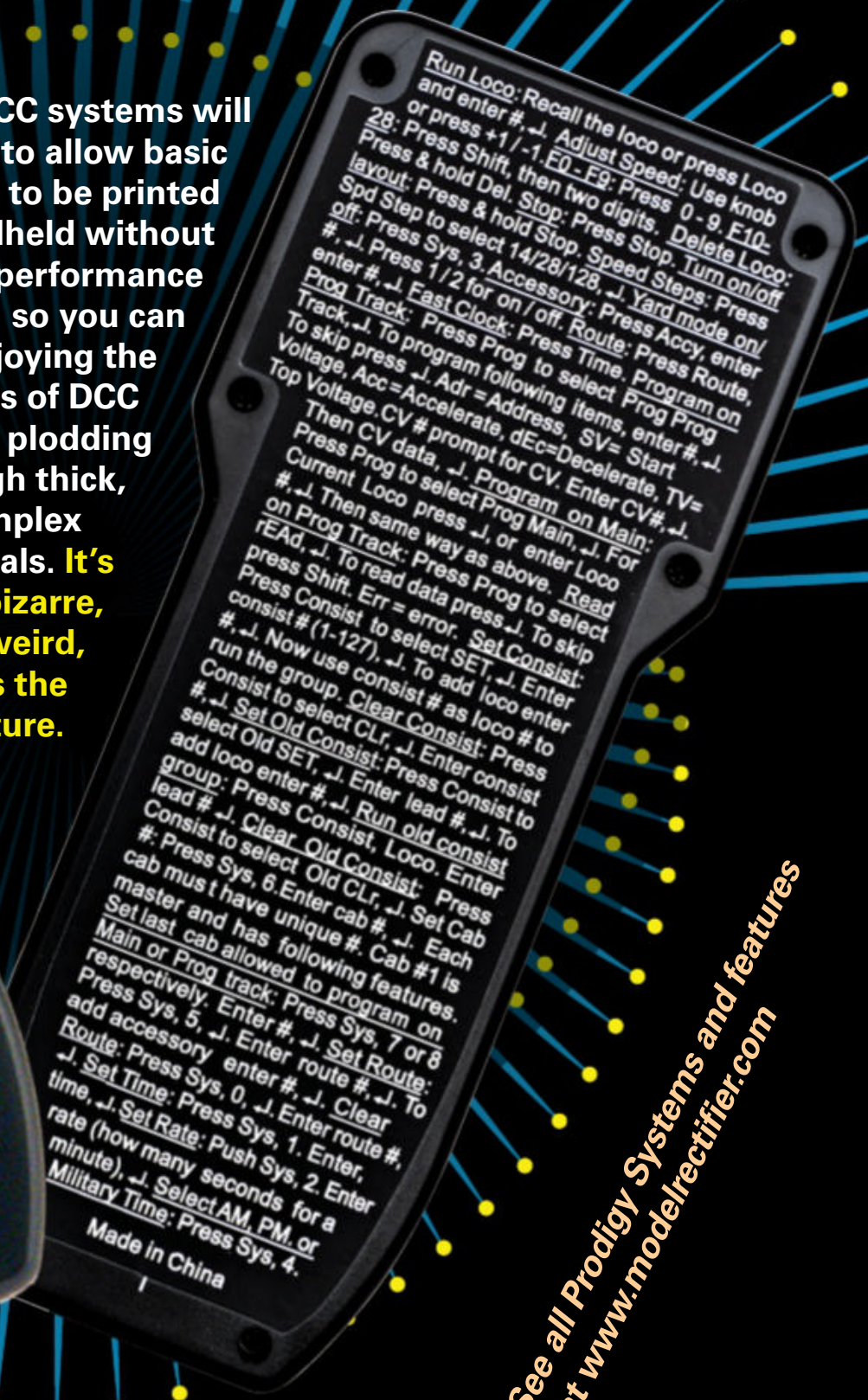
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Model railroading could save your life

At least that's what I got out of a story I read recently online. Actually, it said that hobbies may help keep people from developing dementia, such as Alzheimer's disease. It said activities that stimulate our brains act as a sort of brain strength training, combatting the "use-it-or-lose-it" cycle that affects the rest of our bodies.

Model railroading offers many opportunities to flex our brains, as there are always problems to solve. The first problem is often "where will I put my layout."

If you live on your own, it's a logistical issue. Find some unused space and start imagining what will fit there. If you're part of a family unit, or have roommates, there will be political aspects as well. Model railroaders often need to develop negotiation skills in order to secure real estate for their empires.

Once we have a space we can use, there are a number of decisions to make. How will we build our benchwork? Do we need to learn new skills for that? There may be more negotiation about the creation of messes. Acquiring building materials will create logistical and financial questions to be answered.

With space and a benchwork concept, you'll need to design a track plan. This can get you started in research. Going online or joining historical societies to find out what a favored railroad did to earn its living leads you down all sorts of trails. Then you're joining groups to find out what sort of freight cars were switched between 1945 and 1958 at a roof shingle plant in northern Ohio.

Your brain crackles with the possibilities, you find archive photos with images of the freight cars you just saw

at the local hobby shop, and you start to add up what all of this will cost.

Now you're figuring out how to pay for everything, realizing it all doesn't need to be purchased now, but some things will have to come before others.

With a track plan and benchwork built, it's time to lay track and consider power options. Keep it simple and go with direct current, or do you want the control options of Digital Command Control? How does all of this get wired together? Your brain reels with new information, and you haven't even gotten a train running yet!

You've just begun to think about scenery, and someone at the hobby shop starts talking about geology – another bit of knowledge you'll want to add. OK, let's not think about that. I'll switch to structures. Oh, architectural



history is a thing? Why are some buildings brick and some are steel? What's appropriate for what I want to do? How will it all look together? Let me think about that, too.

We haven't even touched on rolling stock! With all of these things to think about and figure out, our brains should be quite nimble for years to come.

Model Railroader

Model railroading is fun!

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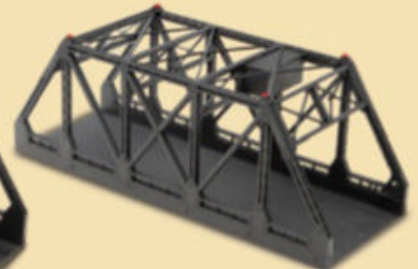
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N scale



Alco RSD-15 diesel locomotive. This six-axle road switcher from Broadway Limited Imports is available now. The Paragon4-equipped N scale locomotive is decorated for Lake Superior & Ishpeming (red and yellow); Atchison, Topeka & Santa Fe (blue and yellow and as-delivered black with zebra stripes); Bessemer & Lake Erie (orange and black); Canadian Pacific (maroon and gray in one road number); Chesapeake & Ohio (blue and yellow); St. Louis Southwestern (Cotton Belt,

gray and red); Duluth, Missabe & Iron Range (maroon and yellow); Penn Central (black); Pennsylvania RR (Brunswick Green); and Southern Pacific (gray and red). The model is offered in two numbers per scheme unless noted. The RSD-15 (\$299.99) has a high or low short hood as appropriate, light-emitting diode lights, and factory-applied handrails and grab irons. Broadway Limited Imports, 386-673-8900, broadway-limited.com

Tangent Scale Models enters O scale market

Tangent Scale Models released its first O scale model, the General American 1928-design 6,000-gallon three-compartment tank car. The brass model is produced in South Korea by SamModel.

General American Transportation Corp. (GATC, then called General American Tank Car) began production of the tank cars in 1928 and built them until 1942. The cars stayed in service on the railroads for more than 40 years hauling commodities such as linseed oil, printer's ink, gasoline, acids, solvents, alcohol, and more. The 6,000-gallon car had three compartments which allowed the transportation of three different grades of products,

such as gasoline or oil. This adds more operational interest, with cars having multiple stops on their waybills.

Road names for this first run include Cosden & Co. Petroleum Products, Celanese Chemicals, General American Transportation, Magnolia Petroleum Co., and Protex Industries Inc. Each scheme is available in three road numbers unless noted. Cars are also available unpainted but painted black.

The O scale car features a riveted body and underframe; a separate, factory-applied tank handrail, grab irons, and ladders; dome hatches and safety valves; heater line and outlet drain details; hazardous placards and route



Tangent Scale Models introduced its first O scale model, the General American 1928-design 6,000-gallon three-compartment tank car. The brass model is available in multiple paint schemes, and road numbers.

boards; AB brake detail; and woodgrain detail on the walkways. The model has Kadee No. 740 Type E knuckle couplers in scale draft-gear boxes. The car rides on sprung 50-ton solid-bearing trucks with painted 33" wheels.

The GATC 1928-design

three-compartment 6,000-gallon tank car is available in both O scale and Proto:48 versions, each priced at \$524.95. For more information on this car, visit the manufacturer's website at tangentscalemodels.com.

H0 scale locomotives



• **Electro-Motive Division F40PH diesel locomotive.** Amtrak (phase 3 scheme in silver, red, and blue; phase 2 in silver, red, and blue; and phase 4 in silver, blue, and red); CSX (gray, blue, and yellow); Grand Canyon Ry. (white and brown); Metra (blue and red); and VIA Rail Canada (gray, yellow, and

blue). Four road numbers per scheme (two each in DC and DCC). Factory-installed vertical handrails and Proto-Max couplers. Direct-current model with 21-pin plug, \$159.98; with dual-mode ESU LokSound 5 sound decoder, \$219.98. Wm. K. Walther's Inc., 414-527-0770, walther's.com

Atlas acquires River Point Station HO tooling

Atlas Model Railroad Co. Inc. announced the purchase of River Point Station's HO scale vehicle tooling. River Point Station Fine Scale Models of Warwick, R.I., was founded in 2006 by Ron Elsdorfer to produce accessories for modelers.

For the past 14 years, River Point Station has become well-known for its line of licensed N and HO scale vehicles. The sale to Atlas will bring continuity to the line and possible expansion with 3-D designs for previously unproduced and unannounced models.

Paul Graf, Chief Executive Officer of Atlas Model Railroad Co., said, "In December 2020, River Point Station announced that they would be streamlining their product line and would cease

producing N scale vehicles. We did not want to see a void left in the market, so we acquired the N scale tooling.

"After a successful launch of N scale models utilizing this tooling, we are happy to announce that we have acquired RPS' HO scale vehicle tooling. [We] look forward to continued success with the line."

The acquired Ford tooling from River Point Station includes the F-250 and F-350 pickup trucks; F-350 and F-450 service and bucket trucks; and brush fire, mini-pumper, and ambulance rescue trucks. Ford Expedition EL (civilian, limited civilian, and police-fire) tooling was also acquired in the sale.

All of the newly acquired models will be offered in multiple paint schemes and cab



An example of what River Point Station was well-known for is its line of HO scale Ford F-series super duty pickup trucks. These two were in the 2008 line and included detailed cab interiors, and clear window glazing.

variations. The F-250 and F-350 pickup trucks will be available with single and dual rear wheels. The F-450 and F-550 trucks will have dual rear wheels.

Atlas is no stranger to producing Ford-licensed models. Vehicles already in the Atlas product lineup include the 1973 F-100 pickup truck, 1978 Fairmont sedan and station

wagon, 1984 LNT 9000 tractor cab, 1993 Ford Explorer, and 1997 F-150 pickup truck. All of these models are offered in N and HO scales.

Atlas Model Railroad Co. has yet to officially announce HO scale Ford offerings based on the River Point Station tooling. For the latest updates on the HO scale vehicles, visit shop.atlasrr.com.



• **General Motors Diesel SD40-2, SD40-3, and SD40-2f diesel locomotives.** SD40-2f: Central Maine & Quebec (gray and blue) and Canadian Pacific (red and white with beaver logo in three road numbers and red and white with CP Rail lettering). SD40-2: Canadian Pacific (red and white with Multimark herald in three numbers, red and white with beaver logo in three numbers, and red and white with dual flags herald), Cando (gray, red, and white with CCGX reporting marks), Ontario Northland (yellow, blue, and cyan with old logo; yellow, blue, and white with new logo in one number; and green and yellow "heritage" scheme in one number); and St. Lawrence & Hudson Ry. (red and white). SD40-3: Canadian Pacific (red and white in one number and red and white with beaver logo in one number). Two numbers per scheme unless noted. Road-name-specific details and fuel tanks; factory-applied air hoses, windshield wipers, window glass, grab irons, and

N scale



Electro-Motive Division GP40-2W diesel locomotive. The N scale Master line model comes decorated for Canadian National (red, black, and white with "zebra stripes" in four road numbers and URL scheme), Guilford (black and orange), Huron Central (orange and black in two numbers), and Pan Am Railways (blue). Three numbers per scheme unless noted. Also available undecorated in both CN early and late versions. The model features operating ditch lights. Direct-current models are priced at **\$149.95**. Models with an ESU LokSound sound decoder sell for **\$259.95**. Subtract \$10 for undecorated models. Atlas Model Railroad Co., 908-678-0880, shop.atlasrr.com

uncoupling lever; and light-emitting diode lighting, including headlights. SD40-3 units have two operating beacons on roof. Direct-current model with 21-pin plug, \$229.95; with ESU LokSound 5 sound decoder, \$329.95. Bowser Manufacturing Co. Inc., 570-368-2379, bowser-trains.com

HO scale freight cars



• **American Car & Foundry 50-foot boxcars.** Denver & Rio Grande Western

HO scale



Autoflood III coal hopper. These HO scale coal hoppers are in hobby shops now. The models are decorated for BNSF Ry. (post-2005 herald in three six-packs, one unnumbered six pack, one single car, and one double rotary car), Union Pacific (with CMO reporting marks), Capital Equipment Finance (single car with CEFX reporting marks and Indiana Rail Road carload special logo and with CEFX reporting marks), Carolina Power & Light (with PGNX reporting marks), General American Transportation Co. (with GGPX reporting marks), Gulf Power Co. (with GLFX reporting marks), and Western Resources (with KPLX reporting marks). Three six-packs, one unnumbered six-pack, and one single car per paint scheme unless noted. The modern-era cars feature a die-cast metal frame and floor, interior rivet and K-member details, detailed end cages, and see-through etched-metal crossover platforms. Single cars sell for **\$59.95** and six-packs are priced at **\$359.70**. Rapido Trains Inc., 905-474-3314, rapidotrains.com

(orange); Burlington Northern (Cascade Green); Clinchfield (Boxcar Red, four road numbers); Louisville & Nashville (blue); Maine Central (yellow with green doors); Rock Island (Boxcar Red, four numbers); and Seaboard Coast Line (Boxcar Red). Six numbers per scheme unless noted. Also available undecorated in five body variations. With and without waffle sides as appropriate. Prototype-specific cushioned or non-cushioned versions, car-number-specific handbrakes, ACF draft gear design, multiple door stop versions, rubber air hoses, and metal corner stirrup steps. 70-ton or 100-ton trucks with metal wheels and axles as appropriate. Contact manufacturer for price. Release date to be announced. Moloco Trains, molocotrains.com

N scale locomotives



- **Fairbanks-Morse H15-44 and H-16-44 diesel locomotives.** H15-44: Union Pacific (Armour Yellow and Harbor Mist Gray with “Serves all the

West” slogan) and Rock Island (red and white). H16-44: Jersey Central (blue and yellow); Long Island (gray and orange “Dashing Dan” paint scheme); New York, New Haven & Hartford (orange and black post-McGinnis scheme); New York Central (black and white); Pennsylvania RR (Brunswick Green); and Southern Ry. (Crescent Green and white with AGS lettering). Two road numbers per scheme; also available undecorated in both early and late bodies. Fairbanks-Morse or AAR truck side frames as appropriate. Prototype-specific high- or low-mounted headlights and early or late-production phase 1 hoods. Direct-current models, \$139.95; with ESU LokSound decoder, \$249.95. Master Line. Atlas Model Railroad Co., 908-687-0880, shop.atlasrr.com

N scale freight cars



- **National Steel Car barrel ore hopper.** Long barrel: Ontario Northland (blue and yellow “Chevron” scheme)

In Memoriam

Steve Stewart 1943-2022

Steve Stewart, 79, passed away on November 20, 2022, after enduring life with Parkinson's disease for many years.

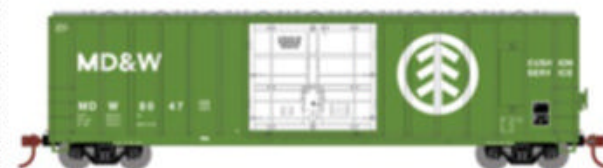


David Stewart photo

Steve was a seasoned model railroader and accomplished his dream of turning his passion into a successful family business by co-founding Stewart Hobbies Inc. Stewart Hobbies produced innovative HO scale locomotives and freight cars that were some of the first mass-produced models of their prototypical counterparts.

Steve continued his railroad interests through involvement with the Anthracite Railroads Historical Society and by co-authoring a retrospective of the Pennsylvania RR. In addition to trains, Steve had a strong passion for baseball. He enjoyed his retirement years with occasional foreign travel and frequent getaways to Ocean City, N.J. Steve is survived by his wife of 19 years, Carol Stewart.

and Canadian National (Mineral Brown with “wet noodle” logo). Short barrel: Canadian National (Mineral Brown with “wet noodle” herald and red scale test car in one three-pack and one single car) and Ontario Northland (green and white “Progressive” scheme). Two six-packs and two single cars per scheme unless noted. Two different car bodies representing short and long barrel hoppers. Detailed underbody including piping. Single car, \$42.95; three-pack, \$128.85; and six-pack, \$257.70. Rapido Trains Inc., 905-474-3314, rapidotrains.com



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Line (red, Primed for Grime); Canadian Pacific (green); New Orleans Public Belt (orange); and Quebec-Gatineau Ry. (orange, Primed for Grime). Two road numbers per paint scheme. Injection-molded plastic body, screw-mounted roller-bearing trucks with metal wheels, and McHenry knuckle couplers. Operates on Code 55 and 80 rail. \$29.99. Add \$5 for Primed for Grime. Athearn Trains, 800-338-4639, athearn.com

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50-ton two-bay offset-side hopper kit. This Accurail kit decorated for the Milwaukee, Racine & Troy is available from the Kalmbach Hobby Store. The car features an injection-molded plastic body, outlet gates, draft-gear box/bolster/sill sub assemblies, brake wheel, air reservoir, control valve, and brake cylinder with lever. The car rides on solid-bearing trucks with Delrin engineering plastic wheelsets and includes body-mounted Accumate knuckle couplers. The two-bay hopper is priced at **\$27.99**. Produced by Accurail, available from the Kalmbach Hobby Store, KalmbachHobbyStore.com

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Grand Trunk Western No. 8084 pulls a boxcar loaded with cereal from 29 Building at the Post Cereal plant in Battle Creek, Mich. Large industrial complexes like this can receive and ship many different kinds of freight, making them great modeling subjects. Laurence Bolton photo

What goes into modeling a breakfast cereal factory?

Q Has *Model Railroader* ever done a feature on modeling a cereal plant such as Kellogg's or Post? I'm building a 12" by 10'-6" shelf layout that will be entirely that one industry. But I'm not sure how best to lay out the various structures and car spots for covered hoppers, boxcars, food-grade tank cars, etc.

John Buckley, Montague, Mich.

A Yes, we did. Check out the article "Switching for breakfast" in our annual special issue *Model Railroad Planning 2014*. (I hope you have that one in your back issue stash, because our warehouse is sold out.) In that article, authors Lawrence Bolton and Bill Neale presented room-sized N scale and HO scale track plans based on the Post Cereals factory complex in Battle Creek, Mich.

I've always found single-industry track plans fascinating. To support such a layout, an industry must of course be big and busy, receive and ship a broad variety of cargos, and ideally feature in-plant switching. The Post plant is a perfect candidate for this kind of layout. The massive complex is made up of dozens of buildings, silos, and storage tanks, with a dedicated 13-track yard plus more than 80 car spots. Some buildings had "A tracks," parallel second tracks where boxcars were loaded or unloaded via deck plates between cars.

When you think of what cargos might be received by a breakfast cereal plant, grain, flour, sugar, and packaging materials are obvious. But the Post plant both receives and ships so much more. For many years, coal delivered by rail powered the complex. The plant has its own packaging factory, which received paper, cardboard, plastic, and wax, and shipped out finished packaging for other manufacturers in addition to that needed in-plant. The whole grains and processed flours

received include white wheat, red wheat, rice, corn, oats, grits, and bran, each requiring its own dedicated car spots, unloading mechanisms, and storage silos. Sweeteners come in as liquid sugar, corn syrup, and granular sugar. Other car spots receive raisins, nuts, cooking oil, food coloring, preservatives, other flavorings and additives, and occasional boxcars of replacement machinery.

In addition to shipping finished cereal and packaging materials for other customers, the leftover byproducts of grain processing are packaged and shipped as animal feed. The plant also makes Tang drink mix.

Rail traffic peaked in the 1970s, when the plant was served by Grand Trunk Western (using Alco switchers) in the first and second shifts and Penn Central overnight (with an ex-New York Central Geep). After that peak, more cargos – particularly finished products – began to be handled by trucks.

To model such a complex, you'll need a variety of nondescript brick factory and warehouse buildings. The factory should still provide plenty of visual interest, though, with lots of grain silos, storage tanks for oil and sweeteners, grain elevators, and smokestacks. The buildings should be connected by a plethora of conveyors, pipes, and overhead bridges. To facilitate switching, the many sheds and awnings that protect the cargos during loading and unloading will have to be omitted or made removable.

For a couple of ideas of how you could turn the Post Cereal plant into a model railroad, check out our Track Plan Database (trains.com/mrr/how-to/track-plan-database) for the HO scale and N scale plans we published with that MRP 2014 article.

Breakfast – it's the most important switch job of the day!

Q What are the gray SPMX covered hoppers for? I see them everywhere, but never moving.

Carol Schuler

A SPMX is a relatively new reporting mark – so new that it doesn't show up yet on many of the websites I use for reference. But that reporting mark belongs to Shell Polymers. That's a 6,245-cubic-foot, four-bay cylindrical covered hopper, used to transport pelletized plastic. Since pelletized plastic is a relatively low-density lading, the car can be quite long – 67 feet to be exact – without exceeding its 110-ton load limit.

The cars were built by National Steel Car in Hamilton, Ont., in June to October of 2019, part of job P7845/18. Shell ordered the cars to ship the output of the new Pennsylvania Petrochemicals Complex it was building in Monaca, Pa., on the Ohio River, west of Pittsburgh. According to an article in the *New York Times*, when it comes online, the plant will produce more than a million tons of plastic pellets a year. Shell didn't want to

depend on the vagaries of freight car availability to service its factory, so it ordered 1,750 of these covered hoppers, numbered from 6950 to 8699, to do so.

Until the plant came online, though, the cars were on standby – which is why you saw them parked on sidings everywhere you went. Most of them – upwards of 1,000 – were stored at the Hollidaysburg Railcar Storage yard in Hollidaysburg, Pa., which is where the photo at right was taken.

Q I was wondering, what would be a great way to get started in N scale? I have modeled in HO scale, but I would like to have an N scale layout, since I'm downsizing. What would be some tips and tricks on N scale track and track laying, and what would you recommend for rolling stock?

Chad Chase

A For someone just getting started in N scale, or in any new scale for that matter, I would recommend starting small. And no, that's not a 1:160 pun. Start with a



SPMX covered hopper No. 7022 is shifted at the Hollidaysburg Railcar Storage yard in Hollidaysburg, Pa., on July 13, 2020. The car, built by National Steel Car Co., is one of 1,750 ordered by Shell Polymers to serve its new plastics plant near Pittsburgh. DJ Miller photo

module. Look up some of the modular standards in your scale; I would recommend Ntrak (ntrak.org/page-18061) or oNeTRAK (ntrak.org/resources/Documents/oNeTRAK_Manual.pdf).

Building a module is the best way to ensure that what you build will still be useful to you later. If you decide to stick with N scale, you can integrate the

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A scene on Tim Neale's Lemmington Park. Photo: Geoff Helliwell.

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module into a larger layout. Or you might enjoy building modules enough to join a modular club, where you can connect your modules to those built by other members and run trains together.

In case you decide to build on this module later, you'll want to pick a modeling subject you'll still be interested in later. I'm a big fan of proto-freelancing. That's where you choose a prototype railroad, region, and/or time period you want to model, but don't put too much effort into modeling any actual locations or industries. This gives you a focus for your modeling efforts and purchases – no auto racks or piggyback flats on a steam-era layout, for example – without requiring a ton of research before you build anything.

You may already have a favorite railroad you'd like to model, or a type of scenery you want to include (mountains, forests, deserts, seacoast). If not, just go to your local train store and see what locomotive grabs you.

So what should be the subject of this module? Keep it simple. I suggest



Are you interested in getting started in N scale? One way to find out if 1:160 is for you is to build an N scale module, like Manfred Neurater's Ntrak layout, featured in our August and September 2011 issues. Horst Meier photo

modeling a small town, with a passing track, a depot, a freight house, a team track, and maybe one industrial spur. This will give you a variety of car spots to switch in a small space. Depending on the railroad and locale you want to model, that industry could be a sawmill, a grain elevator, a produce packing house, a coal mine, a rock quarry, a meat packing plant, whatever. Picking the

right industry is a great way to establish a sense of place on your module. Add some non-rail-served structures like a commercial block, houses, and a gas station for color and visual interest. Build a tail track on a removable shelf so you can switch the module, then put it away when not needed.

There are plenty of manufacturers out there offering N scale rolling stock, but I can't recommend any particular choices. What rolling stock your railroad needs will depend on your era and the industries you model.

For more detailed assistance in getting started in N scale, may I suggest the aptly named book *N Scale Railroading: Getting started in the hobby, second edition* by former MR staffer Marty McGuirk. From planning, benchwork, track, and wiring to rolling stock and operation, this book has all the information you need. It's available in the Kalmbach Hobby Store. [MR](#)

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Lou Sassi shares tips he learned painting figures for his On30 Sandy River & Rangeley Lakes model railroad. He calls the center figure Frank, who's kibitzing with a couple railroad crewmen, Joe Bishop and Pete Lawford. That's Ed West in the cab of No. 9. All were painted using the techniques discussed here. Photos by the author

Painting figures with acrylics

Some years ago my three model railroading soulmates – Bob Hamm, Pete Darling, and Biagio Pace – and I, all founding members of the notorious “Tree Group,” had a competition in HO scale figure painting. Bob went so far as to clothe one of his engineers in a red and white polka-dotted railroad cap! I figured if we could carry HO scale figure painting to that extreme, why not give O scale a try?

Even though I had dabbled before, I watched Dave Revelia's excellent video, *Painting Figures with Dave Revelia*, on the subject. [The DVD is out of print, but used copies can be found online. –Ed.] A photo of Dave's work in Fn3 large scale

appears in the September 2015 edition of *Trackside Photos*.

After watching the video (about five times) I purchased two sets of Vallejo acrylic model paints (per Dave's recommendation) and artist brushes ranging in size from 1 to 20-0.

The Vallejo paints came in two 16-color sets. One was Face & Skin Tones (No. 70.125) and the other Basic Colors USA (No. 70.140). The paints come in squeezable .57 ounce plastic bottles that let you dispense the colors one drop at a time, which is very useful when working on such small subjects. [Though Lou uses Vallejo paints, a variety of acrylic paints will also work. Visit

KalmbachHobbyStore.com for a selection of paints. –Ed.]

The three brushes I turn to the most are a no. 1 round, no. 12-0 round, and a no. 20-0 spotter by Princeton. I found them on the Dick Blick art supply website (dickblick.com).

Along with the paints and brushes, I keep on hand an artist palette (mine is an aluminum 6" diameter tray with 10 small dimples in which I can mix paint), a damp towel (I prefer a scrap of flannel sheet), an eye dropper (for dispensing drops of clear water into the palette for thinning the paints), and a bottle of clean tap water for cleaning the brushes. Follow along to see my techniques.

STEP 1 PREPARATION



I **prepared** my figure by removing any excess flash with a small needle file ① and no. 11 blade in my hobby knife.

I drilled a no. 76 hole in the base of the figure ② and inserted a length of fine wire ③. After washing the figure in warm soapy tap water (about a quart of tap water with a couple drops of dishwashing liquid added) and waiting for it to dry, I drilled another hole in a length of thick

wooden dowel and inserted the wire. The dowel gives me something to hold on to so I don't touch the figure while painting it.

I sprayed the figure with Tamiya Fine Surface Primer ④ and allowed it to dry overnight. The Tamiya primer has a fine texture developed specifically for priming miniatures and is popular with plastic model kit builders.

STEP 2 PAINTING FACES AND MIXING TIPS



I **began by painting** the face with a mix of 70.845 Sunny Skin Tone with a touch of 70.957 Flat Red and 70.928 Light Flesh using a 12/0 round brush ⑤. I allowed the paint to dry between each step in the process. This only took a few seconds due to the small amount of paint being applied.

I continued by painting the whites of the eyes Light Flesh, then using the 20/0 "spotter" brush, added pupils ⑥. In this case, since I planned to give my figure blue eyes, I decided I should call him Frank (in honor of "ol' blue

eyes" himself, Frank Sinatra). Once his eyeballs were painted, I used the skin tone mix to reduce the size of the whites of the eyes. I also added highlights and shadows to the face with light to dark blends of the skin tone colors.

Before we get started painting Frank's clothing, I want to mention a bit more about color lightening and darkening. I stuck with base colors that could be darkened or lightened by simply adding 70.950 Black or 70.951 White to them. There are definitely plenty to choose from.

STEP 3 PAINTING CLOTHING



I started with Frank's pants 7. In this case I chose brown (actually 70.941 Burnt Umber) for his coveralls. Bear in mind that garments will be darker in the folds and lighter on the top of creases. Using a no. 1 round brush, I mixed the burnt umber with a touch of white to create the base color of the pants.

When it came to adding the darker folds I simply used the Burnt Umber full strength (or with a touch of Black) 8, while for the lighter highlights I just added more White. I used a 12-0 round brush to apply these light and dark accents.

Frank is wearing a sweater over his shirt. I opted to give him a green sweater using the same technique as I did with his pants 9, first lightening the 70.968 Flat Green with a touch of White, then darkening the folds with full strength Flat Green 10.

I painted the shirt White (with a touch of Black in the folds). Since only the very top of Frank's shirt shows, I turned to my no. 12-0 round for this step.

I also used the 12-0 to paint his boots Black (slightly thinned with White) and his gloves 70.984 Flat Brown. With the no. 20-0 spotter, I applied full strength Black between the glove fingers.

I grabbed the no. 1 round brush and painted his hat 70.921 English Uniform, again highlighting it where appropriate with a blend of English Uniform and White. After giving him 70.929 Light Brown hair and sideburns, I



finished up with a mix of Flat Red and Sunny Skin Tone for his lips 11, all with my no. 20-0!

If you're looking for something to do to fill your modeling hours, you may want to try figure painting. I personally find it to be a great deal of fun and the results extremely rewarding. Another benefit is that I am getting to know each of my railroad's inhabitants personally.

[Lou's Sandy River & Rangeley Lakes is featured in *Great Model Railroads 2020*, available from KalmbachHobbyStore.com. Many finished figures populate the layout, all with their own names. -Ed.] 



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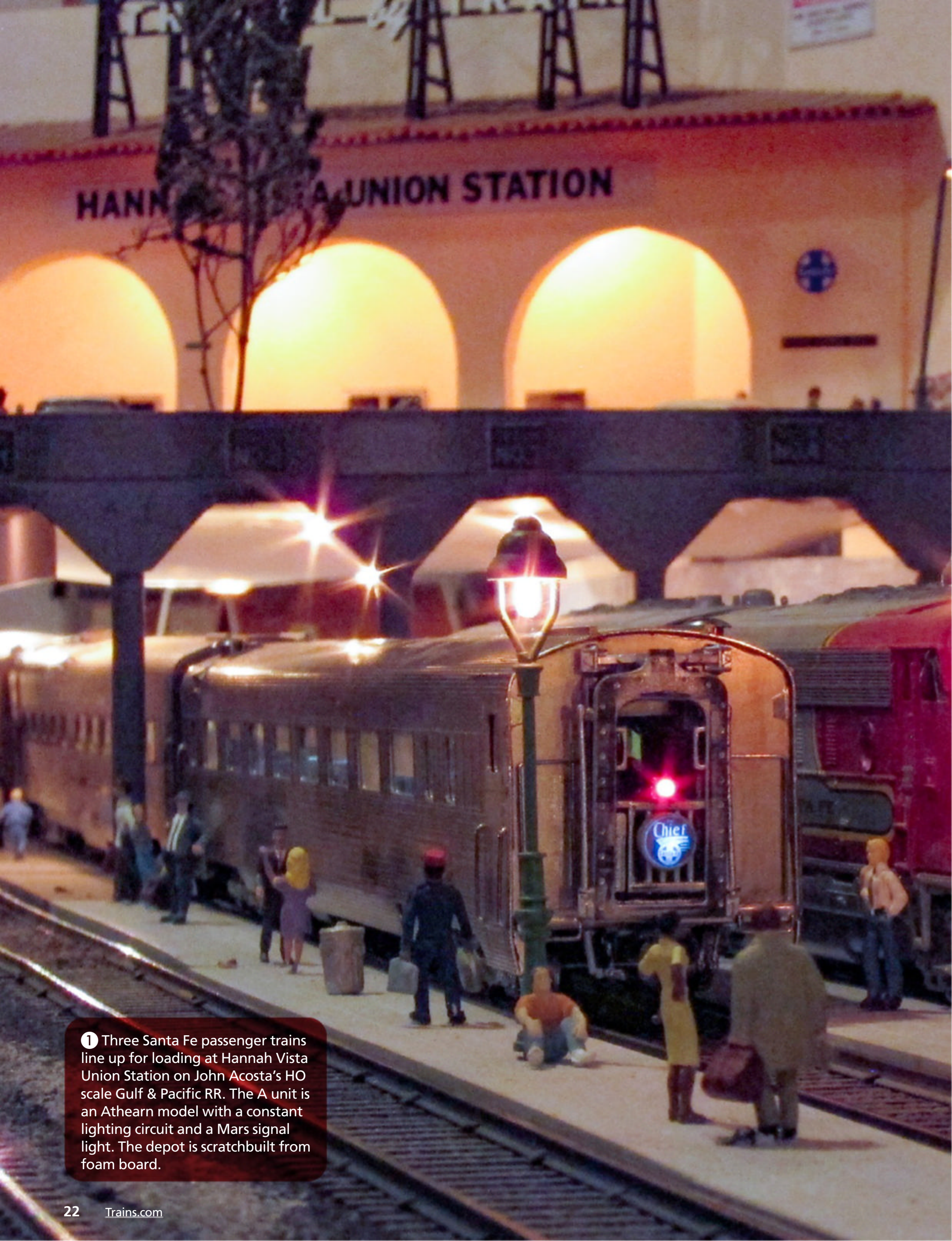


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① Three Santa Fe passenger trains line up for loading at Hannah Vista Union Station on John Acosta's HO scale Gulf & Pacific RR. The A unit is an Athearn model with a constant lighting circuit and a Mars signal light. The depot is scratchbuilt from foam board.

Twilight on the **GULF & PACIFIC**

John Acosta's freelanced HO scale railroad is lighted
for night operations

By **John Acosta** • Photos by the author





You're looking at my HO scale Gulf & Pacific RR. This is my third, and hopefully last, layout. I've been a model railroader since my teens, watching my father build and run the original Gulf & Pacific.

I drew on skills developed from being a licensed architect to envision and build this layout as I went along. I chose to model the 1960s, as that's the time period I remember and loved the most.

I consider my strengths to be detailing and lighting the buildings, streets, and rolling stock. I also think this is the most interesting aspect of the model railroad, as I greatly enjoy "nighttime" operations and photography. The layout is in an enclosed room within the garage that has no windows, only one door, and dimmable light-emitting diode lighting, which makes simulating twilight and night easy.

Designing the layout

My point-to-point model railroad is freelanced, and the towns and businesses are named after my children, wife, and other relatives.

There are turntables at each end, one in the middle, and a false tunnel at

Davidsville where trains come and go from imaginary points beyond. There are also switching opportunities enroute from one end to another at industries and team tracks. A train running at a scale 18 mph takes 5-10 minutes to transverse the layout.

There's a short, steep narrow gauge line originating in Sarah's Valley, where there's a transfer station between it and the standard gauge, that ends up at Kelly Grove. The narrow gauge line's business is mainly tourists who ride an excursion train pulled by a Shay to explore the "ghost town" at Kelly Grove.

Turnouts close to the edge of the layout are usually controlled with Caboose Industries ground throws. Anything beyond that is controlled using auto choke cables, so no reaching over the tracks is needed. Most turnouts also have operating switch stands.

Trains are controlled by old-school direct current block control. There are two MRC ControlMaster 20s with walkaround throttles for the main line, one for the main yard in Hannah Vista, and another for the narrow gauge line. The cab block switches and walkaround controller jacks are located on the fascia throughout the layout, so you can line the switches as you walk the layout.

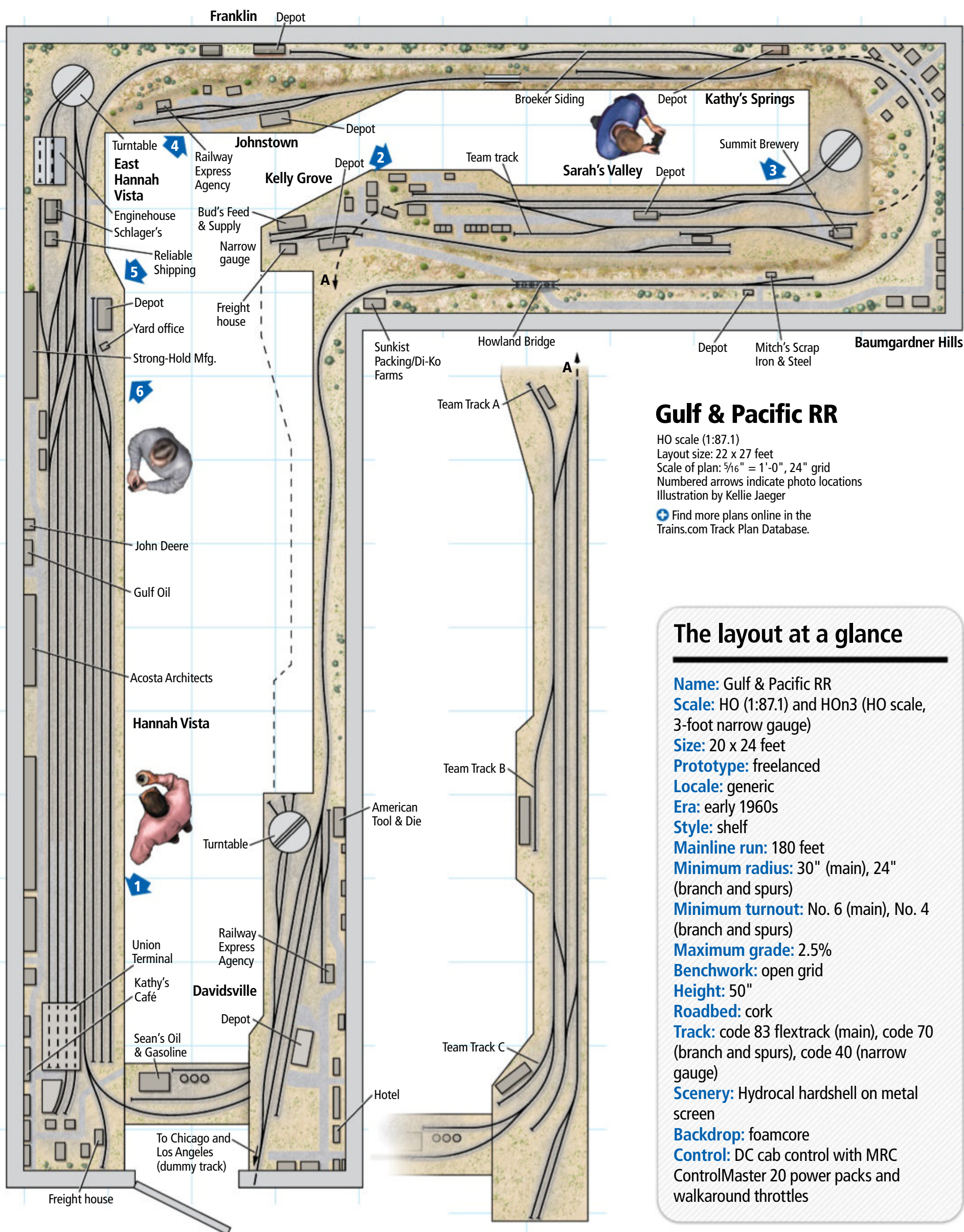
2 An A-B set of Santa Fe F units pulls a passenger train over Howland Bridge on the "high line" to Davidsville. Below is Sarah's Valley, including the narrow-gauge line to Kelly's Grove to the right. The locomotives are Athearn models that John regearred and equipped with a lighting circuit. The bridge is a Central Valley model.

Scenery

Scenery is also old-school: Hydrocal over metal window screen with vertical 1 x 2 supports. The rocks are Hydrocal cast in latex molds (borrowed from Rick Howland) and applied to the base Hydrocal and blended in at the edges while the Hydrocal is still "green." The hardshell is then coated with tan latex paint. Woodland Scenics ground cover is applied while the paint is wet.

Most of the buildings are kit-built, but some are scratchbuilt. Nearly all of them are lighted and detailed with interiors; the closer the building is to the viewer, the more detailed the interior is.

Mirrors are used in a few places in Davidsville to increase the apparent depth of the layout. They are placed on the streets between buildings, with a banner between the buildings to conceal the top edge. They need to be angled just



Gulf & Pacific RR

HO scale (1:87.1)
 Layout size: 22 x 27 feet
 Scale of plan: 5/16" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Kellie Jaeger
 Find more plans online in the
 Trains.com Track Plan Database.

The layout at a glance

Name: Gulf & Pacific RR
Scale: HO (1:87.1) and HO_{n3} (HO scale, 3-foot narrow gauge)
Size: 20 x 24 feet
Prototype: freelanced
Locale: generic
Era: early 1960s
Style: shelf
Mainline run: 180 feet
Minimum radius: 30" (main), 24" (branch and spurs)
Minimum turnout: No. 6 (main), No. 4 (branch and spurs)
Maximum grade: 2.5%
Benchwork: open grid
Height: 50"
Roadbed: cork
Track: code 83 flextrack (main), code 70 (branch and spurs), code 40 (narrow gauge)
Scenery: Hydrocal hardshell on metal screen
Backdrop: foamcore
Control: DC cab control with MRC ControlMaster 20 power packs and walkaround throttles



3 Two Santa Fe EMD GP7s lead a local heavyweight train past the tiny Baumgardner Hills depot on its way to Kathy's Springs. The hills were made with Hydrocal-dipped paper towels over metal window screen. The rocks are Hydrocal cast in rubber molds.



4 Passengers wait at Franklin Depot for the mixed local while a boxcar of goods from Josta Manufacturing is unloaded nearby. The depot is a wood kit to which John added signs and lights.

right to create the desired effect, considering the road and adjacent buildings.

Most railroad crossings are protected by either crossing gates with flashers, flashers alone, or a wig-wag signal. These are controlled by Azatrax infrared detectors and circuits, which work with infrared light-emitting diodes, allowing night operations. Ordinary photocells that detect room light won't work in the dark. The crossing gates are powered by Tortoise by Circuitron slow-motion switch motors.

Rolling stock and operations

All locomotives have a six-diode reversing constant lighting circuit, with Gyalite circuits from Richmond Controls where appropriate. Passenger cars are lit with a homebrewed flicker-free capacitor circuit design by Jim Betz. They also have interiors and passengers.

Cabooses are equipped with marker lights, also with the flicker-free circuit and a magnetic latching reed switch to change directions of the markers.

Rolling stock is weathered using Bragdon weathering powders, which allows me to clean it off and redo the effects if necessary.

A typical operating session lasts about two hours, during which we run four or five trains. These include local freights, passenger trains, and mixed trains following a sequence.

We usually have two to five people for operation nights. Two or three run the main line with another either in the yard or acting as a brakeman, lining the switches to route the trains.

Johnstown, at the end of the cliff-hanging branch line, receives all its water from the railroad, like the Atchison, Topeka & Santa Fe did for Amboy, Calif. So we run trains with water tanks from Davidsville, where the water spout is, to Johnstown, and reverse with the empties. Doing some mainline switching enroute and going in the hole for passenger trains makes for an interesting operating session, especially since Davidsville and Johnstown are at opposite ends of the layout.

All the layout's a stage

One thing I love about this hobby is what I call the "sub-hobbies" of model



5 A Gulf & Pacific Rail Diesel Car (RDC), a Proto 1000 model from Walthers, waits at the East Hannah Vista depot. John equipped it with interior and directional exterior lighting.



6 A heavyweight Santa Fe combine awaits passengers at East Hannah Vista depot while a REA truck loads up. John added interior furnishings, shades, passengers, a Jim Betz-designed flicker-free lighting circuit, and Tomar marker lights at each end to the Key Imports model.

railroading. My favorite is photography. I use a basic Canon point-and-shoot with manual settings. I like that this camera is small enough to set down on the layout for realistic eye-level shots.

I also enjoy making movies of the layout using this camera and am currently learning the Chroma Key “green-screen” techniques to incorporate myself and a friend into the layout pictures and

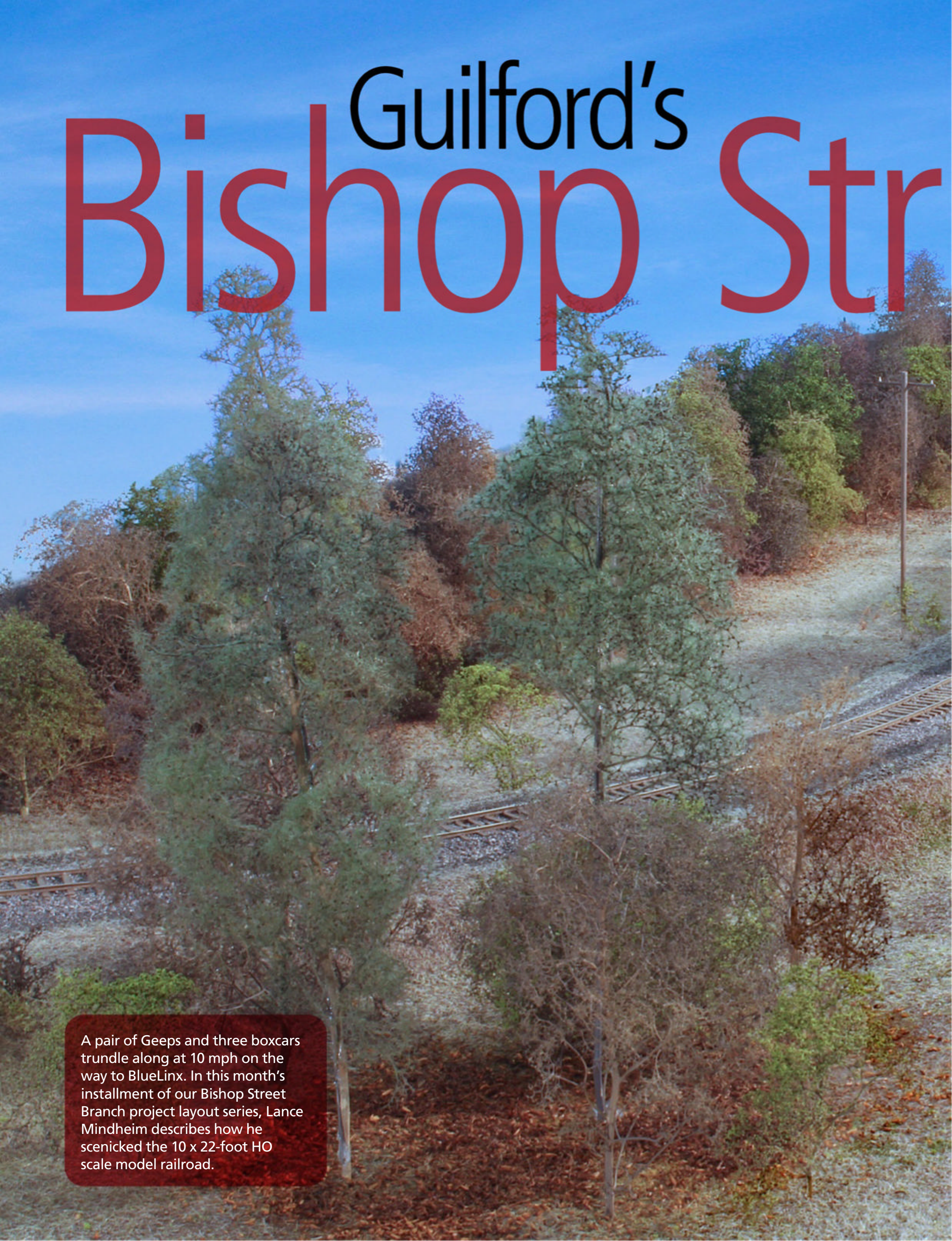
movies. I post them on my YouTube channel under the username jostaiii (youtube.com/@jostaiii).

Two of my friends, Mitch Roberts and Tom Cataldo, have been instrumental in helping me develop my model railroad, for which assistance I am thankful. I also want to thank “Barstow Rick” and Gregg White, who have provided me with much advice and ideas. 



Meet John Acosta

John is an architect living in the mountains of Southern California. He was introduced to the hobby by his father, also an architect. Besides model railroading, John enjoys traveling and spending time with his wife and family.



Guilford's Bishop Str

A pair of Geeps and three boxcars trundle along at 10 mph on the way to BlueLinx. In this month's installment of our Bishop Street Branch project layout series, Lance Mindheim describes how he scenicked the 10 x 22-foot HO scale model railroad.

eet Branch



Part 3: Scenery base, trees, scrub and underbrush, and an abandoned quarry

By Lance Mindheim

Photos by the author

Welcome to the third installment of the Bishop Street Branch, *Model Railroader's* 2023 project layout. In the first two articles, I covered the history of the line, shared how the benchwork was built, and explained how the track and wiring were installed. Now it's time to bring the model railroad to life with scenery. Effective scenery execution is largely a matter of picking the right materials, understanding simple techniques, and avoiding common pitfalls.

Portland, Maine, is similar to much of the mid-Atlantic and Eastern Seaboard, with topography ranging from fairly flat to modest rolling hills. Vegetation along the Bishop Street Branch consists of deciduous trees with some taller evergreens on the western end of the line.

To bring a visual twist to things, Dan Mills (the client) and I passed on the typically modeled seasons of summer and fall. Instead, the optimism of early spring was chosen. Trees are still mostly leafless, but olive green buds have started to emerge, giving the scenery some snap.

Modeling a season without leaves is more challenging, as each tree needs to be modeled individually. Since the branches are visible, care has to be taken to make sure the armatures are realistic.

When we hear the phrase “highly detailed,” we usually think of rolling stock or structures. Highly detailed can also apply to scenery. Mother Nature doesn't make it easy for us, though. Scenery is probably the most complex subject to model. As I explain how I scennicked the Bishop Street Branch, you'll see some strategies emerge. Numerous color layers and textures were used. This helped avoid that overly manicured golf-course look.

Finally, basic neatness from the standpoint of not having leaning trees or errant globs of vegetation pays off in the end. We see trees every day, so if a model of one is off, it really stands out. In the steps ahead we'll work from the ground up, starting with the soil base and finishing with an abandoned quarry scene.

You may be wondering why the backdrop isn't covered in this installment. That's because there isn't one. Dan will paint the layout room walls blue. Since the photos shown here were taken in my workshop, it was necessary to add sky with photo-editing software.

Scenery base



In the February issue I wrote about installing spacer blocks between the benchwork and plywood. Now you can see why. The spacers let me lower the landforms on both sides of the right of way ①. I used 1" and 2" thick pieces of extruded-foam insulation board for the scenery base.

I cut the foam to shape and adhered it to the benchwork with hot glue and a few dots of DAP Dynaflex 230. This latex sealant is safe to use on foam. Avoid solvent-based sealants and adhesives, as they may cause the foam to dissolve.

For the final contouring I used a rasp, foam drywall sanding blocks, and a belt sander. I've gotten away from hot wire foam cutters. After I shaped the foam, I smeared a thin layer of joint compound over the seams.

Once the joint compound dried, I sanded it to knock down any high spots. Then I applied a coat of gray or beige acrylic paint as appropriate. Don't spend too much time painting. The goal is to tone down the pink foam, not necessarily get 100% coverage.

Next, I installed the soil layer ②. I used various hues of Polyblend sanded grout that I got at a local big-box home improvement store. For more on this topic, see my article "Using grout to model soil" in the January 2021 issue of *Model Railroader*.

Grout is inexpensive, easy to work with, and comes in realistic earth tones. My go-to colors include Earth, Tobacco

Brown, and Charcoal. The grout can be used as-is, or multiple colors can be mixed together.

Before applying the grout, I lightly misted the surface of the layout with water. Then I applied the grout with a fine mesh sifter ③. Don't pour the grout from a cup, or it will be clumpy and uneven. I didn't apply as much grout in areas that would later be covered with vegetation.

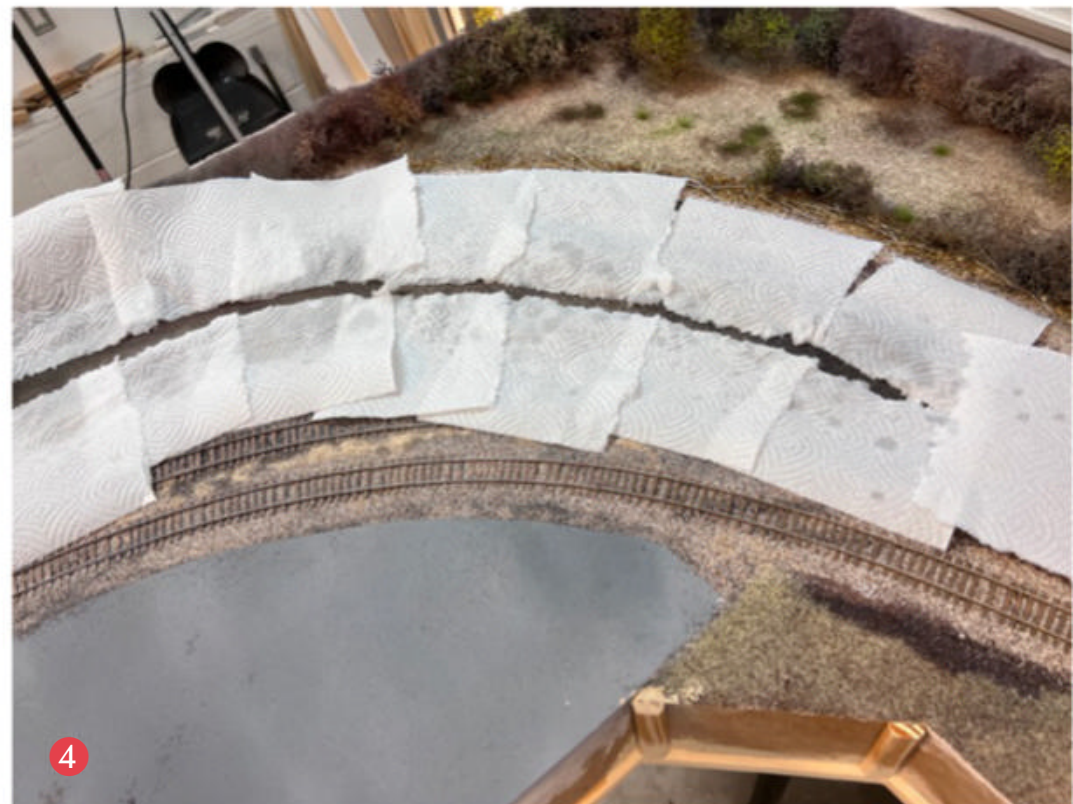
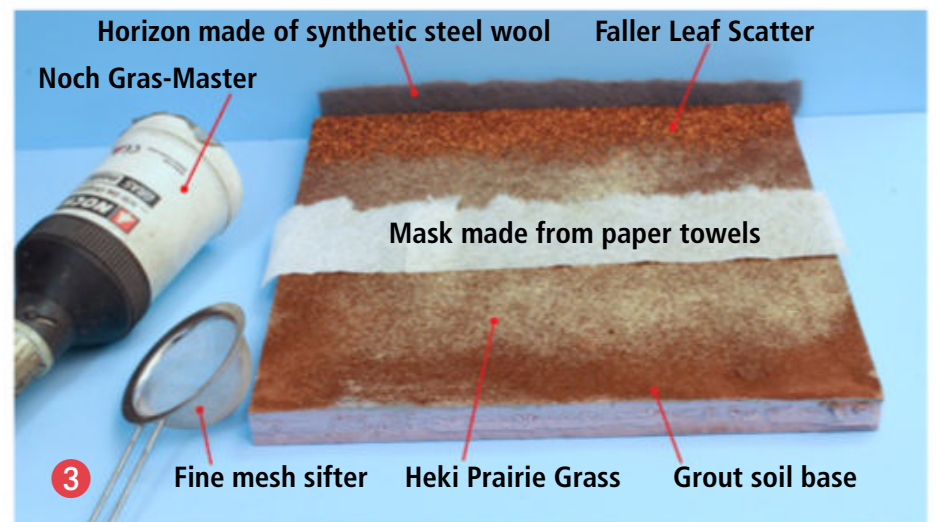
Once the grout was in place, I sprayed it with a dilute mix of matte medium (2 parts matte medium to 5 parts water). I let it dry overnight before proceeding.

The scene in ④ depicts the site of historic Deering Junction, where the depot was once located. I custom-mixed the base soil layer using Polyblend's Haystack with a touch of Charcoal added to grunge it up. Then, using a small cup, I carefully added tire tracks using various shades of Arizona Rock & Mineral Co. N scale ballast.

What's next

January: Meet the Bishop Street Branch
February: Benchwork, track, and wiring
March: Scenery
April: Structures

Beyond ground foam



I used a variety of tools and materials to model grass on the Bishop Street Branch, including the Noch Gras-Master, Heki Prairie Grass static grass (No. 3363), Faller Scatter Material (No. 170705), Woodland Scenics Blended Turf (No. T1349), and Silflor 2mm late summer static grass (No. 002-23) ①.

To prevent the grass from having an overly green golf-course look, I applied an underlying beige thatch layer first. Regardless of the region or season, all grass has this underlying layer, so this step applies to almost every situation.

The rayon-based static grass fibers have a tendency to go everywhere. I masked off areas that I didn't want covered in static grass with moist paper towels. Then I applied Heki's Prairie Grass using the Gras-Master ②. I spritzed the area with water and/or hairspray as I worked.

Depending on the region and season, you can add second, or even third, layers of various green tones and fiber lengths.

In the case of Bishop Street, spring has barely arrived. The grass is still mostly beige. I used the green static grass fibers sparingly – just a few light shakes with the applicator here and there.

Finally, I applied a few extremely light sprinkles of Woodland Scenics Blended Turf for color variety and texture. You don't need to wait between passes. You can apply one after the other. When finished, I sprayed the grass area with dilute matte medium mix and immediately removed the paper towel masks.

Once the grass was dry, I sprinkled on dead leaves in the areas that would eventually receive trees. Though I've made my own leaf material in the past, it's a time-consuming process. This time I used Faller's Scatter Material. I secured the leaves with dilute matte medium applied with a pipette.

When you look through any scene, there should be some form of subdued, low-lying horizon, even if you use a painted backdrop. To suggest a horizon I used strips of gray synthetic steel wool (Mirka Mirlon No. 18-573-943 Ultra Fine Scuff Roll [Gray]) cut 1" to 2" tall and placed at the back edge of the layout ③.

Narrow strips of grass along the right-of-way create a highly realistic effect. The key is to come up with a masking technique to control where the grass goes. I tore paper towels to give a slightly ragged edge, moistened them, patted them in place, and then applied the static grass ④.

Top-notch trees



The strategy for modeling trees can make or break a layout visually. Modeling leafless trees requires even more care. The first key to success is selecting realistically shaped armatures. You want to avoid overly thick branches with blunt ends. You also want to stay away from natural materials where the branches split off at odd or overly sharp angles.

As the market stands now, the most realistic armatures are SuperTrees from Scenic Express. Though this product is good, you need to know how to use it. Some of the armatures are shaped perfectly, but since it's a natural product, others have weird bends and wiggles in them. Time didn't permit straightening individual pieces, so I purchased extra product and harvested the best shaped pieces.

Examples of what I call good, clean, and usable SuperTree armatures are shown in 1. On the left is an evergreen. I trimmed an armature to the rough shape of a local species.

Later, I applied dark green static grass with the Gras-Master to simulate needles.

For deciduous trees, I placed the armatures in a slab of foam and spray-painted them Rust-Oleum Weathered Wood (No. 285217) followed by a few puffs of Earth Brown Camouflage (No. 1918830).

To add a touch of color to represent budding leaves, I lightly sprinkled about a third of the trees with Scenic Express Light Green Fine (No. EX801B) and Woodland Scenics Blended Turf (No. T1349) 2. I secured the ground foam with diluted matte medium.

When I placed the trees on the layout, I made sure they were vertical and avoided overly uniform placement patterns and spacing. The completed tree bank in the forested area between Bishop Street and BlueLinx is shown in 3. Also note the slightly uneven tree heights.

Scrub and underbrush

When you're out railfanning, take note of how rare it is to actually see the base of trees. There's an intermediate layer of tall weeds, bushes, and scrub between the soil and tree base. These three- to six-foot bushes, trees, and weeds are everywhere. Adding this scenic feature can really make your scenery a show stopper.

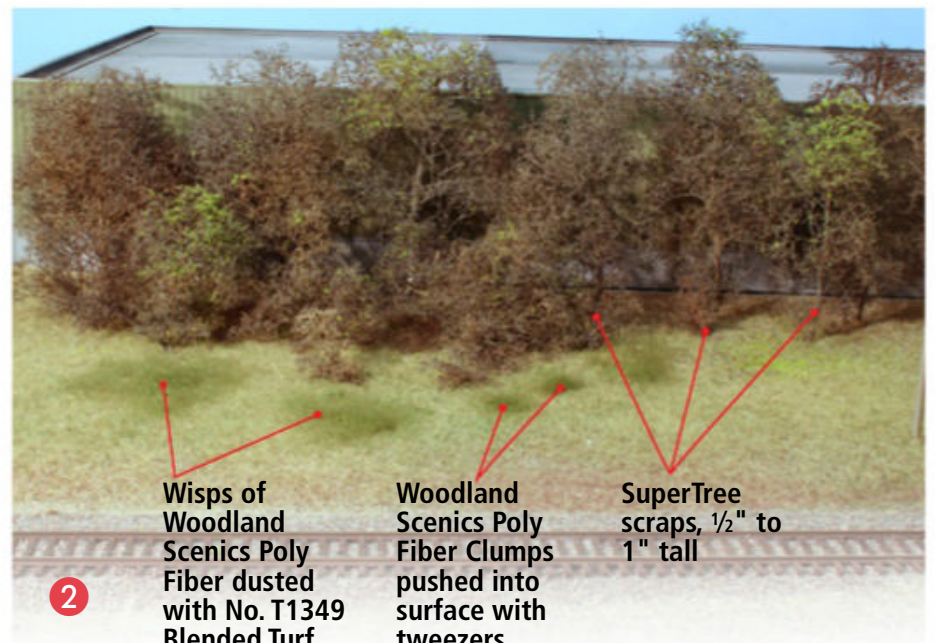
To capture that look on the HO scale Bishop Street Branch project layout, I used the materials shown in 1 on the opposite page. From left to right are Martin Welberg Scenic Studios Wild Shrubbery (No. WB-M047) and Fall Brown (No. WB-SEFB) mats, sharp tweezers for pushing the material into the foam base, short scraps of SuperTree materials, Woodland Scenics Green Poly Fiber (No. FP-178), and Woodland Scenics Blended Turf (No. T1349).

Remember those curved and oddly shaped SuperTree pieces? I didn't throw them away. Instead, I painted a batch along with the trees and cut them into pieces 1/2" to 1" tall. Then I gathered them in my fingers and forced them into the scenery base with sharp tweezers.

I used Woodland Scenics Green Poly Fiber to replicate small grass clumps. I took tiny pieces, about the size of a pencil eraser, and planted them with tweezers.

Then I took thin wisps of Poly Fiber, placed them over the grass, patted it down, and added a few sprinkles of ground foam on top 2.

Finally, I added pieces of highly realistic low-lying scrub made by European scenery manufacturer Martin Welberg. Examples of the company's product were used in the



foreground of **3**. To see the full range of products offered by Martin Welberg, visit martinwelberg.nl.

The branch's namesake, Bishop Street, runs across the bottom edge of **4**. The street intersects with the Bishop Street Extension, which then crosses the tracks and extends to the backdrop. To soften the look of a road running into the wall

at a right angle, I modeled the T intersection with Warren Avenue just as the road meets the backdrop. I softened the horizon using synthetic steel wool.

I also modeled the abandoned track in the foreground. The tan structures on both sides of the track aren't rail served, adding to the overall believability of the scene.

Abandoned quarry



In the first installment of this series, I noted that the abandoned granite quarry was an important element that reinforced the New England setting of the Bishop Street Branch. Instead of modeling the entire quarry, I represented a sliver of it in the corner by NEPW Logistics.

I used rubber rock castings from Cripplebush Valley Models for the quarry scene. The castings took some getting used to, but I ended up liking the flexible material. It was easy to shape and was realistically painted and weathered.

I started by forming the basic shape of the quarry with extruded foam insulation board. Then, using scissors, I made

a few cuts in the rubber casting, which made it easier to fold and bend.

Next, I ran beads of DAP Dynaflex 230 over the foam base, followed by dots of hot glue. I then pressed the casting against the foam. I pushed long T-pins through the rubber casting to hold it in place until the adhesive had dried.

I filled in voids with Great Stuff spray foam. In retrospect, this step wasn't necessary. The seams weren't that noticeable and were easily hidden with grout and vegetation.

Next month, we'll wrap up the Bishop Street Branch project by looking at structures. 

Want an adit? Add it!



Though Gregg Condon considered this scene on his HOn3 Lizard Head Division layout complete, he thought it could be improved by the addition of an adit, or mine entrance. The transformation was made in a few relaxing hours.

You can incorporate a mine entrance scene even on finished scenery

By Gregg Condon • Photos by the author

A completed layout – what I call a “photo-finish” layout – still presents opportunities that can go on, proverbially, forever. As I walk the aisles of my layout enjoying the views, ideas sometimes occur to me for improvements or additions.

So it was with a recent visit to the coke ovens scene on my HOn3 Lizard Head Division layout. I had built a typical mountainside crevice in my scenery, and I mused over the fact that such a crevice is often the location of a mine tunnel entrance. In technical terms,

that’s called an adit (pronounced “add it”). Suddenly it occurred to me that installing an adit would improve the coke ovens scene.

Why no ore bin or other structures? Not every adit was the main entrance to a mine. Some had been small producers that packed ore out in canvas bags on the backs of animals prior to the railroad’s arrival. Others were exploratory tunnels abandoned when a vein played out. Still others were drainage tunnels for vertical shaft mines located higher up the mountain. Some adits connected to larger mines in hopes of improving fresh air

circulation. Finally, mines had more than one exit for safety reasons.

A hole can be cut into an existing layout hillside anywhere. That can be accomplished with any type of scenery construction, but it’s most easily done with hills and mountains made from extruded-foam insulation board. Follow along with the photos to see how easy it is to improve a finished scene. 

Gregg Condon of Menomonie, Wis., is a frequent contributor to the pages of Model Railroader magazine and its special issues.



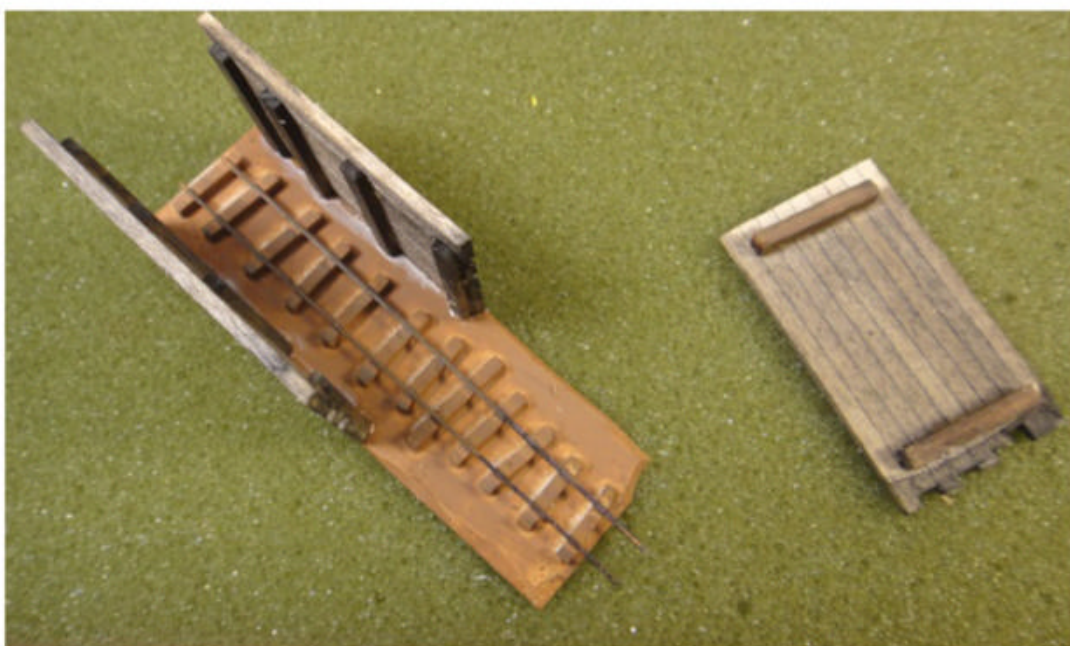
1 With the recent installation of the Maude Canby Mine, I declared this scene had reached a "photo-finish." Then it occurred to me that areas similar to those on the mountainside to the left of the middle building are often the location of adits.



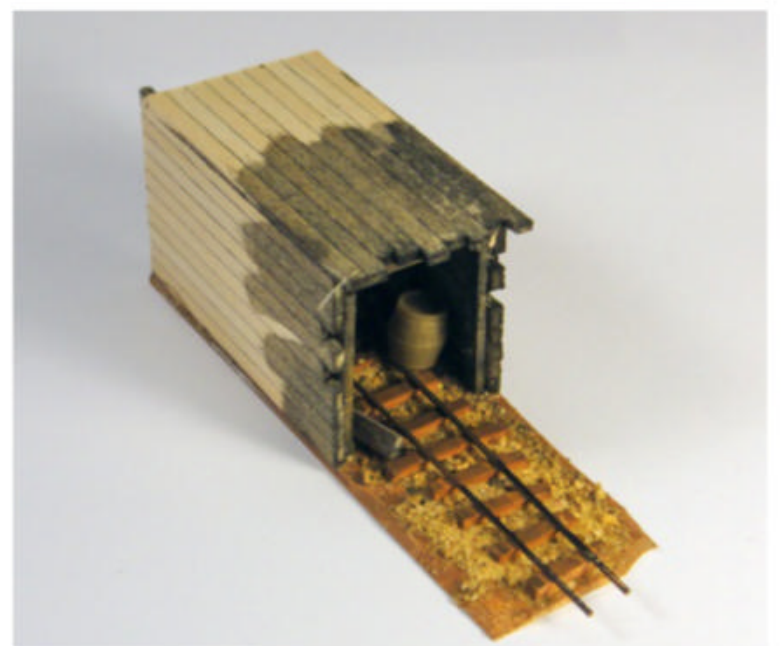
2 I used an old steak knife to cut a hole in the extruded-foam insulation board scenery. The dimensions were arbitrarily set at 8 scale feet square.



3 Needlenose pliers were used to remove stubborn bits of insulation from inside the mine tunnel. Interior dimensions can be oversized and irregular, since the tunnel will be lined, as detailed in the two steps below.



4 This photo shows the basic components of the adit. The floor is .040" plain Evergreen styrene, but thicker material could be used. The cross-ties for the mine tracks are Evergreen styrene HO scale 2 x 6. The rails are Evergreen HO 2 x 2 material set at a gauge of 18 scale inches. I painted the base and ties an earth-toned color; I used rusty colors on the rails.

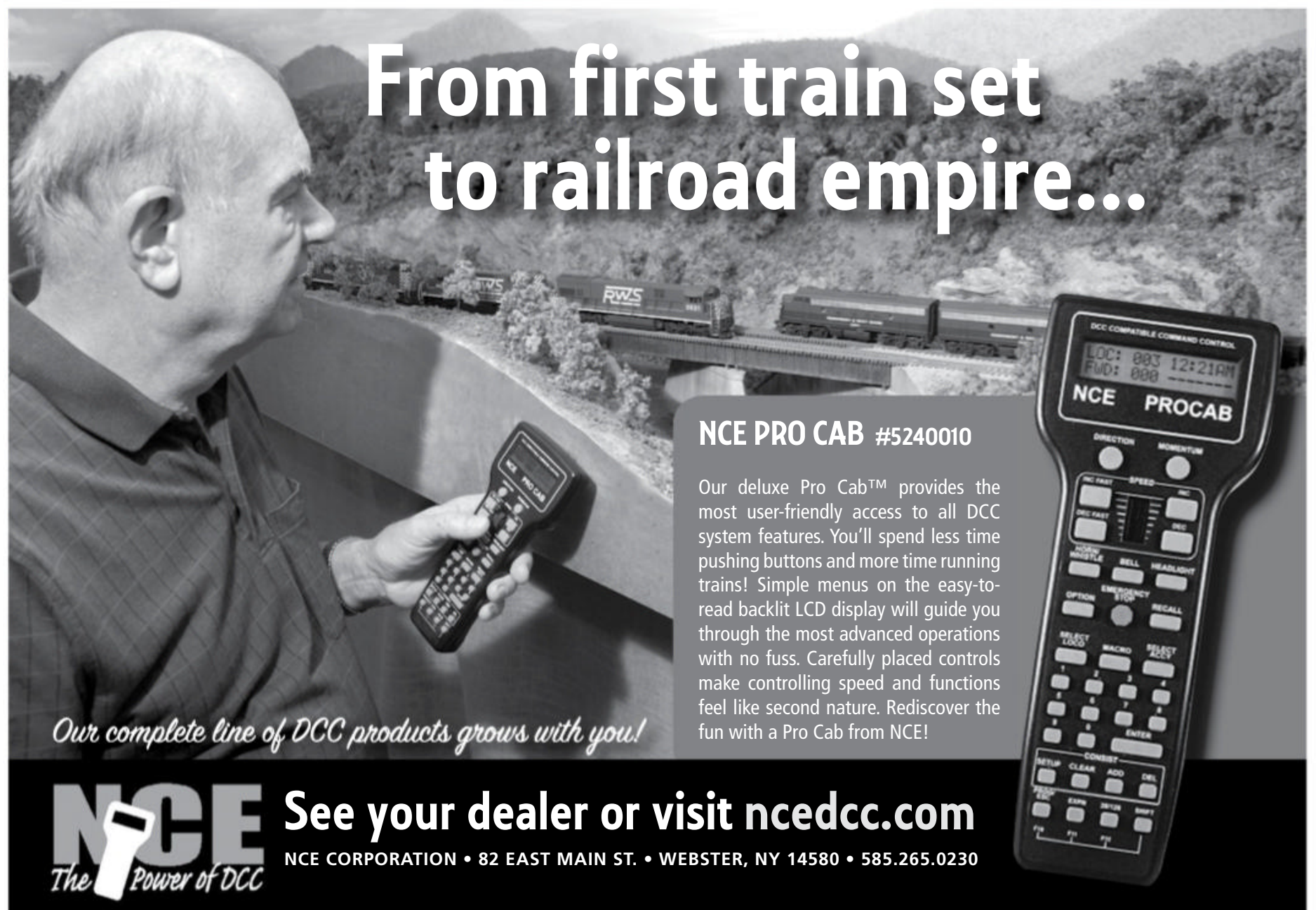


5 After the paint for the plastic floor and track components had dried, I added sifted dirt and a few mine details. I used board-by-board siding sheet, sold by Micro-Mark, for the sides and roof of the tunnel. I stained the visible portions of the wood to give it an aged look.



6 I glued more dirt and rock material of the same kind used in finishing the coke ovens scene around the adit. I also added a pile of typical Colorado yellow mine tailings beneath the mine dump track. All seemingly loose material was glued in place with a 50/50 mix of white glue and water with a drop of detergent added to break the surface tension and improve flow.

This simple project is just one example of the improvements that can be made to an already finished scene. Give it a try; the creative process of building a layout doesn't have to stop when the layout is declared at "photo-finish."



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Trinity's popular 5,161 covered hopper



1 Early example. Dakota, Minnesota & Eastern No. 51116 is a Trinity Industries (now TrinityRail) 5,161-cubic-foot capacity three-bay covered hopper. The car, built under File 2442, was part of the former railroad's 51000 through 51299 series built between May and July 1996. The phase 1 car has 10 body panels and 12 running board supports.

Drawings of a car that debuted in 1995

By Cody Grivno • Photos by the author unless noted, illustrations by Patrick Lawson

The face of the freight car landscape changed in 1995. That's when railroads began shifting from 100-ton cars (263,000 pounds Gross Rail Load [GRL]) to 110-ton cars (286K GRL). This led freight car manufacturers to design larger-capacity rolling stock. One early example is the Trinity 5,161-cubic-foot capacity covered hopper **1**.

Since the three-bay covered hopper made its debut in 1995, approximately 33,000 have been built. The car is still part of Trinity's product lineup, and has led to the design of other three- and four-bay covered hoppers, including the

5461, 6351, and 6541. Plants involved in the production of the 5161 covered hopper include Bessemer, Ala.; Greenville, Pa.; Ft. Worth, Texas; Saginaw, Texas; and Monclova, Mexico.

The Trinity 5161 covered hopper has a round roof that helps with the car's structural integrity and casts off snow and rain. The roof slightly overhangs the car ends. Like other Trinity covered hoppers, the 5161 has a lip where the roof meets the sides, giving it a distinct look when compared to covered hoppers from other builders.

The curved sides make the car easier to load and unload. The design also

makes better use of the covered hopper's cubic capacity.

High side sills provide easier access to the vibrator brackets and outlet gates. With bolt-up gates, the covered hopper can be fitted with various commodity-specific outlets. Assorted roof hatch styles are also available for the car.

Variations and uses

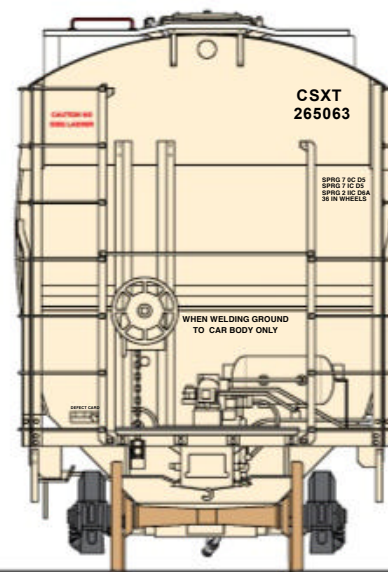
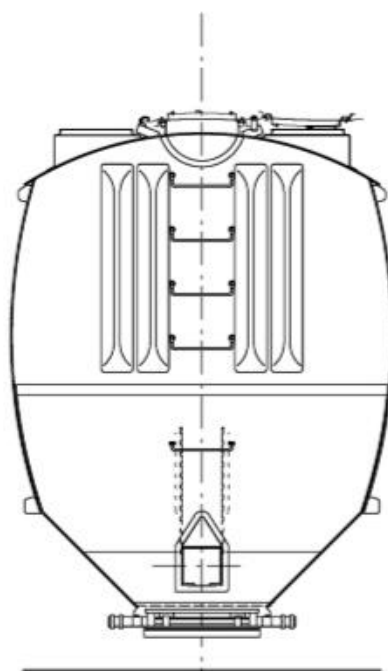
There have been variations in the design of the Trinity 5,161-cubic-foot capacity covered hopper over the years. These are referred to by railfans as

Continued on page 40

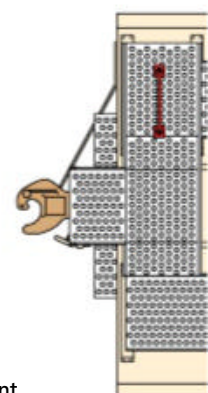
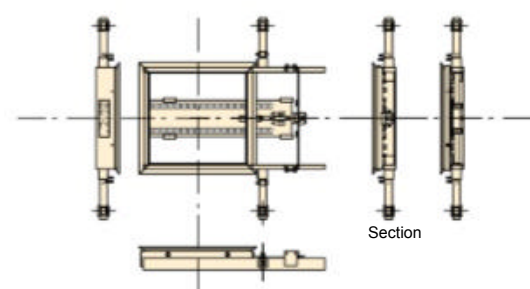
Drawn for *Model Railroader* magazine by
PATRICK LAWSON

Magazine purchaser may have photocopies of these drawings made as an aid to personal or commercial model making or tool design but does not have the right to distribute copies of the drawings to others.

2 Carrying the sweets. BNSF Ry. No. 450062 is used in sugar service and is equipped with gravity-pneumatic outlets. The phase 3 car has a dozen body panels and running board supports and a pair of running board extension supports on both ends. The car is shown at Pewaukee, Wis.



5'-10"

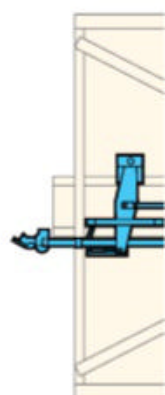


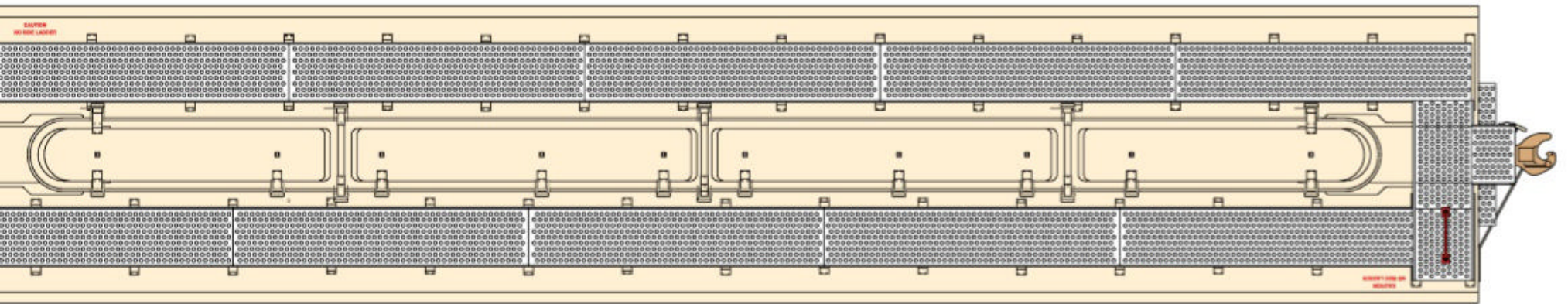
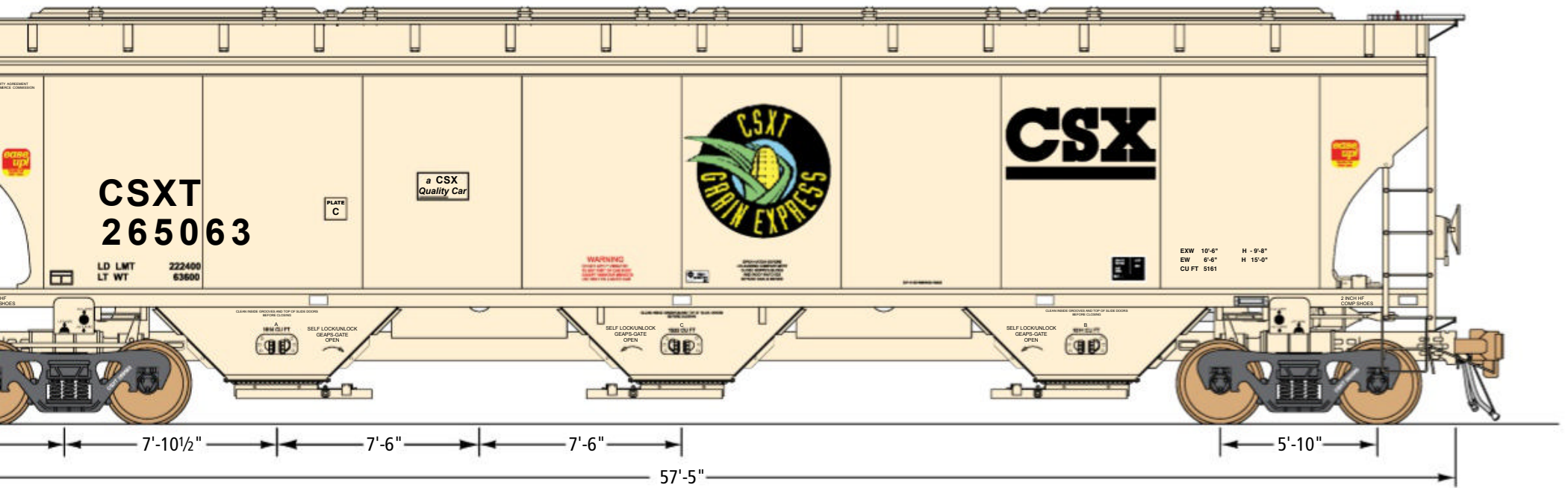
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TO CONVERT HO SCALE
DRAWINGS TO YOUR SCALE
COPY AT THESE PERCENTAGES:
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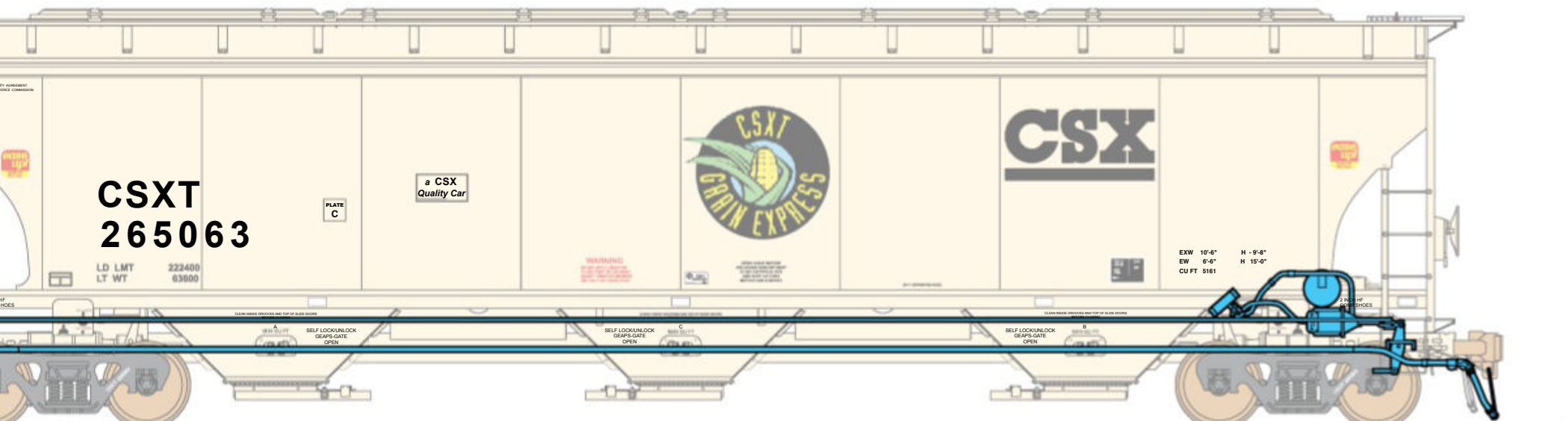
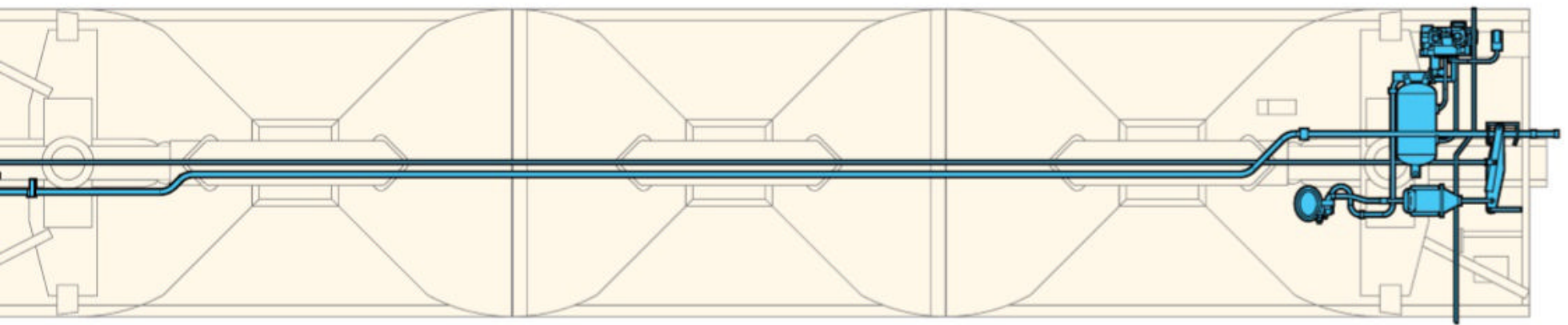


3 Grain hauler. CSXT No. 265037, a phase 2 car with 10 body panels and 17 running board supports, was photographed on Nov. 17, 2012. The covered hopper is used to transport grain. Robert J. Wise photo





Trinity 5161 covered hopper brake system





4 Colorful covered hopper. GATX Capital No. 31895, photographed at Ackerville, Wis., on November 9, 2014, is leased to Potash Corp. The phase 1 car is painted a salmon color, which stands out in the sea of gray and mineral red freight cars.



5 Non-railroad owners. Wells Fargo Rail Corp. No. 845412 is a lease car shown on the Canadian National at Ackerville, Wis., on March 7, 2020. The jack pad, which overlaps the sill above the trucks, features holes for pulling and lifting the car. This style of jack pad is used on all phases of the 5161 covered hopper.



6 Scale models. The Trinity 5161 covered hopper has been a popular subject for model manufacturers. These BNSF Ry. cars were produced (from top) by Atlas O, Athearn (HO), and ExactRail (N).

Continued from page 37

phases. Some obvious variations are the number of body panels (10, 12, and 13) and running board supports (12, 13, and 17). Other differences include the style of outlet gates, hatch covers, trucks, and brake wheel. All but the phase 4 cars have angled running board extension supports. Patrick Lawson's drawings on the previous page depict a phase 2 car with 10 body panels and 17 running board supports.

The Trinity 5161 covered hopper can be found in a variety of services. For example, cars in the BNSF Ry. 450000-450349 and 450350-450659 series are used to transport sugar **2**, page 38. They feature gravity-pneumatic outlets, while the railroad's grain haulers are equipped with gravity outlets.

Trinity 5161s are also used to haul grain **3**, potash **4**, and dry chemicals, among other commodities.

Who owns them?

A variety of railroads, private owners, and leasing companies have rostered the Trinity 5161 in the 28 years since the car was introduced. Among the railroads to use the 5161 are BNSF Ry.; Canadian Pacific; CSX; Dakota, Minnesota & Eastern; Illinois Central; Kansas City Southern; and Norfolk Southern.

Non-railroad owners include Wells Fargo Rail Corp. **5**, Chicago Freight Car, GE Railcar, Southern Illinois Railcar, and Trinity Industries Leasing.

Scale models

Based on the success of the full-size Trinity 5161 covered hopper, it shouldn't come as a surprise that the car has been a popular prototype for model manufacturers **6**. ExactRail and InterMountain Railway Co. offer the car in N scale. Athearn and InterMountain produce the car in HO scale. LBF Co., no longer in business, also had the car in its HO scale line. Models can still be found at swap meets and online auction websites. Atlas O manufactures the covered hopper in scale and three-rail versions.

Into the future

With around 33,000 cars built, the Trinity 5,161-cubic-foot-capacity covered hopper will be on the rails for many years to come. Adding models to your freight car fleet is easier than ever thanks to commercial offerings in N, HO, and O scales. **MR**

Build a VINTAGE STREETCAR DINER

A photo in an Indiana railroad history book led to this O scale display

By Daniel Kleine • Photos by the author

I SAW A SMALL PHOTO of a diner in the book *Faster Than the Limiteds*, which is a complete history of the Gary Railways (Thomas Bullard and William Shapotkin, Central Electric Railfans, 2004). I thought it would be an interesting modeling project. This was an opportunity to combine my interests in model building and local history. I located the owner of the photo negative in Arizona and purchased an 8 x 10 print, shown below.

The caption said the diner, photographed in 1939 near Hobart, Ind., was originally Gary & Southern No. 2. This was a wooden car built by the Niles Car Manufacturing Co. in 1912 and retired in 1929. I wasn't able to come up with any more information about the diner, including its exact location.

My goal was to make the diner and surrounding details mimic the scene presented in the vintage photo as closely as I could. The photo would be my guide

to the model's construction. I tried to follow the image where possible, but I had to freelance any part of the scene not visible in the photo. I wanted to capture the spirit of the photo, not make a perfect 3-D copy, so some artistic license and simplification was OK.

I envisioned a Northwest Indiana late fall scene, with dry grass and weeds, leafless trees, and no snow. My home layout is set in the mid-1950s, so an early 1940s model wouldn't fit in. I decided to build it as a diorama to display at a local historical museum.

East Gary Car Co. sells O scale Niles car sides, door frames, and ends. Scale City Designs produces the globe ventilators. Most everything else on the car is scratchbuilt. The roof is contoured and scraped from Balsa-Foam; the floor is cut from basswood. The window and door glazing is cut from printed overhead transparency film. The doors are cut from styrene on a craft cutter.

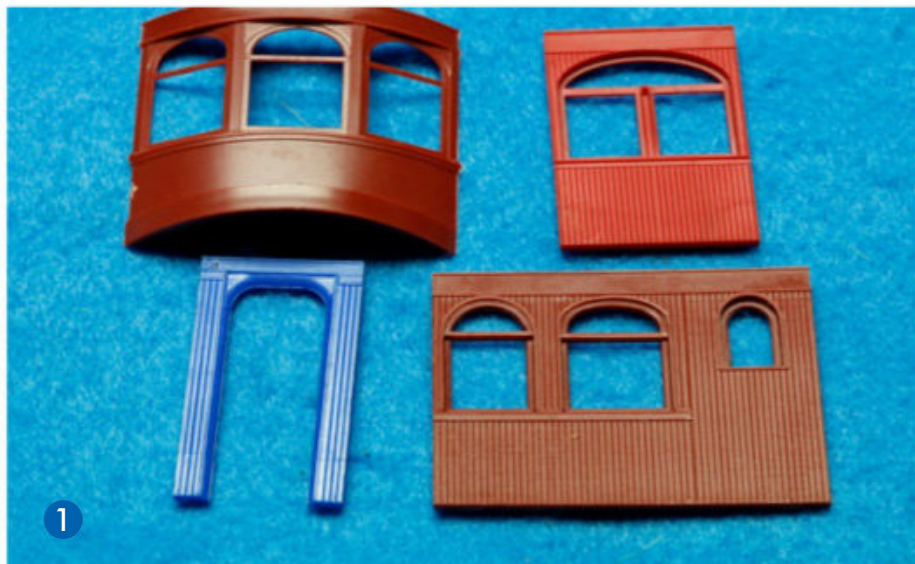
The interior details are scratchbuilt or made from parts in my scrap box. The signs were copied from the internet and scaled to size using Corel Draw graphics software. The windows and interior graphics were printed on high quality paper on a commercial laser printer and then cut to size.

Daniel Kleine lives in Dune Acres, Ind. This is his first byline in Model Railroader magazine.

Daniel Kleine built this O scale diorama of a streetcar converted into a diner based on a prototype photo he saw in a book (inset). Though his model is on display in a local historical museum, his techniques could be used to produce a structure for a model railroad. Prototype photo by E. Van Dusen, Malcolm D. McCarter collection



Building the carbody



The **carbody assembly** is fairly easy. The purchased components consist of two car ends, two side panels with single windows, four door frames, and 10 double-window sides ①. The ends, frames, and double panels work as is. The small window panels needed to be cut to yield a single window and a narrow piece to fill a gap between the single pane window and the door frame. A sawing jig helps make the cutting easy and accurate. A little light sanding cleans up the ends of the plastic parts

②.

I drew scaled versions of the doors with graphics software and cut them out of styrene with a craft cutter. I dry-fit the body parts on a steel plate with a square, rulers, and magnets ③. I didn't think gluing the panels end-to-end would be sturdy enough, so I cut a piece of .010" black styrene to form a liner to hold the panels and door frames together.

Some windows would have glass and others would be boarded up. The liner is cut so that it covers the bottom interior of the panels and some of the windows, leaving the front and back ends long so that they can be trimmed later to fit the end panels.

To fasten the side panels together I laid the panels and doors, good side down, on a flat surface. I squared up the assembly and made sure the panel gaps were as tight as possible. I sprayed the prepared styrene liner with Scotch Spray Mount, masking any areas I didn't want to stick. I pressed the liner down on the inside surface of the car panels securely. I repeated the above procedure for the other side.

The two completed sides were fastened to the ends by trimming and gluing the liner to the ends with contact cement. I squared up the shell on the



steel plate with a square and magnets, allowing it to dry overnight.

After the assembly dried, it was still a little wobbly when handled. Using the inside of the shell as a template, I traced a floor on a piece of 1/8" basswood. I cut the basswood and pressed it into the bottom of the shell, checking

for squareness and adjusting the floor with sandpaper as needed ④. The floor stiffened the shell and kept it square. Small fillets of Aleene's Tacky Glue along the joints between the walls and floor strengthened the assembly.

At this point, the carbody assembly was fairly strong even without a roof.

Painting the carbody

A long bolt through the center of the floor provided a handle for airbrushing ⑤. A coat of dark primer evened out the mixed plastic colors and provided a color somewhat like the prototype when it was in rail service.

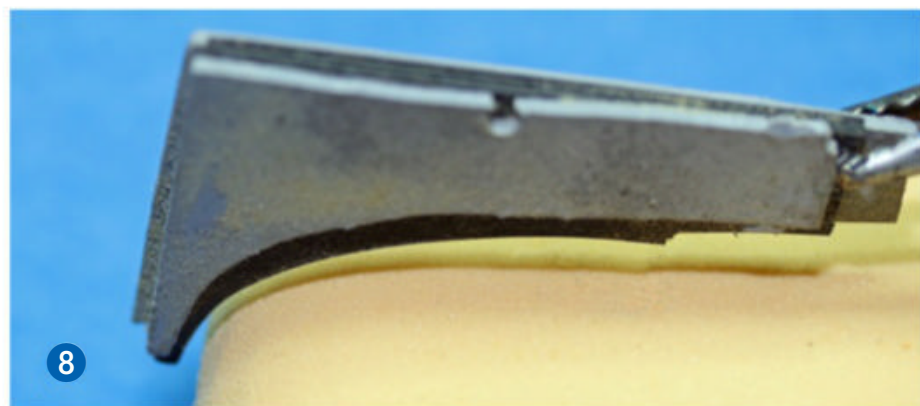
The diner owner probably slapped on a light colored paint during the conversion process. I'm not sure what color it was, but from the photo, it appears to be a light color; white would be a reasonable guess. I purposely set the



airbrush to produce a light, dry, speckled pattern. This gave the car a faded, rough, and cracked finish, like an aged,

amateurish paint job. Paint of this era wasn't as good as modern paint; it tended to "alligator" with age.

The roof



Many years ago I carved, filed, and sanded a traction car roof out of wood. It took quite a while and was a lot of work, so I wanted to find a better way. I had experience with Balsa-Foam on other scratchbuilding projects and thought it would be a good material from which to make a roof.

If you work with this foam product, do it outside or have a vacuum handy while scraping, as this process generates a lot of fine dust. There are two weights of Balsa-Foam available, I experimented with both. The soft grade worked fine and was easier to scrape and sand than the hard grade. However, if you want a robust model, use the hard grade.

Using graphics software, I drew scraper profiles based on drawings in *Traction Guidebook* and cut them out of .010" styrene on a craft cutter ⑥. If

you don't have access to a craft cutter, you can cut your scrapers from styrene using a paper template and a hobby knife. This styrene was rather flexible, so I glued three of the contour scrapers between heavier pieces of plastic using contact cement.

I cut a block of Balsa-Foam larger than the finished size of the roof and scraped down the roof lengthwise until I got the proper contour and width. A jig made from scrap wood helped hold the foam for scraping ⑦.

Using the shell as a template, I traced the car end contour onto the foam and rough-cut the roof piece. With the end scraper, I curved and contoured one roof end ⑧. I repeated the tracing, rough-cutting, and scraping on the other end. I used the scrapers, sandpaper, and an emery board to fine-tune the final shape.

I experimented on scrap pieces first to get a feel for the shaping process. My first roof ended up short, and my second was too narrow. It may take a few attempts to get a good looking product. One of the nice things about this material is that it's relatively cheap, and even the mistakes can be used repurposed somewhere, someday.

Streetcar roofs were covered with tarred canvas; this one probably would have been tarred over a few times. To get a realistic looking roof, I painted the foam with flat black latex craft paint and let it dry completely. Then I painted it again, and while the paint was still wet, draped a piece of thin black tissue paper over the roof ⑨. Neatness doesn't count here – wrinkles add to the realism. After the paint dried, I trimmed the tissue to the edges and dry-fit the roof.

Interior details



The interior details are easy and fun. Since the windows are small and the roof is glued on, it's hard to look into the diner interior. I only needed a suggestion of the diner's furnishings 10.

For the windows and stained glass arches, I copied patterns from the internet, modified and scaled them in Corel Draw image-editing software, then printed them on clear overhead transparency film. I used a commercial laser printer, but an inkjet will also work if you make sure to use film that's compatible with your printer. I cut the film strips to fit and glued them to the inside walls of the car with contact cement, using as little glue as possible so as not to warp the film.

Some of the windows are boarded up, so the liner takes care of those. I also wanted a couple of windows with screens on the back of the diner. I cut two screens from an old cone-shaped coffee filter. The coffee stains provided instant weathering on the screens, as seen in 11.

I used Corel Draw again to create the interior wallpaper, tile floors, and signs. I downloaded signs from the internet and placed them around the walls, along with a bathroom door. I printed them out and glued them to the interior with contact cement.



The counter was made with scrap plastic strips. The back counter is a piece of wood covered in aluminum tape to simulate stainless steel. The stools are slices of wooden dowels with plastic rods for posts. I mounted these in holes I drilled in the floor.

Pieces of painted junk from my scrap box added a few more details. The cash register was carved from a scrap of Balsa-Foam and painted gold. A seated and a standing figure add life to the interior. This was intended to be a museum model, so I didn't add interior lighting.

Outdoor scene



Two pieces of 1/8" hardboard serve as the base. Masking out the diner's footprint kept the scenery material from sticking to the area under the car. This gives it a clean, level surface to attach the car to later.

The basic scenery base is sand sifted over light brown paint. The road material, sifted grey stone powder, was layered over the sand base using thinned white glue. Running a die-cast vehicle over the surface while the paint and

glue were wet added a few tire tracks in the road and parking lot. After drying thoroughly, a spray coat of matte medium fixed the materials in place.

I glued down a few crossbeams to the base; the prototype probably sat on railroad ties. After drilling a hole in the car and one in the base, I bolted the now furnished car to the hardboard 12. At this point, I glued on the roof; however, you may want to leave yours loose for interior viewing.

To make the "KAY-BEE-EATER" sign, I started with Arial font, stretched it, and redrew the letters to look like the hand-painted letters in the photo. I printed a textured board pattern on another sheet for the backs of the signs, gluing the paper with spray glue at cross grains to help limit warping and curling. I used scale 4 x 4 basswood for the post and scale 2 x 4s for the frames. I brushed all bare wood with thinned white paint 13.

Finishing details



The EAT sign was made by painting "EAT" on a post sign left over from a gas station kit. I made the U.S. Route 6 sign, attached to music wire, from a Route 66 graphic I found online, modified, and printed. Black route signs were common in this era. I'm not sure the diner was actually on U.S. 6, but it's a reasonable guess.

Some junk, old signs, deposit bottles, garbage cans, a cat (named Rasputin), raccoons, a washtub, milk cans, litter, and pigeons help round out the scene ¹⁴. I had details and litter left over from other projects that I glued around the diner. I made a mailbox using a milk can as a base. A couple of white metal leafless trees add height and interest to the overall scene. I made a batch of static grass tufts and placed them using the photo as a guide ¹⁵.

This is a 1940's "greasy spoon," so it needed some cooking grease staining the structure. I gave the diner my standard weathering treatment with



powders and an India ink wash. Gray, brown, and black powders give the diner a faded, dusty, aged look. Dirt and grease on the car and litter and trash in the parking lot make it look like a shoestring operation ¹⁶.

True 1:48 scale vehicles for this time period are in limited supply. Tamiya makes a 1942 Ford military staff car kit that can be made to look like a civilian

car by using a civilian body color and painting the dull trim with chrome paint. A '42 Ford is close enough to '39 to look right.

I had an Artista (artista.com) O scale motorcycle cop and a motorcycle with a sidecar left over from other projects. The Great Depression would have just ended, and motorcycles would still be in common use.

Protective display

A sturdy base was made from Russian plywood and basswood squares and painted flat gray. A Plexiglas cover made of scraps cut with a fine-toothed blade on a bandsaw protects the model from dust and the public. I glued the corners of the box with methylene chloride ¹⁷.

The completed model is on display, along with a Clark gas station that I built a few years ago, in the Transportation Room of the Merrillville History Museum. Both will eventually be moved to the Hobart History Museum. I hope that museum visitors who see my model might have heard something about its history. It does have a memorable name. 





Rural New England in a coffee table

An N scale layout that showcases
what can be done in a small space

By **Jared Duclos** • Photos by the author

When I was growing up in Rhode Island, I always had an interest in trains, both model and real. Perhaps that's because I rarely saw them in real life, only on television and in movies. The train tracks in my corner of New England had fallen into disrepair after years of neglect.

I know there are many reasons a person becomes a model railroader. For me, scenery is the driving force. Watching a steam engine creep through well-done

scenery is all I need. As the running gear turns and the engine and its cars peek in and out of view through trees, hills, and small villages, I get lost in that and my imagination fills in the blanks.

Running an operationally accurate layout is fun but doesn't excite me like diorama-quality scenes that tell a story. For example, when I see the two men talking in front of the scrap yard, I can hear their heated conversation about sports or politics. I can hear the boys laugh as they play catch while their

parents enjoy an ice cream cone on the park bench. I can feel the excitement of the grandson as he and his grandparents sit on the bench at the depot and wait for the steam engine to pass.

Layout design

My layout is designed to showcase multiple separate scenes and to be viewed from all four sides. Though it's only 3'-3" x 3'-6", I wanted it to look and feel much larger. My natural scenery is



① A short train heads past the town's small depot and toward the tunnel. The tunnel also allows the tracks to cross each other at a separated grade. To the right of the locomotive is Mooney's Plumbing, which sits between the main line and passing siding.

reasonably dense and acts as a separation between each individual scene. The hills, rocks, and trees help create an implied boundary for the viewer as they travel from one scene to the next.



② Boston & Maine No. 2360 emerges from the tunnel on the inside portion of the twice-around. Jared wanted to add a tunnel to use more terrain and add another degree of separation between scenes. This allows for the illusion that the layout is larger than just over 11 square feet.



③ Boston & Maine Consolidation No. 2360 heads light into the inside passing siding on the Adamsville Branchline. The twice-around track plan allows Jared to pack a lot of track in a small space.

Layout plan

My track plan was from an old Atlas book. The name of the layout was “Twice Around in 4 x 6.” I wanted an overlapping figure 8 so I could just set the train running and watch it go. My final configuration only retained the outer siding as well as the spur to allow operating interest and functionality. I removed the inner loop siding because I felt there was too much track in such a small space. I wanted more space for scenery.

I also wanted a tunnel. A tunnel allowed me to further create the illusion of distance between scenes and added another degree of separation to help the viewer remain focused on only one element at a time.

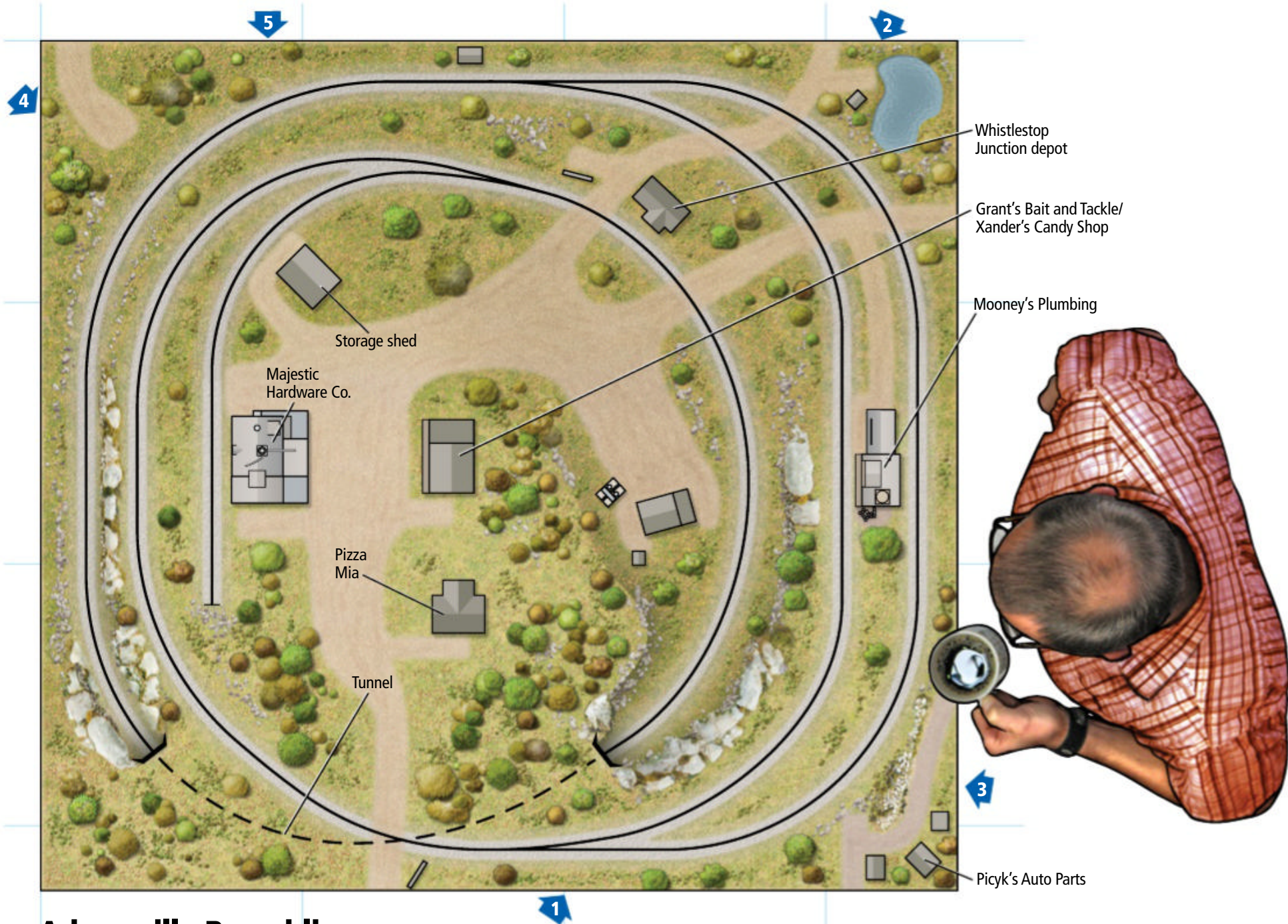
I began building the benchwork back in 2003. It was just a simple grid of 1x2s, forming nine “boxes” held together with 1¼” screws and metal angle brackets. Since the layout was portable, I never had a specific room or space in mind. The layout hung vertically on the wall for several years. It was easy enough to take



④ A small layout with a small-town feel. Xander’s Old Fashioned Candy Shop and Grant’s Bait and Tackle are named after Jared’s sons. Pizza Mia, named for his daughter, is in the background. The layout depicts a typical New England village.

Though my layout is not an exact replica of my hometown of Little Compton, R.I., it is meant to capture the spirit of small-town bustle. The center of the village is engaging as multiple scenes overlap. There’s a spur that services Majestic Hardware. Xander’s Old Fashioned Candy Shop is aptly named after one of

my sons and his wicked sweet tooth. It’s connected directly to Grant’s Bait and Tackle, named after my other son. There’s also an ice cream truck parked strategically near the park where some bicyclists are stopped for a frozen treat. As you travel up the hill, you can see Pizza Mia, named after my daughter.



Adamsville Branchline

N scale (1:160)
Plan size: 3'-6" x 3'-3" feet
Scale of plan: 1 1/2" = 1'-0", 12" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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

the layout down from the wall when we wanted to work on or operate it.

However, I became concerned about dust and little hands grabbing at the scenery, so I decided to build a coffee table for the layout. It's covered by 3/8" tempered glass. There's a rubber gasket between the glass and wood to protect a potential spill getting to the layout.

Based on my knowledge (and budget) at the time, I selected Code 80 flextrack. Since then, I have become more educated about code 55. I've read many opinions on which looks better, runs better, is easier to work with, etc. Honestly, I think mine looks awesome, and I don't know that I would switch to code 55 if I build another layout.

Electrical

My layout runs on DC, which accommodates my needs for such a small layout. However, I do have feeders every 3

The layout at a glance

Name: Adamsville Branchline
Scale: N (1:160)
Size: 3'-3" x 3'-6"
Prototype: freelanced
Locale: New England
Era: steam-to-diesel transition era
Style: island
Mainline run: 13 feet
Minimum radius: 9.5"
Minimum turnout: no. 4

Maximum grade: 2%
Benchwork: 1 x 2 open grid
Height: 8"
Roadbed: cork
Track: Atlas code 80 flextrack
Scenery: cardboard webbing and plaster gauze
Backdrop: painted light blue
Control: DC

feet so it's ready to switch to DCC when the time comes. I think it would be fun to have two engines operating at the same time. I currently have two locomotives, a yellow Bachmann diesel switcher and a Bachmann Spectrum Boston & Maine 2-8-0 Consolidation.

My turnouts are wired to three switches on the face of the layout. There are three circles cut with a hole saw that allows the operator access to the switch controls even while the layout is fully enclosed in the coffee table. The turnouts don't have any signaling as of yet, but that's being strongly considered for a future project.

I think my next project will be to add lighting to the structures and a few street lights. There aren't too many options for us N scalers, but I like what's out there and can tweak it to my liking. Once you see a cozy New England village at night with the warm glow from the windows and a hazy lone street lamp standing as sentinel over the sleeping village, you can't help but feel transported back to a simpler time.

Scenery

Beneath all of my scenery lies a relatively simple process to develop the



5 Majestic Hardware is the main industry on the layout. It has its own siding for loading and unloading and was added to increase operating interest.

supporting landforms. My scenery methods can be found in the 2nd edition of Dave Frary's book *How to Build Realistic Model Railroad Scenery*. The foam board and Homasote beneath the roadbed extends out 1½" so the cardboard webbing had ample area to glue to. The webbing is made from cereal box cardboard cut into ½" strips, glued together with a hot glue gun. On top of the webbing I applied two layers of plaster cloth and Woodland Scenics Foam Putty, sanded it smooth, then covered everything with earth-colored pigments.

Roads were particularly challenging for me. In the end, I was most satisfied with using real dirt. I sifted it on top of wet scenic cement, then sprayed more

scenic cement on top to lock it down. I scraped the roads with a wooden Popsicle stick in the direction of travel to simulate tire tracks. This really looks good near Majestic Hardware, where vehicles pull in and out.

I relied heavily on Woodland Scenics products throughout all phases. The earth pigment base hides all the white Foam Putty. A variety of fine textures of Woodland Scenics ground foam and color washes over scenery and rocks create variety but also tie it all together.

The pond on the layout is the only body of water. It consists of Woodland Scenics Realistic Water, applied in layers, with a final layer of Mod Podge applied to create a ripple effect. All the techniques are what Dave calls the "water soluble method" of scenery building.

Let's talk about trees for a moment, specifically for my fellow N scalers. Woodland Scenics' Fine Leaf Foliage is perfect for N scale. It comes in a variety of realistic and natural looking colors, with a few colors that are deeper and more vibrant for a more prominent look.

With sharp scissors and patience, you can discover that a single package of Fine Leaf Foliage will contain dozens of small, medium, and large trees with a variety of sizes, as well as plenty of bushes, brush, and ground cover. Nothing goes to waste. Any awkwardly shaped trees can be trimmed with the excess material reattached in a more natural-looking

First layout advice

To anyone about to start their first layout, I would offer some advice I wish I heard when I started.

First, take your time. Any aspect of the process that you rush will yield sub-par results. The temptation to rush can be overwhelming, especially as you near completion of a particular element such as a building or a scene. Resist that urge. You'll get there.

Second, practice. If there's a part of the hobby where you need to develop your skill, practice off the layout. For me, that included soldering, ballasting track, ground cover, roads, water, and much more. This will eliminate the stress of getting it right on the layout.

And third, make time for your hobby. You may have a career, a spouse or partner, kids, and any other number of things that compete for your attention. Model railroading has largely been a hobby of mental fitness for me. It is both very relaxing, and yet requires a high degree of focus. It forces me to slow down and take my time to get the results I want. – *Jared Duclos*

manner. Finer ground foams can be sprinkled onto a few random trees to give them a unique, customized look. The branches and trunks of the trees seen throughout my layout are, for the most part, exactly as they came in the package with nothing added.

Closing thoughts

My ultimate goal when I started this journey was to see how closely I could come to achieving the realism of some of the great model railroaders I looked up to. It was simultaneously more fun, more satisfying, and more frustrating that I could have imagined. Also, despite living in Arizona, I was born and raised in Rhode Island, and I wanted the layout to pay tribute to my New England heritage. Although I will never declare my layout officially complete, I would say with confidence that I have accomplished my goals. I knew this was the case when I was looking at some of the scenes up close. My imagination took over and brought the scenes to life, much as they had when I was a child. **MR**

Meet Jared Duclos

Jared's fascination with trains began when he was growing up, despite not seeing many in person. When Jared isn't working on his layout, he enjoys quality time with his wife, Diane, and their three children. He enjoys camping, surfing, and mountain biking.



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20384 San Francisco Streetcar, Car No. 130

This is a model of the original 1914 San Francisco Muni streetcar the "Lucky 130." The four-axel streetcar got its nickname because it was saved from being scrapped in 1958 to tow broken down PCC type streetcars. The streetcar includes an mfx/DCC digital decoder with many light and sound functions, for the first time! Running sounds work in analog. The wheelsets are driven by two Bühler motors.



29911 Norfolk Southern Railroad Rescue Train

This is a model of a NS rescue and training train used to educate and train first responders. The train consists of a diesel locomotive, a tank car and boxcar. The locomotive includes an mfx/DCC decoder for many digitally controlled light and sound functions, and both trucks are driven by two powerful Bühler motors. Running sounds work in analog. The tank car can be filled with water and sprayed using the digitally controlled pump.



A portion of the proceeds from the sale of this product will be donated to First Responders Foundation.

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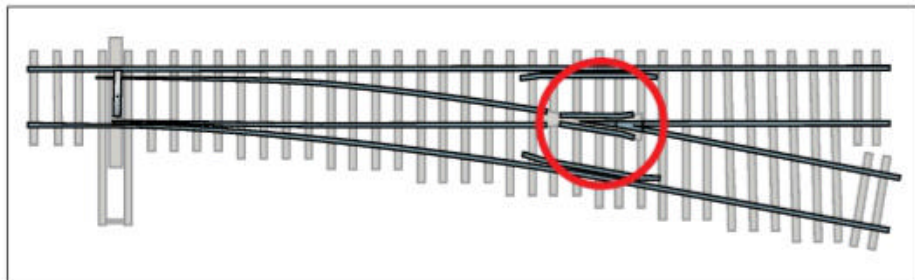


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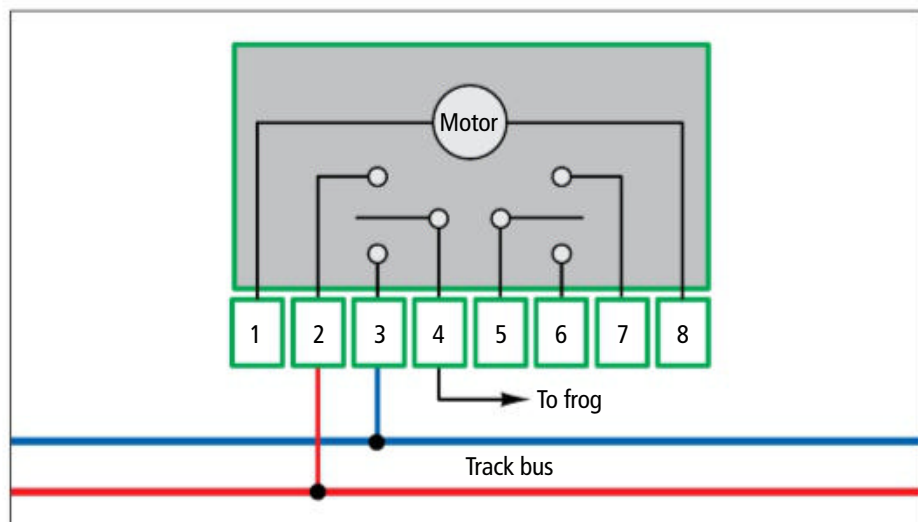
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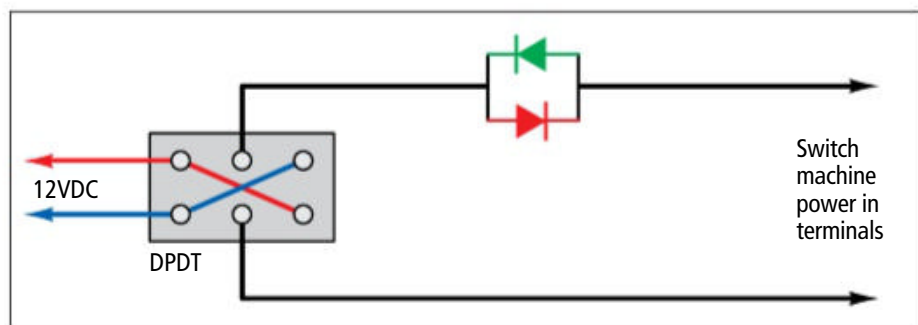
Powering turnout motors and frogs



1 This month Allan Gartner discusses how to power turnout frogs. Powering the frog is important if your locomotives are unreliable, have a short wheelbase, or aren't equipped with a stay alive capacitor.



2 This diagram shows how to wire a frog to the Tortoise by Circuitron switch machine. The device has two internal single-pole double-throw switches.



3 A double-pole double-throw switch, a bipolar light-emitting diode, and a 12VDC wall transformer are all you need to drive the Tortoise by Circuitron switch motor.

Most modelers like to have control panels for their turnouts. While they've spent the money to operate their turnouts from a control panel, many avoid powering the turnout's frog, instead relying on a locomotive to hopefully pass over the unpowered section of track 1. Powering a frog is easy with many of the popular switch machines and except for a little labor, is usually free. This column will focus on powering frogs using switch machines and how to do it right.

You need a switch machine that has a single-pole double-throw (SPDT) switch. Circuitron's Tortoise switch machine has two of them, as does the Walthers Layout Control System switch machine. The NJ International has three switches. Caboose Industries also sells some of its ground throws with a SPDT switch built in. In all of these cases, you don't need to add a SPDT switch of your own.

The Tortoise 2 is completely symmetrical. It doesn't

matter which way you hold it or whether you count from left-to-right or right-to-left. For powering a frog, you can use either the internal SPDT switch that's connected to terminals 2, 3, and 4 or the one connected to terminals 5, 6, and 7. For simplicity, I'll just refer to the 2, 3, 4 one.

Terminal 4 is the common terminal that goes to the frog. Terminals 2 and 3 connect to the two wires that make up your track bus.

To drive the Tortoise motor 3 you just need a typical double-pole double-throw (DPDT) switch (MTS-8), a bipolar light-emitting diode (LED-6), and a 12VDC wall transformer (DCTX-1241). These items are available from All Electronics (allelectronics.com).

NCE also sells DPDT switches (5240304). Cut the connector off the wall transformer. You don't have to worry about its polarity when hooking it up to the DPDT switch. One of these wall transformers can power about 40 Tortoises.

You'll want to align the handle of the DPDT with the movement of the Tortoise. So you may have to swap the wires going to the Tortoise to get this right. If the bipolar LED doesn't light with the color you want for the particular position of the Tortoise, just reverse the LED. Once you get the color that you want, you can make your connections permanent.

The Walthers LCS switch machine has an SPDT switch on each side 4. You can use either one. Its terminals are labeled NC, NO, and C 5. The C terminal is the common terminal and is wired to the frog. On some SPDT switches, the C terminal may be labeled COM.



4 The Walthers Layout Control System machine has two single-pole double-throw switches. The terminals are labeled normally closed (NC), normally open (NO), and common (C).

To control a Walthers LCS with DC power, use the same switch and LED as described for the Tortoise above 6. You'll also need a 1KΩ, ¼W resistor (291-1.0 k). The switch machine can also be controlled with DCC. For more on this, see the DCC Currents column in the May 2022 issue of *Model Railroader*.

The powered frogs on many turnouts call for a wire to be connected to the metal casting. If soldering a wire to the frog, be careful not to melt the plastic ties that hold it in alignment. That's why the latest turnouts from Walthers, with a solder terminal on the edge of the tie, are appealing. Peco Unifrog turnouts come with a wire attached to the frog.

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Feb 11-12 Costa Mesa, CA - OC Fair & Event Center
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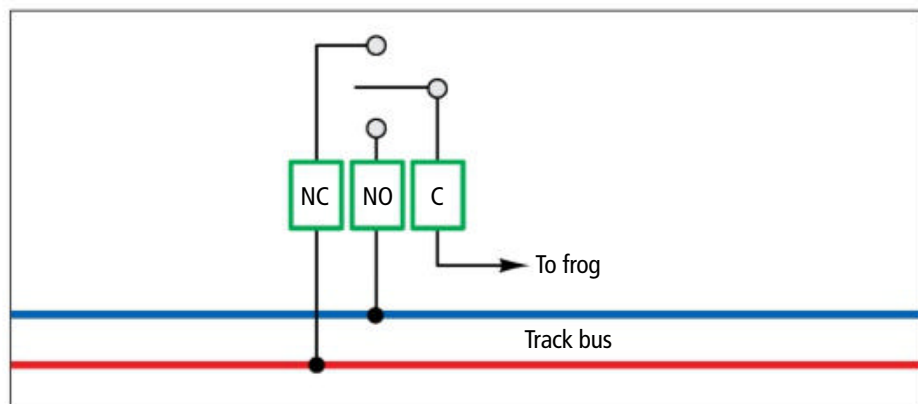
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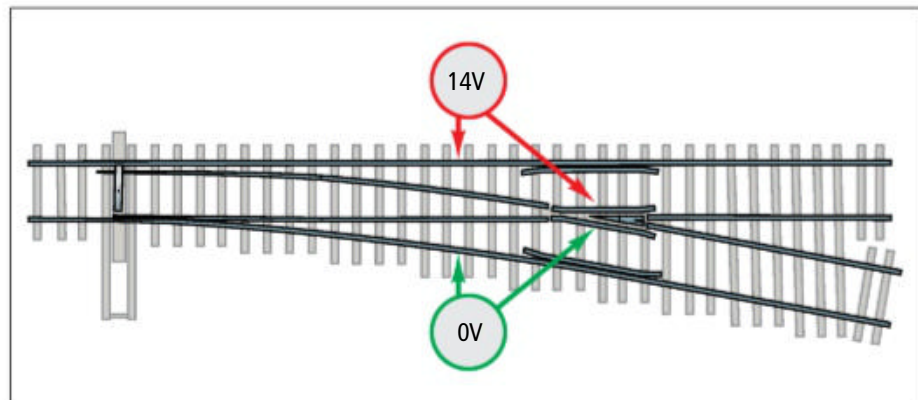
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5 This diagram shows how to wire any single-pole double-throw switch. The nomenclature NC and NO are irrelevant to your turnout's frog. The important thing is that when wired your frog ends up with the correct polarity.



7 With the turnout lined for the main, take two voltage readings at the indicated locations. The voltage reading should be about the same as the track voltage.

After connecting the common terminal of the switch machine's SPDT switch, temporarily connect the other two terminals (2 and 3 on the Tortoise or the NC and NO on the Walthers) to your track bus – one terminal to each wire of your bus or sub bus if you're using one. I say temporarily because you have a 50/50 chance of getting it right on the first try. It's possible to get it right the first time, but it requires you to carefully think it through. It's faster to simply attach some temporary wires, test your frog, and then swap them if you didn't get it right.

Some people try to test the frog wiring by using a locomotive. If you have the frog wired backward, the locomotive will short out

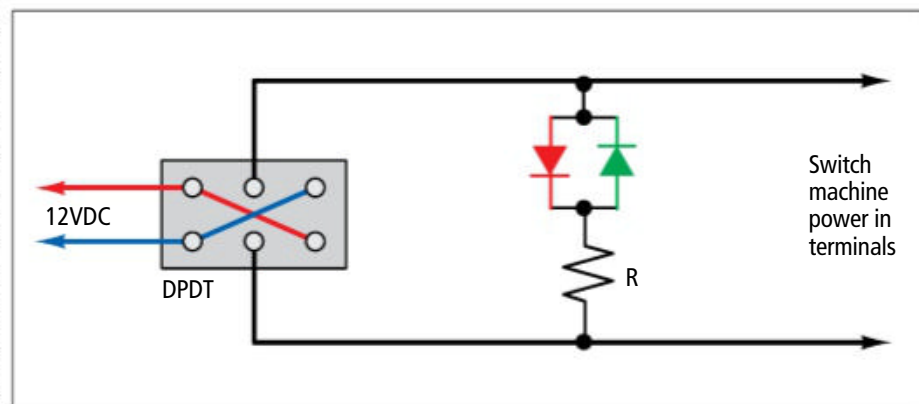
when it hits the frog. However, if the locomotive passes over the frog without any apparent problem, that unfortunately doesn't mean you have it right. It's possible that there's no power on the frog at all. You might be using a locomotive with all-wheel pickup, or it may have a stay-alive circuit.

There's a sure-fire way to test your frog wiring and it actually will take you less time than running a locomotive over the turnout. Grab a digital multimeter and set it to measure AC voltage. Measure the track voltage. The reading that you get is what you will be expecting when you test the voltage of the frog in a moment.

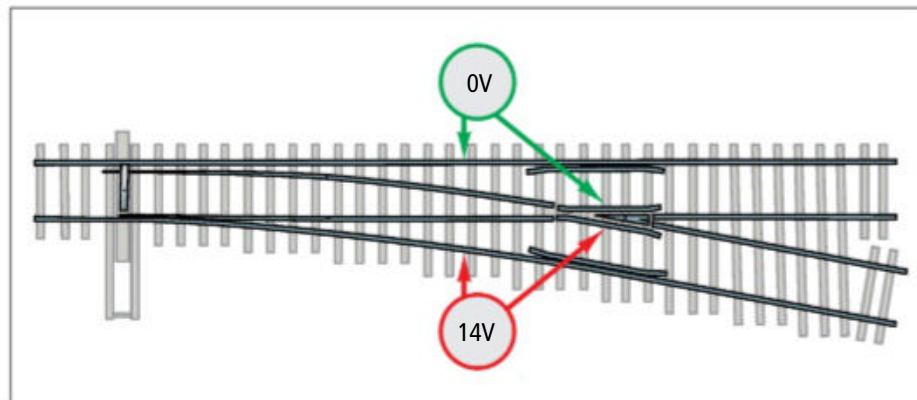
Don't worry if you don't get 14V (for HO scale). N scale may read



IF SOLDERING A WIRE TO THE FROG, BE CAREFUL NOT TO MELT THE PLASTIC TIES THAT HOLD IT IN ALIGNMENT.
— ALLAN



6 This diagram shows how to use direct current to drive a Walther's Layout Control System switch motor. You can't use the same circuit that you'd use for a Tortoise because the Walther's machine needs more power than an LED can take.



8 Use the same technique as in 7, set the turnout for the diverging route and take two voltage readings. The higher voltage should be on the diverging route.

less. Z scale definitely will. S may measure more. O and G will read higher. Most meters don't accurately measure DCC voltage. If you have an RRampMeter, it will accurately measure DCC voltages. The exact DCC track voltage isn't essential. The main thing is that you get the same reading as you got when you measured your track voltage a moment ago.

Photo 7 shows a turnout lined for the main. Using your meter, measure the voltage between the straight stock rail and the frog as shown by the red arrows. It should be the same as the track voltage. Then measure the voltage between the curved stock rail and the frog. The meter should read 0V.

If the red and green meter readings are backward, swap the wires going to the SPDT and test again. If this is successful, don't make a permanent connection just yet.

If both meter readings are

0V, this is the condition that using a locomotive may have missed. One, or both, of the wires going to the SPDT aren't getting track voltage or the frog wire isn't properly attached. Maybe one of the temporary connections isn't making contact or you aren't connected to the correct track bus wire. Find the problem and test again. Double check and measure the track voltage between both stock rails of your turnout to make sure the connections are good.

Now line the turnout so that the points are set for the diverging route. Notice in 8 that the 14V and 0V have swapped places. If you don't get both of these readings, then you could have the same problem when you were testing for the main line.

If all four of your voltage readings match up with what you see in 7 and 8, then you can make permanent connections to the SPDT. Now it's time to move on down the track! **MR**

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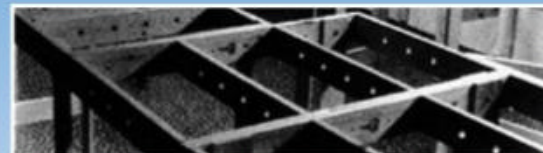
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Athearn Genesis 2.0 HO GE Dash 9-44CW

Athearn has released a General Electric Dash 9-44CW diesel locomotive in its Genesis 2.0 series. The model shouldn't be confused with the Dash 9 kit Athearn offered in its blue box series back in the 1990s. The Genesis model is newly tooled and features light-emitting diode lighting, railroad-specific details, and trucks with rotating bearing caps.

General Electric produced the Dash 9-44CW and variants, such as the Dash 9-40C, Dash 9-40CW, and Dash 9-44CWL, from 1993 to 2004. During that time, more than 3,650 units were built. The locomotives have a 16-cylinder 7FDL16 diesel engine, GMG197 alternator, and 752AH traction motors.

Our sample is decorated as Canadian National No. 2588. The full-size unit, serial number 50367, was built by General Electric (GE) under order No. 1877 in February 1998. The model is part of CN's EF-644c locomotive class. To

translate the alpha-numeric code, E stands for GE, F is for freight, 6 is for the number of axles, 44 is hundreds of horsepower, and c indicates the locomotive is from the third order.

Athearn's GE Dash 9-44CW model has a multi-piece injection-molded plastic body and a die-cast metal underframe. The Celcon handrails and stanchions are black and red as appropriate; the vertical handrails are white. The factory-installed wire grab irons are painted black, white, or red depending on their location. Additional detail parts include a cast brass Nathan K3L air horn on top of the long hood, an exhaust stack, and windshield wipers.

The plastic body is complemented with see-through etched-metal parts, including radiator grills, radiator and body side vents, and steps. Our CN sample also has see-through walkway grating on both sides of the long hood.

The 2588 features a pair of "teardrop" front windows, Canadian-style ribbed anticlimbers, and front and rear ditch lights. Both pilots have uncoupling levers, m.u. cables, and rubber m.u. and trainline hoses. The front pilot is fitted with a snowplow, while the rear has a CN-style rock plow and spare E and F coupler knuckles.

Following the prototype's lead, the Athearn model has clear front and rear cab window glazing and tinted side windows. Other cab features include two antennas, etched-metal sunshades, wind deflectors, and a small cab side mirror on the engineer's side.

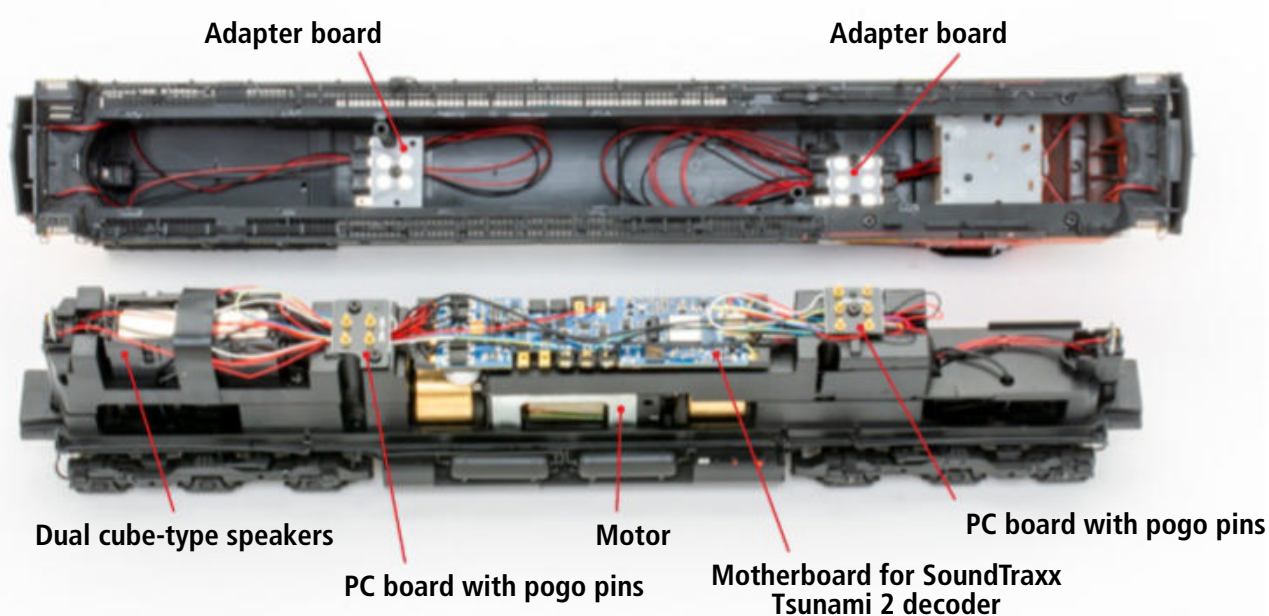
Unlike previous Genesis diesels, the Dash 9-44CW doesn't have a separate cab roof secured with magnets. However, the model does have a detailed cab interior, consisting of a floor, control stand, three seats, and a rear wall.

The underbody is also highly detailed, with cable bundles, an air dryer, and an air filter. The trucks have rotating bearing caps, lateral struts, bearing struts, brake cylinders, and brake line plumbing. Our sample has a brake chain on the brakeman's side rear truck.

A plastic fuel tank is secured to the chassis with a single screw. The tank is fitted with air tanks on the engineer's side, an external retention tank on the brakeman's side, and electronic fuel gauges on both sides.

In addition to the factory-installed parts, the model includes two small parts bags. One contains spare roller bearing caps. The other has a Wi-tronix antenna stand. The antenna is appropriate for 2010+.

To separate the shell from the chassis, I first removed the front and rear



Here's what the Athearn Genesis 2.0 HO scale General Electric Dash 9-44CW looks like with the shell removed. The motherboard for the SoundTraxx Tsunami 2 sound decoder is above the motor and flywheels.

PERFORMANCE CHARTS

DRAWBAR PULL	4.32 ounces
	60 freight cars on straight, level track

SCALE SPEED (DC)

VOLTS	SCALE MPH
9	2
10	9
11	19
12	30
13.2	38

SCALE SPEED (DCC)

SPEED STEP	SCALE MPH
1	4
7	31
14	58
21	68
28	70

draft-gear boxes and couplers. Then I removed the screw above the rear truck on the engineer's side. I had to unfasten the fuel tank to get at the fourth screw, which is partially covered by the front edge of the tank on the brakeman's side.

The motor, framed by flywheels, is centered in the chassis. A printed-circuit (PC) board mount is secured to the weight that spans the motor and front flywheel with screws. The motherboard for the SoundTraxx Tsunami2 sound decoder is clipped to the mount. A pair of downward-facing cube-type speakers are located in a plastic housing above the rear truck.

Two PC boards with pogo pins are attached to weights on the underframe. Corresponding adapter boards are screwed to the inside of the shell. Wires from the front boards run to the

light-emitting diodes (LEDs) for the headlights, front walkway light, ditch lights, number boxes, and ground lights. Wires from the rear boards go to the LEDs for the back headlights, ditch lights, and walkway light.

Our sample is painted in CN's red, white, and black scheme. The color separation lines are crisp, and the yellow sill stripes are opaque. Lettering and stencil placement matched prototype images that I found online. The model is painted, lettered, and detailed in its as-delivered appearance. Over the years the full-size 2588 received a new horn, among other changes.

For the most part, the paint was smooth and evenly applied. The white paint was a bit thick in the louvers on the engineer's side.

I compared the Athearn Dash 9-44CW to prototype drawings included in the 1997 edition of *The Car and Locomotive Cyclopedia of American Practice* (Simmons-Boardman Books Inc., 1997). The model's dimensions closely followed published data.

The Dash 9-44CW we received is equipped with a dual-mode SoundTraxx Tsunami 2 sound decoder, so I tested it in both direct current (DC) and Digital Command Control (DCC).

I used an Athearn power pack for the DC testing. The sounds came on at 6.5 volts (V), and the model moved 2 scale mph at 9V. The model achieved a top speed of 38 scale mph at 13.2V.

The number boxes and front and rear ditch lights were constantly illuminated in DC; the headlights were directional. The lights appeared to pulse in DC. Sound effects included the diesel engine rumble and the air compressor.

I used an NCE Power Cab for the DCC testing. As expected, I was able to enjoy a wider range of sound and light effects. At step 1, the model moved a 4 scale mph. At step 28, the six-axle road unit topped out at 70 scale mph. That matches the full-size locomotive's top speed on the dot. The speed range can be fine tuned using configuration variables.

The Athearn GE Dash 9-44CW models is quite hefty, tipping the scales at 1 pound, 5.2 ounces. With a drawbar pull of 4.32 ounces, the locomotive can haul 60 free-rolling freight cars on straight and level track.

Facts & features

Price: Direct-current model with 21-pin NEM connector, \$259.99; with dual-mode SoundTraxx Tsunami2 sound decoder, \$349.99

Manufacturer

Athearn Trains
2904 Research Rd.
Champaign, IL 61822
athearn.com

Era: February 1998 to present (as decorated)

Road names: Canadian National (red, white, and black); Atchison, Topeka & Santa Fe (warbonnet); BNSF Ry. (Warbonnet); Fortescue Metals Group (blue and silver); Norfolk Southern (Dash 9-40CW, as-delivered scheme); and Southern Pacific (scarlet and gray with speed lettering, four road numbers). Three numbers per scheme unless noted.

Features

- 42" metal wheel stubs on plastic axles, in gauge
- All-wheel drive and electrical pickup
- Etched-metal see-through grills, steps, vents, and walkways
- Illuminated front and rear walkway lights, ground lights above front trucks, number boxes, and marker lights (where applicable)
- McHenry scale couplers, at correct height
- Weight: 1 pound, 5.2 ounces

After finishing the workbench testing, I took the Dash 9 over to our Milwaukee, Racine & Troy staff layout. The locomotive navigated the turnouts at Williams Bay without incident in both directions. The locomotive comfortably hauled four 40-foot, 5-unit articulated well cars (a mix of loaded and unloaded) up the 3% grade between Williams Bay and Skyridge.

The GE Dash 9-44CW is one of those must-have models if you model today's Class 1 railroads. Kudos to Athearn for offering a newly tooled versions of this unit. With numerous railroad-specific bodies and a proven sound decoder, the six-axle road unit will be right at home on the point of a modern era freight train on your HO scale model railroad.
– Cody Grivno, senior editor



The rear of the CN 2588 is loaded with details. The etched-metal body and radiator side vents are see-through.



Prairie Shadows N scale covered hopper

Relative newcomer to the N scale market, Prairie Shadows Model Railway Co. recently released its newest model. The 3,800-cubic-foot cylindrical hopper accurately models a freight car that has roamed throughout North America since the late 1960s.

The 3,800-cubic-foot capacity four-bay cylindrical hopper was built in Canada by Hawker-Siddeley, Marine Industries, and National Steel Car between 1967 and 1975. These three companies built more than 4,500 cars for Canadian National and Canadian Pacific. Nearly 1,000 more were produced for leasing companies such as Procor and CNLX Canada Inc. These cars are still in operation today.

The covered hoppers were built to haul bulk materials like cement, potash, and industrial chemicals. Measuring about 5 feet shorter than its 4,350- and 4,550-cubic-foot capacity counterparts, the covered hoppers were built in multiple variations. The 100-ton capacity car was produced with either four round hatches or a continuous trough hatch.

Our sample is decorated as CNLX No. 7046, a patched-out former Canadian National car. CNLX's 7000 through 7999 series features cars built for CN by National Steel Car from January to May of 1975 in the 369000 through 369999 series. Car No. 7046 was built with a capacity of 202,000 pounds, which was later increased to 263,000 pounds. This batch of cars was built with four round hatches and 11-panel bodies.

The heralds and patchout colors on the Prairie Shadows model match what the car would have looked at after it was initially relettered. The CANADIAN NATIONAL lettering, "wet noodle" herald, and capacity data are all opaque. The CNLX reporting mark and road number

applied over the dark gray patch are in a red stencil font.

Newer photographs of the car show herald, road name, and capacity data has almost completely faded. The reporting mark and road number have been reapplied, this time with black paint.

The Prairie Shadows 3800 covered hopper has an injection-molded plastic one-piece body that follows the lines of the prototype. Separate, factory-applied crossover platforms, end cages, and brake wheel and cylinder (B end only) add to the model's realism. The running board is a see-through etched-metal piece with the prototypical number of support brackets.

Our sample has an 11-panel body per the prototype, but those that were delivered with six-panel bodies are given the same treatment by Prairie Shadows. As such, CNLX 7046 has round hatches. Other versions, like those decorated for Canadian Pacific, have a trough-style hatch cover. The brake rigging is also prototype specific.

Along with the trainline and brake rigging detail, four separately-applied outlet gates add to the detail on the underside of the model. The car rides on 100-ton trucks with correctly gauged metal wheels. The body-mounted Micro-Trains couplers are at the correct height.

The cylindrical covered hopper is painted in the same light gray that it wore when delivered to CN. The herald on each side is slightly canted.

The herald, lettering, capacity numbers, and small stencils are crisply printed with no bleeding, and all but the COTS panel are legible under magnification. The capacity information is accurate, and the yellow conspicuity striping is appropriately placed. The car's dimensions closely matched data in the January

1977 edition of *The Official Railway Equipment Register*.

Prairie Shadows accurately captured the lines of this covered hopper. The model looks great and fits into a variety of eras. I'm excited to see future N scale offerings from Prairie Shadows. – Bryson Sleppy, associate editor

Facts & features

Price: \$29.99

Manufacturer

Prairie Shadows Model Railway Co.
prairieshadows.com

Era: 1965 to present (varies depending on paint scheme)

Road names: Canadian National (gray with "wet noodle" herald and CNLX reporting marks in six road numbers; gray with website and black herald in seven numbers; gray with red "wet noodle" herald; and rainbow scheme in one number), Canpotex (gray in five numbers; gray with flag in one road number), Canadian Pacific (black, script and Multimark schemes), and Procor (gray with "Flying P" logo). Twelve numbers each unless noted.

Features

- 100-ton trucks
- Body-mounted Micro-Trains couplers, at correct height
- Detailed train lines
- Metal wheels, in gauge
- Multiple brake rigging variations
- See-through etched-metal running boards
- Separate, factory-applied roof hatches and outlet gates
- Six- or 11-panel body
- Weight: 1.3 ounces (about .2 ounces more than NMRA RP 20.1)



Walther's N scale modern steel warehouse

A modern steel warehouse that could be a standalone trackside business or part of a larger industrial complex is being offered in N scale by Wm. K. Walther's. The injection-molded styrene Modern Steel Warehouse kit is easy to assemble, finely molded, and generic enough to look good in any industrial setting from the 1970s to today. The walls and roof include molded cut lines on the inside to make kitbashing easier.

Prefabricated all-steel buildings started to take off with the development of the Quonset hut in World War II. The building method was developed to allow temporary structures to be erected quickly by unskilled builders using ordinary tools. But in the mid-1970s, better technology and the growth of computer-aided design made large, permanent corrugated-panel buildings like the one this kit depicts practical, inexpensive, and popular. Walther's kit is modeled after a building with a sturdy brick-clad concrete block base, a practical consideration for a business served by frequent truck traffic. The base also supports the elevated concrete floor in the warehouse area, which is at the right height for truck and boxcar loading.

The building's superstructure is made of just six parts: four walls, molded in tan styrene; a flat roof, in a concrete color; and an open foundation, also in concrete. Two medium-gray sprues hold loading doors, window frames, roof details, and other small parts. The kit also includes a sheet of clear acetate window glazing and a small sheet of heavy cardstock signs.

I removed the parts from the sprues with a sprue nipper, then cleaned up the nubs with medium- and fine-grit sanding sticks. The parts were all sharply molded and free of flash.

During assembly, I noted indented cut lines inside the walls, roof, and foundation. These would make it easy to kitbash the structure into an L-shaped building; a long, low-profile building; or a pair of smaller rectangles. You could also combine this kit with another of the same structure, or Walther's Modern Transload Terminal (item No. 933-3856), which shares a lot of the same parts. (The difference between the two is the Modern Transload Terminal has a roll-up rail door and a long plain wall in place of the exterior rail loading doors of this kit.)

Assembling and painting the kit took me about five hours, not counting paint drying time. The structure itself went together quickly. Most of that time was spent brush-painting the molded-in and separately molded details, which in N scale requires a steady hand.

The instructions suggest assembling the walls on the foundation piece. I noted that the end walls are a bit longer than the side walls; the foundation fits under the side walls, but inside the ends. Instead, I assembled the walls to each other, upside down, to ensure the tops of the walls would be aligned. I added .060" styrene corner braces inside to keep them square, then glued in the roof, and finally the foundation. I airbrushed the walls in a medium yellow-tan acrylic, masked them off with painter's tape, and sprayed the roof and detail sprues with a rattle-can gray primer.

While adding the freight doors, I decided to model one of them open. I cut off all but two panels of the door and glued a slab of .060" styrene, painted Concrete, inside the building to represent the raised floor.

After that dried, I hand-painted the base Light Freight Car Red, brushed the truck bumpers and weather bellows Tarnished Black, and painted the belt

line, foundation, and sills Concrete. There are no mounting points molded into the flat roof for the roof vents and air conditioners, letting you place them wherever you want. I glazed the windows with .015" clear styrene, instead of the provided acetate sheet, so I could glue it in with styrene cement. Finally, I cut out the signs I wanted from the cardstock sheet and glued them on with Testor's Clear Parts Cement.

In my opinion, the best models are those that don't stand out, but blend in, looking like something you'd see every day in the real world. Walther's has succeeded in producing such a structure with its Modern Metal Warehouse kit (and its twin, the Modern Transload Terminal). Either of these industries would look like it belonged as the anchor of a suburban industrial park or as part of a larger factory complex on your N scale layout. – Senior associate editor Steven Otte

Facts & features

Price: \$59.98

Manufacturer

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

Era: 1960s to present

Features

- Clear acrylic window glazing
- Footprint: 6⁵/₁₆" x 10¹/₂"
- Injection-molded plastic, in three colors
- Molded cut lines for kitbashing
- Printed heavy paper signs
- Rail doors spaced for 70-foot boxcars
- Separate doors and windows
- Weather bellows on rail doors

Working the Ford Drill

Spring training is right around the corner, reminding me of my schoolboy years when I covered my high school's games for local papers. Away games in Suffern, N.Y., were a special treat because I could peek at Erie Lackawanna's operations between innings and sometimes between pitches. Alco road switchers leading strings of Stilwell coaches on commuter schedules made it a busy location.

But the Ford Drill is my most vivid memory. Erie Lackawanna's lead to the sprawling Ford assembly plant in Mahwah, N.J., immediately across the state line, curled close enough beyond the right field fence that a long fly ball might have rolled to the track. Even when I had to keep my eyes on the game, the Drill's normally assigned Electro-Motive Division SW9 entertained me with its lovely 567 engine chant as it throttled up during switching.

The plant was the world's largest when it was completed in 1955, its dedication on September 29 important enough to attract Henry Ford II. Erie estimated that Mahwah would add \$9 million per year to its revenue, likely lifting the spirits of railroad officials in attendance suffering from Hurricane Diane's heavy damage to their lines that August.

Erie built two new yards to handle the business. Hillburn Yard, just off the main, had five classification tracks and handled through freight set-outs and pick-ups. The lead I watched connected Hillburn with the Ford Yard at the plant itself, built as a seven-track storage yard and later expanded to 13 tracks. A one-story building 2,100 feet long housed the assembly line. It



Here comes the Ford Drill behind Erie Lackawanna SW9 No. 436, trailing an empty reefer from a local beer distributor and passing SF Tower at Suffern, N.Y. on a gloomy December 26, 1974.

Photo by Jerry Dziedzic

had two of its own through tracks, into which the Ford Drill shoved cuts of cars arranged in proper order for unloading. For example, frames might be at the far end because they hit the assembly line first; next, motors, transmissions and tires, then body parts.

Erie Lackawanna records from 1973 show that weekdays had Ford Drills working the plant around the clock. Weekends were slower but still required several tricks. ("Trick" is a common railroad term for shifts. First trick refers to the day shift; second, afternoon; and third, midnight.) These Ford jobs absorbed five crews, some of which also served small customers outside the plant.

Seth Neumann models Union Pacific operations in 1999 on former Western Pacific lines in California's East Bay area. Two prototype plants, Ford's in Milpitas and General Motors/Toyota's in Fremont, inspired him to feature a credibly compressed facility that suggests Mahwah and its contemporaries. It's served from a nearby yard,

Warm Springs, with three classification tracks, four storage tracks, and an arrival/departure track.

Seth added a transload facility that handles inbound plastic pellet and bulk liquid loads for the plant and other customers. Traffic includes 60- and 86-foot auto parts cars for the assembly line, coil cars and scrap gondolas for the stamping plant, bi- and tri-level auto racks for loading, and covered hoppers and tank cars for the transload. Plant and transload capacities are 30 and 26 cars, respectively, enough work to keep two tricks busy during operating sessions. Indeed, Ford at Milpitas, also completed in 1955, was as much a boon to Western Pacific as Mahwah was to Erie.

It's easy to put auto operation on a layout if space constraints discourages such

extensive facilities. Boxcars were the mainstay of automobile transport from the Model T to the 1950s. Railroads owned large numbers of 40- and 50-foot cars, some with end doors, used for new car shipments. Any town large enough to support a dealership can receive a carload of Fords, Chevrolets, or Chryslers, so all it takes is the local spotting a car at a freight platform with a ramp.

Railroaders and automakers have long relied on one another. Today, the Association of American Railroads boasts about rail "moving nearly 75 percent of America's new cars and trucks."

Jeff Wilson's book *Railroading & The Automobile Industry* (available at Kalmbach-HobbyStore.com) describes auto manufacturing and its rail traffic in enough detail that any modeler can satisfy the new car bug. **MR**



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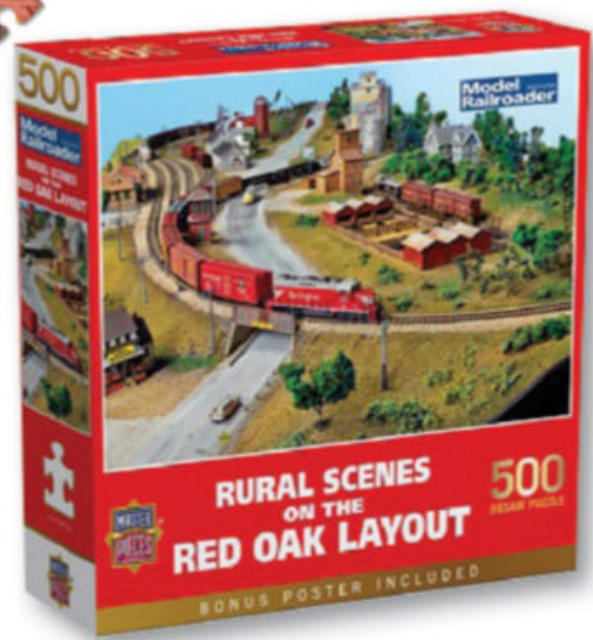
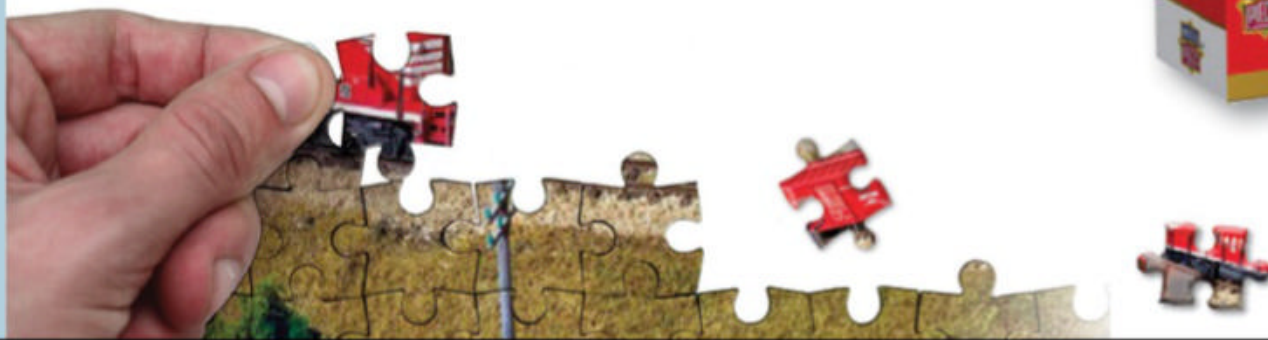
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Former Canadian National SW1200

No. 1317 spots a pair of covered hoppers on a team track that used to serve a long-closed Railway Express Agency building. Jim Sloan of Sarnia, Ont., photographed the scene on his HO scale JSSX Railway short line. The switcher, an older Athearn model, was detailed by Jim and painted by his friend Sean Steele. Jim also patched out and weathered the covered hoppers and scratchbuilt the loading conveyor. The REA building is by Walthers.



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.



Delaware & Susquehanna local LW2, today powered by an EMD GP38-2, has eased into Track 1 to pull empty boxcars out of Smurfit-Stone Container in Palmerton, Pa. The local most often arrives late in the day, as it did here, when the street isn't so busy. Phil Monat of Bronx, N.Y., photographed the scene on his HO scale layout. Phil kitbashed both Smurfit-Stone as well as the large Rolling Rock brewery across the street.

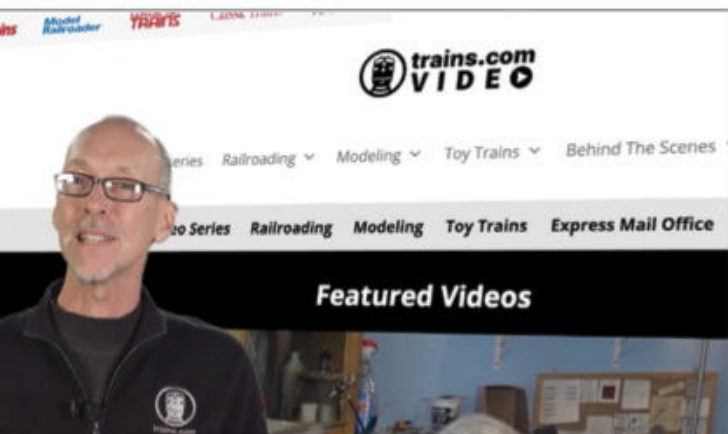
Northern Highlands RR No. 600, a new EMD GP20, makes its way up the steep grade railroaders call the "Stairway to Heaven" that circles the old Playland amusement park. In the pocket is one of the railroad's last Mallets with a coal drag waiting to top the railroad's crest and through Foundation. The photos and HO scale modeling are by Rene Mack of Wyckoff, N.J.



Norfolk Southern Train H84, powered by ex-Conrail EMD SD45 No. 6083, is heading for Philadelphia with chemical tanks for the DuPont plant. Matthew Richards of Chesapeake, Va., photographed the action on his HO scale NS Harrisburg Division, which is set during the NS/CR transition. The locomotive and tank car are both Athearn models. The building is from Woodland Scenics and the graffiti was hand-drawn on scale plywood.



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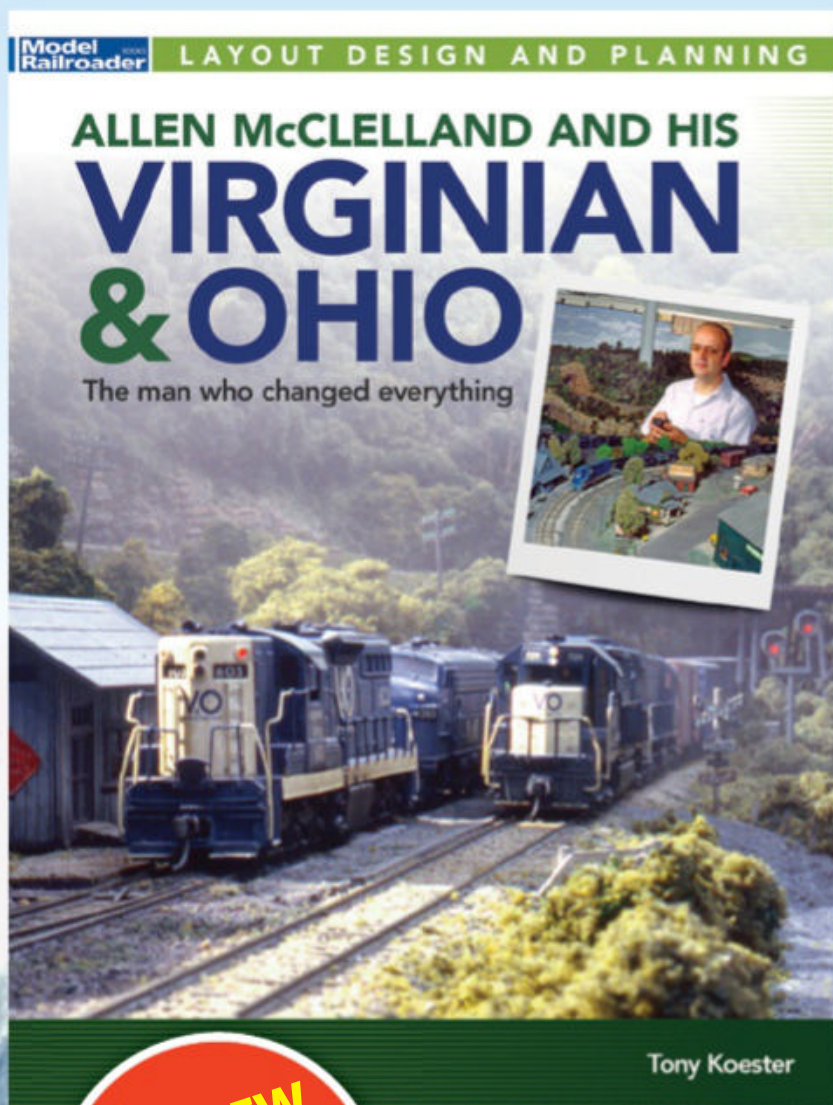
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Schedule of Events

AL, MOBILE: Model Train Show sponsored by South West Alabama Railroad Modelers (SWARM). Via Health, Fitness and Enrichment Center, 1717 Dauphin Street. March 4-5, 2023, Saturday 9:00am-5:00pm; Sunday 11:00am-4:00pm. Admission \$8.00, family \$15.00, under 10 free. Operating layouts, demonstrations, and dealers. Contact Charlie Boyer, 251-454-0572 (before 9pm CST), email: charlieboye66@att.net, or Glenn Samuel, 205-914-0693, email: gasamuel@aol.com

CO, DENVER: Rocky Mountain Train Show. April 1-2, 2023. National Western Complex, 4655 Humboldt St., Denver, CO 80216. Saturday, 9:00am-5:00pm, Sunday 9:00am-4:00pm. 3 acres of model trains, all scales, 30 layouts, 700 sales tables, clinics and more. Admission \$13.00, under 12/scouts in uniform FREE. Discounted tickets available for military/first responders through VetTix.org. Free Parking. 303-364-0274, www.RockyMountainTrainShow.com

FL, MELBOURNE: The Melbourne Train and Toy Show. Azan Shrine Center, 1591 West Eau Gallie Blvd, Melbourne, FL 32935. Saturday, March 4, 2023, 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, SARASOTA/BRADENTON: 44th RealRail Train Show. February 18-19, 2023. Saturday 10am-4pm, and Sunday 10am-3pm. Bradenton Area Convention Center, 1 Haben Blvd., Palmetto, FL. Door prizes, interactive Lionel layout, kids' HO layout, Hobby Mart with 100+ vendors. Adult admission \$8, 13 and under free w/paid adult. CDC guidelines apply. Contact David Fontaine for more information 941-685-2221 or david_f_34205@yahoo.com

GA, SAVANNAH: CANCELLED - Coastal Rail Buffs 34th Annual Model Railroad and Train Show, March 4-5, 2023. www.coastalrailbuffs.com

IA, SIOUX CITY: Cosmopolitan Train Show. Marina Inn Conference Center, 385 E. Fourth St., South Sioux City, NE 68776. March 11-12, 2023. Saturday, 9am-4pm and Sunday, 10am-4pm. Adults \$8, kids 12 and under free w/adult. 180+ vendor tables, 12+ layouts, 2 seminars & activities for all! Concessions, free parking. Contact: John Koskovich, 712-898-6935, johnkoskovich@aol.com

IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the Illinois State Fairgrounds. Sunday, March 12, 2023. 10:00AM-4:00PM. Early bird shopping starts at 9:00AM for \$10.00. Admission fee \$5.00 from 10:00AM to 4:00PM. Free parking. Largest show in downstate Illinois! For info call Ray at 217-544-4295 or Mike at 217-899-3100 or visit www.springfieldtrainfair.com

IL, URBANA: Lincoln Square Train Show, 100 W. High St., Urbana, IL 61801. March 25-26, 2023. Saturday 10am-5pm, Sunday 11am-4pm. Hosted by Illinois Terminal Division, NMRA. FREE public admission. Display layouts in multiple scales. Free parking and wheelchair accessible. Refreshments available. Vendor table info at http://itd.illinoisterminaldivision.org/show/show.htm or via: trainshow@illinoisterminaldivision.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, February 26, 2023, 9:30am-2:00pm (Chicago time). Adults \$5.00, youths 6-12 \$1.00, 5 and under free. Contact: Dave Novak at trains86@myyahoo.com or 219-778-3195. (Masks are optional.)

IN, MIDDLEBURY: Essenhaus Train Show. Saturday, February 18, 2023, 9:00am-2:30pm. On the Das Dutchman Essenhaus campus, 240 US 20. All gauge, operating layouts, repairs, parts dealers, selling and trading. Display tables \$25.00 each. Admission: \$4.00/person, \$10 for groups of 3-4, and \$14 for groups of 5+. (Children under 3 FREE w/ adult). Essenhaus.com or call 800-455-9471 (x470).

IN, PERU: Miami County Model Train Show and Swap Meet. Saturday, April 8, 2023, 10:00am-3:00pm EST. Miami County Fairgrounds, 4-H Project Building, 1029 W 200 N, Zip: 46970. All scale trains, books, and memorabilia. \$3.00/person. 6 and under free. Free parking! Vendor tables \$20. Questions, contact Paul Forman at 765-432-1052.

IN, TIPTON: Antique Toy & Train Show. Tipton 4-H Fairgrounds, 1200 S. Main St., (State Rd 19), Tipton, IN 46072. Saturday, March 18, 2023, 11:00am-3:00pm. Adults \$4.00, 13-18 \$1.00, 12 & under free. 100+ tables, all gauges, kits, free-parking, food/drink available, handicap accessible. Contact: David Moree, 4402 East 100 South, Kokomo, IN 46902, 765-457-1044 or 765-860-8062

KS, LAWRENCE: Lawrence Model Railroad Club 21st Annual Train Show and Swap Meet. Crown Toyota, 3400 S. Iowa St., Lawrence, KS 66046. March 4-5, 2023, Saturday 9am-5pm; Sunday 9am-3pm. Admission: Adults \$8.00, children 12 & under free with paid adult. Contact: Jim Turner, 785-393-6207 or more information at: www.lawrencemodelrailroadclub.org

MA, AUBURN: Worcester Model Railroaders Annual Show at Auburn Elks Club. 754 Southbridge St., Auburn, MA 01501. Sunday, February 26, 2023, 10am-3pm. Admission: \$6.00, children under 12 free. Handicapped accessible. Two floors of dealers, exhibits, modular layouts. Contact: Ralph Kimball, 508-868-5189, ralphkimball@charter.net or www.wmrr.org

MI, SALINE: The Ann Arbor Model Railroad Club 53rd Annual Train Show & Sale. February 18-19, 2023. Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Saline Middle School, 7190 N. Maple Rd., Saline, MI 48176. Admission \$6.00, under 10 free w/paid adult. 300+ tables, free clinics, free parking, shuttle buses. Masks recommended for entry. Contact: https://www.hvrrhs.org/annual-train-show.html 734-426-5100 Wednesday evenings.

MI, WYOMING (GRAND RAPIDS): Greater Grand Rapids Spring Train Show. Saturday, April 15, 2023, 10:00am-3:00pm. HSB Inc., 5625 Burlingame Avenue SW. Adults \$5, under 12 FREE, 203 vendor-display tables, RR Books & Photos, Trains in all scales, Food, Lionel "Thomas-the-Train" drawing, door-prizes and free parking. Vendor tables \$23 each. Contact Tom Klonowski, 847-691-1163, trainshow@grvrrc.org or www.grvrrc.org

NC, ASHEVILLE: Asheville Train Show. Western North Carolina Agricultural Center. February 24-25, 2023. Friday noon-7:00pm and Saturday 9:00am-5:00pm. Admission \$6.00, under 10 free. All scales, all gauges, collectibles, artifacts, operating layouts, hundreds of vendor tables. More: www.Asheville-Trainshow.com

NC, GREENSBORO: Train Show, Lewis Recreation Center, 3110 Forrest Lawn Dr, Greensboro, NC 27455. March 25-26, 2023. Saturday 9:00am-5:00pm & Sunday 10:00am-4:00pm. Admission \$10 (includes both days), \$1 off with flyer, children under 12 free with adult. Visit us: www.carolinamodelrr.org. Contact Kenn at kcassell@twc.com or call 336-501-0233

NJ, CLARK: Jersey Central Train Show & Sale. Mother Seton Regional High School, 1 Valley Road, Clark, NJ 07066. Sunday, March 5, 2023, 9:00am-3:30pm. Admission: \$7 adults, children under 12 free, \$14 family. Model trains, railroadians, photos, slides, books and videos. Refreshments available. For information: Heinz Ricken, hricken@gmail.com, 908-272-3910, or Mitchell Dakelman, dakelmanm@aol.com, 908-208-2522

NJ, EAST RUTHERFORD: METCA/NYSME Train Show. Saturday, March 25, 2023. St. Joseph's School, 120 Hoboken Road, East Rutherford, NJ 07073. 9am-2pm. METCA/NYSME members admitted free at 8am, public at 9am. Admission: \$5.00 per person 16 and up. Layouts, refreshments, and door prizes. For tables and information, contact the NYSME Office at 201-939-9212 or email: contact@modelengineers.org

NY, HOWARD BEACH: CANCELED- METCA/TCA Train Show. Saturday, March 4, 2023. St. Helen's Church Hall, 8309 157 Ave., Howard Beach, NY 11414. 9am-2pm. METCA/TCA members admitted free at 8am, public at 9am. Admission: \$5.00 per person 16 and up. (METCA members free.) Layouts, refreshments, and door prizes. For tables & information, email Bob Amling at: metcamail@metca.org

OH, TOLEDO: Greater Toledo Train & Toy Show. Owens Community College (SHAC), 30335 Oregon Rd., Perrysburg, OH 43551. Sunday, March 12, 2023, 11:00am-3:00pm. "Early Birds" 9:00am-3:00pm. Adults \$7, Early Bird Adults \$10, Children 12 and under FREE w/ paid adult. Contact: Randy Ramsey, 1566 South Ave., Toledo, OH 43609, 419-215-4181, email: toledotoymasters@gmail.com, website: www.toymasters.org

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

OR, PORTLAND: Willamette Model Railroad Club Swap Meet. Kliever Armory, 10000 NE 33rd Dr., Portland, OR 97211. Saturday, March 11, 2023. 9:30am-3:00pm. Admission: \$6.00 Adults, 12 & under free with paid adult. Free Parking. Food available. 8-ft vendor tables: \$30/\$35 w/ elect. Website: wmrrc.com For information or Table Reservations contact: Roger Rees, wmrcswapmeet@gmail.com, or 503-256-2248

PA, ALLENTOWN: ATMA Spring Thaw Train Meet. Allentown Fairgrounds Agri-Plex, 1925 W. Chew Street, Allentown, PA 18104. February 25 & 26, 2023. Saturday 9am-4pm, Sunday 9am-3pm. Admission: \$10. Advance tickets \$15, admitted at 8am. 12 and under FREE with adult ticket purchase. For more information visit www.allentowntrainmeet.com or call 610-442-2859

PA, BEAVER FALLS: BLRHS Frosty Rails Train Show. Saturday, February 11, 2023, 10:00am-3:00pm. Chippewa Township VFD Social Hall, 2568 Darlington Rd., Beaver Falls, PA 15010. Adults \$5.00 (\$4.00 if you mention Model Railroader ad). Children under 12 free. Tables \$25 each. For show info: blrhsinc.org or table reservations: Tom Bianculli, tjbian64@gmail.com 412-585-3614

PA, MONACA: Beaver County Model RR Spring Train Show & Sale. Monaca Turners, 1700 Old Brodhead Road. Sunday, April 2, 2023, 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

UT, OGDEN: The Hostlers Model Railroad 2023 Festival. Ogden Union Station, Historic 25th St. & Wall Ave. March 3-4-5, 2023, Friday 3:00pm-8:00pm; Saturday 9:00am-6:00pm; Sunday 9:30am-3:00pm. Admission: adults \$8, adult weekend pass \$12, 12 and under FREE. Layouts - all scales, many vendors, LEGO layout. Biggest train show in the Intermountain West. Information: 801-544-5749, 801-394-4952, www.hostlers.info

VT, ST. ALBANS: Vermont Rails Show. Collins Perley Sports & Fitness Center, 890 Fairfax Rd., St. Albans City, VT 05478. (Interstate 89, Exit 19). Saturday, March 11, 2023, 10:00am-4:00pm. Adults \$6.00, children 6-12 \$2.00, children under 6 free. Sponsor: NWV Model Railroad Association. Contact: Ron Piro, 802-598-0905, or visit: www.nwvrailroad.org

WA, CHEHALIS: Lewis County Model Railroad Club, Annual Spring Train Show and Swap Meet. Southwest Washington Fairgrounds, Blue Pavilion Building, 2555 N. National Ave., Chehalis, WA 98532. April 1-2, 2023. Saturday 10:00am-4:00pm and Sunday 10:00am-2:00pm. Admission \$5.00. Free parking. Contact information: Ted, 360-985-7788, or email: TedsTrains@LewisCounty.com

WA, SPOKANE: River City Modelers Spring Train Show. Spokane Fairgrounds, 404 N. Havana. Sunday, March 5th, 9:30am-3:30pm. Admission: \$6 for adults, 12 & under free. 200+ tables of Railroad-related items for sale, operating layouts, Free-MO, Operation Lifesaver & more. Free Parking. For table rental or general info, contact: Shirley Sample, 509-991-2317 or email: shirley@busnws.com

WI, LA CROSSE / ONALASKA: La Crosse & Three Rivers Railroad Club's 42nd Annual Model Railroad Show. Omni Center, 255 Riders Club Road, Onalaska, WI 54650. March 18-19, 2023. Saturday 9:00am-5:00pm, Sunday 10:00am-3:00pm. Adults \$8.00, \$7.50 with a non-perishable food item, children 11 and under free w/ adult. Info: Belva Thompson, 608-780-7364

WV, CHARLESTON: KVRA Model Railroad Show. Charleston Convention Center. 200 Civic Center Dr., Charleston, WV 25301. March 11-12, 2023. Saturday, 10am-6pm & Sunday, 10am-4pm. Admission \$5.00, children 12 and under free. Tables \$30.00. Clinics, layouts, new and used equipment for sale. Website: www.kvrailroad.org. Contact Joe: 304-539-6721 or kvrrailroad@gmail.com

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Allen McClelland's Virginian & Ohio.	67	Model Rectifier.	7
Atlas Model Railroad Co., Inc.	5	Modelers Marketplace.	68-69
Axian Technology.	53	NCE Corp.	36
Bachmann Industries, Inc.	76	Nicholas Smith Trains.	17
Broadway Limited Imports.	16	PECO Products.	15
Circuitron.	17	PIKO America.	13
Custom Model Railroads.	55	POLA G/Märklin, Inc..	6
Digitrax.	53	Rapido Trains.	2
Entertainment, Inc.	61	Ready To Roll, Inc.	53
Evergreen Scale Models.	53	Right on Track Models.	17
Great Midwest Train Show.	53	Showcase Express.	55
Great Train Expo.	53	Sievers Benchwork.	55
Greenburg Show.	53	SoundTraxx.	55
Halfpricehobby.com.	53	Spring Creek Model Trains.	17
Kato USA, Inc.	75	Train World.	55
LGB.	51	Trains.com.	66
Loco-Boose Hobbies.	55	Trainz.com.	55
Menard, Inc.	9	Wm. K. Walthers, Inc.	3
Micro-Mark.	17	Woodland Scenics.	21
Model Railroader's Red Oak Layout Puzzle.	61	Yankee Dabbler.	17

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The learning never stops



Greg Wiggins (left) and Glenn Glasstetter discuss Greg's unfinished model of the famous Howe Scale complex at Rutland, Vt. Jim Dufour photo

Those of you who are relatively new to the hobby of scale model railroading probably envy those of us who have been enjoying it for the past hundred years or so. Obviously, we know everything there is to know about how to design a track plan, build our benchwork and scenery, lay track, wire our railroads, and so on.

That might be true were it not for one important factor: progress. Quite recently, I found myself thinking that I am relieved that my railroad is working as well as it is, because a lot of new features that have come along recently are well above my pay grade.

But no one is expected to know and do everything. Trains.com and *Model Railroader* are here to help, and National Model Railroad Association (NMRA) conventions and Railroad Prototype Modelers (RPM) conferences are guaranteed to send you home with helpful new

information on a wide variety of topics about modeling and prototype railroading alike.

One of the highlights of most NMRA conventions is layout tours. Helpful as still photos and videos can be, there's nothing quite like seeing a model railroad up close and personal.

Which brings us to the accompanying photo by one of the most gifted modelers I know, Jim Dufour, whose superb HO Boston & Maine Cheshire Branch was featured in *Model Railroad Planning 2021* (still available in the Kalmbach Hobby Store). Jim attends a lot of NMRA and RPM events and keeps his cellphone camera ready so he can share images with the rest of us, including this photo of Glenn Glasstetter taking a hard look at Greg Wiggins' unfinished model of the famous Howe Scale structures at Rutland, Vt.

Glenn is obviously taking more than a glance at Greg's

structures. But he's no neophyte modeler playing 20 Questions. Glenn's modeling a prototype-based division of the Chesapeake & Ohio set in 1952 to take advantage of the steam-to-diesel transition period. He's a former president of the NMRA's Northeastern Region and has six of the required seven certificates required to achieve Master Model Railroader status.

"Greg is an incredible and prolific scratch-builder," Glenn recalls, "and we were going over some adjustments he has been making while building the model. He has made more use of styrene and Tichy details for scratch-built structures per square inch than anyone I know of. Even with all of the new construction he is

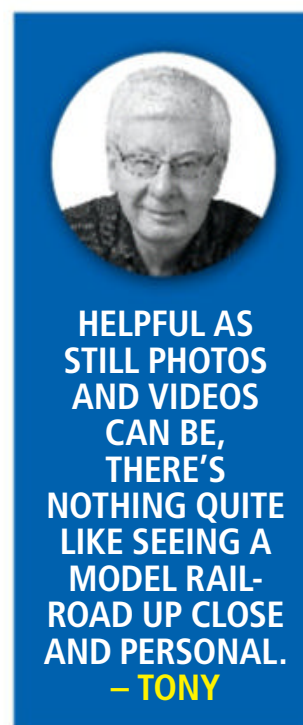
working on to complete his Rutland and Delaware & Hudson layout, he is replacing the original kitbashed models he made for his Rutland engine terminal with scratchbuilt structures."

I see several good lessons here. First, don't hesitate to replace your earlier efforts with improved models as the railroad continues to evolve. But consider using stand-ins to improve the overall look of the layout until you have the required information and/or time to build accurate models of the structures.

Discuss your models with other veteran modelers. Glenn may have been asking questions about Greg's depiction of Howe Scale, but he could have been offering a tip or two. For example, had I been there, I would have asked about cross-bracing to ensure the walls didn't bow in.

Finally, as a veteran modeler, don't be afraid to show your ignorance. We can't know it all, or even most of it. Mention Arduino-based circuits, and one half of my brain says, "Pay attention – these things have potential!" while the other half suddenly plays a dial-tone signal.

I recall sitting in on a Jack Burgess clinic – always worth the time – and hearing him mention a shortcut for drawing straight lines using Photoshop using the Paintbrush and Rubber Stamp (clone) tools. That alone saved me so much time that it paid for the cost of attending that convention. **MR**



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