

WIRE REVERSING SECTIONS IN DCC p.46



**Bachmann HO
SC-44 tested** p.48

April 2021
ModelRailroader.com

Model Railroader®

Maryland masterpiece!

**A layout designed for realism
and trouble-free running** p.34

**How to detail
and weather
modern
tank cars** p.24



Childhood memories
influenced this
26 x 30-foot HO
layout. See page 34.

PLUS

Model railroading in life-size 1:1 scale! p.42

Make simple, great-looking evergreens p.32

Build a maintenance road gate in one evening p.28

**BONUS
ONLINE
CONTENT
CODE PG. 4**

X72 BOXCAR

**HO
SCALE**

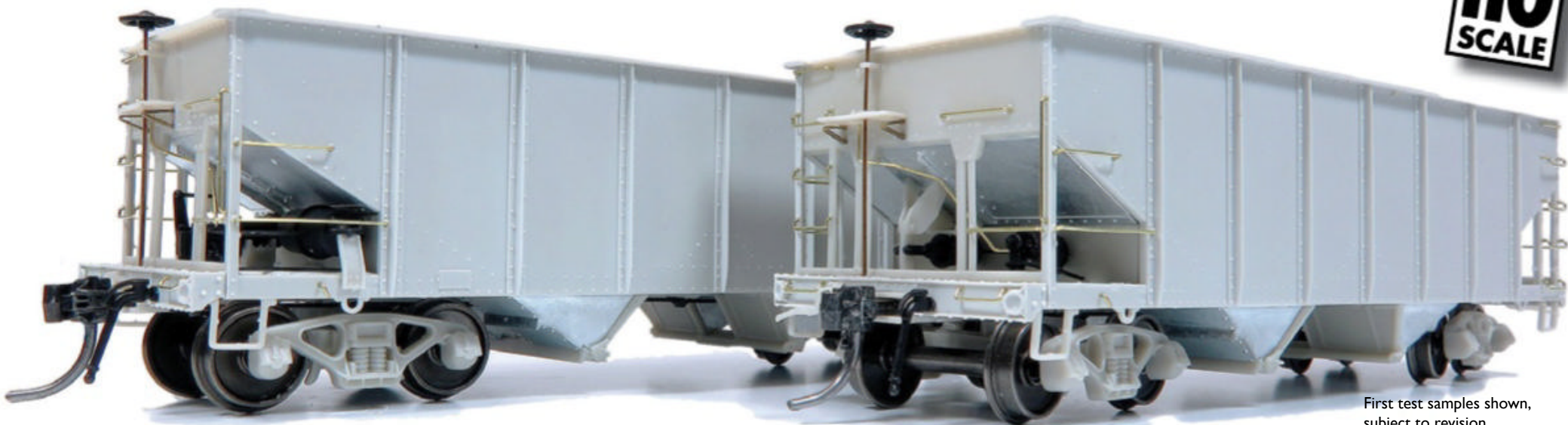


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*Run up to 6 decoder equipped locos on same track at same time using Tech 6 DC-DCC Hybrid Walk-around



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by Jason Shron

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On the cover: Diesels rumble over a plate girder bridge on Dave Hughes's HO scale Western Maryland East Division. Richard Stanley photo



Next issue

In May, visit an N scale Canadian National layout that packs expansive vistas into a small space. Also, add fire protection to your buildings, model an MOW car, and more!

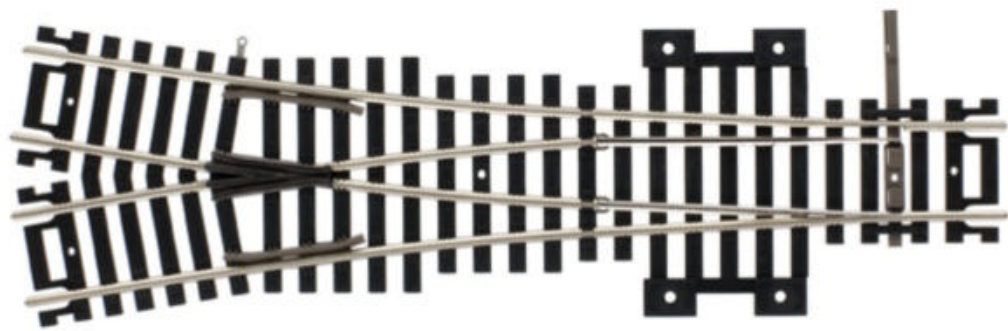
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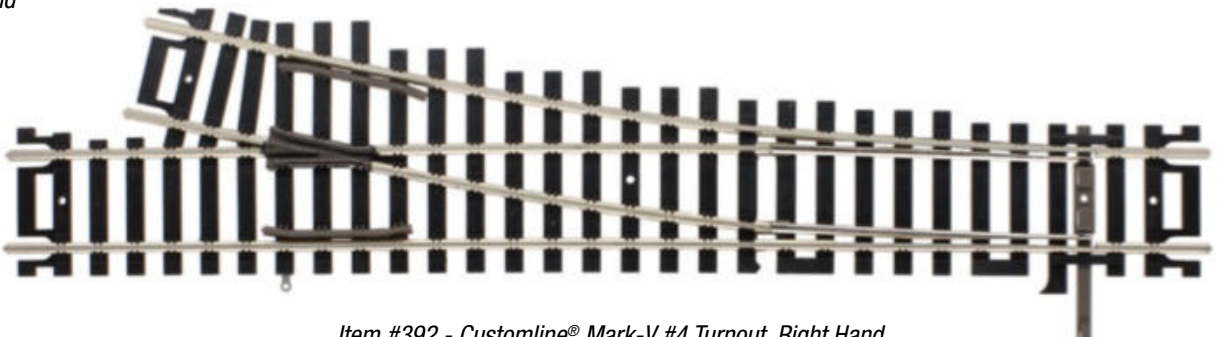
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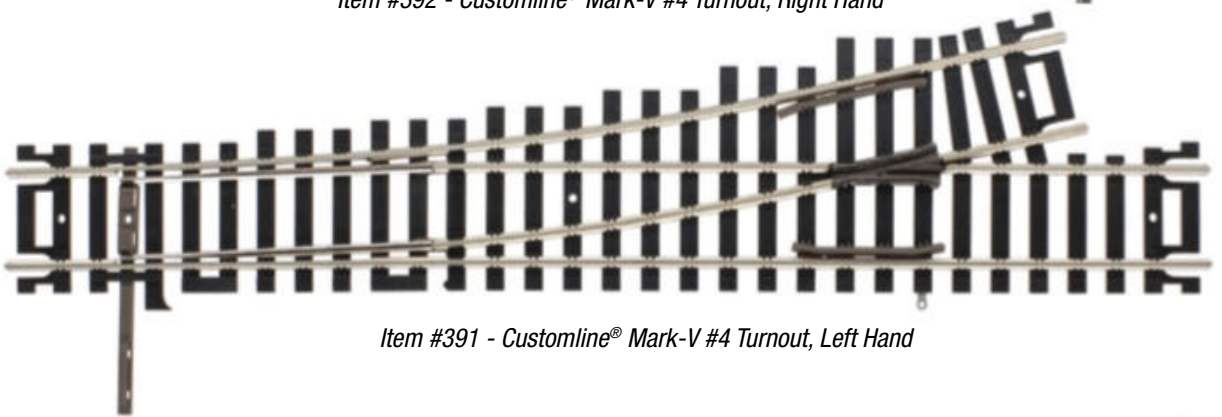
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The hard work of having fun

The **Model Railroader** logo at the bottom of this column includes this magazine's long-standing slogan: "Model



No foolin', Rapido Trains owner Jason Shron built a life-size passenger car in his basement. Jason Shron photo

railroading is fun!" Which raises the obvious question: Are we having fun?

Glancing through the contents of this issue proves that we are, indeed, enjoying our hobby and also, oddly, the difficult tasks are often the most rewarding.

For example, Jason Shron, owner of Rapido Trains, has built a life-size model of a passenger car. The photo at left shows the view down Jason's basement steps.

Although it looks like a real car (and contains seats and other parts from an actual VIA Rail coach) it is a true model – the car's body is built of wood.

Jason explains the process in his article, which starts on page 42. It was a great deal of work, but Jason definitely had fun modeling in 1:1 scale.

Our cover story this month provides another example of

the rewards of sustained effort.

In 2001, Dave Hughes set out to build his 26'-6" x 30'-0" HO scale tribute to the Western Maryland Ry. Twenty years later, Dave reckons he is about 85 percent done.

Progress is slow, and that's by design. Dave is taking his time and building a railroad that looks as good as he can make it and runs as flawlessly as possible.

Seen from that perspective, our hobby sounds like a lot of work, and Dave agrees it can be. He writes, in his article starting on page 34, "I feared at the outset that the daunting task of creating an entire basement of scenery, buildings and detail in certain, unending drudgery would've lead to a swift, irreversible exit from the model railroading hobby."

What kept him going? He credits the variety of tasks



involved, from carpentry to wiring and from scenery to structures, for keeping the hobby fresh and engaging.

So, are we having fun?

Yes, we are, and often we discover it in the satisfaction that comes from accomplishing difficult tasks with skill and artistry.

Model Railroader

Model railroading is fun!

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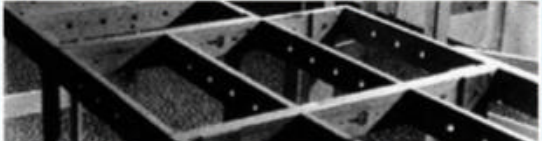
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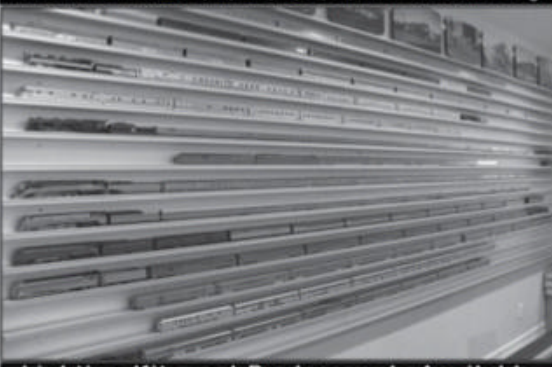
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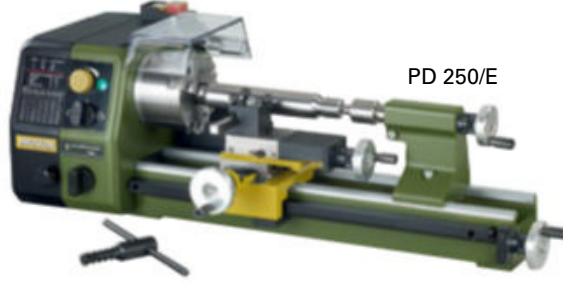
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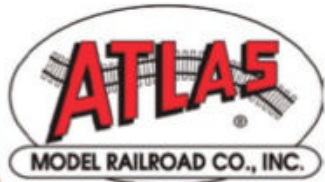
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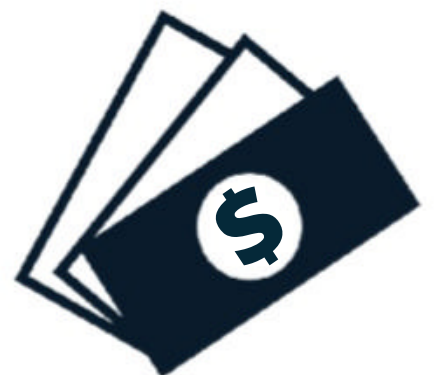
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Shouldn't America have it's own Era System?

Please join us at hattonsmodelmoney.com/US-Eras and give us your thoughts and opinions. We'd love your assistance in developing one!

Our proposed method of grouping products based on prototypes across nearly 200 years of railroads in the United States!



Era	Date	Name	Steam	EMD	Alco	GE	Passenger
1	1827-1880	Old Time	American 4-4-0s				Open vestibule wood cars <60ft
2	1880-1915	Turn of the Century	Atlantics, Moguls, Consolidations, Camelbacks				Closed vestibule wood cars 80ft
3	1915-1945	Golden Age	USRA to Superpower and Modern Steam	NW Series/Streamline Trainsets/Early E Series	Small switchers (HH/S) DL Series		Steel Clerestory/Early streamliners
4	1945-1958	Steam/Diesel Transition	Steam Decline, First gen diesels	E/F/SW Series Early GP/SD Series	FA/PA/S Series Early RS Series		Rise of the post-war streamliner
5	1958-1975	2nd Gen	End of steam	SW1000/1500, GP20 to SD45	RS27-36/Century Series	U Series	Decline of the post-war streamliner
6	1975-1985	3rd Gen		GP/MP15, GP/SD50, GP/SD60, Dash 2 Series		Dash 7	Amtrak Heritage/Amfleet
7	1985-1995	4th Gen		GP50/60 SD50/60		Dash 8	Amtrak Superliners/Amfleet II
8	1995-2015	5th Gen		SD70 Early AC traction		Dash 9, Early AC	Amtrak Viewliner/Superliner 2
9	2015 to Present	Modern		SD70 ACe		AC Series, GEVO	

We are interested in hearing your views and invite you to contribute to the debate at www.HattonsModelMoney.com/US-Eras

We welcome assistance in developing this resource - please contact our proprietor Richard Davies on richard@hattons.co.uk if you are interested in participating with this project.

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That's a familiar-looking caboose

Two years ago I retired and started volunteering at the East Troy (Wis.) Electric Railroad Museum. On page 47 of Dec 2020 MR is a picture of Milwaukee Road transfer caboose no. 01736 [in the article "More than 50 years of fun" –Ed.]. We have a caboose just like that in our roster at the museum, no. 01738, and it was neat to see it as a model on a layout. The handrails on the roof of our caboose were removed to prevent them coming in contact with our overhead wires.

The caboose was built out of an old tender in the Milwaukee Road shops, and the structure is all welded steel. We bring it out of the barn



East Troy Electric Railroad Museum volunteer Kurt Smith was surprised to see an HO scale replica of a caboose from the East Troy Electric Railroad Museum [left] in the pages of the December MR. Photos by Kurt Smith [left] and Cody Grivno



every year to take part in our Santa train that runs from from Mukwanago to East Troy for the Christmas parade. Repairing and restoring the prototype

equipment and track can open a whole new view of how to model. Keep up the good work!

Kurt Smith, East Troy, Wis.

Memories of the MR&T

The special issue *Milwaukee, Racine & Troy: The inside story of Model Railroader's club layout* immediately caught my eye in the magazine aisle this past weekend. I was thrilled to finally see a publication focusing strictly on the Milwaukee, Racine & Troy.

The historical perspective of the layout and the railroad was very interesting. I was one of the original Wednesday evening MR&T operators. Many of the photos included in the publication brought back fond memories.

Andy [Sperandeo, MR's former executive editor] and Bob [Hayden, former Kalmbach Books editor] were both truly a pleasure to meet and operate with, and did a fantastic job coordinating the sessions. We all learned, became good friends, and truly enjoyed each other's fellowship every month.

I was thrilled to see my photo on a few pages in the publication! Yes, I was quite a few pounds lighter, and had more hair on my head, but those memories I will always cherish. Thank you!

Mark Rick, Oak Creek, Wis.

[The special publication *Milwaukee, Racine & Troy* is available from our website, KalmbachHobbyStore.com. –Ed.]

Thanks to Jim Kelly

I was just reading November 2020's MR and saw that it was Jim Kelly's last issue ["N Scale Insight"]. Even though I model in HO scale, I've always enjoyed Jim's columns, which were informative, helpful, and so relatable. I just wanted to say how much I appreciated his articles. I will miss his insight and humour. Please pass on my appreciation to Jim.

David Bellamy, Caledon, Ont.

A tale of two covers

I just read Tony Koester's *Trains of Thought* in the December 2020 issue ["A tale of two covers"]. I completely agree. As subscriber to both *Model Railroader* and *Trains*, my first thought was, did Kalmbach get the covers mixed up? No, they didn't. All I can say is, wonderful photography by Jason Shron and Tishia Boggs. The photography in MR never fails to impress. Jim Wrinn and the staff at the 1:1 magazine also do a great job.

Mike Munts, Colville, Wash.

DC or DCC: Why not both?

This letter is in response to the very good article by Allan Gartner regarding Digital Command Control (DCC) or

direct current (DC) [DCC Currents, February 2021].

Our club has been running DCC and DC on our HO scale layout for more than 10 years without any problems. We have four mainlines with numerous crossovers between them. Each mainline can run on either DCC or DC.

We've designed and built several small detector boards and connected them to the mainlines. When a train on one main tries to crossover to another, the detector board looks at the current on both lines; if they match, the turnouts can be lined and the train can negotiate the crossover. If they don't match, the switch points won't move.

We had several visitors during the National Model Railroad Association show in Indianapolis a couple of years ago and they all were interested in how this works. We also did a clinic on this effort during the show.

Greg Harter, Columbus (Ind.) Area Railroad Club

Correction

The manufacturer of the locomotives shown on Raymond O'Connell's layout in the December 2020 *Trackside Photos* was incorrect. The Canadian Pacific Alco FA-2s are Life-Like models. 

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HO Scale Dimensions:
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Sprecher Brewery

HO Scale (279-5143) | O Scale (279-4493)

Prelit interior with soft-glow lighting

Electronic Sprecher sign with animated lighting pattern

Lighted loading dock with three workers, beverage cases and kegs, two hand carts and Jack the German Shepherd

Roof details including pipes and a water tower with red warning light

Built-in train tunnel for a minimal footprint

HO Scale Dimensions:
5-1/4"W x 6-1/8"D x 7-1/2"H



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HO scale



Electro-Motive Division GP40-2 diesel locomotive. New paint schemes on this Atlas Master Line model include Norfolk Southern (Operation Lifesaver, two road numbers), Canadian Pacific (red and white, two numbers), Burlington Northern (nose stripes and American flag), Conrail ("Quality" scheme [small lettering in two road numbers, large lettering in one number]), CSX (gray and blue, with and without

Operation Red Block slogan in two numbers each), Florida East Coast (blue and white), and Union Pacific (Armour Yellow and Harbor Mist Gray). The HO scale model is offered in three numbers per scheme unless noted. Direct-current models with a factory-installed speaker are priced at **\$189.95**. Versions with a dual-mode ESU LokSound sound decoder retail for **\$299.95**. Atlas Model Railroad Co., 908-687-0880, atlasrr.com

NMRA cancels 2021 National Convention

The National Model Railroad Association (NMRA) announced in late January that the 2021 "Rails By the Bay" National Convention and National Train Show have been cancelled. The events were scheduled to be held in early July in Santa Clara, Calif.

"We did not reach this decision lightly but felt it was the best for anyone who would want to attend given the current status of the pandemic, the disbursement of the vaccine, and the fact

that people were waiting to see what would happen before they registered," wrote Bob Amsler, Meetings and Trade Show Department Chair, in an e-mail. "Moreover, local prototype facilities were not open and, understandably, home owners were reluctant to allow people in their homes."

Though the in-person convention and train show won't take place, plans are under way for a virtual event. Information posted on nmra2021.org, the

official "Rails By the Bay" website, stated, "Tentatively scheduled to start July 6, the four- to five-day event will mix live and recorded video and will have virtual participation by clinicians and layout owners local to the Santa Clara area. Video clinics, layout tours, museum, and rail-fanning tours are expected."

The host committee plans to release more detailed information on the virtual event by April 2021. For the latest news, please visit nmra2021.org.

HO scale locomotives



• **Norfolk & Western class A 2-6-6-4 steam locomotive.** Nos. 1214, 1218 (in-service version and glossy museum finish), 1220, 1228, 1239 (22i tender and roller-bearing side rods), and 1241 (22i tender and roller-bearing side rods). Also available painted black but unlettered in two versions. ABS body, die-cast metal chassis, dual-mode

Paragon3 sound decoder with Rolling Thunder, synchronized smoke unit, and factory-installed crew figures. \$599.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com



• **Electro-Motive Division GP9 diesel locomotive.** BNSF Ry. (Heritage I scheme), Grand Trunk Western (blue

with orange ends and white sills), Kansas City Southern (white), National Rys. of Mexico (green and orange), New York Central (lightning stripe scheme), Soo Line (Candy Apple Red), Southern Pacific ("Kodachrome" scheme), and Union Pacific (Armour Yellow and Harbor Mist Gray with "Serves All the West" slogan on cab sides). Three to four road numbers per scheme. Model based on Phase II prototype. With or without dynamic brakes as appropriate, front and rear footboards, see-through steps,

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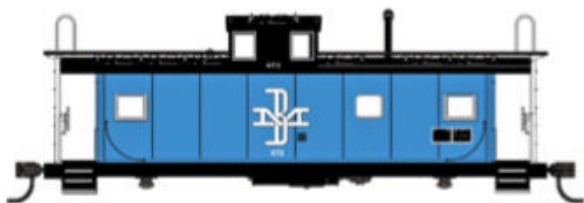


die-cast metal chassis, and molded drill-starter points for grab irons (detail kit sold separately). Direct-current model with 21-pin DCC plug, \$139.98; with dual-mode ESU sound decoder, \$199.98. Walther's Mainline. Wm. K. Walther's Inc., 414-527-0770, walther's.com

HO scale freight cars



- **Railway Express Agency steel express refrigerator car.** New paint schemes: Railway Express Agency (mid-1950s scheme two and early 1960s schemes one and two); Atchison, Topeka & Santa Fe/REX (dark green and white); Seaboard Coast Line maintenance of way (dark green, white, and silver in one road number); and United States Department of Transportation Urban Rapid Rail Program support car (silver, blue, and red in one number). New numbers: Railway Express Agency (1947 as-delivered scheme). Three numbers per scheme unless noted; also available undecorated. Separate factory-installed ladders and grab irons, 3/3 improved Dreadnaught ends, and Accumate couplers. \$41.95 (undecorated, \$33.95). Master Line. Atlas Model Railroad Co., 908-687-0880, atlasrr.com



- **International Car Co. cupola caboose.** Boston & Maine (blue), Great Northern (Vermillion Red), Maine Central (yellow and green), Norfolk & Western (dark blue), Norfolk Southern (red), and Northern Pacific (brown). Two road numbers per scheme; also available undecorated. Two cupola window styles, Stanray overhanging diagonal-panel roof, see-through running boards, underbody toolbox as appropriate, Barber Swingmaster roller-bearing trucks with 33" turned metal wheelsets, Proto-Max metal couplers, and molded drill starter points for grab irons (detail kit sold separately). \$39.98. Walther's Mainline. Wm. K. Walther's Inc., 414-527-0770, walther's.com

Conducted by Cody Grivno

N scale



Pullman-Standard lightweight coach. RailSmith Models offers these newly tooled cars decorated for Spokane, Portland & Seattle (two single cars); Northern Pacific (single car and three-pack); Southern Pacific (Armour Yellow and Harbor Mist Gray *City of San Francisco* service, single car and two-pack with UP car); and Union Pacific (*City of San Francisco* service, single car and two-pack with SP car). The N scale models are based on Pullman-Standard plan 7510 and have painted molded grab irons on the sides, electrical pickups on the trucks, and a plastic interior. Single cars are priced at \$46. Two-packs sell for \$88. Three-packs list for \$132. RailSmith Models, lowellsmith.net/railsmith/

N scale locomotives



- **Electro-Motive Division GP40 diesel locomotive.** CP Rail System (dual-flag scheme), BNSF Ry. (Heritage III), CSX (dark blue and yellow with "boxcar" herald), Norfolk Southern (thoroughbred scheme), and Union Pacific (Armour Yellow and Harbor Mist Gray). One number per scheme. Dual-mode Econami sound decoder, die-cast metal frame, and E-Z Mate Mark II couplers. \$279. Bachmann Trains, 215-533-1600, bachmanntrains.com

N scale passenger equipment



- **Amtrak Viewliner II baggage car.** Two new road numbers (model from previous run shown). Injection-molded plastic with metal wheels on plastic axles; separate, factory-applied diaphragms and rooftop ventilators; and

clear window glazing with painted rubber gasket detail. \$35. Price is estimate and subject to change upon release. May 2021. Kato USA Inc., 847-781-9500, katousa.com

N scale structures



- **Rural Shamrock gas station and convenience store.** Milled white styrene kit with clear acrylic window glazing, vending machines, pumps, and signs (self-adhesive and waterslide decals). Parking lot base and vehicles not included. Parts may need light sanding in joints for cosmetic reasons. Measures 3 5/8" x 3" x 1 1/2". \$39.95. Summit USA, 337-436-8481, summit-customcuts.com

Z scale locomotives



- **Alco RS-3 diesel locomotive.** Denver & Rio Grande Western (black with Duco Imitation Gold stripes and "Flying Grande" lettering). Three road numbers.

HO scale



Pennsylvania RR class GLa two-bay hopper. Rapido Trains unveiled a pre-production sample of its next HO scale freight car, due out in late 2021. The class GLa two-bay hopper will be decorated for Pennsylvania RR (circle and shadow keystone); Berwind; Canadian National; Cambria & Indiana; Lehigh Valley; New York, Ontario & Western; and Westmoreland Coal. The car will also be available undecorated. The model (\$49.95; six-pack, \$299.70) features new tooling, a die-cast metal frame and floor, and PRR 12D-F8 trucks with turned-metal wheels. Rapido Trains, 905-474-3314, rapidotrains.com

Phase I body; single- and three-chime airhorns; 1,400-gallon fuel tank; body-mounted number boards; 7.5mm coreless motor with dual flywheels; traction tires; built-in pilot; directional light-emitting-diode headlights; and

body-mounted couplers. American Z Line, 614-764-1703, americanzline.com

● **Electro-Motive Division GP38-2 diesel locomotive.** Union Pacific (Armour Yellow and Harbor Mist Gray in four road numbers) and Milwaukee Road

(orange and black with “Milwaukee Road” on long hood and nose in one number). Model features shell from first run of GP38-2s with chassis rebuilt to 2020 standards. Locomotive has 7mm coreless motor with dual flywheels, traction tires, standard printed-circuit board, directional light-emitting-diode headlights, and AutoLatch couplers. American Z Line, 614-764-1703, americanzline.com

Decals

● **Louisville & Nashville baggage, dormitory, Railway Post Office, and Railway Express Agency car decals.** HO scale. Includes Louisville & Nashville names in two fonts; baggage, dormitory, Railway Post Office, and Railway Express Agency labels; and road numbers in Dulux Gold. Completes at least one car. Artwork by Curt Fortenberry. \$7.99 each. Virginia residents please include sales tax. Bill Mosteller, Great Decals, 3306 Parkside Terrace, Fairfax, VA 22031; greatdecals.com

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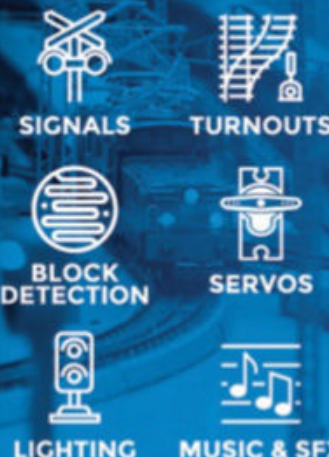
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1 General American 20,000-gallon general service tank car. This HO scale model is available in seven paint schemes and features body-mounted McHenry shelf couplers. Single cars are **\$51.98**; three-packs are **\$149.98**. Athearn Trains, athearn.com

2 American Car & Foundry PD3500 Flexi-Flo covered hopper. New York Central is among the road names offered on this HO car from Rapido Trains. The Flexi-Flo is priced as follows: single car,

\$59.95; two-pack, **\$119.90**; three-pack, **\$179.85**; and six-pack, **\$359.95**. Rapido Trains, rapidotrains.com

3 45 Years on the Milwaukee, Racine & Troy. Get a backstage tour of *Model Railroader's* HO club layout in this DVD. The 83-minute video (**\$14.99**) includes never-before-seen photos and video footage of the original and current layouts. Kalmbach Hobby Store, KalmbachHobbyStore.com

4 40-foot standard-height intermodal container. CLOU



Container Leasing GmbH is one of seven schemes offered on this Operator line HO scale model. The container (single, **\$9.99**; three-pack, **\$27.99**) has weld bead and stacking point details; cored-through inter-box connector corner castings; and four separate, factory-applied door locking rods. ScaleTrains.com, scaletrains.com

5 Sprue cutters. These modeling tools are produced by Flex-I-File. The fine precision trimmer has a flat head

and the ultra fine sprue cutter has a curved head. The tools are priced at **\$17.99** each. Kalmbach Hobby Store, KalmbachHobbyStore.com

6 American Car & Foundry 5,800-cubic-foot-capacity four-bay Center Flow covered hopper. Nine paint schemes are available on this Atlas Model Railroad Co. Master Line N scale model. The covered hopper (**\$29.95**) has etched-metal running boards and truck-mounted couplers. Atlas Model Railroad Co., atlasrr.com **MR**



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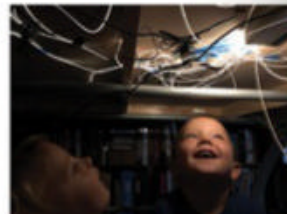
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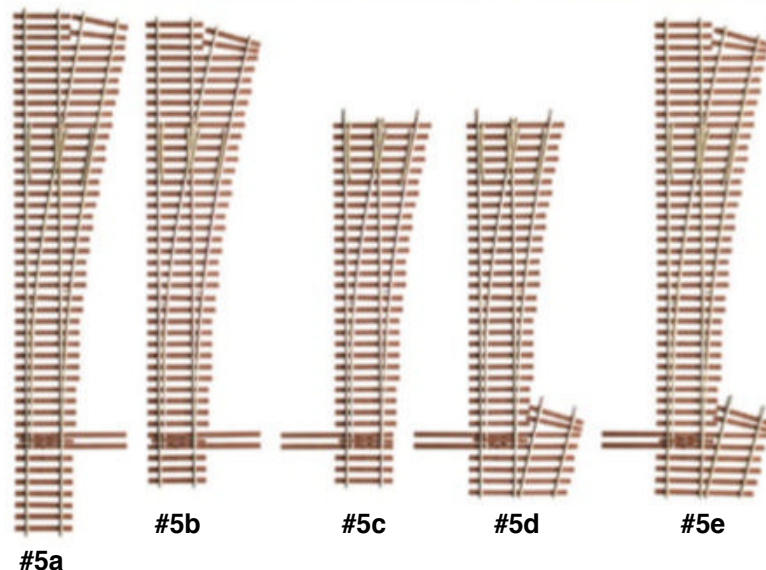
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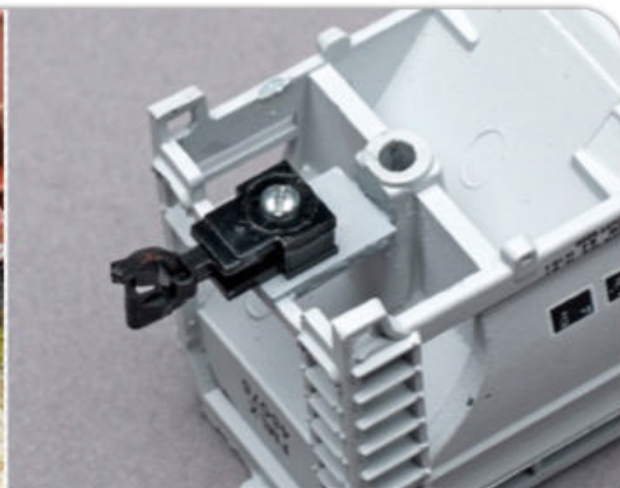
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Converting N scale rolling stock from Rapido-style couplers to magnetic knuckle couplers can greatly improve performance. While you're converting your couplers, former *Model Railroader* managing editor and "N Scale Insight" columnist Jim Kelly recommends body-mounting them. *Jim Kelly photos*

How do I convert couplers on N scale cars?

Q I need some advice on N scale couplers. Most of my fleet has the old one-piece plastic "Rapido" couplers. All my newer equipment has Micro-Trains magnetic knuckle couplers, which seem to be more reliable (not to mention closer to scale). Though I've stuck with Rapido for awhile, I think it's time to start converting my equipment. There seems to be a huge range of Micro-Trains conversion kits available, and the information I've found on which to use has been unclear, especially since some of my locomotives aren't listed. Do you have any suggestions for selecting couplers and for the installation process?

James Cudworth, Bristol, Wis.

A I believe I've found a website that will help you. Micro-Trains has a web page with links to coupler conversion guides for many different brands and types of rolling stock: micro-trains.com/conversions/. The page's design may look like it hasn't been updated since 1998, but don't let that throw you. If you scroll down to the bottom of the page you'll find a table with links to PDF charts listing conversion info by manufacturer and car or locomotive type. Give it a look.

As for how to mount the couplers, N scale modeler and former MR managing editor Jim Kelly is a big advocate of body-mounting couplers. Jim says this makes cars track better and stay on the rails more reliably than truck-mounted (aka "Talgo") couplers. He wrote on the topic numerous times in the last decade in his "N Scale Insight" column. Check out his column, particularly the June 2014 installment, in our online Archive.

Q Your project railroads are usually based on L-girder construction. That's wonderful for a semi-permanent installation, but what about those of us with space considerations? I tried using L-girders with a plywood deck on a 3 x 6 N scale layout. I wanted to suspend it from the ceiling in my garage, which has a nine-foot ceiling, and hoist it up to park cars underneath when not in use. This was a workable solution for a while, but as I added scenery and other items, it became too heavy to lift. After determining that a motorized hoist was not a viable

option, I abandoned the project. I've been considering using extruded-foam insulation board as the base for a lighter layout, but as rigid as it is, it will still sag. The other issue is the switch machines, which need a plywood deck to mount under the layout. Do you have any other ideas?

Charles Dickens, Phoenix, Ariz.

A I have a few options for you. For my N scale Spartanburg Subdivision layout, I used what I called "tray benchwork." This is kind of like box-frame benchwork, except that instead of building the

railroad on top of a plywood sheet on top of a frame of 1 x 3 lumber, I inverted the design, creating a frame of dimensional lumber and affixing the plywood to the bottom of the box. I then put the extruded-foam insulation board inside the frame and built the railroad on that. You can read more about how I built this benchwork in our October 2011 issue.

Another possibility is a technique I used on my home layout, which never got written up for the magazine, but which I call "sandwich benchwork." This is a thin sandwich of wood and foam, glued together with plenty of foam-safe construction adhesive. I put tempered hardboard (rough side up) on the bottom, then a layer of 1" extruded-foam insulation board, and a sheet of 1/4" plywood on top. I then surrounded the edges with L-shaped wood molding. Basically I reinvented the hollow-core door. The result is solid, but one drawback is you can't cut into the surface for below-grade scenery like canyons or creeks without compromising the structure. Gluing another layer of foam on top could solve that problem, though.

The simplest possible approach is to build your layout on a hollow-core door, perhaps with a frame to add rigidity. The drawback here is the limited number of available sizes and shapes.

Q I just finished reading Lance Mindheim's article on building a long bridge [November 2020 – Ed.] He offers some solid techniques on building straight and strong. However I'm a bit perplexed when it comes to finishing the bridge. What does Lance have planned for the deck of the bridge? The flextrack is laid down the center of the aluminum channel. The outer edge of the ties hangs in midair. Obviously, ballast would just fall through. He could add sheet styrene or basswood under these hanging ties. If it were distressed and painted, he could pass it off as wooden deck (better add some red water barrels) or paint it to mimic steel. But would ballast have been used on such a bridge?

David Stark, Williamsville, N.Y.

A Lance's technique models a deck girder bridge, which doesn't have ballast. The ties rest on top of the plate girders,

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

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which are attached to each other by steel structural members. There's no surface on which ballast could rest; the ties are attached to the girders, and the rails to the ties. Though on the prototype you would be able to see through the bridge, between the ties, on Lance's model this open space is filled with an aluminum beam. Since people viewing the layout shouldn't often have a viewing angle straight down through the bridge, painting the surface of the aluminum beam flat black should do a good enough job of simulating the shadowed interior one would see from the side of the bridge.

Q I have an HO scale United Scale Models C&O 2-8-4 Kanawha brass locomotive that my father purchased sometime in the 1970s. It has been mostly stored in its original box, but as you can see from the attached photo, it's extremely tarnished throughout, except for the trucks. I have other brass locomotives of the same vintage and they aren't tarnished like this 2-8-4. Is there a way that this locomotive can be restored to its original bright finish? Thank you for your assistance.

Alan Jenkins, Frisco, Texas

A First, I'll caution you that one photo isn't a lot to go on, so I could be wrong. But it makes no sense to me that a brass locomotive's boiler, cab, and tender would tarnish so uniformly and evenly while items like the trucks remain unblemished. I would guess, based on how smooth and even the black color on that locomotive is, that's not tarnish – it's paint. Your locomotive appears to have been painted a grimy black color to match the prototype. Any unevenness, like the white streaks on the boiler, I would attribute to weathering. If you look at the unpainted frame below the cab, you'll see what tarnished brass looks like. I'd bet money that black finish is paint – and it looks like a good job, too.

Q I model the Toledo Terminal RR in 1955. Part of my layout includes the Ann Arbor RR Cherry Street and Summit Street spurs in north Toledo. One of the biggest customers on the AA in Toledo was the Woolson Spice Co. At one time the company roasted, packaged, and distributed almost a third of the coffee consumed in the eastern United States. I've been looking for info on both the Woolson Spice Co.,



Alan Jenkins wonders if there's a way to restore his tarnished brass 2-8-4 locomotive to its original bright finish. But is that really tarnish? Alan Jenkins photo

which I will eventually track down, and how coffee was handled on the railroads, for which I can find no information. Can you shed any light on how the railroads transported coffee?

John Roth, Maumee, Ohio

A I love doing historical deep dives like this. Searching on Google Maps, I found the former Woolson Spice Co. building in Toledo, where the railroad crosses North Summit Street, near the intersection with Cleveland Street. It's a large white-painted brick building that still has the "Woolson Spice Company" name visible on its peak. Even more fascinating, if you back up the viewpoint on Google Street View one step up Cleveland Street, you get a view taken eight years earlier, before the building was painted white. That will give you a better idea how to paint your model.

Since coffee isn't grown in the U.S., it would have come in on ships from overseas, which explains why a company like Woolson Spice Co. would locate in a Great Lakes port city like Toledo. Coffee beans weren't shipped in bulk like grain or coal, but rather in 100-pound sacks, which on the rails would have been shipped in boxcars.

Satellite views don't show evidence of a spur, current or abandoned, but the presence of loading doors on the curved wall facing the main line indicates a spur probably ran alongside the main there. Examination of the area in Google Earth shows pavement cracks parallel to the grade crossing on Summit that indicate at least three and possibly four tracks once crossed the street at that point! The Ann Arbor in Toledo was once a busy road, indeed.

Although there's a barge slip next to the Woolson Spice Co. building, it doesn't look big enough for an ocean-going cargo ship or even a lake boat, and

there's no sign of current or former tracks to it, anyway. So Woolson probably would have received its raw beans in boxcars loaded at the nearby Water Street warehouses. It shipped its roasted product in consumer packaging, which probably went out in trucks, but it's easy to imagine those iconic one-pound Lion Coffee bags packed into boxes or crates for shipping in insulated boxcars.

Q I'm looking for grab irons for an HO scale Berwick boxcar. When I measure between the drilling dimples, the space appears to be 33 scale inches long. Is that a common size? I can't seem to locate them in HO. Any suggestions?

Bob Devine, Rumson, N.J.

A I'd suggest bending your own. Get some brass or phosphor-bronze wire of the appropriate thickness and a scrap of .040" styrene. Then file a notch in one edge of the styrene and use a drill bit slightly larger than the wire, held in a pin vise, to drill a hole in the styrene 33 scale inches from the notch on the edge. You now have a bending jig. Insert the wire into the hole and bend it over to the notch on the side, forming a square U-shape. Snip it off to form a grab iron, then repeat.

Q Are all the locomotive sound systems out there compatible, and can they all be programmed by my Digitrax Digital Command Control system?

Randy Mayer, Saguache, Colo.

A All Digital Command Control decoders, regardless of manufacturer, conform to the DCC standard established by the National Model Railroad Association (NMRA). While each decoder may have slight variations in the numbering and function of Configuration Variables (CVs) not covered by the standard, any

DCC base station should be able to program the CVs on any DCC decoder. Simply consult the decoder's manual to find out what CV does what.

Q Due to a recent move, I've had to start over on a new and smaller layout. I've noticed in your latest issues I don't see magnetic strips between the rails for uncoupling cars any more. Is this due to better photography, or is there a less obtrusive way to uncouple magnetic couplers now?

Clinton Jones, St. Thomas, Ont.

A It's true, professional photographers often will seek to avoid catching those unrealistic uncoupling magnets in their photos or conceal them by parking a car or locomotive over them. But there are other ways to operate these couplers.

Some modelers use a pointed object twisted between the knuckles to open them. Rix Products makes one called the Rix Pick, but you could go the cheaper route of using a wood kitchen skewer or a plastic sword salvaged from a cocktail

cherry or olive. Rix also makes the Rix Sticker, a fork-shaped tool with a pair of magnets that are lowered between two cars to pull the knuckles apart.

Then there are a number of electro-magnetic uncouplers designed to be mounted unseen beneath the ties and activated only when needed. There's nothing wrong with the old-fashioned between-the-rails magnet, but you have plenty of alternatives.

Q Is graphite OK to use to lubricate diesel locomotive truck gearing?

Donald Hively, Canton, Ohio

A Yes, though modern-day locomotive models come pre-lubricated and don't require as much maintenance as they used to. Apply lubrication only as needed and be sparing with it.

Q I've never built a model railroad before, but now that I'm retired, I would like to build an HO scale layout. My father and grandfather both worked for the Chicago & North

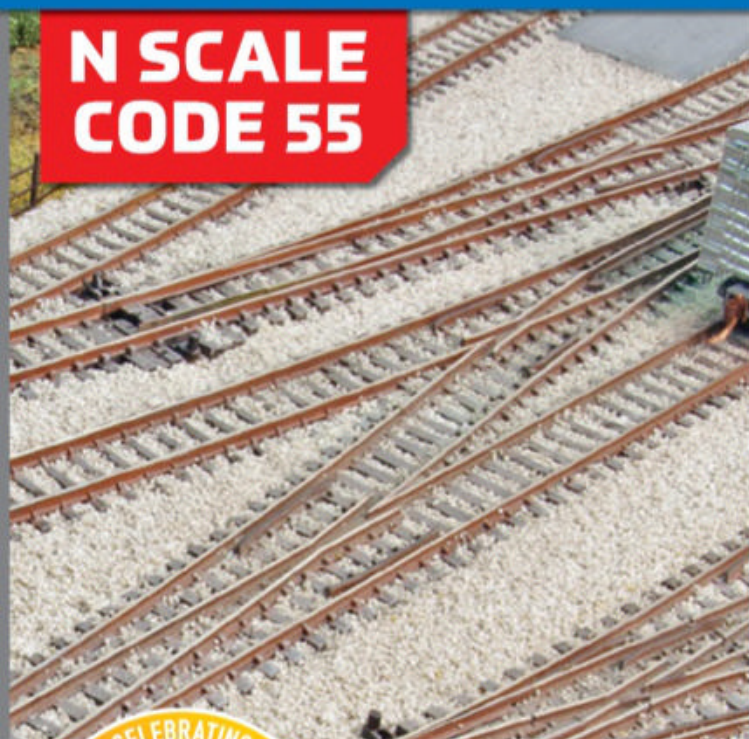
Western in West Bend, Wis. I would like to model the depot and freight area as it appeared in the late 1950s and early '60s. Before I start this project, I'd like to know what kind of benchwork I should use: L girder or open grid? I'm not a skilled carpenter by any stretch of the imagination. I would like this to be somewhat portable.

Neal Degner, Germantown, Wis.

A If you're planning to focus on a station scene and its attendant yard area, your terrain is going to be more or less flat. L-girder benchwork is ideal for situations where track goes up and down on grades and there's terrain above and below track level. But that's not the case here. A beginning model railroader like you can probably build a tabletop of plywood and/or extruded-foam insulation board on top of an open-grid frame of 1 x 4 lumber. If you want to make this scene part of a larger layout later, there's nothing that says you can't blend kinds of benchwork in a layout. Good luck with your project!

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READER TIP

A "light" replacement for a lift gate

I've been struggling with the place in my train room where the trains must cross in front of the door. I considered a duckunder, a liftout, and a drop gate, but none suited the location.

I live in Florida and know a number of NASA engineers. One day on the golf course I was complaining about the problem to my group, and one of them suggested a high-tech solution.

He said NASA had developed a way to hyper-ionize nitrogen molecules so they could temporarily form solid objects like tools or furniture on the International Space Station, then dissolve into the atmosphere when not needed. They were never able to make it work on a large scale, but he thought it could be adapted for my railroad. He brought the prototype over to my house and set it up.

Now, as a train approaches what I call the "Nitro-Bridge," an occupancy detection circuit activates the solid particle beams and the train glides across them to the other side. The beams don't conduct electricity, so any locomotive that crosses the bridge must be equipped with a stay-alive capacitor. Once the caboose clears the gap, a



A stay-alive-equipped Athearn Train Master crosses a particle-beam bridge on Kevin Parson's HO scale Stratton & Gillette layout. This space-age device solved the problems with the door entry into the layout room. Kevin Parson photo

detector on the other side deactivates the beam, which dissipates back into the atmosphere. It's amazing to see.

A word of caution: Make sure there are no insects in the area when the beam is activated. One time a housefly (*Musca aprilfoolus*) became hyper-ionized. In order to dispatch the super-bug, I had to stun it with a frying pan and crush it with a hammer. – Kevin Parson, Cape Coral, Fla. **MR**



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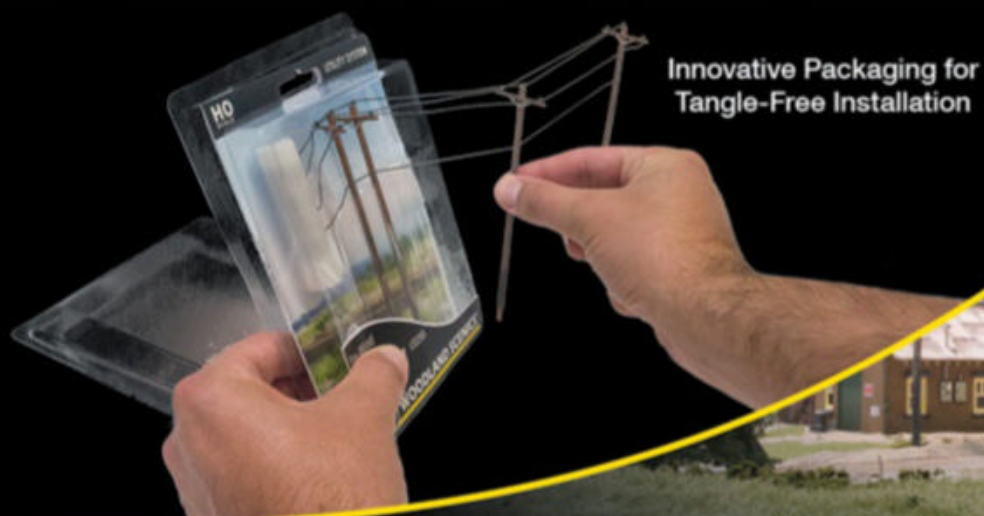
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Tank cars for Jones Island

One of the purposes for rebuilding the Jones Island section on our HO scale Milwaukee, Racine & Troy staff layout was to add more rail-served industries. As we selected these new businesses, we realized that our rolling stock fleet was lacking in a few areas, especially tank cars.

At the prototype Jones Island, tank cars are used to transport a variety of commodities, including ethanol, canola oil, biodiesel, asphalt, and tar. Though we have ethanol cars for our Wisconsin & Southern layout, they wouldn't work

for the other products shipped and received on the island.

In our research, we learned that the Trinity Industries 25,500-gallon tank car was designed to handle vegetable oil, biodiesel, and asphalt, among other products. Atlas Model Railroad Co. offers the car in its Master Line. Fortunately, our local hobby shop had some cars lettered for General American in stock.

When I returned to the office, I took a look at the cars. The well-detailed models had a few issues I needed to address.

Follow along as Cody Grivno shares how he weathered and detailed an Atlas HO scale Trinity 25,500-gallon tank car. The inset photos show a model straight from the box. Bill Zuback photos

First, stencils and placards indicated the car was in styrene monomer service.

I also noticed that the car had standard knuckle couplers. Since the 1970s, double-shelf couplers have been required on cars handling hazardous materials.

The rest of the work was largely cosmetic: weathering and adding a few decals. My goal was to make the tank cars look like something you'd see on a full-size railroad today.

STEP 1 REMOVING FACTORY LETTERING



The model has labels and placards indicating the car is used to transport styrene monomer, as well as a stencil that reads LEASED TO CHEVRON U.S.A. PRODUCTS COMPANY. To remove the warning labels and ownership stencils, I brushed Walthers Solvaset over the printing. With the decal setting solution still wet, I used a Faber-Castell eraser pencil to gently scrub the printing until it was removed.



Though the Solvaset-and-eraser-pencil technique worked well on the car sides, I was reluctant to use it on the hazmat placards. I was concerned that applying pressure to the delicate parts with the pencil eraser may cause them to break off. A safer option was to cover the printed placards with flat black paint using a Microbrush, as shown in the photo above.

STEP 2 QUICK AND EASY WEATHERING



I noticed the black paint on several full-size GATX cars had faded to a gray. To re-create that look, I used an airbrush to apply Model Master Light Sea Gray (no. 4759), thinned to a wash with 70 percent isopropyl alcohol.



I also noticed that some of the prototype cars had rust on the top. I was able to replicate that effect by applying rust acrylic paint, similarly thinned to a wash, with an airbrush. I built up the color in several light layers.



I sprayed thinned Model Master Railroad Tie Brown (no. 4885) on the bottom of the tank, applying the color heaviest around the bolsters and draft-gear boxes. This simulates dirt and grime that's kicked up when the car is rolling down the rails.



Since I needed to apply decals, which is covered in the next step, I sprayed the entire car with Model Master Clear Gloss (no. 4638). The gloss coat muted some of the weathering effects. You may need to heavily weather the car to compensate for the muting effect of the gloss coat.

STEP 3 DECALS



The General American tank car is stenciled NEW 6-94, so it doesn't have reflective (conspicuity) stripes. To make the car fit the modern era setting of Jones Island, I added yellow stripes from Smokebox Graphics (no. DF5787). These are traditional decals, not the reflective peel-and-stick stripes also offered by the firm. I used prototype photos as a guide for placing the stripes.



One of the products handled at the U.S. Oil Jones Island Terminal is biodiesel. Full-size cars handling this material are required to carry hazmat placards with the four-digit UN number 1993.

To add that detail to the placards, I used Circus City Decals set no. DATA225. I applied the decals with printed frame edges, so no touch-up painting was needed.

STEP 4 DOUBLE-SHELF COUPLERS



I **sprayed Kadee** double-shelf couplers with Testor's Dullcote. After it dried, I used a Microbrush to apply Monroe Models Dark Buff weathering wash (no. 977). The alcohol-based wash gives the couplers a realistic, weathered metal look.



I brush-painted the trip pin with Lifecolor Weathered Black, a color contained in the firm's Rail Weathering set available from the Kalmbach Hobby Store (no. 84035). The acrylic paint dries to a matte finish, simulating a weathered rubber air hose.



Finally, I used a toothpick to apply Vallejo Model Color Oily Steel (no. 70.865) to the tip of the trip pin. This simulates a weathered glad hand on an air hose. If the air hose is new, use a brighter silver. If it's older, apply a rusty color.

STEP 5 TRUCKS AND WHEELSETS



I **then shifted my attention** to the trucks and wheelsets. First I removed the blackened metal wheels, mounted on plastic axles, from the trucks. I used a cotton swab dipped in isopropyl alcohol to remove any impurities from the manufacturing process. Then I applied Mission Models Dark Rust 1 (no. MMW-001) with a Microbrush, keeping the paint off the tip of the axle and the wheel tread.

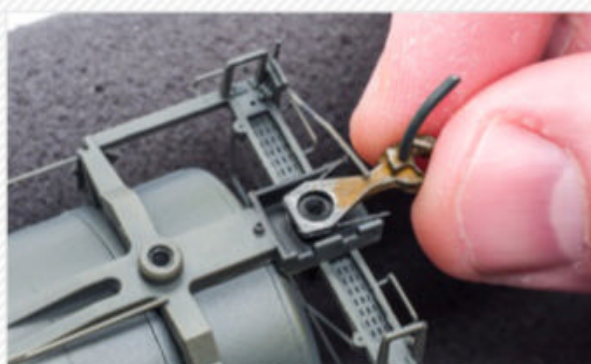


The trucks are molded in slippery engineering plastic, which doesn't take hobby paint well. After installing plastic wheelsets to mask the sockets, I spray-painted the trucks with Rust-Oleum Painter's Touch 2X Flat Black (no. 249127), a plastic-compatible paint. I let that dry for 24 hours, then applied Vallejo Oiled Earth Model Wash (no. 76.521) to the sideframes.

STEP 6 FLAT FINISH AND REASSEMBLY



I **gently wiped the car** with a cotton swab dipped in distilled water to remove residue from the decaling process. Then I used an airbrush to spray the car with Model Master Flat Clear (no. 4636). This seals the decals and gives the car a flat finish.



Then I installed the double-shelf couplers in the draft-gear boxes. The couplers use "whiskers" as centering springs, as shown in the photo above. This eliminates the need for separate phosphor bronze centering springs used with regular couplers.



Finally, I put the wheelsets into the trucks. After securing the trucks to the car with slotted screws, I put the car on the layout.

It will be nice to have accurate tank cars to spot at the U.S. Oil Terminal on Jones Island. **MR**

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Solder a simple pole gate



M.R. Snell made this operating swing gate from a handful of metal components. You can develop basic metalworking skills by making your own in one evening.

This one-evening scenic detail is an easy way to get your feet wet in metalworking

By M.R. Snell • Photos by the author

When I found I needed a gated access road alongside the main line on my layout, I looked to what my prototype, Conrail, had done. A simple swing gate constructed from pole material with a length of scrap rail as a closure point is a style common among many railroads and one that could be modeled quite easily.

Such a gate could be made with scale metal tubing, a piece of scrap track, and only basic tools. In fact, anyone who's laid flextrack likely has the skills and tools required to complete this basic metalworking project.

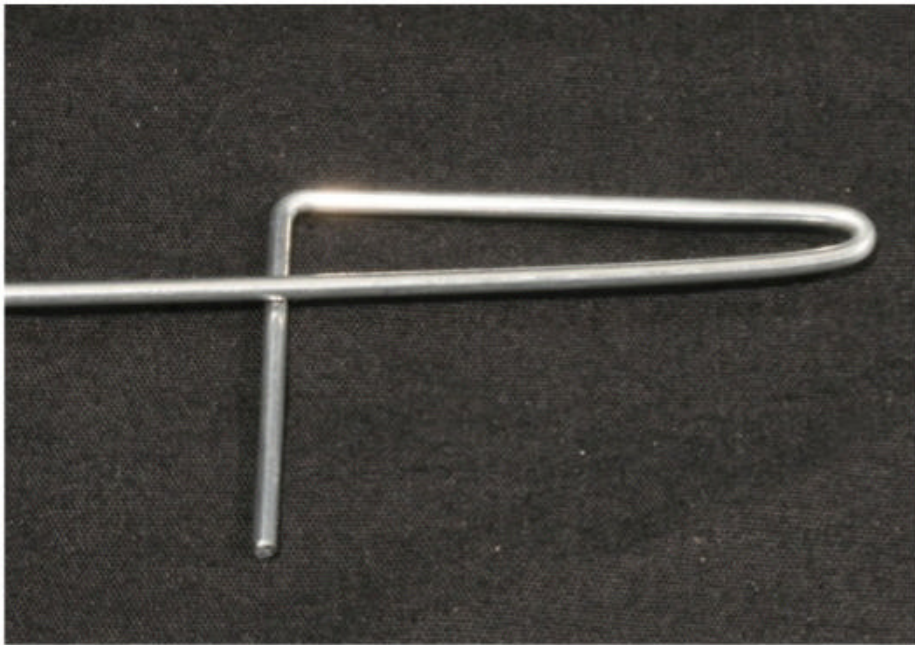
The gate is made of just four components, the first being a length of metal rod forming the gate itself. I chose to use K&S Precision Metals $\frac{1}{16}$ " solid rod, which bends easily and resists kinking or breaking better than hollow tube. Rod stock is



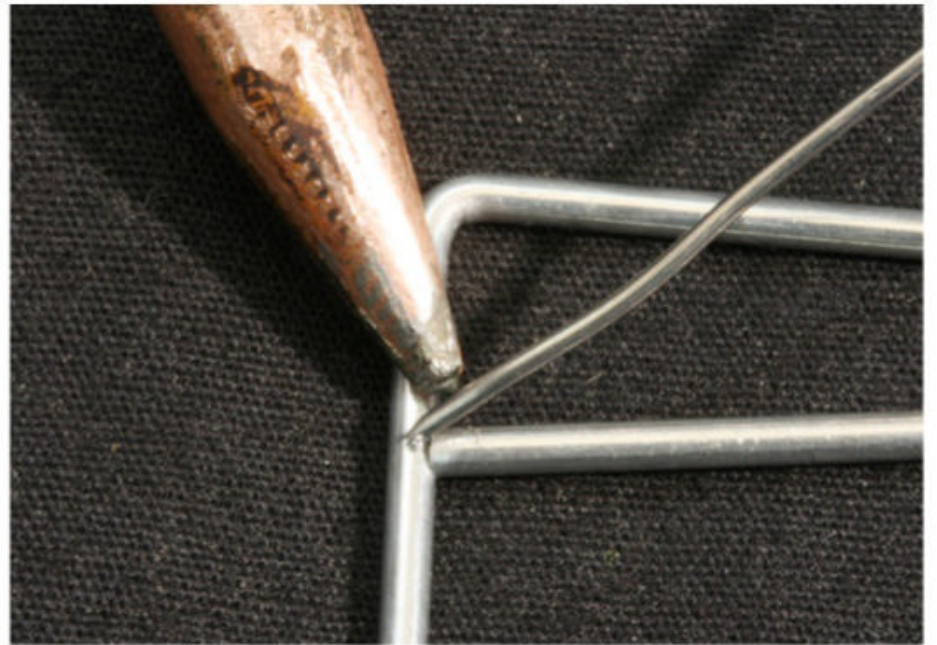
Here are the tools needed for the project: cyanoacrylate adhesive; a pencil-tipped soldering iron; thin solder; fine jeweler's files; and smooth-jaw needle-nose pliers.

available in aluminum, brass, and copper, all of which are similar in terms of malleability, but brass or copper take solder better than aluminum.

The second part of the gate is the hollow tube that's embedded into the scenery, forming a socket for the vertical gate post.



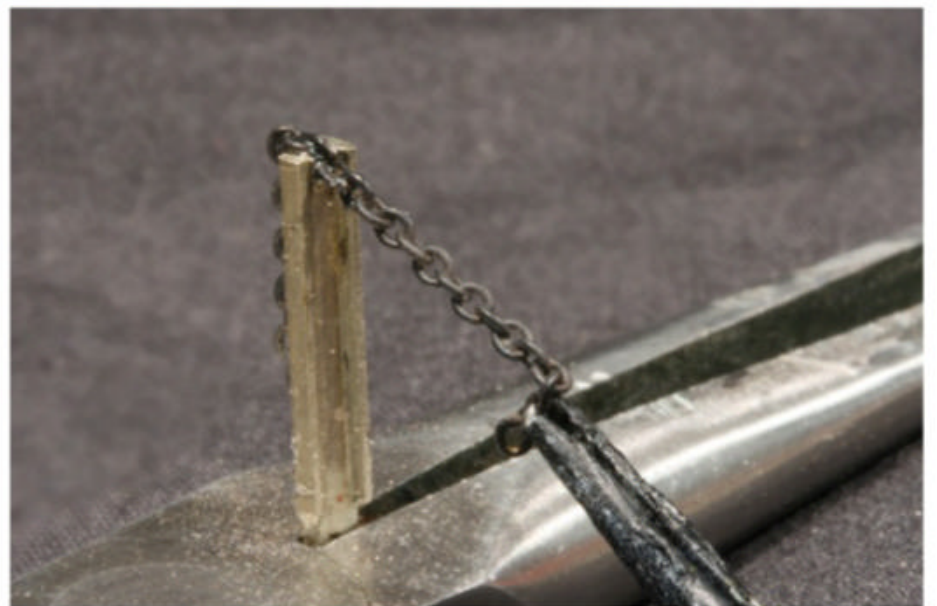
① First, bend the metal rod 90 degrees to form the gate post. Then bend the long end sharply back along its length to make the gate arm.



② Cut off the long end where it meets the gate post, then, if necessary, file the cut end flat. Solder the end to the post to form the P-shaped gate.



③ Cut a length of scrap rail from an unused piece of flextrack to form the locking post. Make it long enough to embed solidly in the terrain.



④ Cut or file a notch into the top of the locking post, then attach a length of scale chain with cyanoacrylate adhesive (CA) or solder.

I chose $\frac{5}{64}$ " hollow brass tubing, which would fit the $\frac{1}{16}$ " post while allowing it to turn freely.

The final two components are the closure post and chain. I followed the prototype's common practice of making the post from old rail and used a piece of rail from a scrap of flextrack. I then attached a length of chain for securing the gate with a padlock when it is closed.

As for the tools we'll need, the first is a set of wire cutters or rail nippers to trim our components to size. Next is a set of needlenose pliers for holding and bending components. Third is a set of jeweler's files suitable for metalwork. The final tool is a pencil-style soldering iron. We'll also need solder, of course, cyanoacrylate adhesive, and paint.

Bending the gate

Begin by bending the solid rod 90 degrees into an L shape. The smaller leg of the L will point down and form the vertical pole of the gate. It should be long enough to extend below the surface of the layout by at least a third of its overall length.

Next, determine the span the gate will need to cover. If your access road going is to be 8 scale feet wide, mark the long end of the rod at that distance from the first bend. Grasp it there with the needlenose pliers and bend the excess rod back toward the post in a sharp V. The overall gate should resemble

an elongated letter P ①. Cut off the excess rod at the point where the lower gate bar crosses the vertical post.

Since I cut my rod with a pair of nippers, it left the cut with a pointed end. To avoid this, I could have cut the rod with a razor saw or cutoff wheel in a motor tool. Instead, I cut the rod a little long, then filed the cut end flat.

Having cleaned up the cut, it's time to attach it to the upright. You could use glue, but the most durable metal joint is solder, so that's what I used. Begin by securing the gate to a heat-safe surface (a plastic cutting mat will melt). Heat the area of the joint and allow the solder to flow sparingly into the joint until it's filled ②. Once the solder has cooled, check the joint for durability and file off any excess so the joint is smooth.

The last pieces

Now that the gate is ready, it's time to make the closure post. On the prototype, the gate is secured by looping a chain through the gate and padlocking it to itself. This can be easily replicated with a bit of rail from a scrap of flextrack ③. After cutting the rail to length, cut or file a notch in the top into which you can secure a short length of scale chain with either solder or cyanoacrylate adhesive (CA) ④.

The final piece is the base for the gate. This is a hollow tube that acts like a hinge, letting the gate swing freely. How much



5 For the gate to open and close, the post must be set in a length of brass tubing with an internal diameter a bit larger than that of the post.

is above or below ground varies by installation. Begin with a hollow metal tube having an inner diameter slightly larger than that of the gate post. It should slide inside the tube and turn freely without being loose. Cut the tube so at least $\frac{2}{3}$ of its length will be below ground **5**.

To keep the gate post from falling too far into the tube, pick some scrap styrene strip or rod that will fit snugly into the tube, and insert enough of it into the bottom of the tube so the gate will be at the desired height. Cement the styrene in place with CA and cut it off at the bottom.



6 The finished project has been installed on the model railroad. Making the gate positionable lets you stage scenes for layout photos.

Now we can paint all three components Safety Yellow, then when they're dry, glue the locking post and the base tube into holes drilled in the layout surface **6**. Insert the gate post into the tube, and there you have it – a working access gate that can be completed in an evening. **MR**

M.R. Snell is a frequent contributor of how-to articles to Model Railroader. He models Conrail's New Jersey Division in HO scale. His previous article was "Patch out a modern boxcar" in our August 2018 issue.

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Ray and Mary Ann Fortaine model the Boston & Maine in autumn. See page 36.

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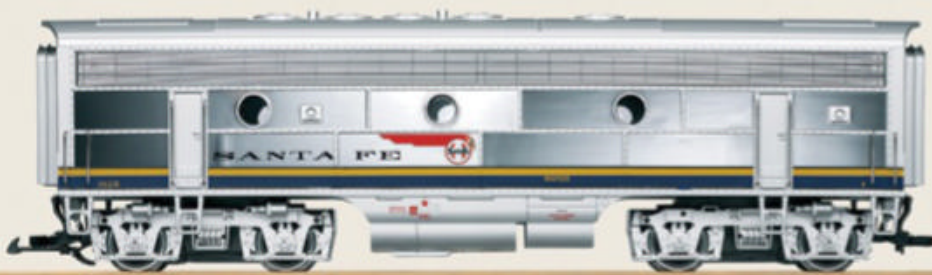
Locomotives are partially chrome plated to replicate the stainless-steel on the actual locomotives. The galvanic chrome plating process is done by hand and involves nearly 40-steps. It is the same process used in the automotive industry.



20582 Santa Fe F7B Diesel Locomotive



20581 & 20583 Santa Fe F7A Diesel Locomotives,
different road numbers



20587 Santa Fe F7B Diesel Locomotive



20585 Santa Fe F7A Diesel Locomotive

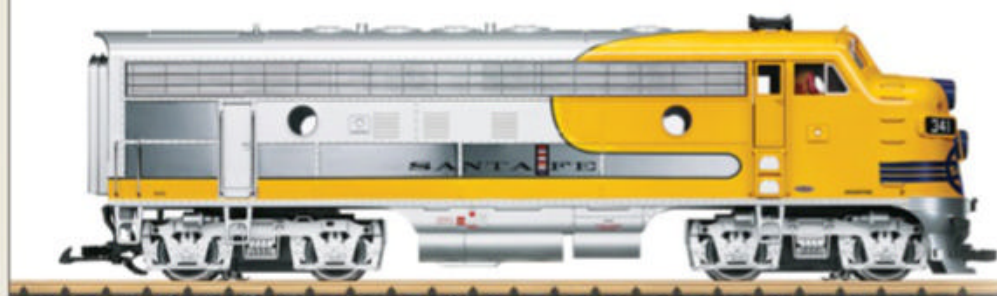
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Simple pine trees

When Nathan Gauvreau built his N scale Canadian Canyons layout, he knew the store-bought trees he'd used on previous layouts wouldn't measure up. Follow along as Nathan explains how he scratchbuilt these easy evergreens.

Cheap furnace filters provide branches for these easy evergreens

By Nathan Gauvreau • Photos by the author

When I began building

my version of the N scale Canadian Canyons [*Model Railroader's* 2019 project railroad – Ed.], I decided that I was finally going to scratch-build my trees. On the layouts I'd built previously, since

I was a kid, I'd always used the plain green trees you buy in a 50-pack from the hobby shop. While they do the trick, pine trees aren't all conical, Christmas-tree like shapes, so I decided scratchbuilding was the only real option.

Since I model the Fraser and Thompson river canyons, my trees vary greatly. I found this method worked well, as it gave me the freedom to make both short and tall trees in varying colors. It is easy and cheap, and all the supplies

except the ground foam can be purchased at your local big-box store. [MR](#)

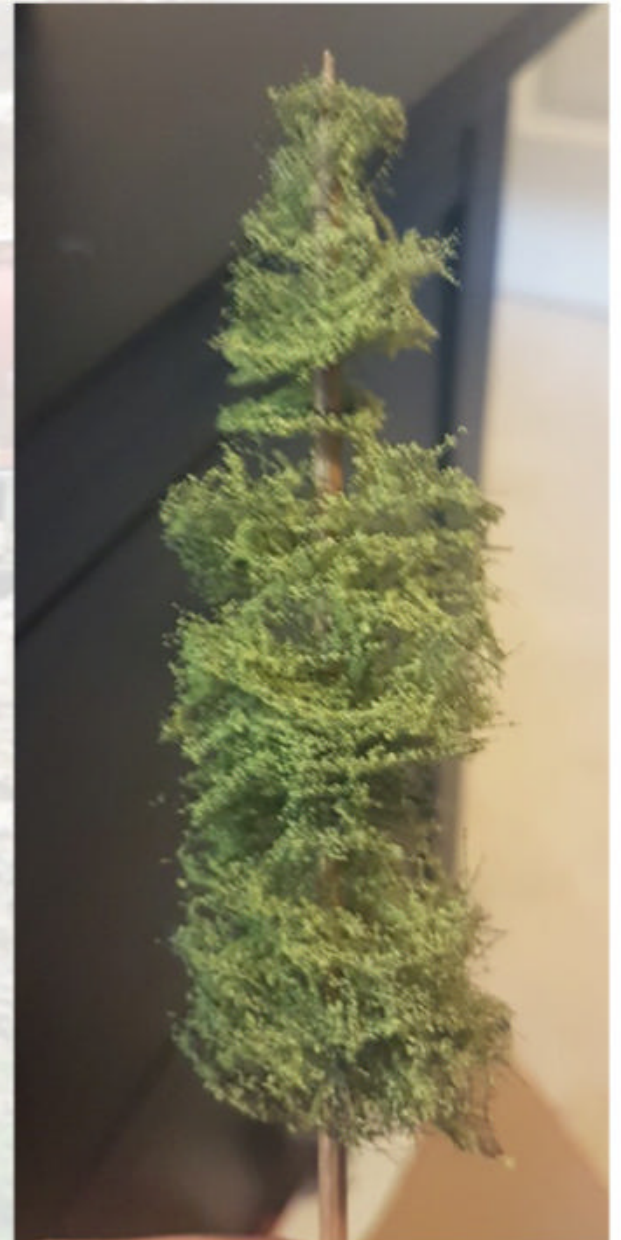
Nathan Gauvreau of Sherwood Park, Alb., models the Canadian National and Canadian Pacific in N scale.



1 Cut the cardboard frame off the filter. Peel off and discard the first hard layer of matting. In a well-ventilated area, spray paint both sides of the filter material a dark color. The brand of filter I use is blue, which usually requires two coats to cover. While the filter dries, you can paint the skewers (or toothpicks, for small trees) to resemble the color of tree trunks. I usually mix dark brown and gray, then drybrush some gray to give a realistic bark look. Once the paint is completely dry (this usually takes overnight), I then cut the filter material into squares. For N scale trees, I use 1 x 1-inch squares, but depending on the scale and size of trees you want to make, you can adjust accordingly. Then round off the edges of the squares.



2 Place a dot of white glue in the center of the square and slide it onto the skewer. Tease the material outward and upward so it spreads out and resembles branches. Stack two or three filter squares on each trunk, depending on the tree height. Spread the matting apart to give an even appearance, but don't worry if there are blank spaces. Real pines usually don't have branches covering the entire trunk. Once you're happy with the look of the tree, let the white glue dry completely. Then trim the tree with scissors to give it a more conical shape and remove any straggling branches.



3 In a well-ventilated area, lightly spray the tree armatures with the hair spray. Sprinkle medium or dark green ground foam onto the filter matting, then give it another spritz of hair spray to secure the foam. To simulate sunlight, hold the tree upright and add a light sprinkle of a brighter green foam onto the tops of the branches.

Materials list

Wood or bamboo barbecue skewers (or wooden toothpicks for small trees)
Economy furnace filter
Dark brown, gray, or black spray paint (I use Rust-Oleum Espresso)
Brown and gray acrylic hobby paints
Woodland Scenics fine ground foam
White glue
Unscented hair spray

WESTERN MARYLAND'S EAST DIVISION



Though I don't have hard numbers to back me up, I speculate that at least 50 percent of modelers wind up re-creating the railroads they were in close proximity to during their youth. Having grown up in Baltimore and the quaint Victorian-era suburb of Glyndon, Md., 19 miles to the northwest during the 1960s and '70s, I was heavily entrenched in the Western Maryland Ry. (WM) from toddlerhood.

These were to be the twilight decades of this mighty Class 1 Mid-Atlantic

freight hauler, which by the early 1980s had been completely consumed, trod upon, and obliterated by the Chessie System. Yet the WM went down with efficiency and pride, an attitude adopted and continually refined throughout its preceding 120 years.

The game plan

When 45 years old, armed with graph paper and a large eraser, I set out to emulate the WM in point-to-point, sequentially accurate fashion in HO scale. I wanted to reproduce as many

railfanning sites along the road's East Division as feasible, specifically the Tide, East, and Hanover Subdivisions between Baltimore and Hagerstown, Md.

I designed the track plan so no train would pass through the same scene twice on its journey, and the prototype's grades would be replicated wherever possible to render faithful appearance and operation. Aisle widths would hold a 30" minimum, though there's one begrudged 27" squeeze between Walbrook and Glen Morris.

I employed swing bridges at the foot of the stairway for access rather than

Childhood memories influenced this 26 x 30-foot HO scale model railroad

By Dave Hughes • Photos by Richard Stanley



duckunders. Of course, all of this utopia had to be accomplished in a moderate-sized basement sporting a centrally located stairway, with the always unwelcome dose of selective compression thrown in for good measure.

Train room preparation

When my wife, Judy, and I moved into our present house, the basement was wide open, unfinished, and unspoken for with the exception of the utilities area. With track plan in hand, we spent about eight months finishing the space

with drywall partitions and bulkheads; a finished, carpeted stairway descending from the floor above; acoustical ceiling tiles; electrical provisions; HVAC necessities; and lighting.

In anticipation of the years to come standing while building and operating the layout, wall-to-wall carpet with high quality padding was laid for comfort. The perimeter cinder block walls were painted white for a neat, fresh appearance. These walls are mostly unseen thanks to expansive and coved hand-painted backdrops focusing viewers' attention on the model railroad.

① An all Electro-Motive Division consist leads a freight train over High Bridge at Owens Creek gorge on the HO scale Western Maryland East Division. Dave Hughes built the 26'-6" x 30'-0" model railroad, set between 1965 and 1973. He also scratchbuilt the bridge.

The full-size WM

The WM maintained two eastern terminuses in Baltimore: the massive marine and trucking facility at Port Covington in the south harbor, and a connection with the Pennsylvania RR



② Three Electro-Motive Division SD40s blasting out of a forest canyon have all the tonnage they can handle on the climb to Highfield's summit on the East Sub at Monocacy. The bridge is a Central Valley Model Works kit with individually painted ties and pastel weathering.

(later Penn Central) at Fulton Junction in west Baltimore. Though the benchwork dead ends abruptly at both locations, trains enter and exit the layout here via swing bridges, which connect by way of a helix to the unscenicked Baltimore staging yard on the lower level of the peninsula beneath Emory Grove.

The two prototype mainlines ran from tidewater and mid-city Baltimore, respectively, to converge in the city's

gritty west side at Walbrook Junction. From there the double-track East Sub meandered upgrade through the city, passing over North Avenue, continuously finding the more verdant neighborhoods of Howardville and Sudbrook. The road was reduced to single track at the latter site in 1955, which continued running west to the interlocking plant at rural St. Georges, where double track was re-established.

The layout at a glance

Name: Western Maryland Ry., East Division

Scale: HO (1:87.1)

Size: 26'-6" x 30'-0"

Prototype: Western Maryland

Locale: Baltimore, central Maryland, and south central Pennsylvania

Era: late spring/summer 1965-1973

Style: around-the-walls shelf with peninsula, four helixes

Mainline run: 342 feet (including mainline helixes, excluding staging and staging helixes)

Minimum radius: 22" (main), 18" (staging)

Minimum turnout: no. 6 (main), no. 4 (Walbrook Junction)

Maximum grade: 2.9 percent (helixes), 2.5 percent (visible)

Benchwork: open grid

Height: 34 1/8" to 64 1/4"

Roadbed: cork on 1/2" foam board and 1/2" plywood

Track: Atlas code 83 flextrack

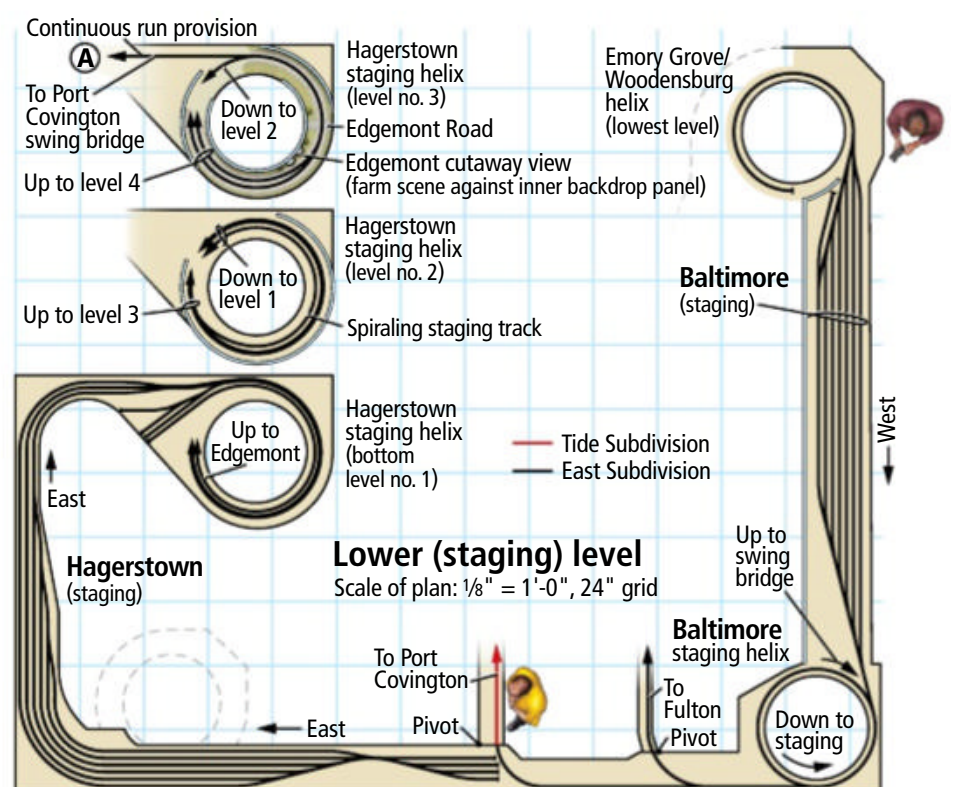
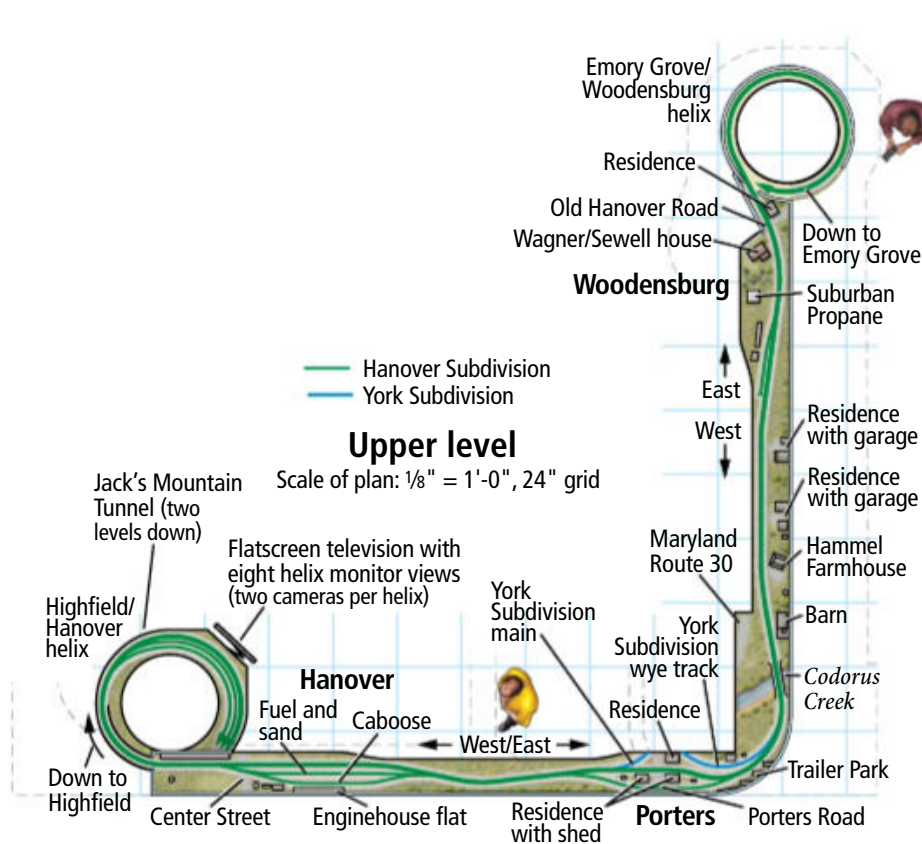
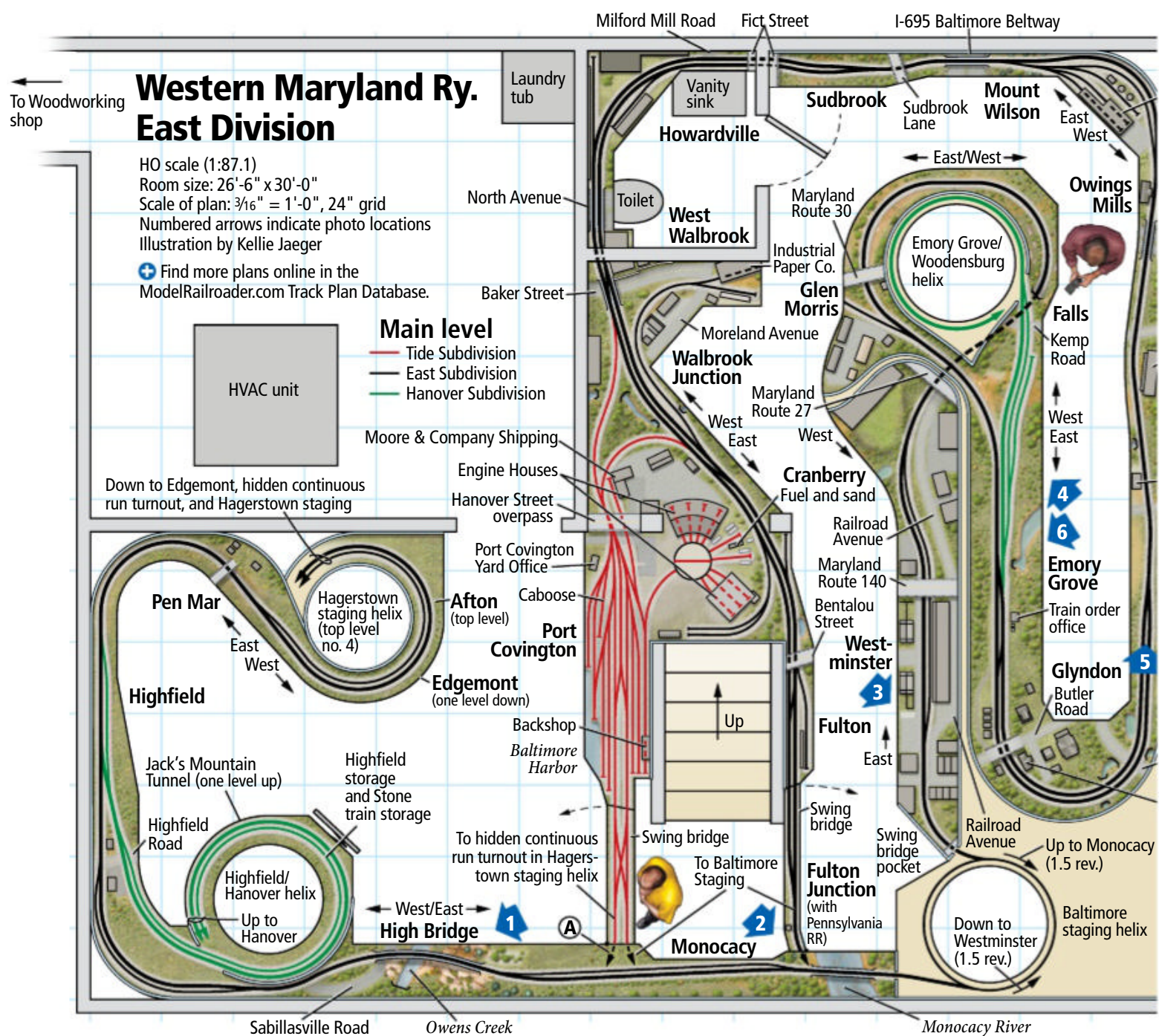
Scenery: foam board

Backdrop: painted 1/8" tempered hardboard

Control: Digitrax Digital Command Control



③ It's early Saturday morning and the onlookers have yet to arrive at the Carroll County Car Show set up behind Johansson's Restaurant in Westminster. In the background, an eastbound extra led by an A-B set of Electro-Motive Division F7s in two different Western Maryland paint schemes rolls past the parking lot bound for Baltimore.



A short distance beyond lay the town of Glyndon, followed by the first westward summit of 663 feet at Emory Grove, where the railroad split into two separate mains. The Hanover Sub veered north toward Hanover and Gettysburg, Pa. The East Subdivision continued west through central Maryland.

These divergent lines once again merged at the 1,411-foot summit of Highfield, Md., 20 miles east of Hagerstown. From this mid-state division point, the road traveled into its namesake western Maryland, and ultimately western Pennsylvania and the coalfields of West Virginia.

From reality to plan

On my version of the WM, the East Sub begins a scale third of a mile descent on the curving 2.5 percent Falls Hill grade immediately west of Emory Grove. This drop continues around the end of the peninsula toward Cranberry and



4 A coal drag roaring up Falls Hill in notch eight at 11 mph peeks into the west end of Emory Grove. The train will stop here to pick up coal loads spotted the day before on the two Hanover Sub storage tracks.

Westminster, while the Hanover Sub immediately disappears into its hillside-cloaked helix to rise 18" above the East Sub.

These two routes, vertically separated by 18", then run down the near side of the peninsula and across the front of the train room upgrade on their respective paths to Highfield. My WM terminates at Hagerstown in the smaller side of the basement beneath Highfield and High Bridge. This unscenicked terminus consists of a six-track staging yard on the lowest level, in addition to one spiraling storage track in the Hagerstown helix.

A semi-concealed mezzanine level between the east end of Port Covington and Edgemont, along with a hidden cheater turnout situated in the Hagerstown staging helix, supports continuous running. At scale speed, the running time is 14½ minutes for the lower deck East Subdivision loop. A lap utilizing the Hanover Sub's upper deck route consumes almost 17 minutes. Nearly all of the lineside industries, spurs, and storage tracks are accurately situated so that local trains can perform the same work as the prototypes.

A conscious effort was made to create several locations of

seclusion in the track plan to help operators feel as if they're out on the prototype doing their jobs in gleeful autonomy. Trains running through the bathroom with two industries to switch is always a novel site (and sight) with newcomers. It's sometimes difficult to summon an engineer at the far end of the aisle at Glyndon, and the niche at the east end of Highfield behind the helix also provides a quiet haven for such reverie.

Making undesirables tolerable

Though no. 6 turnouts are the norm, I had to use one no. 4 turnout at Walbrook Junction. It's located near the rear of the scene, and the turnout's diverging side is away from view. Interesting track-side structures along with urban clutter surround it, making the turnout's sharp angle difficult to detect.

The layout's sole visible 22" radius curve, at the Maryland Cup Corp. in Owings Mills, is partially obscured by

the foreground factory. And again, the railroad takes an intentional back seat to the town of Glyndon. The radii of the 180-degree double track here are 25" and 22¾", yet the tracks are concealed in a cut behind a tall stand of trees, Glyndon station, and the Butler Road overpass.

The helixes

The four helixes are constructed of 48" to 56" diameter "doughnuts" of ½" plywood, each supported on 12 adjustable towers of ¼" threaded rod (six each internal and external, grouped in pairs 60 degrees apart around the circumference). I used 22" and 24" radius sectional track in the helix, maintaining an incline under 3 percent.

These pre-curved track sections greatly facilitated nearly all of the helix track laying. Attempting to curve flextrack to a circle while dealing with protruding and retracting outside and inside rail lengths, soldering rail joints to eliminate kinks, and spiking all this obstinacy in place within the confines of the towered superstructure is a nightmare. I discovered this when installing the outermost loop of 26" mainline radius in the Highfield/Hanover helix.

WHEN 45 YEARS OLD, ARMED WITH GRAPH PAPER AND A LARGE ERASER, I SET OUT TO EMULATE THE WM IN POINT-TO-POINT, SEQUENTIALLY ACCURATE FASHION IN HO SCALE.
— DAVE HUGHES

Nonetheless, I persevered, and the design achieves a 4" elevation differential with each 360-degree revolution – a considerable attribute given their small footprints.

More than one fellow modeler's heretical eyebrow was raised pre-construction when informed of my intended radii and grade. My goal was to have the helixes gobble up as little real estate as possible. With blissful ignorance and a sense of adventure, I experimentally assembled one to observe what would happen. I'm delighted to report it worked flawlessly.

Two helixes access lowest-level staging yards for Baltimore and Hagerstown, and the other two bring the upper deck back down to the lower deck at Emory Grove and Highfield. The topmost level of the Baltimore staging spiral performs double duty, connecting Westminster to Monocacy, with one and a half revolutions.

Attaining workable vertical clearance in the portion of the benchwork at the foot of the stairway was a challenge. In the design stage, a scant $\frac{3}{8}$ " between locomotive air horns and the underside of Monocacy's plywood roadbed and river basin above provided necessary headroom for satisfactory operation of the two swing bridges' feeder tracks. This was deemed an acceptable squash and has not proven a problem.

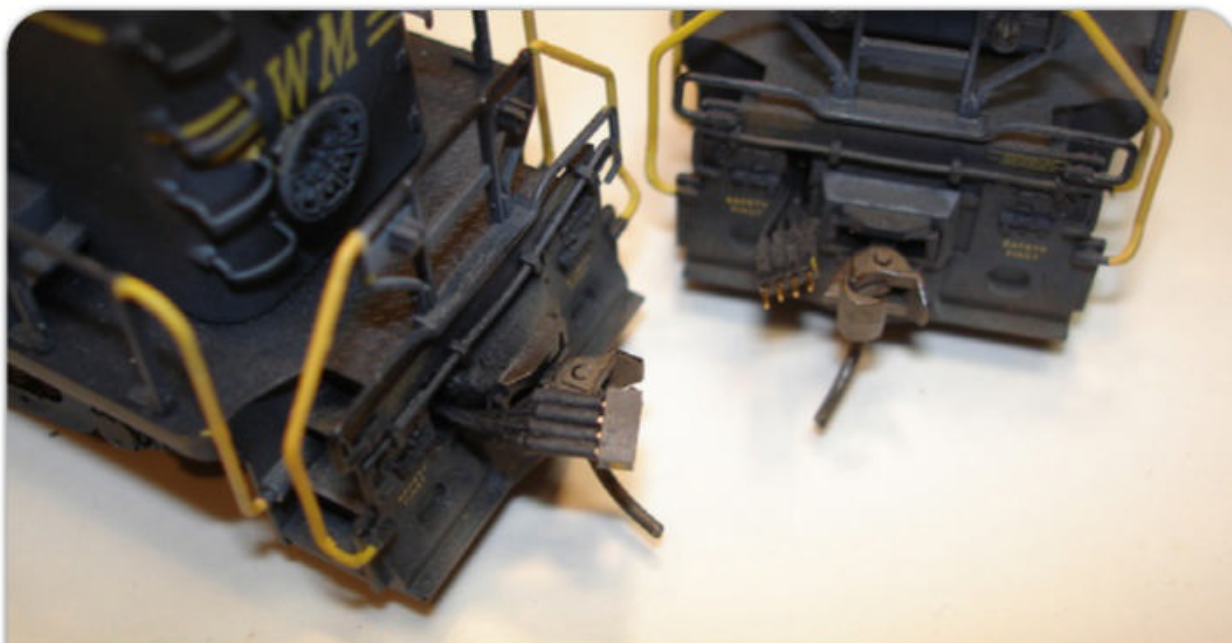
The two inner tracks of the Highfield/Hanover helix serve as hidden staging for the WM's daily Stone Train, which ran back and forth on the prototype between Bittinger, Pa., and Baltimore.

A little farther west within the helix lies Jack's Mountain Tunnel. The tunnel's interior is visible through a cutout in the fascia. The exterior of the helix supports a flat screen TV that displays movements in all four helixes. Another helix cutout view, Edgemont, was created in the Hagerstown staging helix.

Some modelers dislike helixes; I've embraced them. I like the idle time when trains are temporarily out of view. Operators can contemplate their next moves and catch up on a beverage. It's exciting to see a train emerge from a helix, having traversed locations along the real WM that must now exist only in my imagination.

Benchwork, track, and scenery

Both the perimeter shelves and the peninsula employ open-grid benchwork. The shelved portions are cantilevered and diagonally braced off the block walls, creating ample knee and toe room.



This photo shows the four-conductor micro-connectors used on a pair of connected Alco RS-3 diesel locomotives. One pair of conductors carries the DCC bus, the other the speaker connection, as both locomotives have the same diesel engine sounds.

Building consists

I consider my two-, three-, and four-locomotive diesel consists permanently connected. Shuffling diesels from one session to the next makes for variety, but I possess neither the patience nor the desire for the requisite speed matching for this pursuit. To keep the locomotives within each consist running smoothly, they're electrically daisy-chained using two- or four-conductor micro-connectors from Train Control Systems (TCS).

In two-unit consists with identical diesel engines (two Alco RS-3s, for instance), a sound decoder is installed in one locomotive. The second engine, fitted with a mobile decoder, has its speaker fed from the decoder via a TCS four-conductor connector (no. 1491). One pair reinforces the DCC track bus; the second pair completes the series wiring circuit for the two speakers.

In a three-unit consist comprising, for example, two first-generation EMD GP9s and one second-generation EMD GP40, I use a slightly different approach. The GP9s both have 567 diesel engines, so I connect them with a four-conductor connector as in the example above.

The GP40, which has a 645 engine, has its own sound decoder and speaker. This requires only a two-conductor plug (no. 1473) between the locomotive and the second GP9 to reinforce the DCC bus.

My method of consisting eliminates locomotive stalling and sound drop-outs. I clean locomotive wheelsets several times a year. The first sight of a flickering headlight indicates this necessity. I can't recall the last time I cleaned track.

The biggest trade-off of this consisting method is aesthetics. I simply decree the small visible wires between engines as crudely modeled air hoses and m.u. cables. I've become accustomed to their presence, and most seasoned modelers don't notice unless I make them aware.

Taking this extra measure to produce consistent running eases operational anxiety, particularly during open houses. This is an ongoing program I enjoy tinkering with, especially when a prototype photo inspires the creation of a new consist. – *Dave Hughes*

The vertical legs of the peninsula and helixes are well inset and were built of adjustable length. This permitted periodic leveling of the benchwork as it became more laden and the carpet compressed during construction.

The track is laid on Midwest Products cork roadbed. The subroadbed, $\frac{1}{2}$ "

extruded-foam insulation board and $\frac{1}{2}$ " plywood, is supported on risers. N scale cork roadbed was used for industrial spurs.

The fascia is $\frac{1}{4}$ " tempered hardboard painted satin black, which focuses visitors' eyes on the layout. The thicker hardboard firms up the benchwork and



5 Westbound symbol freight AJ-3 passes under the signal bridge at Control Point St. Georges, 18 miles west of Baltimore. The layout is only 10" wide at this location. Painted backdrops help add depth to the scene.

looks more substantial than 1/8" material. The 1/4" hardboard also makes it easier to hide screw heads, yielding an unblemished, ribbon-like surface.

I like the appearance and reliability of Atlas code 83 flextrack and turnouts. To get correct track geometry, I used curved and three-way turnouts from Walthers/Shinohara. I weathered all of the track with an airbrush after installation but before any ballast or proximate ground cover was applied.

Landforms were fashioned with whatever was convenient during the work sessions. The majority were made from extruded-foam insulation board, later

coated with brown latex paint. This mantle made tree planting quick, easy, and rigid.

I used real dirt and rocks as the base ground cover. The remaining materials, grasses, and trees are from Woodland Scenics and Scenic Express, among others. As traversed from east to west, the layout's urban, industrial, and littered presentation gives way to a more bucolic – even remote – ambiance, evoking the route modeled.

I thoroughly enjoy scratchbuilding. The Sudbrook Lane and Butler Road overpasses, along with High Bridge at the Owens Creek gorge are examples of my work. Due to time constraints and modeling priorities, however, most of the structures are airbrushed plastic or laser wood kits, many kitbashed.

I paint, detail, and weather every facet of every structure, even if its eventual placement renders a side nearly out of view. The unseen side of a building occasionally provides a canvas for testing out new painting and weathering techniques.

Judy paints the 1/8" tempered hardboard backdrop panels using photographs and slides I took in the late 1960s and early '70s of the various modeled WM sites as guides.

Bulletproofing

Model railroading is fun, and will elicit delight, as long as trains run flawlessly. To achieve that goal, three factors are involved: electrical continuity, smooth trackwork, and free-rolling freight cars.



All track is powered from the Digital Command Control (DCC) bus roughly every 4 feet via 22AWG feeders soldered to the bottom of rail joiners. Flexible feeder wires, also fed by the DCC bus, are soldered to the undersides of turnout point rails at their pivot locations. This eliminates the reliance of the moving rails making adequate electrical contact against the stock rails. I also power the frogs. These provisions result in zero dead spots on every turnout.

Smooth trackwork is also key to reliable operations. A National Model Railroad Association (NMRA) track gauge is an essential tool. Level railheads across the gauge on tangents, gently superelevated curves, graceful easements from curve to tangent, and a scrutinizing eye are paramount.

I also follow NMRA standards and recommended practices with rolling stock. As cars are introduced to the layout, they're properly weighted, coupler heights are checked, and plastic wheels are replaced with metal ones.

Lessons learned

Through my own experience and in absorbing the candor of others, I've



Meet Dave Hughes

Dave Hughes of Glyndon, Md., is a piano tuner/technician specializing in restoring vintage Steinway pianos. Away from work, he plays bass guitar professionally in two bands. Dave's non-music interests involve golfing with his wife, Judy; writing; and community volunteering. He also has an affinity for all dogs, especially collies.



learned it's tough to get everything just perfect in a model railroad. The butting of heads between the confines of the train room and the desire to model specific prototype sites sadly forced the elimination of long, alluring stretches of tangent track.

Though I made sure ample house power was available around the walls and within the ceiling during the room preparation stage, I didn't add a master on/off switch for the layout. This would have been wise.

The inclusion of more negative landform elevations in the foreground to facilitate layout photography would have been wise, as well.

The layout was built in sections approximately 8 feet long, from east to west. A better concept of backdrop presentation didn't hit me until I arrived at St. Georges. From this point eastward the panels are too short at 24", with several visible vertical joints. In hindsight, seamless panels that rise to the ceiling would have been better.

With these missteps offered, the layout constitutes both my debut and swan song in the hobby, and considering all I'm fairly well content with it.

Progress and completion

Thanks to drywall screws, cordless drills, a bandsaw, and a chop saw in a nearby workroom, the benchwork and trackwork were completed quickly. However, the landforms and scenery went in more slowly, with the structures and detail work following tediously to complete each scene.

I would love to have completed the entire railroad, sans scenery, early on so I could run trains from Baltimore to Hagerstown and back. However, I feared at the outset that the daunting task of creating an entire basement of scenery, buildings, and detail in certain unending drudgery would've lead to a swift, irreversible exit from the model railroading hobby. I enjoyably plodded along at my holistic, albeit sluggish, rate. It's the cyclic variety of the hobby's required disciplines that fuels the inspiration in me.

THE LAYOUT CONSTITUTES BOTH MY DEBUT AND SWAN SONG IN THE HOBBY, AND CONSIDERING ALL I'M FAIRLY WELL CONTENT WITH IT.
— DAVE HUGHES

6 A pair of Electro-Motive Division F7s pulls a unit train of empty cement hoppers westbound through Emory Grove on track no. 2. Dave's wife, Judy, painted the backdrops using prototype photos taken at the various modeled locations as guides.

From the beginning I informed inquisitive visitors that the timeline for completing this layout was 10 years, having begun in April 2001. I realized well before 2011 rolled around this projection was a bit naïve. The model railroad is currently 85 percent finished. With all the track laid as of November 2018, it's predominantly scenery and some structures between Highfield and Afton that require completion.

Upon attaining that momentous yet elusive milestone, there will then come the extensive detailing and weathering of locomotives, rolling stock, and structures, along with some scenic improvement at sites created when the layout and my modeling skills mired in their infancies. I also contemplate operations, an activity which simultaneously tempts and intimidates me. Perhaps in another decade I'll dare to proclaim the completion of my Western Maryland Ry. 



Details such as the luggage rack, trash receptacle, and end door came out of VIA Rail coach no. 5647. Visible beyond the vestibule is a photo mural of the next car.



The room is slightly larger than 12 x 20 feet, leaving a 28-inch-wide "platform" outside the coach.

MODELING IN 1:1 SCALE

Rapido Trains owner Jason Shron is the man with a train in his basement

By Jason Shron
Photos by the author

For most model railroaders, this hobby is all about trains doing their jobs, whether it's the super-powered modern freight train splitting the Prairie signals at 60 mph, the thrash of the old Alco switcher echoing off the walls of the warehouses and factories, or the glorious streamliner reflecting the sunset through the western desert. For some of us, however, the hobby started inside a train.

My first memory is onboard the VIA-Canadian National (CN) Turbo Train when I was 2 years old. Since then, the lure of trains for me has always been train travel. Sure, I loved the chance to catch a glimpse of the Turbo or *Rapido* passing alongside us on the highway east of Toronto. But far more than railfanning it, what I really wanted was to actually be onboard that train.

As a child, my brother and I would arrange the cushions of the sofa bed in the guest bedroom to be like train seats. We would design tickets, menus, and product brochures. It was all about riding the train, and it was then – at the age of 8 or 9 – that I decided I would have to build a train in my house.

The formal process started in 1987 when, at the age of 12, I wrote to VIA Rail Canada asking to buy their old seats. I received a very polite letter in reply, explaining that they still needed them. In 1997, I was driving past VIA's Toronto Maintenance Centre and I saw a pile of seat parts in a scrap heap. With permission, I filled my father's car with smelly old cushions. I was on my way. In 1998 I finally managed to find some complete train seats from retired coaches, and for years that's all I had ... seats.

When my wife, Sidura, and I were house-hunting in 2007, I spent a considerable amount of time trying to explain what I wanted to our real estate agent. In the first house, she told me: "This has a great basement. They just finished it."

"Great – now I'll have to unfinish it."

The second house: "You'll love this basement. It's huge!"

"Unfortunately, the ceiling is so low I'm bumping my head on it. No room for a train."

The third house: "This basement has 9-foot ceilings."

"WE'LL TAKE IT!" Luckily, Sidura liked the two floors above the basement, and we signed the deal that day.

By then I had acquired more seats, along with some doors, light fixtures, and miscellaneous hardware from retired VIA Rail Canada conventional



The coach seats were built for Canadian National by Mount Royal in 1954. After the car was transferred to VIA Rail Canada in 1978, the seats were refurbished with winged headrests and seat-back tray tables.

coaches. These were lightweight cars built in 1954 by Canadian Car & Foundry for CN. The order was huge – 218 cars – so many of the cars survived in some form. I took hundreds of photos and measurements of preserved cars, and the 12 x 20-foot room at the back of my basement became a construction site.

Construction

I always considered myself handy, but I had no idea how clueless I was about constructing what is essentially a new room inside my basement that happens to be shaped like a passenger car. This caused construction to take almost five years. I kept having to redo my shoddy work.

The basic structure is made from wood. The walls are 2 x 3 studs, and the ceiling is 2 x 6 wood joists I laminated into plywood that was cut to match the profile of the inside curve of the ceiling and the outside curve of the roof.

As I was only supporting the thin ceiling, I could have skipped the 2 x 6 joists altogether and just made these roof formers from plywood. One result is the roof of the coach is so heavy that I had to reinforce the walls to support the weight. Another result – perhaps a benefit – is that my house could fall down and

I wouldn't know. I essentially have a train-shaped air-raid shelter.

As I was building walls, I figured I needed a pneumatic nail gun. I then proceeded to "toenail" the 2 x 3 wall studs in place. Toenailing is when you don't have the room to build a stud wall on the floor and lift it into place. Instead, you nail in the studs to the floor on an angle. This took forever, and resulted in wonky walls which I had to redo once I learned how real people build walls.

The exterior of the train is 1/8" MDF – medium density fiberboard – which is essentially cardboard with an attitude problem. Like cardboard, MDF isn't very resistant to moisture or changes in humidity. I supported the MDF on the joists, which were spaced 12" apart. I then primed and painted the exterior and added the stripes.

Within a month, the exterior of the train looked like a photo of a wave pool. It was one giant ripple. I wouldn't even go to the basement for months, as the sight was so disheartening. I finally mustered the courage to rip out the "finished" wall and replace it with 1/4" plywood. I then laminated the MDF to the plywood with construction adhesive and about 600 screws, each of which had to be filled and sanded. Needless to say, the wall hasn't warped again.



The coach was framed with inexpensive 2 x 3 SPF (spruce/pine/fir) lumber. Jason laid the plywood floor directly on top of the existing laminate flooring.



The side doors required extensive refurbishment and copious amounts of body filler. The end door is so heavy that the jambs had to be anchored to the ceiling joists for stability.



Pieces of plywood cut to the interior and exterior profiles were laminated to 2 x 6 lumber to form the ceiling. Jason would have used 2 x 4s if he were doing it again.

Building this train car made me realize how vital it is to have proper safety equipment. Ear protection is a must when using power tools, and I'm amazed at how many people I see using them with no protection at all. When sanding body filler or even drywall mud, wearing a respirator will protect your lungs. But the most important, by far, is eye protection. Even though I wear glasses, I always wear eye protection when cutting or even drilling/driving. My eye protection saved my life.

I was using a 14"-diameter metal cutting disc to make a diagonal cut through 1" aluminum channel for the end of the car. As I was finishing the cut I felt a jolt in my goggles and my head was thrown back. Taking them off, I found a hole where the sharp end of the offcut had shot up from the saw and struck the goggles. Had I not been wearing eye protection, it would have gone through my eye and into my brain, probably killing me.

Model railroaders often don't bother to wear protective gear, as we figure we're just hobbyists and not professionals. A Dremel rotary tool may not be a 14" circular saw, but it can still do a lot of damage if something flies into your eye. Goggles and ear protection are a must.

A real train car

Midway through construction, I hit a roadblock. While I had gathered various mismatched seats, doors, light fixtures and other hardware, I was missing a lot of vital parts for this train. People who scrap old train cars keep the coat hooks and door handles. They don't keep the shop-built plywood luggage racks or the intake grilles in the bathroom ceiling! This was in 2010, at the height of the economic crisis. Business was struggling and it was a challenge to make ends meet. What I needed was a retired VIA coach, but I didn't have the budget for it.

Through the grapevine I heard that VIA coach 5647, which had been parked in Moncton, N.B., for 15 years, was going to be sold for scrap by the owners. I reached out to them and offered \$5,000 for them to let me in with my tools. They came back to me and said, "Why not take the whole car?" Even \$5,000 was a bit beyond my budget, so I partnered with a friend who operated a tourist line and needed parts for his cars. We put together a team of willing helpers and boarded a VIA train to the Maritimes, the baggage car filled with our tools.



Jason found a close match for the original VIA Rail wall covering and fabricated new overhead luggage racks from sheet metal and plywood.

Over two days we took everything out of 5647: the seats, the windows, the doors, the luggage racks, the trim. Everything. I spent four hours in the vestibule with an angle grinder, removing 58 $\frac{3}{4}$ " rivets from the door frame so I could take that door frame home. We had a 53-foot trailer parked up against the A end of the car, and we filled it up with stuff.

We sold the shell to a scrapper for \$2,000; we sold the 41-BNO-11 trucks to a railroad shop for \$8,000; and we sold all the spare seats and hardware to our fellow railfans for another \$5,000. This allowed us to cover the cost of the train car, the trailer to move everything home, and the storage unit where we could put it all. We had enough left over to go out for a really nice dinner.

Fellow Rapido employee Dan Garcia helped me with a lot of the more challenging aspects of construction. For example, we had spent two days installing an original train car door in the basement, but it was the door from a sleeping car, as that was all I could find. Now I had the door from an actual coach. This would require me to remove the sleeper door, rebuild the door frame, and install the coach door. I will always remember Dan's unequivocal response: "You're on your own this time, buddy."

Many things fell into place to allow this coach to be built. The floor carpets came from Quebec, where someone just happened to have been sitting on three rolls of unused VIA Rail coach carpets since the 1980s. A friend managed to get me a bag of little plastic buttons that were the same size and shape as those ground-off rivet heads. I even found a close match for the awful fake wood

paneling on the bulkheads from a company in Germany. The result is that this coach looks so much like the real thing that from some angles it's difficult to tell them apart.

The finishing touches were old iPods. One is in the ceiling of the vestibule playing a loop of a recording made in the vestibule of a VIA coach in 1979. One is connected to speakers throughout the interior playing a loop of track noise I recorded on a train on the Kingston Sub, the line I ride most often. And a third is where the blower is located on the real car, playing a recording of a real CC&F coach blower. It all adds to the



After finishing the coach, the skin of the exterior wall warped. Jason tore it out and completely rebuilt it. Using proper eye, ear, and breathing protection is a must when doing this kind of work.



Fortunately, Jason found three rolls of surplus 1980s VIA Rail carpet through a friend in Quebec. The seats were thoroughly steam cleaned before being installed.

immersive train-riding experience. The only thing it doesn't do is shake!

Next lifetime dream

Now that the coach has been finished for several years, I'm able to look back with a broader perspective. It's my home office, and during the COVID-19 pandemic we've all learned the value of a good home office. It's a space I can visit when I want to meditate or have a quiet moment away from the hustle and bustle of a busy home. It's a place to share a drink with a friend or two. Time seems to stand still in the coach, and we discover we've been talking for hours.

Most importantly, it taught me if I have enough passion, drive, and determination, I can achieve a lifelong goal. It's a lesson to my children that with hard work they can achieve their dreams, no matter how far "out there" those dreams may be.

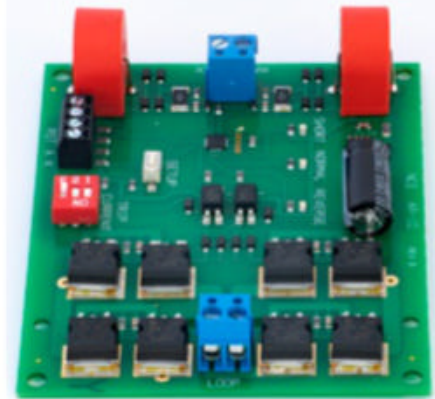
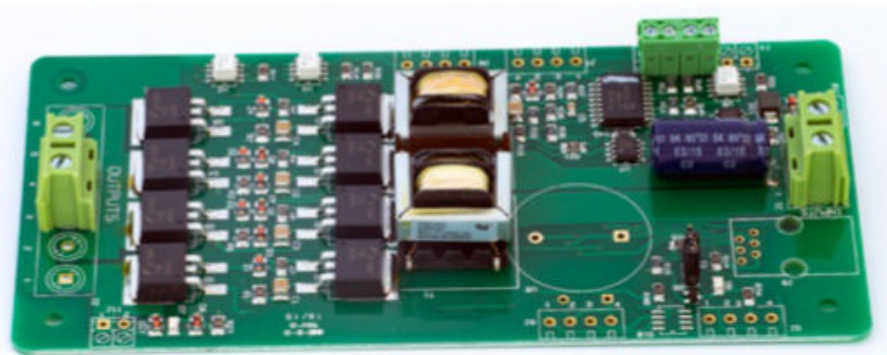
It has also given me the confidence to fulfill my other lifetime dream, which is the construction of an HO scale model of the Kingston Sub. Building the layout will take the rest of my life, but having already achieved one of my dreams, I know that I'm stubborn and determined enough to achieve the next one. 

Jason Shron is president of Rapido Trains and is a lifelong model railroader. He is currently building a triple-deck HO scale layout featuring VIA Rail Canada operations on CN's Kingston Subdivision in 1980. Jason lives in Vaughan, Ont., with his wife, Sidura, and their three children. When Jason isn't working on the layout he can be found watching Star Trek or driving his 1967 GM fishbowl bus.

Dealing with reversing sections



Some examples of automatic reversing controllers, clockwise from above: Digitrax BXP-A1, DCC Specialties PSX-ARFB, NCE AR10, and Digitrax AR1.



Wiring reversing sections

seems to be a topic that gives modelers trouble. Challenges seem to focus on identifying reversing sections, how to wire reversing sections, and electrical issues that develop after a layout is wired. To complicate matters, modelers often find they need adjacent reversing sections.

If you have anything that reverses the direction of travel, such as a balloon track, a wye, a turntable, a cross-over, or a diagonal track connecting opposite sides of an oval, you have a reversing section.

It's best that you determine if you have one or more reversing sections before you start laying track. This way, you can plan where to put insulated joiners or gaps. You'll have to gap both rails at every entry/exit point of your reversing section. If you don't find out you have a reversing section until after you wire, you may have to redo some of your wiring.

Automatic reversing section controllers (ARSC) are only a solution for reversing sections. If you have a shorting problem, that doesn't necessarily mean you have a reversing section.

Shown above are some of the more popular auto reversing modules. Some include an electronic circuit breaker. If you're planning on using electronic circuit breakers, use an auto reverser with a breaker built in so the two circuits work together, and you don't get strange results.

There are a few rules about reversing sections that are essential to follow. It's good to review them, even if you're familiar with Digital Command Control (DCC). I'll include some details you may

not have heard before. There are a few other things that aren't as well known that can solve a problem.

Rule 1: A reversing section needs to be at least as long as your longest train. This rule

The powered train length (underlined in red) may be short for a consist of locomotives.

If you have a pusher, your powered train length is the entire train.

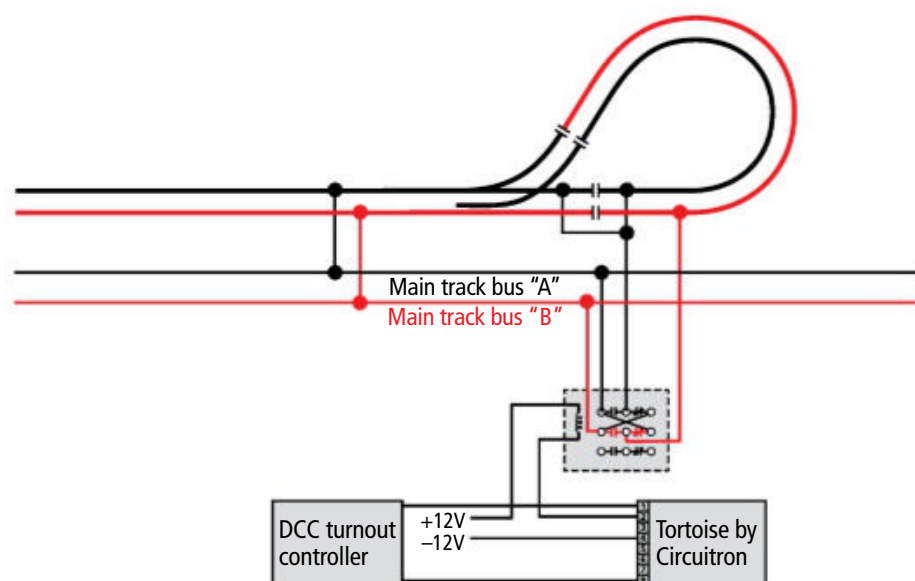
Powered train length is the entire train if you have lighted passenger cars.

A lighted caboose means the entire train must be considered when designing your reversing section length.

SoundTraxx SoundCars must also be included in determining your longest powered train.

If you have resistors on your cars for block detection, the whole train must fit the reversing section.

1 How long is your train? These diagrams show what you need to keep in mind when designing reversing sections.



2 Non-short-detecting reverser. A relay can be used to reverse a balloon track or other simple reversing section.

seems to cause the most trouble. In particular, you're concerned with the powered portion of a train. See the examples in **1**, opposite. All these devices in a train draw power and can short out your system if they are in a train that exceeds the length of your reversing section.

Rule 2: Double-gap the track at both ends of the reversing section. There's no need to stagger the gaps.

Rule 3: Don't connect your main bus to the reversing section in any way. Your reversing section will be powered entirely by your reversing circuit or switch or a dedicated reversing booster.

Rule 4: Don't put two reversing sections adjacent to each other if both of them are powered by an auto reversing circuit or reversing booster.

For automatic reversing to work, the reversing section needs to be adjacent to a portion of your layout that doesn't reverse due to short detection.

The automatic reverser needs to be able to adjust itself to match the non-reversing section. If you place two automatic

reversing sections adjacent to one another, they will compete, often resulting in unpredictable results or a shutdown due to a short.

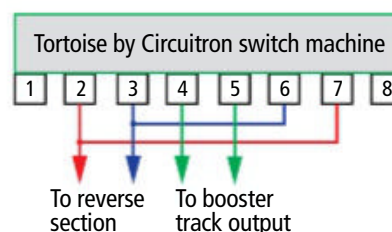
Rule 5: You can have several trains in a reversing section (within the current limits of your reverser), but only one train can enter or exit a reversing section at a time.

There can be several entry and exit points, but the more you have and the farther apart they are, the more careful you have to be.

Reversing can be done without short-detecting automatic circuits. Let's call this kind of device a non-short-detecting reverser (NSDR). This might be a basic double-pole double-throw (DPDT) switch, a DPDT relay attached to a turnout **2**, the DPDT

switch within a Tortoise by Circuitron or similar switch motor **3**, or a turntable with a built-in DPDT switch, like one from Walthers.

These DPDTs are typically less expensive than an automatic reversing controller. Reversing controllers that



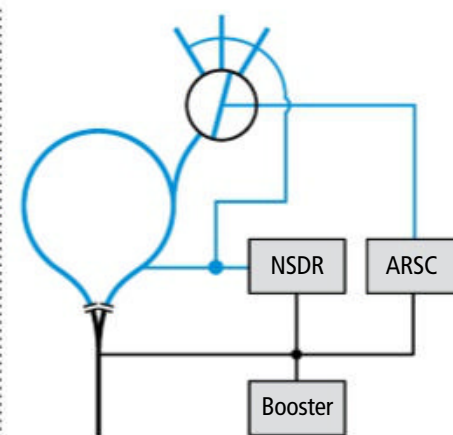
3 Tortoise tricks. If you're not using your Tortoise to power route your frog and both sets of contacts are available, you could use the DPDT switch within it to switch the polarity of the balloon track for one locomotive and a few passenger cars.

contain relays but rely upon electronics for short detection are not an NSDR. Non-short-detecting reversers typically can only be used when you have one entry/exit point, such as a balloon track, turntable, or a wye with only one connecting leg.

When using any type of NSDR, you may get the wires to your track backward and have a short. No problem. Just reverse the wires going to your track in the reversing section.

A layout containing adjacent reversing sections is a common problem. Try controlling one of them with an NSDR. If you have a section that reverses due to an NSDR, the adjacent automatic reversing section will adjust itself to the stable polarity of the NSDR section **4**.

Some boosters have reversing capability. Make sure you consult your manual to know



4 Adjacent reversing sections. If you're using a turntable that has a built-in non-short detecting reverser (NSDR), you don't need the automatic reverse section controller (ARSC) shown. You would then connect your turntable directly to the booster. You might even be able to make them both an NSDR and save some money! A single line represents the two wires between each device and the track.

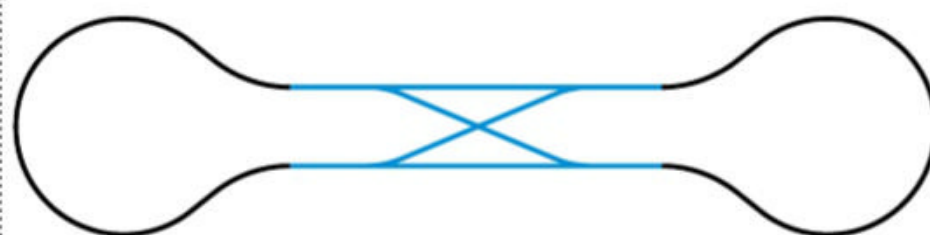
if yours does. Don't use your booster in this mode unless you need it. These boosters typically have a way to disable the reversing capability. Also, don't hook up an ARSC to the output of a booster that is configured to auto-reverse. You'll get unpredictable results.

Another trick if you can't make a reversing section long enough is shown in **5**.

For more on reversing and more examples of reversing sections, see the DCC for Beginners and Track Wiring sections of my website as well as the Q&A Forum at WiringForDCC.com. **MR**



RULE 1: A REVERSING SECTION NEEDS TO BE AT LEAST AS LONG AS YOUR LONGEST TRAIN. — ALLAN



5 A dogbone schematic with a crossover. The reversing section is shown in blue and has four entry/exit points. You can get creative! Make the portion in blue the non-reversing section and make the two loops the reversing sections. Now both reversing loops have only two entry/exit points.



Bachmann HO scale SC-44 Charger diesel

It's so new you might never have seen one, but now you can have an HO scale sound-equipped Siemens SC-44 Charger on your layout thanks to Bachmann.

The Siemens SC-44 Charger is built in California. The first units are in Amtrak-supported state and regional service. Chargers have been pulling trains in California (CalTrans, North County Transit District, and San Joaquin Regional Rail Commission), Illinois, Michigan, Missouri, Indiana, Wisconsin (IDOT), Maryland (MARC), and Washington state (WSDOT) since 2017. Amtrak has ordered 75 similar ALC-42 locomotives for its long-distance interstate trains. They're expected to be delivered in summer 2021. Construction started in March 2020.

The SC-44 locomotives are powered by 4,400 hp 16-cylinder Cummins QSK95 diesel engines designed to meet Tier 4 exhaust emissions requirements. The engine powers AC traction motors which can propel the locomotive to a 125 mph top speed. Only MARC is currently using this performance.

Based on the European Vectron diesel-electric, the locomotive is divided into five modular compartments: the crew cab, first electrical compartment, engine room, engine cooling compartment, and second electrical compartment.

In addition to providing power for the traction motors, the Cummins diesel drives the head-end power (HEP) unit, providing 600kW for train cooling, heating, and lighting. Dynamic braking can send regenerative energy to the cooling system to be dissipated as heat, or to the HEP or auxiliary electrical systems.

The first orders for 32 locomotives were placed in 2014 for the West Coast and Midwest Amtrak services. The contract allows for 75 additional locomotives, and so far, 32 more have been ordered. Testing began in 2016, including certification for operation at 125 mph, and revenue service began in 2017. Florida's Brightline service ordered 10 similar SCB-40 locomotives, which were built, tested, and accepted concurrently with the Amtrak orders. VIA Rail Canada also has orders for Siemens Chargers.

Bachmann's model follows typical HO scale locomotive construction, with a plastic body shell on a die-cast metal frame. A centrally located can motor powers all eight wheels, which also pick up electrical power from the rails. A Train Control Systems (TCS) WOWSound dual-mode sound decoder is mounted above the motor on the frame. The speaker is mounted in the fuel tank area.

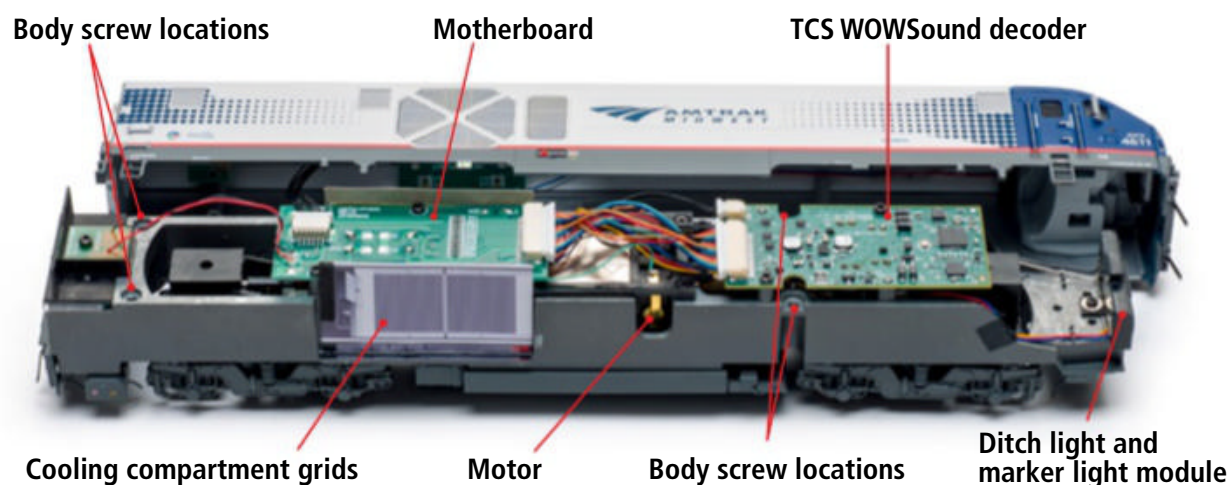
To check out the inside of the locomotive, I started by removing the couplers. I probably could have left them in place. There are four screws that secure the body to the frame. They're located aft of the front and rear trucks. With the screws removed, the body shell slipped easily off the frame, but be careful of the lighting harness going to the lights attached to the body shell, as it's short.

The plastic body shell is one piece with numerous added detail parts, including the see-through grills on the cooling compartment that reveal the lighted compartment interior.

There's also a detailed crew cab with control console. Separate windshield wipers, rear-view mirrors, and recessed handrails add detail to the outside of the cab. A separate five-chime horn and several antennas adorn the roof. Molded detail on the roof includes the air conditioner and radiator fans depicting fan blade detail.

The ends are detailed with m.u. hoses and receptacles, plus grab irons and handrails at the rear of the locomotive. The model scales to within inches of dimensions posted online in Siemens sales literature except overall length, which is affected by the slightly overscale nature of model railroad couplers.

Our sample was decorated in the Amtrak Midwest scheme, which is pri-



The Bachmann HO scale Siemens SC-44 Charger has a die-cast metal frame. A Train Control Systems WOWSound decoder programmed specifically for this locomotive sits ahead of the motor.

marily silver with dark blue accents at the ends. The roof is painted gray with silver details, and the nose has blacked-out panels around the windshield and destination sign, which indicates this locomotive is headed to Chicago. Paint was opaque with sharp color separations.

The Amtrak Midwest lettering matches published photos, and although some of the placards printed on the locomotive are too small to read, they're correctly placed and sized and have an appropriate look to them.

The electronics on this locomotive are a step beyond the norm. In addition to diesel engine sounds, the horn, and bell, TCS has included station announcements, a grade-crossing sequence, and an effect referred to as "Whoosh," which simulates the train streaking past at speed.

Lighting also gets extra attention with an illuminated destination sign, flashing beacons on the roof, operating ditch lights, and lights shining through the mesh grids on the sides of the cooling compartment. Of course, there's the expected directional headlight, plus directional marker lights and lighted number boxes.

I started testing the locomotive on my home switching layout, and one of the first things I wanted to adjust was the sound levels. My living room didn't need volume calculated for a large club environment during an open house.

A nice feature of TCS decoders is Audio Assist, which makes volume adjustments easy. Pressing function button 8 (F8) four times in rapid succession opens the feature. A woman's voice guides you through various adjustments to configuration variables (CVs) without having to do any programming.

My goal was to reduce the volume of the locomotive. After entering Audio Assist, I pressed F1 to adjust sound settings, then pressed F1 again to adjust the master volume. Now, each time I pressed

PERFORMANCE CHARTS	
DRAWBAR PULL	3.68 ounces 17 free-rolling passenger cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
9 (start)	38
10	53
11	68
12	91
13.5 (max)	109
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	1.6
7	28
14	57
21	89
28	93

F1, the locomotive played a selection of sounds – a steam chuff, whistle, and bell – at a lower volume each time I pressed the button. Pressing F8 saved the changes. Pressing F9 took me to the previous menu, where I could press F2 to adjust the volume of specific sounds. Pressing F3 cycled forward through the sounds, and F4 cycled back in case I jumped too far ahead.

With the sound volumes adjusted, the Bachmann SC-44 Charger became a more welcome guest on my living room switching layout.

In speed step 1, the locomotive crawled along at 1.6 scale mph. Top speed at step 28 measured 93 scale mph, which is probably about the maximum on Midwestern tracks.

Bachmann and TCS have added two modern features to the decoder on this locomotive. One is an emergency stop sequence. Pushing the STOP button on my NCE PowerCab not only brought the locomotive to a halt, but also triggered a brake squeal effect and illuminated the red beacon on the roof.

There's also a deadman's switch. If you don't send any commands for a set period of time, an alarm sounds. If you still don't press any function buttons, the locomotive stops and illuminates the red beacon. If this level of realism is too much hassle, it can be disabled.

Of course, in DC there aren't as many features available, but you still get the

Facts & features

Price: \$459, DCC and sound

Manufacturer

Bachmann Industries Inc.

1400 E. Erie Ave.

Philadelphia, PA 19124

bachmanntrains.com

Era: Present day

Road names: Amtrak Midwest (two road numbers), Amtrak Cascades, and Amtrak Pacific Surfliner

Features

- Audio Assist voice-guided programming
- Die-cast metal frame
- Directional headlights
- Dual-mode DCC sound-equipped
- EZ-Mate couplers, at correct height
- Interior corridor work lights
- Keep-Alive power capacitor
- Metal wheels, in gauge
- Operating marker lights
- Roof-mounted strobe lights, per prototype
- Separately applied windshield wipers, grab irons, and detail parts
- Siemens-approved design
- Steady/alternate flashing ditch lights
- Weight: 1 pound, 1.5 ounces

lighted cooling compartment, rooftop strobes, ditch lights, and directional headlights and marker lights.

Sound started at about 7.5V, and the locomotive started moving at about 9V at 38 scale mph. Once it was moving, I could slow it down. Before it started moving forward, is sounded two warning blasts from its horn and the bell sounded as the locomotive increased speed.

Giving the Bachmann power pack's throttle a blip triggered a grade-crossing sequence. Starting in reverse triggered three blasts from the horn. Diesel engine sounds increased in speed appropriately as speed increased.

This is another well-done model of a modern Amtrak locomotive from Bachmann. The detail level is high, and all of the sound and lighting effects of the prototype are faithfully re-created. Contemporary modelers wishing to add passenger service to their HO layouts should certainly check these out. – *Eric White, senior editor*



The five-chime horn and an array of radio antennas are added details on the roof. Radiator fan detail is molded in place and painted, creating a convincing effect.



Athearn N scale PS 4427 covered hopper

A Pullman-Standard (PS) high-side 4,427-cubic-foot-capacity three-bay covered hopper is now available from Athearn Trains. The N scale model features an injection-molded plastic body, wire and etched-metal details, and screw-mounted roller-bearing trucks with 36" metal wheelsets.

The prototype. Pullman-Standard introduced the 4,427-cubic-foot-capacity covered hopper in 1964. For the first two years of the production run, the cars had a 4-3-4 exterior post pattern and low sides that partially covered the bays.

In 1966, PS revised the design with higher sides and 13 exterior posts. The Athearn model is based on this version. Among the benefits of the higher sides were easier access to the vibrator brackets and outlet gates, lighter car weight, and lower manufacturing costs.

The high-side cars were built from September 1966 through June 1971. During that time, more than 12,000 cars were built.

Our sample is decorated as Atchison, Topeka & Santa Fe no. 307749, part of the railroad's 307500 through 308749 series (GA-161 class) built under Lot 9162 at Pullman's Butler, Pa., plant in the fall of 1966.

Between September 1966 and June 1971, Santa Fe ordered 3,900 high-side 4427 covered hoppers. The largest group (3,000) was the GA-161 class, followed by the GA-173 class (400) and GA-175 class (500).

The model. The Athearn 4427 covered hopper has an injection-molded plastic body with a separate roof. The roof features a see-through etched-metal running board, wire corner grab irons, and a one-piece plastic casting simulating the

four hatch covers. The corners opposite the grab irons are stenciled CAUTION NO SIDE LADDER.

The sides, end cages, slope sheets, and hopper bays are molded as a single unit. The outlet gates, brake appliances, and brake wheel are separate, factory-applied parts. The roping staples are etched metal. A formed wire air line runs below the sill on the right side of the car.

The draft-gear box, body bolster, bolster block, and a short section of sill are cast as a single piece that's attached to each end with a screw and glue. The 100-ton trucks are molded in brown plastic and attached with washer-head screws.

By the numbers. Our sample is painted in Santa Fe's as-delivered scheme. The paint is smooth and evenly applied, and the logo and lettering placement matches prototype photos. The model's dimensions closely follow prototype drawings in the March 1995 *Mainline Modeler*.

There were a couple of lettering discrepancies with the model. The A end hopper bay is stenciled 1274 Cu Ft, but it should be 1574 Cu Ft. The middle bay should be 1279 Cu Ft, not 1579 Cu Ft.

The NEW 12-66 stencil also isn't accurate for the road number. Cars in the 307500 through 308749 series were built between September and November 1966.

The body-mounted McHenry scale couplers are at the proper height. The 36" machined metal wheelsets are correctly gauged. At 1.1 ounces, the car is properly weighted per National Model Railroad Association Recommended Practice 20.1.

I tested the car on our Canadian Canyons N scale layout, which features 13" minimum radius curves and Peco code 55 medium turnouts. The car operated without incident while being

Facts & features

Price: Single car, \$28.98; three-pack, \$84.98

Manufacturer

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

Era: 1966 to present

Road names: Atchison, Topeka & Santa Fe; Burlington Northern; Chicago & North Western; Harmon Grain, Trumbull, Neb.; Montana Rail Link; Pillsbury; Union Pacific; and Wisconsin Central. Three single cars and one three-pack per scheme.

Features

- 36" machined metal wheels, in gauge
- Body-mounted McHenry scale couplers, at correct height
- Screw-mounted roller-bearing trucks
- See-through etched-metal running boards
- Separate outlet gates
- Weight: 1.1 ounces, correct per National Model Railroad Association Recommended Practice 20.1
- Wire corner grab irons

pushed and pulled in a train, including being shoved up a 1.9 percent grade in the five-turn helix.

Athearn's N scale PS 4427 high-side covered hopper is a sharp-looking model of a common prototype. The car has a nice blend of molded, etched-metal, and wire parts. Operators are sure to appreciate the body-mounted couplers and metal wheelsets. – *Cody Grivno, group technical editor*



WalthersMainline HO scale 40-foot boxcar

A ubiquitous freight car that rode America's rails from one World War to another, the 40-foot double-sheathed wood boxcar developed by the United States Railroad Administration (USRA), is the latest HO scale offering from WalthersMainline.

A war baby. The United States Railroad Administration (USRA) was formed in 1917 to nationalize the nation's railroads, which were overwhelmed by the task of moving war materiel, fuel, food, troops, and more to Eastern ports for World War I. To address the shortage of freight cars, the USRA ordered 80,000 cars in five standard designs. The majority of these were boxcars, which came in two designs: a 50-ton single-sheathed boxcar (USRA specification 1001-B) and a 40-ton double-sheathed car (1003-B). Walthers' model represents the latter design, of which 25,000 were built. These standard car designs proved popular

with the railroads, which continued to build them after the dissolution of the USRA in 1920; Walthers' car models a boxcar built at St. Louis in 1922.

Our review sample bore the reporting mark WAB 80789. According to the 1930 *Official Railway Equipment Register*, the car was part of a 2,800-car batch numbered from 78200 to 80999. Later editions of the ORER showed the last of these cars survived until 1956.

The model. The HO scale boxcar feels sturdy, with the car floor glued securely into the one-piece injection-molded body. Details like the grab irons, ladders, drop steps, and immovable door are molded in place, though the running boards, fish-belly underframe, brake-wheel platform, and brake gear are separately applied. The car has a vertical brake staff characteristic of the early part of the car's lifespan.

Our sample was smoothly and evenly painted Oxide Red with white lettering. Though there were gaps in the letters where they crossed the grooves in the siding, even the smallest lettering was opaque, sharp, and readable.

I found drawings of the prototype in the 1925 edition of the *Car Builder's Cyclopedia* (Simmons-Boardman). The HO scale model matched the drawings in detail placement and came within a few scale inches of all the major dimensions I checked. The blackened metal RP-25-contour wheels, mounted on plastic axles, were in gauge in the Accurail trucks. The car's Proto-Max magnetic knuckle couplers were also mounted at the correct height.

I tested the car on our Beer Line project layout, coupling it between a pair of freight cars and pushing it through the 18" radius curves and no. 4 Atlas

Facts & features

Price: \$27.98

Manufacturer

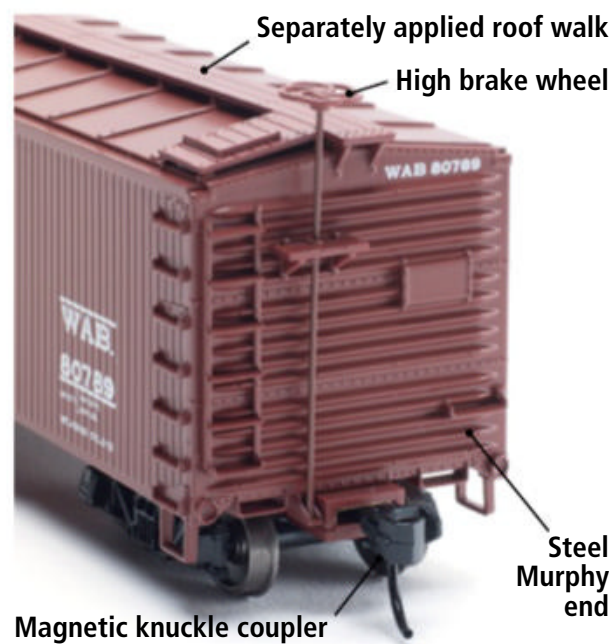
Wm. K. Walthers Inc.
5601 W. Florist Avenue
Milwaukee, WI 53218
walthers.com

Era: 1922 to 1956 (Wabash version)

Road names: Wabash (Oxide Red, four road numbers); Atchison, Topeka & Santa Fe (Boxcar Red with black-and-white circle-cross herald); Chicago, Burlington & Quincy ("Everywhere West" slogan); Toronto, Hamilton & Buffalo (yellow and black, four numbers); and Union Pacific (Boxcar Red). Three road numbers unless noted; also available undecorated.

Features

- Blackened steel wheels on plastic axles, in gauge
- Fish-belly underframe
- One-piece injection-molded styrene body with molded-on grab irons
- Proto-Max magnetic knuckle couplers mounted at correct height
- Separately applied running boards, brake staff, and AB brake gear
- Steel Murphy ends
- Weight: 3.7 ounces (0.175 ounce light per National Model Railroad Association Recommended Practice 20.1)



Though detail items like the grab irons and drop steps are molded in place, others, like the running board and brake wheel, are separately applied.

Snap-Switches. It handled those curves and turnouts like a pro.

Just can't get enough. If you model the last few decades of the steam era, you need cars like this, and a lot of them. These boxcars carried it all, so you probably already have destinations for them.
– Steven Otte, associate editor

Menards HO scale Sprecher Brewing Co.

Sprecher Brewing Co., a Milwaukee fixture famous for craft beers and many flavors of fire-brewed sodas, is coming to HO and O scale model railroads nationwide thanks to another Wisconsin company, Menards.

The model. Menards' structure is meant to resemble a generic brewery of the steam-to-diesel transition era. The era I listed in the info box for this structure is based on the years Sprecher has been in business; if you're not worried about the accuracy of the logo, the building would fit anywhere from the late steam era to today.

Like most of its structures, the brewery is made of medium-density fiberboard on a laser-cut

plastic base. The walls are laser-etched in a brick texture. Wood-grained plastic trim covers the wall joints. There's a section of brick wall that, if removed, opens a tunnel through the back of the building big enough to run a train through.

Lights and details. The building has a lot of interesting details. The roof has air handling equipment, pipes, and a wooden water tank with a blinking red beacon on top. Lighting is always a prominent feature of Menards buildings, and the Sprecher brewery has plenty of it. Powering the lights requires a 4.5V direct-current adapter, sold separately (part no. 2794061, \$7.99).



Facts & features

Price: \$69.99

Manufacturer

Menard Inc.

5101 Menard Dr.

Eau Claire, WI 54703

menards.com/trains

Era: 1985 to present

Features

- Animated lighted brewery sign
- Factory assembled
- Medium-density fiberboard construction
- Light-emitting-diode lighting
- Removable filler wall section

Raise a glass. Menards continues to expand its line of structures, making it easy to quickly populate a layout with a broad range of industries and downtown buildings. Sprecher Brewery is an industry that would look appropriate in any city scene from the steam era to today. – *Steven Otte, associate editor*

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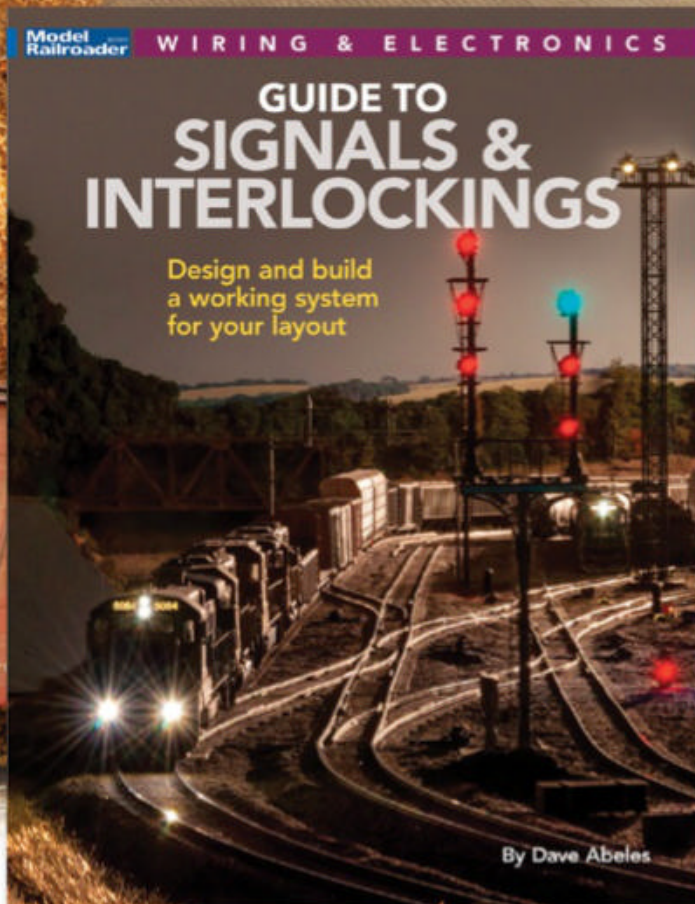


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Moving work trains

A reader asked how he might use a dynamometer car in an operating session. Such a move would be rare, but the question prompts ideas for other specialized equipment to appear.

Scratching my head about this, I thought about a Maine Central work train that I camped beside one night some 50 years ago, parked on a siding at Fabyan, Maine. As I recall, this was a bridge and building gang. Its bunk cars, tool cars, kitchen, and other assorted neat equipment made a home away from home while a lengthy project such as strengthening or replacing a bridge was underway. Here's my point: It wasn't rusted to the rails there; it had to move sometime, somehow.

Typically, during the timetable-train-order period, such a move was made as an extra train. This brings us to distinguish between an extra, a work extra, and a work train. Extras and work extras are trains that move by train order instead of by schedule. Extras are authorized by Form G orders: ENG 616 RUN EXTRA A TO F. The extra must run from A to F without reversing direction.

A work extra is a special kind of extra. It uses Form H: ENG 616 WORKS EXTRA 945AM TO 345PM BETWEEN D AND E. "Between" is key: this work extra can operate anywhere from D to E, going back and forth between the two points at will. A work train can move as either an extra or a work extra, but not all work extras are work trains. A Form H work extra can also make a good choice for a switch job serving industries that require movement back and forth between two points.

Spreading cinder ballast is a maintenance activity that should have a regular place on a steam-era layout. It's a task that might require the back-and-forth movement that a Form H allows. I was digging through my waybill collection when I happened upon a waybill moving 10 cars of cinders from an engine terminal to a track foreman 50 miles away. A local moved them to a small yard near the work location



John Treen, a veteran New York Susquehanna & Western conductor, captured many "insider" views of railroading. On April 9, 1951, two section foremen and their men are loading scrap rail with Work Extra 252 at Vails, N.J. John L. Treen photo

where they were stored until the work extra was arranged.

Ditching work to ensure that water drains from the roadbed can put a Jordan spreader work extra out on the road. The photo above shows a work extra picking up scrap rail. The Maine Central bridge and building gang probably moved as an extra.

Extra trains must clear the time of superior trains and protect against other extras. This can frustrate maintenance-of-way work, forcing a work extra to suspend activity to run to a nearby siding and clear the main for regular trains, especially if schedules leave small windows between them.

Long waits remain the case today. My scanner often announces a dispatcher telling a signal maintainer or a track foreman of a wait of several hours for traffic to pass before he'll issue movement authority.

Operating a wreck train takes more imagination, but leaving the wreck out of the picture simplifies the answer. Many of us model segments of a main line over which the

work train could pass on its way to a wreck at an off-layout location represented by a staging yard. Who wants to clean up a model derailment any way but with five fingers?

I know of an instance in which a New Haven wrecker worked to clean up a mess on a neighboring line. Another wreck summoned an Erie wreck train to a connecting line, both cases of mutual aid. A Form G suffices to authorize these through movements.

A dynamometer car measures locomotive performance, particularly speed and tractive effort, under varying conditions. The dynamometer car is placed between the engine and its train so its instruments can measure drawbar forces. When a builder designed and constructed a new engine or a railroad improved an existing type, a dynamometer car tested the engine's capabilities, from which railroads could calculate tonnage ratings. Putting a dynamometer car to work on a model railroad requires imagination, but we model railroaders are imaginative.

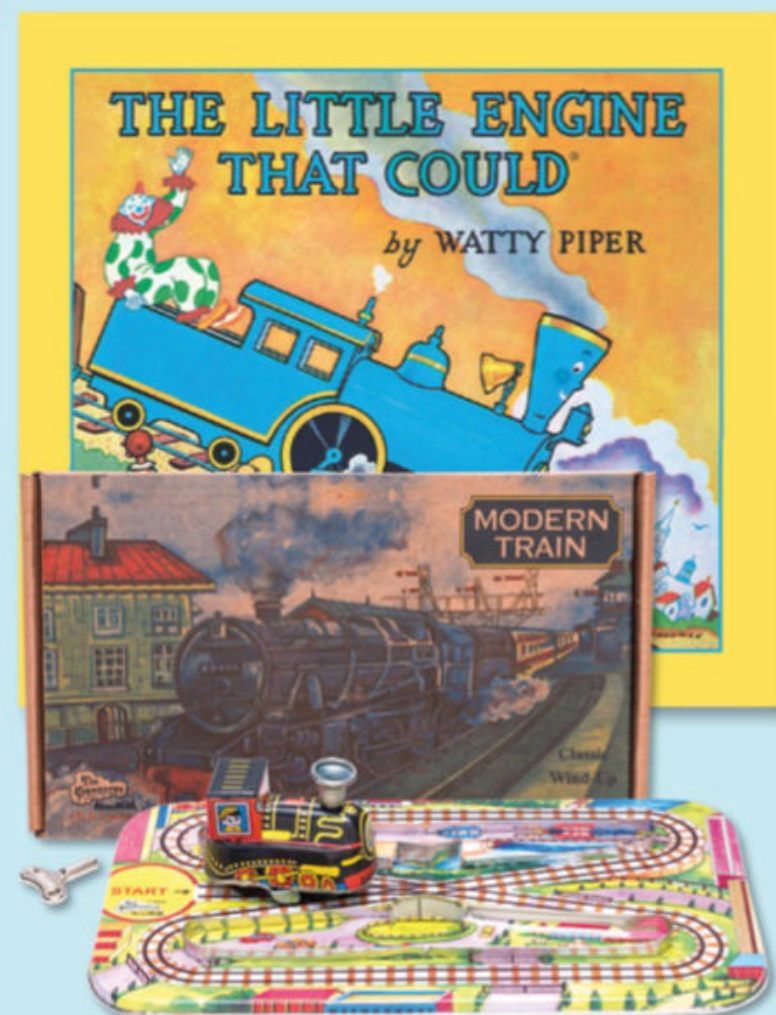
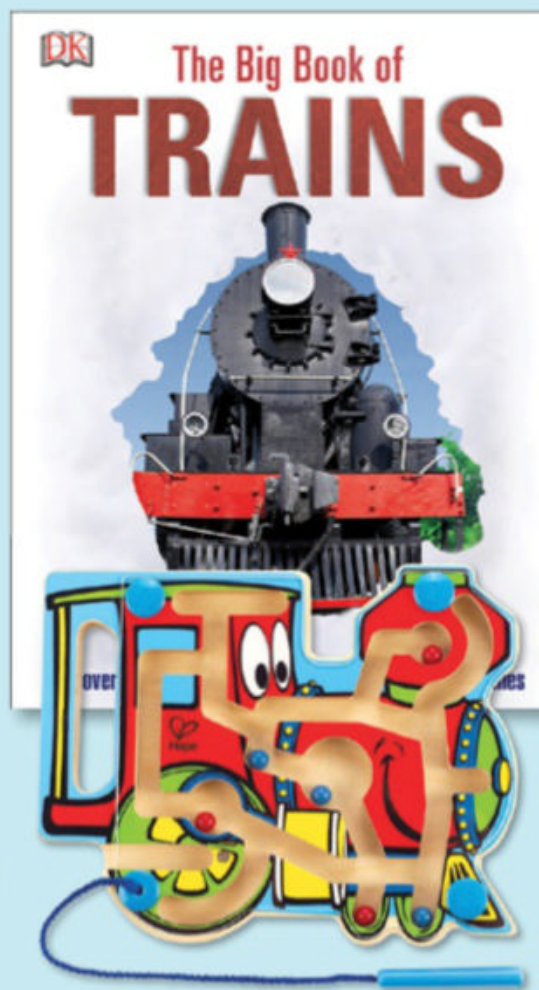
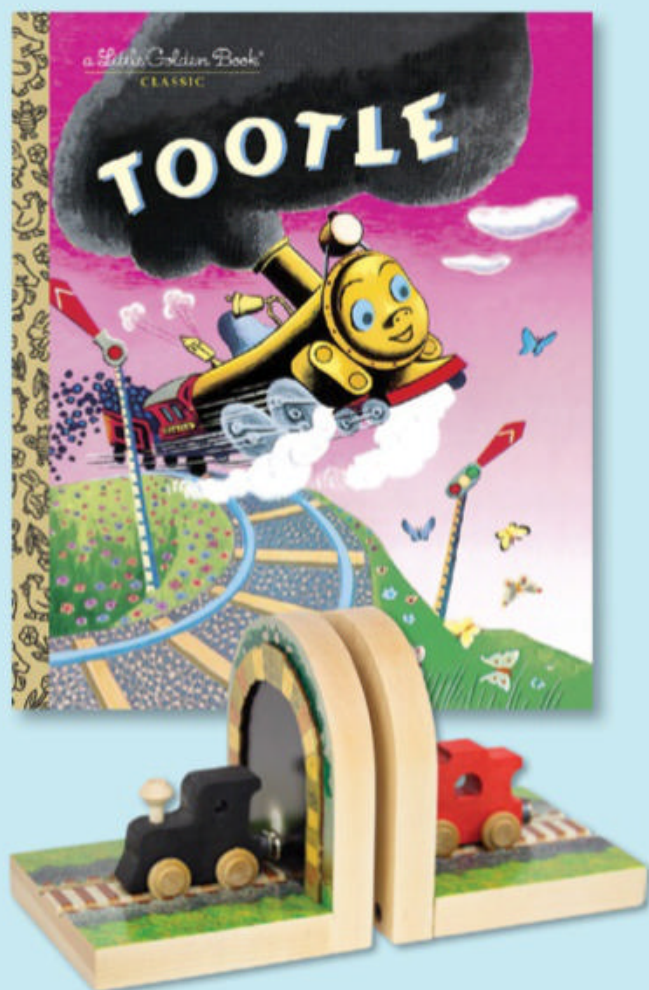
Bridge and building outfits, Jordan spreaders, wreck trains, and dynamometer cars make eye-catching models. They deserve more than static display, stuffed out of the way on a yard track. A little extra work can bring them to life. **MR**



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🔗 Don Janes' photo
of Rutland Alco
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month's wallpaper.
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A Rutland freight led by Alco RS-3 no. 201 crosses a stone arch bridge on its way toward North Bennington, Vt. Don Janes of Sarnia, Ont., photographed the scene on his HO scale Boston & Maine Green Mountain Division layout. The RS-3 is a DCC-equipped Atlas model Don superdetailed and custom painted. The stone arch bridge was built from masters made by Jim Dufour.



A plant worker uses a small industrial switch engine to shift a tank car in plant on the Pender Mills RR. Brian Rudko of Vancouver, B.C., photographed the action on his 2 x 4-foot, large-scale, narrow-gauge switching layout, which was featured in the September 2009 *Model Railroader*. The switcher is a Tom Yorke resin body on a Bachmann 0-4-0 "critter" chassis. The tank car and other freight cars are scratchbuilt.

Send us your photos

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



Whatever it is that the crew is intently watching just up the track, it's keeping Augusta & New Arcadia 2-6-0 Mogul no. 94 from completing its work. Benjamin Asmussen of Copenhagen, Denmark, modified and painted the On30 Bachmann steam locomotive, altering the cab and stack to give it a more Eastern look. He also photographed it on a diorama. Claudia Everett painted the figures.



An Alco S-2 spots a boxcar at Laskey Cabinet Co. Malcolm West of Qualicum Beach, B.C., photographed the scene on his HO scale proto-freelanced layout. The structure is built from a Scotty Mason kit. The locomotive and car are both Atlas models.

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

Schedule of Events

AR, JACKSONVILLE: Inaugural JACKSONVILLE HOBBY & CRAFT EXPO. Jacksonville Community Center, 5 Municipal Drive, Jacksonville, AR. Saturday, April 10th, 9:00am - 5:00pm. Vendors for trains, models, diecast, crafts. Model and Train contests. Admission \$8.00, 12 and under free w/adult. Contact RAIL & SPRUE Hobbies, 1200 John Harden Drive, Jacksonville, AR 72076. 501-982-6836, or railandsprue@aol.com

FL, PINELLAS PARK: Regal Railways Presents an Easter Show. Lopez Hall, 7177 58th St. North, Saturday, April 3, 2021. 9:00am-2:00pm. Adults \$5.00, children under 12 free. Vendors, videos & operating layout. Serving lunch items. Masks required in Pinellas County. Contact Joe: 727-244-1341 or visit www.regalrailways.com for more information.

GA, CARTERSVILLE: The Piedmont Division Model Train Show. Clarence Brown Conference Center, 5450 Hwy 20, Cartersville, GA. NEW DATES: Oct. 2nd 10-5 & Oct. 3rd 10-4. Admission: \$9 for adults, kids 9 and under are FREE. NMRA 2-Day Event, Free Parking, 150 vendor tables, 6 operating layouts, White Elephant, Raffle Layout! Information: www.piedmont-div.org or leave a message at 404-550-4816

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

GA, SAVANNAH: Coastal Rail Buffs 32nd Annual Model Railroad and Train Show. Savannah Christian Preparatory School, 1599 Chatham Parkway, Zip: 31408. March 6-7, 2021, Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Adults 2-day admission \$7.00; Students/Seniors \$5.00, Active Duty Military/under 12 FREE. Dealer tables, operating layouts in O, HO, N. See www.coastalrailbuffs.org

IN, PERU: Miami County Model Train Show and Swap Meet. Saturday, April 3, 2021, 10:00am-4:00pm. Miami County Fairgrounds, 4-H Project Building, 1029 W 200 N, Zip: 46970. All scale trains, books and memorabilia. \$3.00/person. Children 5 and under free. Free parking! Proceeds benefit the Light Up Peru! fund. Covid restrictions may apply. Questions, contact Paul Forman at 765-432-1052.

NJ, LAMBERTVILLE: Golden Nugget Antique Flea Market Model Train Show. Saturday, April 24, 2021, 6AM-4PM. Golden Nugget Pavilion, 1850 River Road, Lambertville, NJ 08530. Free admission, free parking. Collectible toy trains of all gauges - 80 vendor tables. Test track on site, many parts available. Vendor space available, call for reservations: 609-397-0811 www.gnflea.com

OK, BIXBY: Greater Tulsa Train Show, Bixby Community Center, 211 N. Cabaniss Avenue, Zip: 74008. Saturday, April 10, 2021, 9am-3pm. Admission: \$5.00 adults, under 18 free w/ paid adult. PROTECTIVE MASKS REQUIRED. For further information visit: www.ttos-soonerdiv.org

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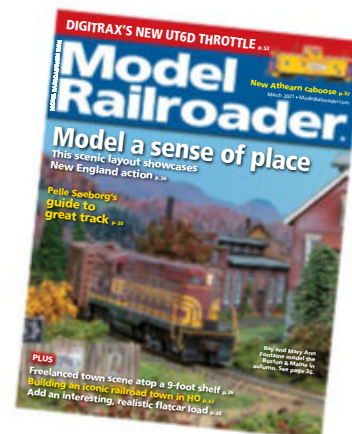
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Model Railroader MAGAZINE



Coming Up

Big CN British Columbia action in a small space

We visit Scott Lamoureux's N scale Canadian National Ashcroft Subdivision, which features broad river canyon vistas in 7 x 11 feet.

Go into the woods for a natural view block

Contributing editor Lou Sassi shows how he separates scenes on his On30 Sandy River & Rangeley Lakes layout with scratchbuilt trees.

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Expansive living in smaller worlds



Brooks Stover recently downsized both his home and his S scale Buffalo Creek & Gauley and Elk River Coal & Lumber railroads. He scratchbuilt this caboose to commemorate stories told to him by Cody Burdette, the fellow standing by his Chevy pickup. Brooks Stover photo

Those of you who read the 2019 issue of *Model Railroad Planning* may recall Brooks Stover's article about rebuilding his S scale tributes to the Buffalo Creek & Gauley and Elk River Coal & Lumber in a smaller footprint after he and his wife downsized their home. If not, I'm sure the fine folks at Kalmbach can find a copy for you. It's a good read about how he was actually able to do some things in the smaller space that he hadn't managed to do in the more ample area.

It's timely too, as downsizing is on the minds of a lot of folks these days. The possible downside to downsizing is rather obvious, so instead let's discuss the potential upside.

The caboose that shows prominently in the accompanying photo could be cited as a benefit of downsizing. Because his new layout was smaller, Brooks could devote more time to scratchbuild it, as he explained in an article in the November/December 2020 *Narrow Gauge & Short Line Gazette*. Not only is it a

nice model, but it also pays homage to a fellow named Cody Burdette, the gentleman who provided Brooks with stories surrounding the prototype, thus converting the model into something with more than three dimensions. Cody drove a green '53 Chevy pickup, so the tribute extends beyond the caboose.

Cody worked at the sawmill as a teenager, tending the fires on the logging engines overnight. Cody's dad, Theodore, was an engineer, primarily on Shay no. 19. Cody knew Raymond Davis, the engineer on Climax no. 3, which was used primarily to haul the "steel train" – a couple of truss-rod flats with rail and ties that moved the track around in the forest. Ray slept in the caboose when staying overnight in the woods.

That's quite a bit of railroad lore that Brooks has managed to squeeze into a few inches of modeling! In fact, as his MRP article conveyed, almost every scene on the new railroad has historical depth. It's no wonder that downsizing hasn't fazed him.

Looked at from a distance, I'm doing something similar on my multi-deck HO scale Third Subdivision of the Nickel Plate Road's St. Louis Division. I've modeled caboose 1053, which was the rolling office and home away from home of a neighbor who worked as a conductor for the NKP. Another caboose honors a good friend who was an NKP conductor, but I built that when I was in college.

So my tribute is more broad-brushed than what Brooks has done. Since we have no plans to relocate or downsize, I'll be happy with that for now. I'll also consider the experiences Chuck Hitchcock describes in *Model Railroad Planning 2021*, where first attempts to downsize came up short, causing Chuck and Jenny to reconsider and

upscale again. Chuck got space for a new basement-size HO railroad in the bargain, but wisely enlisted a lot of help from his friends to build and populate the new railroad.

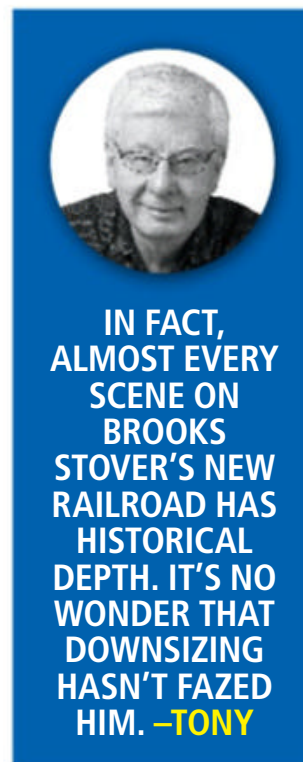
Were we to relocate, would I be more comfortable in Brooks' shoes or Chuck's?

In both cases, no change or scale or theme occurred. Brooks is still modeling the BC&G in S, Chuck the Santa Fe in HO, although he is modeling branchline rather than mainline action.

But this could be a golden opportunity to visit a different part of the candy store. I've built small railroads in N, O, and large scale, so I have a general feel for what each offers. Going to a smaller scale doesn't seem practical. Perhaps applying what I suggested in the recent MR series on modeling Wingate, Ind., in portable sections would be a good idea, but I'd start with a clean slate, as I sold those sections and the GP9 to a friend. O scale is pretty big, and virtually everything I'd need is available in S scale, so maybe following Brooks' lead would be smart.

As I noted previously, however, this is all conjecture. That said, I think it's not only a good idea to have a Plan B firmly in mind but a lot of fun to do so. And daydreaming about what I might do if I had less space, and therefore had more time to devote to each model, might suggest projects that I could tackle on my existing HO railroad.

Win, win. **MR**



IN FACT, ALMOST EVERY SCENE ON BROOKS STOVER'S NEW RAILROAD HAS HISTORICAL DEPTH. IT'S NO WONDER THAT DOWNSIZING HASN'T FAZED HIM. —TONY

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