

Build a small diesel servicing terminal _{p.40}

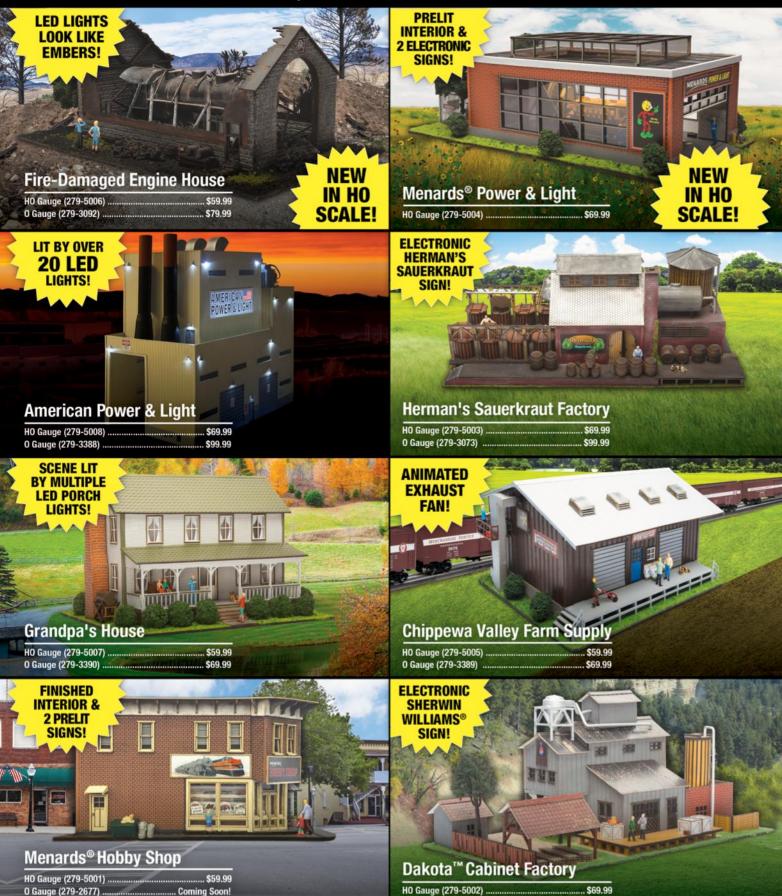
BONUS ONLINE CONTENT CODE PG. 4

HOW TO

Put a DCC decoder into a brass steamer p.66
Scratchbuild a diesel shell using a mock-up p.54
Add details to a Quonset hut model p.28

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Volume 84, Number

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TRACK PLAN FOR A SPARE ROOM, 62 New 'Big Blow' in HO tested y.88 WowModefulrishivest Railroader. New Series Another round for the Beer Line Learn about modeling industries, bridges, and more as the MB staff expands its switching layout year. Build a small diesel servicing layout year. How To Put a DCC decoder into a brass steamer, 56 Seriabilities diesel said using a modeling layout year. How To Add details to a Quonset but model y.28 Add details to a Quonset but model y.28

On the cover: A Milwaukee Road H10-44 pulls its train past Tews Lime & Cement Co. on the addition to the Beer Line, MR's 2017 project layout. Bill Zuback photo

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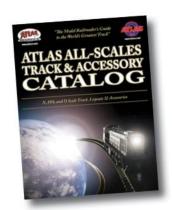
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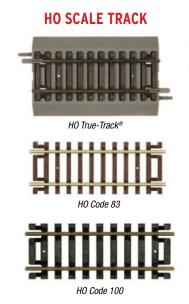
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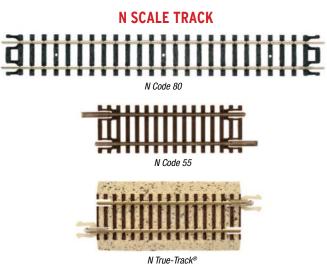
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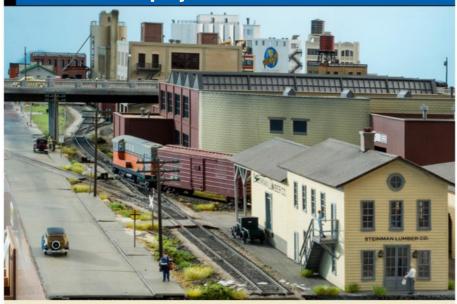


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New MR staff project

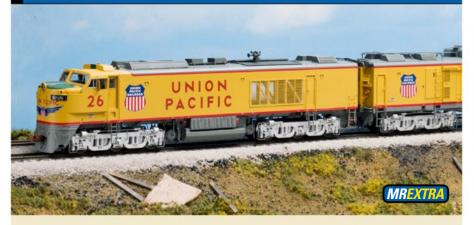


Another round for the Beer Line

Don't miss the Model Railroader staff's latest project, an addition to the HO scale Milwaukee Road Beer Line, beginning on page 32. Staff members scratchbuilt and kitbashed a wide variety of industries and structures for the project. Take a video tour of the new addition at www.ModelRailroader.com.



Product review video



ScaleTrains.com Museum Quality HO scale GTEL

Listen to the jet-engine roar of the ScaleTrains.com HO scale 8,500 hp gas-electric turbine locomotive (GTEL) as it speeds along the Milwaukee, Racine & Troy main line. Subscribers have access to an exclusive video demo, bonus photos, and an expanded product review of the superdetailed model. Find the links under Online Extras on the MR home page.

MRVP Roundhouse



On Operation with Jerry Dziedzic

Host Hal Miller discusses running a model railroad like the real thing with Model Railroader magazine's On Operation columnist, Jerry Dziedzic. You'll even hear what it's really like operating on Tony Koester's HO Nickel Plate Road.

Shortline sand tower

Diesel terminal online extras

In this issue Thomas Klimoski will show you how he modeled a compact diesel terminal, including a sand tower and fueling facilities. Click on the links under Online Extras to download the author's plans for the sand tower and a template for bending wire handrails for the tank enclosure.



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Holiday Product Guide





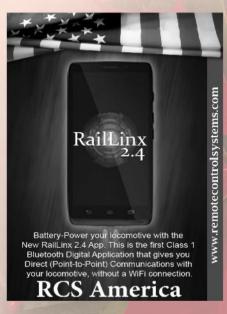


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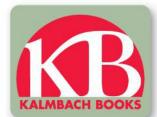


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FROMTHEEDITOR

Neil Besougloff

Celebrate a hobby journey



We receive lots of mail at Model

Railroader, and I don't mean just e-mail. Hand-written letters and carefully wrapped packages contain a bit of everything: story proposals, photos of model railroads, wiring questions,

newspaper clippings, compliments, and inevitably some complaints.

Here's a shout-out to George Knowles of Calgary, Alberta; Wayne Nelson of Rockford, Mich.; Bruce Ronald of Fort Walton Beach, Fla.; and **James Soberman of** Baldwin, N.Y.; four read-

ers who have written us on paper lately.

In October, we received a hardcover picture book from Gene Krajnak of Worthington, Ohio. Not just any book, but one that Gene's family - wife Donna and children Mike, Pete, Kathy, and Susan - made about his model railroad.

Here's what Gene, who is 81, wrote in his letter to Model Railroader:

"I thought you guys might like to see the 64-page book my kids made of my model railroad. For almost 50 years, this version of the Morehead & North Fork RR stood in our home. The time has come to take down the layout, and I'll give the proceeds of selling all of the rolling stock, etc., to the kids.

"Hope you enjoy this book!"

The book features Gene on the cover. It was put together with Apple computer software and uploaded to a website to be printed and bound. It tells the story of the railroad, starting with the inspiration for the railroad and pencil sketches Gene made of his track plan long ago. There's a reference to a newspaper story about the model railroad in the Columbus (Ohio) Dispatch in 1974 and snapshots of a workshop brimming with hobby supplies.

The book chronicles many of the hundreds of the scratchbuilt structures on the railroad. Gene built 956 HO scale buildings, some of which were displayed on shelves once the railroad was full.

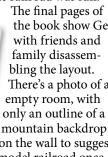
> the book show Gene with friends and family disassembling the layout. There's a photo of an empty room, with on the wall to suggest a model railroad once lived there.

ing celebration of Gene's lifelong hobby.

No layout lasts forever, and I can't think of a better way to mark the end of a long and fulfilling model railroad journey than the way the Krajnak family did.

997 and counting. What's that on the top left corner of the cover? It's a reminder we are in the countdown (or count-up?) to Model Railroader's 1,000th issue. We'll be celebrating in the April 2017 issue with special features and extra pages. Don't miss it.

Contributing Editors



But the book is not sad. It is an uplift-

NEIL BESOUGLOFF

Contributing to Model Railroader

We welcome contributions from readers, including articles, photographs, and drawings. For more information on submitting material, call us at 262-796-8776 and ask for an MR staff member or e-mail us at mrmag@ mrmag.com. Model Railroader assumes no responsibility for the safe return of unsolicited material. We assume unsolicited material is intended for publication by Kalmbach Publishing Co. unless otherwise noted. We assume letters, questions, news releases, and club news items are contributed gratis.

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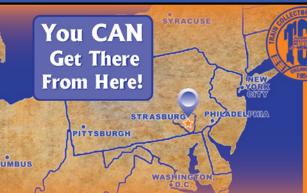








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NEWS&PRODUCTS

New product announcements are posted on ModelRailroader.com every week



N scale Union Pacific class FEF-3 4-8-4 steam locomotive. Kato has released the freight version of this Union Pacific workhorse. The model features a coreless motor design with dual brass flywheels, illuminated headlight and number boxes, and Digital Command

Control-friendly design. The direct-current models sell for \$275. Versions with a factory-installed Train Control Systems Digital Command Control decoder are \$310, or \$425 with an ESU LokSound sound decoder. Kato USA Inc., 847-781-9574, www.katousa.com

HO scale locomotives Alco HH600 and HH660 diesel

locomotives. New paint schemes. HH600: Central RR of New Jersey. HH660: Green Bay & Western (1945 repaint, one road number); Milwaukee Road (1959 re-number); New York, New Haven & Hartford (black and red-orange scheme); Penn Central (New Haven patchout, one number); and Northern Pacific. Two numbers per scheme unless noted; also available undecorated. Factory-installed grab irons and lift rings, directional golden-white light-emitting-diode headlights, and five-pole skew-wound motor. Directcurrent model with eight-pin socket for Digital Command Control decoder, \$159.95; with ESU LokSound Select dual-mode decoder, \$269.95. Second quarter 2017. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

■ Electro-Motive Division GP9M diesel locomotive. New paint schemes: Ontario Northland and United States Army. One number per scheme. Die-cast metal frame, all-wheel-drive and electrical pickup, and can motor with flywheel. \$69.98. WalthersTrainline. Wm. K. Walthers Inc., 414-527-0770, www.walthers.com

HO scale freight cars

■ Assorted freight cars. Atchison, Topeka & Santa Fe 40-foot boxcar, 40-foot double-door boxcar, and 40-foot steel refrigerator car (single cars, \$17.98 to \$18.98; three-pack, \$50.98). Bangor & Aroostook 50-foot riveted-side boxcar. \$17.98. Erie Lackawanna Pullman-Standard 4,750-cubic-foot-capacity covered hopper, \$19.98. Union Pacific 40-foot combination-door boxcar, \$17.98. Union Pacific (Western Pacific marks) American Car & Foundry 4,600-cubicfoot-capacity three-bay Center Flow covered hopper, \$18.98. Injection-molded plastic kits with plastic wheelsets and Accumate couplers. Accurail, 630-365-6400, www.accurail.com

2,970-cubic-foot-capacity Center Flow covered hopper. ACF Leasing, Burlington Northern (gray with reporting marks only), Chicago & North Western, CSX (three different Western Maryland patchouts), Norfolk Southern, Rock Island (blue), and Western Maryland (1984 reweigh and weathered lettering, one road number). Four numbers per scheme unless noted. Separate brake cylinder, valve, and air reservoir with formed-wire brake piping; photo-etched metal running boards; and

body-mounted McHenry scale couplers. \$39.98. August 2017. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com



■ Three- and five-unit articulated spine cars. Trailer Train (TTAX reporting marks, five road numbers per three- and five-unit set). Die-cast metal and plastic construction, etched-metal running boards, and collapsed and raised trailer hitches. Three-unit set, \$99.95; five-unit set, \$169.95. March 2017. Bowser Manufacturing Co. Inc., 570-368-2379, www.bowser-trains.com



■ **54-foot flatcar.** Atchison, Topeka & Santa Fe; Conrail; Denver & Rio Grande Western; Illinois Central; Northern

Cody Grivno

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■ **Assorted freight cars.** Milwaukee Road 40-foot PS-1 boxcar with 7-foot doors (\$37.95) and Soo Line PS-2 two-bay covered hopper (\$42.95). Models feature Kadee scale couplers and self-centering trucks. Kadee Quality Products Co., 541-826-3883, www.kadee.com



■ Pennsylvania RR/Penn Central class G43 52'-6" gondola. New road numbers: Penn Central (original 10-1969 class G43B and 4-1970 G43C), Conrail (1988 G43 coil service with rack but not coils), and Pennsylvania RR (original 11-1966 class G43). Six numbers per scheme. Wire grab irons and uncoupling levers, 36" metal wheelsets, and Kadee scale couplers. \$38.95; undecorated kits (six versions), \$32.95 each. Eightpack of banded steel coils, \$10.95.



HO scale New York, New Haven & Hartford 8600-series coaches.

Your HO scale passengers can commute to work in style in these new cars from Rapido Trains. The New Haven 8600-series coaches are decorated for Massachusetts Bay Transportation Authority; New York, New Haven & Hartford (as-delivered scheme and McGinnis scheme without skirts); and Penn Central in 10 road numbers per scheme plus one unnumbered car (decals included). The Superior Stainless line coaches (\$99) have a detailed interior and underbody, sprung diaphragms with end gates, and blackened metal wheelsets. Rapido Trains, 905-474-3314, www.rapidotrains.com

Tangent Scale Models, 828-279-6106, www.tangentscalemodels.com

HO scale details and accessories



■ Wilson Trailer 43-foot Pacesetter grain trailer. North American Ethanol, Purina (red tarp, \$26.95), and

Purina Mills. Kit includes decals to complete the model plus graphics to decorate tractor or support vehicles. \$29.95 each unless noted. Lonestar Models, www.lonestarmodels.com

- **Assorted bells**. Electronic, hood side mount, nose mount, and with bracket. Lost wax brass castings with mounting lug. Three-pack, \$21.98. Athearn, 800-338-4639, www.athearn.com
- Brown exterior-skin trailer. Baltimore & Ohio (Trailer Service



NEWS&PRODUCTS



HO scale New York City R-17 subway sets. These Big Apple classics are now available from MTH. The R-17 subway sets are painted metropolitan silver and blue and in the as-delivered maroon scheme. The four-car sets (two per scheme) feature a powered car with five-pole skew-wound motor and three non-powered coaches with light-emitting diode interior lighting. Direct current sets retail for \$279.95. Versions with Proto-Sound 3.0 are priced at \$379.95. Two-car non-powered add-on sets are also available for \$119.95. MTH Electric Trains, 410-381-2580, www.mthhotrains.com

scheme); Chicago, Burlington & Quincy (red Burlington lettering); Great Northern; Milwaukee Road; Missouri Pacific (buzzsaw herald); and Missouri-Kansas-Texas ("Katy Piggyback" herald). Three numbers per scheme; also available painted silver but unlettered and undeco-

rated with and without curb door (\$26.95). Roll-up or swing doors as appropriate, raised and lowered landing gear, and underbody spare tire rack. \$28.95 unless noted. Second quarter 2017. Trainworx, 970-874-9747, www.train-worx.com

N scale locomotives



Electro-Motive Division SD60 and SD60M diesel locomotives.

New paint schemes. SD60M: Burlington Northern and Norfolk Southern (horsehead silhouette). SD60: CIT Leasing (blue and white) and GMTX (Providence & Worcester/Vermont Ry. in one road number). New numbers. SD60M: Conrail ("Quality" scheme) and Union Pacific. SD60: Chicago & North Western (Zito Yellow) and Susquehanna. Three numbers per scheme unless noted. Golden-white light-emitting-diode headlights, modeler-installed snow plow and winterization hatch, and Accumate couplers. Direct-current model, \$129.95; with NCE motor decoder, \$169.95. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



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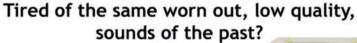


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NEWS&PRODUCTS



HO American Power & Light.

American Power & Light has more than 20 light-emitting-diode lights, a transformer with two red LEDs, and safety signs. Lighting requires 4.5V AC to DC power adapter. The structure measures 51/2" x 8" x 81/2" and retails for \$69.99 plus shipping, or it can be shipped free to your local Menards store. Menards, www.menards.com

N scale freight cars



- Rebuilt war emergency two-bay **hoppers.** Southern Ry.; Atchison, Topeka & Santa Fe; Atlantic Coast Line (single car and two-pack); Baltimore & Ohio; Clinchfield; Central of Georgia (single car and two-pack); and Wabash. Six road numbers per scheme unless noted; undecorated model (single car only) also available. Die-cast metal slope sheet, hopper bay, and center sill assembly; injection-molded plastic sides, ends, and hopper doors; and Fox Valley Models metal wheelsets. Single car, \$24.95; two-pack, \$49.90; and three-pack, \$74.85. Bluford Shops LLC, 618-822-6833, www.bluford-shops.com
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■ Tropicana R-70-20 mechanical refrigerator car. InterMountain HO scale model custom-decorated for the 2017 National Model Railroad Association National Convention. Four road numbers. \$35.95 plus \$9.95 shipping for one car or \$13.50 for two or more cars. To order online, visit www.nmra2017orlando.org and click on the "Company Store" link.

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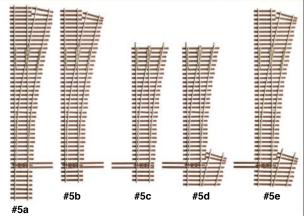
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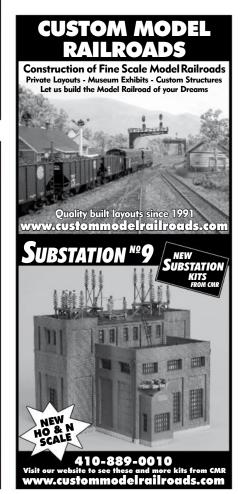
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ASKMR Steve Otte



Union Pacific 4-8-8-4 no. 4008 takes a spin on the turntable. When no. 4008 and its fellow Big Boys arrived on the UP from builder Alco, it was delivered "dead," with its rods disconnected. Union Pacific photo

How were the Big Boys delivered?

When the Union Pacific's Big Boys were delivered from Alco, were they transported dead in train or under their own power?

Caleb Metzger, Phoenix, Ariz.

Alt was the typical practice of the time to deliver steam locomotives "dead," or with rods disconnected. We'll let *Trains* magazine editor Jim Wrinn tell the tale of Union Pacific no. 4000, the first Big Boy to be delivered:

"No. 4000 was shipped dead via the Delaware & Hudson, New York Central, and Chicago & North Western to Council Bluffs, Iowa. A UP switch engine towed the Big Boy across the Missouri River to Omaha Shops, where it was officially accepted on Sept. 5, 1941. Later that month, no. 4000 was steamed up, and then put on display at Omaha Union Station. It traveled light to Council Bluffs for servicing, then back to Omaha to pick up a train of 100 empty Pacific Fruit Express reefers. The locomotive made several stops as it traveled west across Nebraska for water, fuel, and crews, arriving in Cheyenne early the following day."

That's an excerpt from *Big Boy: On The Road to Restoration*, a special issue of *Trains* published in 2014. If you're interested in more on one of the largest locomotives ever built, you can still order that special issue online at www.KalmbachHobbyStore.com. There's a commemorative DVD, too.

How do you go about cleaning the wheels on a Digital Command Control locomotive? I have both the Kadee wheel cleaner and the Woodland Scenics wheel cleaner, and I can't get either one to work on DCC.

J.R. Huthwaite, Sandy Level, Va.

Many DCC locomotives are dualmode, meaning they should run on your direct-current-powered wheel cleaners. But if yours aren't dual-mode, you can clean them the old-fashioned way. Dampen a paper towel with cleaning solution or rubbing alcohol and lay it across the tracks. Place your locomotive on the tracks so one truck is on the towel and the other is on the bare rails, and use your throttle to make the wheels spin. Use your hand to move the locomotive slightly back and forth over the damp towel while the wheels spin, and you'll see streaks of grime coming off onto the towel. After a minute or so, shift the towel to a clean spot and clean the engine's other wheels similarly. If your engine has unpowered wheels, like the lead truck on a steam locomotive, turn the wheels by hand while wiping them with a cotton swab dipped in cleaner.

Is there a good reference of American freight car types and the commodities they carry and the industries they serve? I'd like to use it to more accurately represent my favorite prototype railroad.

Michael Keener, via e-mail

The answer to your question is quite extensive, which is why we had to write a book on the subject. Check out Jeff Wilson's *Freight Cars of the '40s and '50s*, which covers the era most popular with modelers. Even if you model a different era, you'll find the general information about types of cars, how they're handled, and what they carry useful. You can find it on our website, www.KalmbachHobbyStore.com.

In an issue of *Model Railroader* sometime in the last year or two (maybe it was an online video) Pelle Søeborg was showing off his HO magnetic brake lines. Do you know where I can find those?

Scott Keeler, Ohio

A Those are MagnaLock Brake Lines, which are made by North American Railcar Corp. and sold by Pacific Western Rail Systems (www.pwrs.ca). Pelle wrote about installing and using those cool details in our June 2014 issue. If you don't have that issue in your library, you can find it in our All-Access Archive, www.ModelRailroader.com/AllAccess.

I've been trying to figure out the best way to paint the windows and other details on N scale cast styrene buildings like Woodland Scenics and Design Preservation Models. I was wondering what you recommend.

Jeff White, via e-mail

A I paint my HO scale DPM structure kits by hand, but you'd need a really keen eye and steady hand to do that in N scale. So once again, contributing editor Pelle Søeborg comes to the rescue! He explained his technique for masking and airbrushing DPM structures in our May 2016 issue. Although he also works

Now on ModelRailroader.com

You can watch Pelle's video demonstrating MagnaLock Brake Lines on his former HO scale Union Pacific Daneville Sub layout on our website, www.ModelRailroader.com.





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ASKMR



Pelle Søeborg explained how he masks and paints styrene structures with molded-in doors and windows in our May 2016 issue. Pelle Søeborg photo

in HO scale, there's no reason the same methods wouldn't work on N scale kits. Pelle paints the overall brick color first, then uses masking tape to mask off everything but the windows, doors, and trim before spraying a second color. But we've seen other modelers do this in reverse: spray the doors and windows, then mask them off before airbrushing

on the brick color. Paint first whichever part of the building is easiest to mask.

I'm swapping out the plastic wheelsets on all of my older Athearn "Blue Box" freight cars, replacing them with metal, 33" InterMountain wheels (IRC 40050). The diameter of the axle on the Inter-Mountain wheels is smaller than the Athearn, and as a result, I note a little more play at the point where the axle meets the plastic truck assembly. Is this acceptable? Do I have the wrong wheels? If so, what should I be using? My club requires metal wheels.

Fred Helfst, Glen Rock, N.J.

Other modelers have had satisfactory results using InterMountain replacement wheelsets in Athearn "blue box" car trucks. Since the axle points are supposed to ride in the center of the conical wells in the molded sideframes, the diameter of the axle isn't an issue so much as the length. If you're experiencing play, it's possible that the truck side-

More Q&A



For more questions and answers, watch the video series "Ask MRVP" at www.ModelRailroaderVideoPlus.com.

frames have warped or bowed out over the years. You can either replace the whole truck, or try wheelsets with longer axles. InterMountain, Reboxx, and Proto 2000, among others, make wheelsets with different axle lengths.

Is it feasible to build a hump yard on a model railroad?

Lucas Hagg, Wheatland, Iowa

People have done it; we've seen videos on YouTube. It's not easy, though, because some cars roll less freely than others. No one slope will work for all. You'll have to spend a lot of time, money, and effort swapping out trucks and wheelsets, re-weighting cars, and experimenting. And in the end, only your most knowledgable model railroading friends will be impressed. It's up to you whether that will be worth it.

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



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NSCALEINSIGHT

Bringing engines back from the dead

Several years ago I bought a couple Athearn N scale Electro-Motive Division (EMD) F45 locomotives that came with factory-installed Digital Command Control (DCC) sound decoders. I was thrilled. Only two railroads had ordered these big engines, and one was my beloved Santa Fe. (The other was Great Northern, also well-liked.)

The Santa Fe worked closely with EMD in developing the locomotive and ultimately had 40 F45s and 9 FP45s built in the late 1960s. (The FP45s were intended for passenger service, so they had a steam boiler and were 6 feet longer.)

These are big, beautiful, honkin' engines, both in reality and in model form, even in N scale, and they're iconic to Santa Fe fans and modelers. The Athearn N scale versions will outpull any SD-type model two-to-one, as the wide body permits a much heavier frame. And the sound effects created by the SoundTraxx Tsunami DCC decoder are just great. I wish I could afford to put sound decoders in everything.

Seemingly dead. Imagine my chagrin, then, when one day for no apparent reason one of these engines just sat there and refused to do anything. I assumed the decoder was dead, which made me very unhappy. Replacing a typical plugand-play decoder was one thing, but this was an expensive sound decoder with wires to a tiny speaker, something I didn't want to mess with at all.

The Lazarus CV. Wondering if Athearn could fix this, I gave them a call and talked to a fellow named David who suggested that maybe my decoder wasn't really dead, just playing 'possum. He asked if it would do anything at all, walked me through it, and we discovered the bell worked. This was kind of like the old-time movie coroners seeing a little breath on a mirror. From there it took several calls, but he talked the engine back to life, telling me what configuration variable (CV) to set to what value.

As it turns out – and perhaps most of you DCC users already know this – decoders have a CV that will restore the factory settings. Somehow the brains in my decoder had become scrambled, but



You could buy Athearn's N scale F45s or FP45s as straight DC engines, or with a SoundTraxx Tsunami decoder, as with the F45 here. Jim Kelly thought his decoder had died, but an Athearn technician talked it back to life. Bill Zuback photo

setting CV30 to 2 and turning the system off and back on solved the problem.

Challenges of DCC. I love DCC and would never go back to direct current (DC) control, but one problem I have is that there's so much to know that DCC can become a hobby separate unto itself. I've met model railroaders for whom it has become exactly that, and they enjoy it thoroughly, even getting into using computer programs to customize speed tables so their locomotives will run perfectly together. I'd like to do all that, but I'd also like to some day finish my railroad.

Fortunately, you don't have to be an expert to enjoy DCC. I'm grateful I have an NCE system which is, in my opinion, more transparent to the user than most others. Most of what I want to do is accomplished by following prompts on the screen, and I don't have to know which CV does what. Also, NCE has an excellent manual I use often. Usually it's a matter of I know I can do it, I've done it before, but now I don't remember how.

The manual for your DCC system is your best friend, but various manufacturers' decoders have their own vagaries and it's good to keep the instructions that come with them. Most decoder manufacturers also have excellent websites to help you with installation and use. I've found TCS (www.tcsdcc.com)

and SoundTraxx (www.soundtraxx.com) sites especially helpful.

Make the call. Men are notorious for not asking for directions and not seeking help, but when it comes to DCC, my advice is, get over it. Understanding DCC is a complex business, and adding sound systems to decoders adds a whole new level of mystery. If you have a problem, make the call; you'll be glad you did. It'll save you a lot of time and frustration.

In addition to Athearn, I've called Digitrax and NCE, and they've all been patient and stuck with me until the problem was solved. (Larry at NCE was always especially great.) Obviously, these folks want you to enjoy your DCC experience. That's why they're there. It's good for business.

Since the episode with Athearn I've brought other apparently dead N scale locomotives back to life by restoring the decoder's factory settings and reprogramming them. I don't know why on rare occasion a decoder loses its bearings, but I strongly suspect there's a good reason and the culprit is me. Like a computer, it just does what I tell it to do.

It's a scary thought, but I have to believe I've replaced some decoders in the past that had absolutely nothing wrong with them. How many? I think I really don't want to know.



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Cody Grivno modified a Rix HO scale Quonset hut kit to serve as the Eagle Mountain RR office. The inspiration for this building came from an image on the photo sharing website Flickr. Bill Zuback photos

How to customize a Quonset hut

Yes, I'll admit it. I'm a fan of Quonset huts. I'm sure much of the fascination can be traced to the fact there were two on our family's property. One served as my grandfather's first auto body repair shop. The other was a garage and storage building. So when it came time to model an office for our HO scale Eagle Mountain RR project layout, I immediately suggested a Quonset hut.

Now the notion of a Quonset hut at Eagle Mountain isn't too far out of line. When Eric White and I were doing photo research for the layout, we came across an image of a Quonset hut still standing southeast of Eagle Mountain, Calif., near the intersection of Kaiser Road and Power Line Road. What was the building

used for? Your guess is as good as mine. A sign stenciled on the rear of the building reads Pentecostal Church, but the Datsun 280ZX parked inside and a two-door garage opening suggest it probably hadn't been used as such for a while.

Regardless, the full-size arched-roof structure provided inspiration for the Eagle Mountain RR office shown above. A block foundation, a window-mounted air conditioner, and some light tan paint captured the spirit of the prototype.

With a few easy modifications and commercial door and window castings, you can turn a stock kit seen on many layouts into one that's unique to your railroad. Even if you don't need a Quon-

set hut, I hope these techniques inspire you to think beyond the box the next time you build a structure kit.

This story wraps up our Eagle Mountain RR project layout, which got started in the January 2016 issue. If you're building your own version of the Eagle Mountain layout, send us some photos – we'd love to take a look at them.

Now on ModelRailroader.com

Model Railroader subscribers can watch videos from our Eagle Mountain RR project layout series. Find them under the Videos tab at www.ModelRailroader.com.



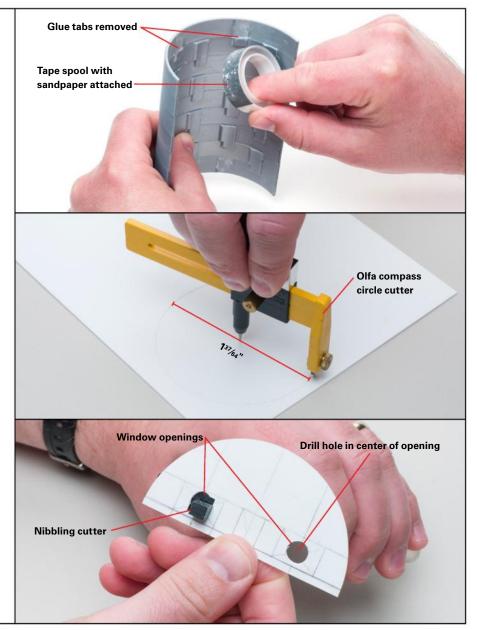
Step 1 Building the Quonset

The Rix HO scale Quonset hut kit (no. 628-0410) uses pieces from the firm's 40-foot grain bin kit (no. 628-0305). I assembled the arched roof per the instructions with liquid plastic cement. I let the glue dry overnight before cutting off the excess pieces of the arched roof (remember, the parts were designed to build a grain bin) with a razor saw.

The kit includes walls for the front and back, but they didn't match the prototype photo. To make room for the new ends, I used a no. 17 blade to remove the gluing tabs on the roof. I smoothed the underside of the roof by attaching sand paper to an empty tape spool with double-sided tape.

I made the new ends from .040" plain styrene sheet. Using an Olfa compass circle cutter (CMP-1), I cut a 137/64"-diameter circle, as seen in the middle image. Then I bisected the circle with a no. 11 blade to make the two ends.

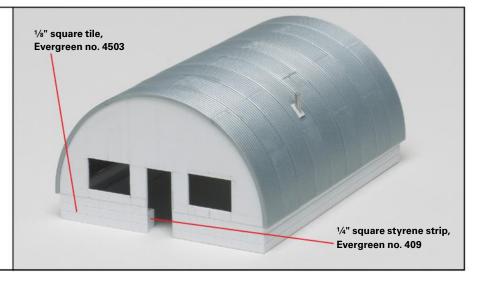
I marked the location for the doors and windows on the front wall and the door on the back wall (the latter optional, as our structure is against the backdrop) with a pencil. I then drilled a hole in the center of each window location to accommodate the head of a nibbling cutter. I used the cutter to remove styrene up to the pencil lines, as shown in the bottom photo. Finally, I used jeweler's files to finish the openings.



Step 2 A firm foundation

I secured the .040" styrene ends to the roof with liquid plastic cement. Then I added the foundation, which I made using three rows of Evergreen Styrene 1/8" x 1/8" square tile (no. 4503).

I used a razor saw to continue the mortar line grooves through the corners as appropriate. I then added 1/4" square styrene strip to the structure's interior to prevent the foundation from bowing. Be sure to leave openings for the doors, which will be installed later.



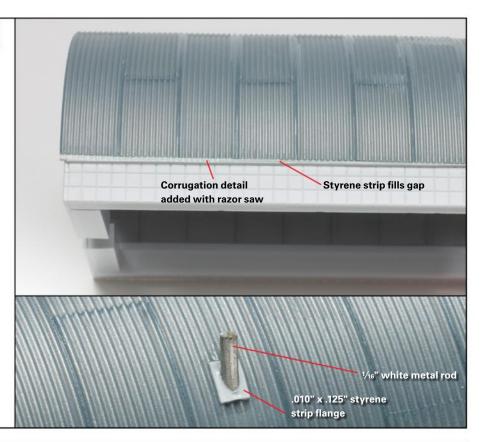
STEPBYSTEP

Step 2 A firm foundation (cont'd)

Unfortunately, my cutting job wasn't as precise as I'd hoped. There was a bit of a gap where the corrugated roof met the tile foundation. I filled the gap with assorted sizes of .010", .015", and .020" styrene strip.

After securing the styrene with liquid plastic cement, I used a fine-tooth razor saw to carry the corrugation detail into the strips. The fix wasn't perfect, but it's on the side of the building that's hard to see from normal viewing angles, so I wasn't overly concerned.

The full-size Quonset had a short vent pipe on the right (when viewed from the front side). I added that detail with a length of 1/16" white metal rod for the stack and a piece of .010" x .125" styrene strip for the flange. I secured the white metal with cyanoacrylate adhesive and the styrene with a light amount of liquid plastic cement.



Step 3 Painting and weathering

With the modifications made,

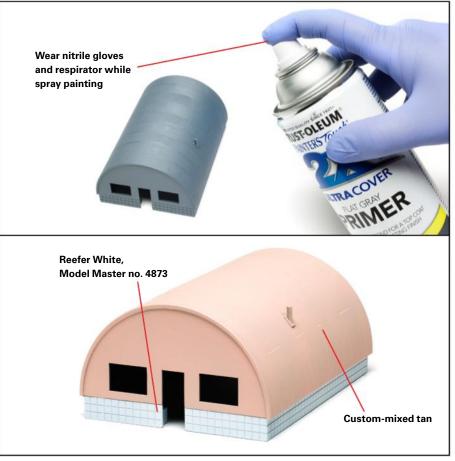
I washed the Quonset hut in warm water with dish soap added. This removed any impurities that might affect paint adhesion.

Then I sprayed the model with Rust-Oleum Painter's Touch 2X Flat Gray Primer. This ensured the final colors would cover evenly.

I've become a big fan of this spray paint, as it's plastic compatible (no crazing) and it doesn't fill in fine details such as mortar lines.

When the prototype photo of the Quonset hut was taken, the paint was faded. Portions of the block foundation were definitely painted white, which I added with Model Master no. 4873 Reefer White.

The roof and ends appeared to have been a pale desert southwest tan. I experimented with dozens of different paint mixes. What I wound up with was something akin to CSX Tan. Not quite the pale color I was after, but with a bit of weathering, I figured I could work with it.

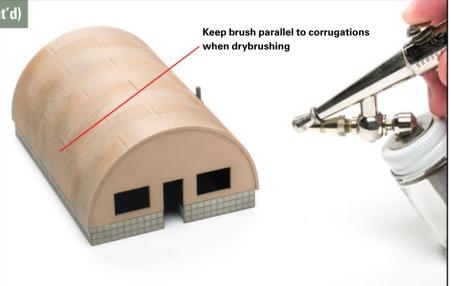


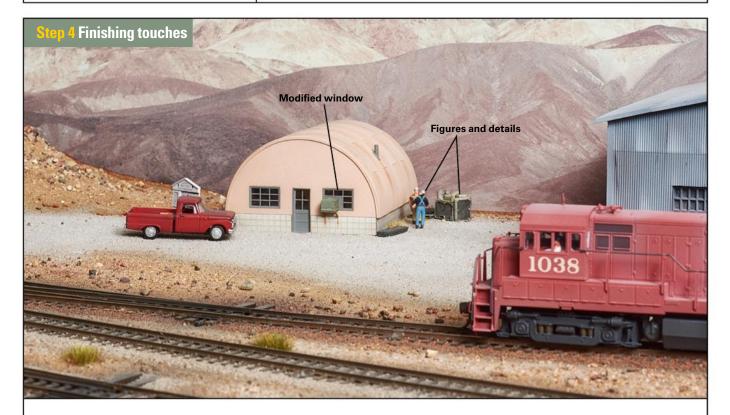
Step 3 Painting and weathering (cont'd)

I toned down my failed attempt at pale desert southwest tan by using an airbrush to spray the Quonset with thinned Model Master no. 4873 Reefer White (1 part paint, 9 parts 70 percent isopropyl alcohol).

Then I drybrushed the block foundation with the same firm's no. 4886 Reefer Gray to make it look like the white paint was peeling. I used Reefer Gray and no. 4675 Rust to weather the roof and help the corrugation detail stand out.

Finally, I brush-painted the vent pipe and flange with full-strength Reefer Gray.





The final step was to add the doors and windows, both from Tichy Train Group. The front and rear entry doors are item no. 8009. The windows are part no. 8046.

To accommodate the air conditioner, I removed four muntins from right-hand window and plugged the opening with a piece of .020" plain styrene. I spray-painted the doors and windows with the Rust-Oleum

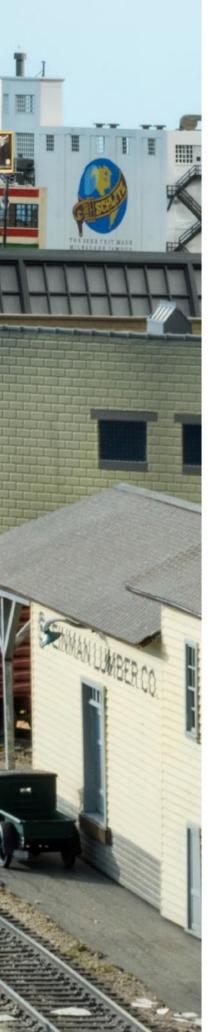
Flat Gray Primer I used in the previous step.

The window-mounted air conditioner is Hi-Tech Details no. HTD-8011. After completing the fold-and-glue plastic detail, I spray-painted the air conditioner Rust-Oleum Painter's Touch 2X no. 249071 Moss Green and brush-painted the support Reefer Gray. I added rust streaks under the air conditioner support brackets.

Finally, I installed window glazing to the doors and windows, cleaned paint from the gluing faces, and attached the parts with liquid plastic cement.

Once the building was on the layout, I added some tires, pallets, and other detail castings near the back of the building. With that, the Eagle Mountain RR office was ready for service.





Another round: MR returns to the Beer Line

For our 2017 project railroad, we add a 4 x 5-foot extension to our popular HO scale Milwaukee Road layout

By Eric White • Photos by Bill Zuback

or years, trains ran through the middle of Milwaukee like beer flows from a tap at Oktoberfest, but changes in business, both in brewing and railroading, stanched the flow by the mid-1980s.

For Model Railroader's 75th anniversary in 2009, however, the party was on again as the staff built an HO scale model of the Milwaukee Road's Beer Line. This hometown project railroad has always been popular with readers, and for 2017, we're back for another round.

The Beer Line is a sectional layout, designed to fit together in three configurations. Taking advantage of this feature, David Popp, producer at Model Railroader Video Plus, designed an addition that slots between existing sections. David designed the original Beer Line in 2008 when he was managing editor of Model Railroader, and this was a chance to add some industries that didn't find a place before.

Industrial artery

The Milwaukee Road's Beer Line was essentially one long spur track that reached deep into Milwaukee's one-time industrial heart. The 6-mile-long branch line served three of Milwaukee's six major breweries: Schlitz, "the beer that made Milwaukee famous;" a Pabst grain elevator; and Blatz, via a warehouse and team track.

The first tracks that were to become the Beer Line were laid in 1847, a year before Wisconsin became a state. Initially, the line hosted through freight and passenger trains, part of

1. A Fairbanks-Morse H10-44 shoves one of the Milwaukee Road's signature ribbed-side boxcars into Steinman Lumber on the Beer Line's Snake Track. This addition to Model Railroader's popular HO scale urban switching layout adds three new industries.

the main line of the La Crosse & Milwaukee RR Co. By the end of the 19th century, mergers and expansions had relegated the Chestnut Street line, another name for the Beer Line, to branchline status. While brewery traffic made up more than half the business on the line, the branch also served other industries that manufactured such diverse products as paper lace, automobile parts, and leather goods.

Our model of the Beer Line is set in 1947. When planning the original layout, the staff wanted to set it in 1934, to commemorate the year of Model Railroader's founding. But finding locomotives, rolling stock, and highway vehicles for that era of the Chicago, Milwaukee, St. Paul & Pacific, or Milwaukee Road, was difficult.

During the search phase, Walthers came out with its Fairbanks-Morse H10-44s and Milwaukee Road ribbed-side cabooses. Highway vehicles were also much easier to find in a greater variety for the late 1940s than the mid-1930s, so the date was set.

Beer Line series

January 2017: Meet the Beer Line addition

February 2017: Benchwork and tracklaying for the Beer Line addition March 2017: Scratchbuilding Steinman Lumber Co.

April 2017: Mix kitbashing and scratchbuilding to create a large rail-served factory

May 2017: Building the North Avenue Viaduct

June 2017: Using different techniques to build a cement plant complex



2. Fairbanks-Morse H10-44 no. 1815 pulls empties from Tews Lime & Cement Co. as an excavator prepares to load stone into a company dump truck. Kitbashed and scratchbuilt structures comprise the Tews complex.



3. Surrounding the layout are (clockwise from front left) Cody Grivno, Steven Otte, Eric White, and Dana Kawala. Each contributed a major structure or business to the new layout section.

Another round

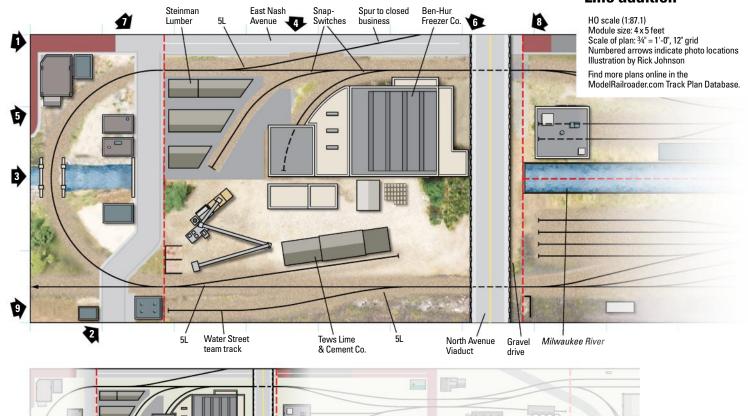
David's addition to the Beer Line is a 4 x 5-foot section that incorporates parts of the Beer Line's Snake Track, a spur that led to several non-brewing-related industries. Two of them, Steinman Lumber Co. and the Ben-Hur Freezer Co., are included in the new plan. David also added an industry that was just north of Humboldt Yard on the Beer Line proper, Tews Lime & Cement Co.

The new section fits next to Humboldt Yard on one of the original 2 x 8-foot sections of the Beer Line layout. To visually separate the yard from the extension, the staff decided to add the North Avenue Viaduct. This long bridge spanned the tracks headed north out of Humboldt Yard, then crossed the Milwaukee River.

New industries

Just north of the viaduct is Tews Lime & Cement Co. The company received boxcars of building supplies that were

Milwaukee Beer Line addition



sold from its warehouse and gondola loads of aggregate for its ready-mix concrete operation. Cement was mostly delivered in boxcars in the late 1940s, but two-bay covered hoppers were starting to be used. The business fills one side of the new section of the layout.

An aerial photo in *Milwaukee Road's Beer Line*, *Special Publication No. 5* by Art Harnack (Milwaukee Road Historical Association, 2003), gave me an overview of the location. John Tews, a grandson of the founder, is a member of the Wisconsin Southeastern Division of the National Model Railroad Association, and spent an evening clarifying the operation of the business.

I found parts for the batch plant in a pair of Walthers cement industry kits, and the Glacier Gravel kit supplied yet another loading bin to one of our project layouts, as well as conveyors. The concrete-block garage and warehouse were scratchbuilt, and the wood-sided carriage house was a modified Alpine Division Scale Models Rural New Haven

Railroad freight house kit. I'll go into more detail about the construction of the business in the June 2016 issue of MR.

After Tews Cement, the addition connects to one of the curved sections from the original layout, bringing the track back around to the other side of the new section. Here, we find Steinman Lumber and the Ben-Hur Freezer Co. The lumber yard has two large sheds and an office/warehouse building and receives boxcar loads of lumber and building supplies.

Associate editor Steven Otte scratchbuilt the complex from styrene sheets and shapes, then meticulously stacked scale lumber to fill the shelves of the lumber sheds. He also scratchbuilt a corrugated metal fence between Steinman Lumber and Tews Cement. Steven will explain how he built Steinman Lumber in the March 2016 issue.

Ben-Hur Freezer Co. was an early manufacturer of in-home deep freezers, and shipped its goods in boxcars. Sheet steel was shipped to the factory in boxcars and gondolas.

The layout at a glance

Name: Milwaukee Road's Beer Line

Scale: HO (1:87.1)

Prototype: Milwaukee Road's

Chestnut Street Line **Locale:** Milwaukee, Wis.

Era: 1947 Style: Sectional

Mainline run: 24 feet (original layout); 10 feet (addition); 34 feet

(total)

Minimum radius: 18"
Minimum turnout: no. 4
Maximum grade: none
Benchwork: sectional tables

Height: 44" Roadbed: cork

Track: Atlas and Peco code 83

flextrack and turnouts

Scenery: extruded-foam insulation board and Sculptamold **Control:** NCE Digital Command

Control (DCC)



4. An empty boxcar is spotted at the Ben-Hur Freezer Co., ready to be loaded with that modern marvel, the in-home deep freezer. The saw-tooth roof comes from Walthers' Railroad Car Shop kit, and the modular brick wall panels are from Woodland Scenics' Design Preservation Models.



5. Another load of wood arrives at Steinman Lumber from the Pacific Northwest. Note the lumber loading door at the eave of the A-end of the boxcar. The business was scratchbuilt from styrene shapes and sheets with plastic window and door castings.

Associate editor Cody Grivno used parts from the Walthers' Railroad Car Shop kit for the sawtooth roof, and Design Preservation Models modular wall sections for most of the walls. The curved addition is sheathed in The N Scale Architect's brick and block sheet. He'll fill you in on the rest in the April issue.

Senior editor Dana Kawala used cast resin bridge columns from Crow River Products, Rix Products' 1930s Highway Overpass parts, thin plywood, and styrene shapes and sheets to build the North Avenue Viaduct. The 4-foot-long highway overpass occupied much of a large countertop in the *Model Railroader* workshop during this project. When I saw Dana enter the shop, which is used by the MR staff and as a studio space for Model Railroader Video Plus, he always seemed to cast a worried glance at the counter, but relaxed when he saw all the pieces of his project were still as he left them.

When the day came to finally install the bridge on the layout, Dana gently lifted it from the countertop, and was just about to set it down when Cody shouted "Wait!" with a mischievous grin. Dana halted inches above the layout, fearing the worst, until Cody said "Just kidding."



I could see the color come back to Dana's face as his heart started beating again. Dana will explain the trials and tribulations of building the large, delicate structure in the May issue of *Model Railroader*.

Scenery, benchwork, and track

The scenery uses common model rail-roading materials such as ground foam, grass tufts, and lots of ballast, sand, and dirt. The flat landforms are extruded-foam insulation board, brought to final shape with Sculptamold, a papier-mache-like product.

Since one end of the addition abuts the Milwaukee River, which flows along the edges of the 2 x 8-foot sections, I added a short water feature to give the river a place to go.

The original layout used Walthers' Concrete Arch Road Bridge kits to cross the Milwaukee River, so for continuity, I did the same. Since I only needed a place for the river to go, it ends just a few inches inside the edge of the new benchwork.

All the water is under the bridge – no, seriously – so preparation amounted to sealing the scenery, painting everything black, and installing the bridge. There was no need to detail the riverbed.



6. Traffic passes over the urban scene below on the North Avenue Viaduct. Cast resin columns from Crow River Products support a plywood road surface with Rix Products 1930s Highway Overpass balustrades.



7. Steinman Lumber faces North Holton Street on an original section of the Beer Line layout. David Popp took into consideration the neighboring scenery when he designed the Beer Line addition.



8. A Fairbanks-Morse H10-44 pushes a flatcar past Ben-Hur and under the North Avenue Viaduct. Although the Ben-Hur Freezer Co. and North Avenue were in different parts of town, the viaduct makes a good scenery break between sections of the Beer Line.

I poured the water with Unreal Details' Magic Water. The water has a few drops of Floquil Railroad Tie Brown to give it a murky, green cast. Floquil is no longer produced, but any solvent-based color that suits your scenery palette will do. Just be sure to use a solvent-based paint so it will mix with the resin.

Editor Neil Besougloff and managing editor Hal Miller made sure all of the scenery tied together from industry to industry, and that the new section blended well with the old. Neil reprised his role as the head of the streets department, cutting and installing the surface streets and railroad crossings.

The benchwork follows the construction of the rest of the Beer Line, with open grid 1 x 4 pine supporting a ½" plywood

top. I'll talk more about benchwork and track next month. Cody was again the leader of the track gang, laying the roadbed and track, and doing all the ballasting. We used Peco code 83 flextrack and no. 5 turnouts, plus a couple Atlas code 83 Snap-Switches on the spurs for Steinman Lumber and Ben-Hur, taking advantage of their tight radius to fit into cramped urban quarters.

Rolling stock and motive power

Most of the rolling stock from the original layout was still around, and we added a few new pieces to support the added industries. We have several examples of the Milwaukee Road's distinctive ribbed-side boxcars, which have lumber doors high on the A end of the cars,



making them ideal for deliveries to Steinman Lumber.

The new cars include a trio of flatcars from the old staff-built Rice Harbor project layout. These will be useful for deliveries to Tews Cement and Steinman Lumber. We added another gondola for aggregate deliveries to Tews, and tuned up and weathered a few era-appropriate freight cars that had found their way to the layout while it was on display in an open area of Kalmbach's office building.

Motive power is still a pair of Walthers Proto2000 Fairbanks-Morse H10-44s, augmented with a third unit bought later as a backup when the first part of the project was built. Those Walthers ribbed-side cabooses will still carry the markers at the ends of the trains.

Operation and control

With new industries and rolling stock came more car cards and waybills. I dug



out the articles from 2009, found some paperwork in storage, and got to work. We'll have aggregate arriving from the Monon for Tews Cement, lumber from the Upper Midwest and Pacific Northwest for Steinman, and steel coming from Detroit for Ben-Hur.

Ben-Hur will also need empty boxcars to ship its product out. All this will add another job to the layout to work the Snake Track. Card boxes and labels were added to the fascia and the new job was integrated into the operating scheme.

We built the addition to the Beer Line with the layout in its oval configuration to ensure all the track would line up, but the Snake Track still allows for all three configurations to work. The most prototypical arrangement would be the F configuration, as that has the Snake Track at the opposite end of the layout from the Milwaukee Road freight house and the Blatz warehouse.

9. A transfer run returns to North Milwaukee, in staging, while the businesses of the Beer Line addition rise in the background. A sprawling business like Tews Lime & Cement and a large manufacturing industry like Ben-Hur help convey this is big-city railroading. Steinman Lumber squeezes into an odd-shaped parcel.

To operate this option would require a tail track with a runaround in order to pick up outbound loads and empties from the new sidings. We also added a staging section that attaches just north of Tews Cement, adding a transfer job from North Milwaukee to Humboldt Yard. North Milwaukee was where the Beer Line connected to the rest of the Milwaukee Road. Model Railroader Video Plus subscribers can watch video of the layout being operated.

After the layout section was completed, David installed a new NCE Digital Command Control (DCC) system for the entire railroad. He added power districts to split the layout electrically so a fouled turnout wouldn't bring the whole layout to a standstill. He also added multiple

throttle jacks to allow operators to move around the layout with their trains. This part of the project is also a video series on Model Railroader Video Plus.

The original Beer Line project was as rewarding for the staff to build as it was well received by readers and visitors. Adding on to it means more of a good thing. Who knows, in eight years, we may be back for a third round. Last call is a long way off yet!

Now on ModelRailroader.com

Readers can take a video tour of the Beer Line addition and download the original Beer Line track plan at www.ModelRailroader.com.

Modeling a COMPACT DIESEL SERVICE TERMINAL

Add fueling and sanding operations without taking up a lot of space

By Thomas Klimoski

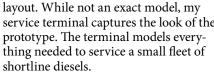
Photos by the author

ocomotive service terminals are one of the key components to keeping a railroad operating efficiently. Class 1 railroads have huge facilities that cover several acres and serve large numbers of locomotives. However, small terminals can be found on a variety of regional and short lines and are the ideal size for a model railroad.

Although the structures aren't exactly the same, each railroad's service terminal uses similar buildings or components to maintain locomotives. These include a service building or enginehouse that's used for repairs, routine maintenance, and storing parts and supplies. An office is usually on the property for crew briefings and safekeeping of maintenance files. Fuel and oil storage tanks with a pump and a sand tower keep locomotives moving on the rails.

While researching prototype railroads to base my new layout on, I came across the Georgia Northeastern RR locomotive service terminal in Tate, Ga. The Georgia Northeastern RR (GNRR) is a short line that runs from Marietta, Ga., to Copperhill, Tenn., and has a small fleet of second-hand Electro-Motive Division Geeps. The GNRR terminal, shown in the inset on the next page, has all the necessary workings to service the locomotives in a relatively compact space. Once I studied the prototype, I knew that it could easily be compressed to fit on my model railroad.

I obtained permission to photograph the terminal and made notes on the dimensions of the sand tower and other structures. Once I had the dimensions and the general setup of the prototype terminal, I broke each area down into specific components that would fit on my layout. While not an exact model, my service terminal captures the look of the prototype. The terminal models everything needed to service a small fleet of shortline diesels.



Locomotive service building

The starting point for the service building is the Pikestuff no. 8 modern enginehouse. I built the structure as a two-stall enginehouse. The modeled building isn't as tall or long as the prototype, but it has a similar construction style. I kitbashed the office addition using wall and roof sections from leftover Pikestuff parts in my scrap box. I modeled three of the four overhead doors open to park locomotives inside of the structure.

The Pikestuff buildings have cut lines molded on the insides of the walls to facilitate multiple window and door





configurations. Since I planned to have the doors open, these cut lines would be visible. To cover the cut lines, I added a sheet of .060" styrene to the inside of the walls after cutting out openings for the windows and doors, shown in **fig. 1** on the next page. I also added .060" styrene to the interior areas around the overhead doors. This gave the door frames a thicker appearance and helped stiffen the structure.

I airbrushed the structure with Vallejo Model Air 71.075 Sand (Ivory) paint. After the paint dried I masked off the walls of the building and spray-painted the roof with Rust-Oleum Painter's Touch 2X Flat White. I weathered the structure using artist pastels and weathering powders. The lower portions of the building are more heavily weathered to represent dirt and mud splashing up on the building.

A small locomotive terminal along the Georgia Northeastern RR (inset) inspired this scene on Thomas Klimoski's HO scale layout. Follow along as Thomas describes how he modeled the fueling, sanding, and servicing structures.

To construct the concrete pad the structure sits on, I used .060" styrene cut to the footprint of the finished structure. I wanted the styrene to be tight against the outside of the Micro Engineering code 70 track without any gaps. The .060" styrene is just slightly below the rail height, but the track's plastic spike detail lifted the styrene so it didn't fit properly. Using a file I beveled the edge

of the styrene to 45 degrees. This step is shown on the next page in **fig. 2**.

I glued a second piece of .060" styrene to the bottom of the floor to level it and make it even with the top of the ties. I used .040" styrene for the concrete area between the rails and cut it slightly smaller than the width between the spike details molded in the plastic ties on the gauge side of the track to prevent

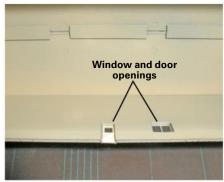


Fig. 1 Enginehouse walls. After cutting out the window and door openings on the walls of the Pikestuff enginehouse, Thomas covered the back of each wall with plain styrene. That way the outlines of the window and door openings he didn't use wouldn't be visible.

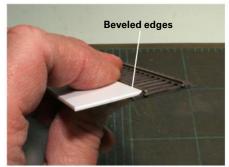


Fig. 2 Enginehouse floor. Thomas used .060" styrene to model the enginehouse floor. He beveled the edge of the styrene to clear the track's spike detail so the top of the styrene would be flush with the railhead.

interference with the wheel flanges. I spray-painted the styrene that represented the second-bay inspection pit with Rust-Oleum Painter's Touch 2X Flat Black, since the bay would be barely visible. The remaining portion of the concrete floor was airbrushed with Model Master Concrete paint.

Once the paint dried, I airbrushed a weathering solution of one pint of 70 percent isopropyl alcohol to 1 teaspoon of India ink. Then I applied black weathering powders to give the floor a wellworn and oil-stained look.

Using a prototype photo for reference, see **fig. 3**, I added numerous details to the interior shown in **fig. 4**. The yellow safety railing was made using two Plastruct no. 90682 HO scale handrail kits and .030" styrene rod. I painted both with Krylon Short Cuts Sun Yellow.

With the interior finished, I placed the enginehouse on the foundation and added a few details outside, including vehicles, an air-conditioning unit, and a



Figs. 3 and 4 Enginehouse interior. The prototype photo (top) inspired Thomas' enginehouse interior (bottom, shown with the building removed). Many of the details came from his scrap box. The forklift is a Wiking model.

Dumpster trash receptacle, which completed the scene shown in **fig 5**.

Fuel tanks and pump

The diesel fuel and oil storage tanks at the GNRR terminal in Tate, as shown in **fig. 6**, are inside a concrete-block containment wall enclosed by a chain-link fence topped with barbed wire. The fuel pump is located several feet away inside a separate fenced enclosure. A scaled down version of this scene, shown in **fig. 7**, fit perfectly on my layout.

I started this project with the storage tank enclosure. I had several tanks from a Walthers Storage Tank kit, which has been discontinued in HO scale. However, numerous manufacturers offer storage tanks, and Walthers currently sells a diesel fueling terminal kit that could also be used.

I chose one of the larger tanks I had for the diesel tank. Since this tank was originally intended to be used vertically, it didn't have a cap on one end when placed on its side. Therefore, I cut and glued a piece of styrene to fit inside the end, filling and smoothing the gaps with Squadron Putty. Once the putty dried, I sanded the end and removed the raised seams on the tank.

Next, I masked off the tank and spray-painted the concrete supports that the tank sits on with Testors' no. 1233 Flat Light Aircraft Gray. When the supports dried, I masked them off and then painted the tank with Rust-Oleum Painter's Touch 2X Metallic Aluminum.

The oil tank was prepared in the same way as the diesel tank except for leaving the seams on the tank and painting it flat black.

The final paint step for the tanks was an application of Testors' Dullcote. This clear matte finish provides a good base coat for weathering powders and tones down the shiny metallic finish on the diesel tank.

Construction of the secondary containment area began with cutting pieces



Fig. 5 Enginehouse parking lot. Seemingly mundane details bring a lot of realism to a scene. Thomas added a Dumpster and air-conditioning unit to his enginehouse parking lot.

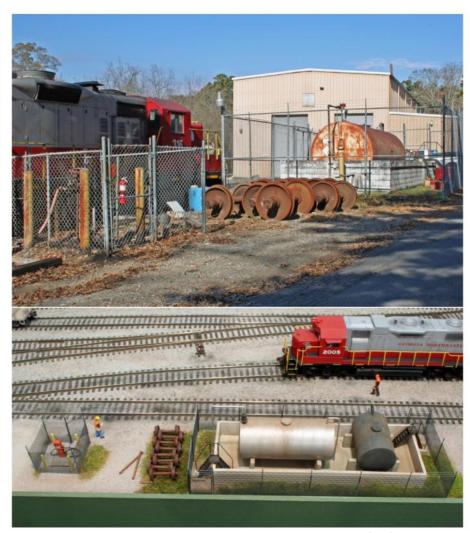
of .060" styrene sheet: a 2" x 6" piece for the base and four 5%" high pieces for the walls. This 5%" dimension corresponds to the height of the seven complete rows of block on a Plastruct 91620 Cement Block sheet. Using plastic cement, I glued the wall sections to the sides of the base, then laminated the cement block sheets over the outside of the walls. I filed the top and end joints smooth as shown in **fig. 8** on the next page. Then I spraypainted the base with Testors' Flat Light Aircraft Gray and the walls with Rust-Oleum Flat White.

A Tichy Train Group no. 8002 Safety Cage and Staircase Kit provides access to the storage tank enclosure. I cut the stairs into four equal pieces and used a piece of .020" styrene 5/16" square for the top landing. Then I attached the stairs to the bottom of the landing using cyanoacrylate adhesive (CA), making sure to maintain the correct angle for the stairs.

I drew the profile of the stairs on a piece of graph paper and calculated the height for the handrail. Then I drew the handrail on the paper and used it as a template when bending a piece of K&S Precision Metals .020" music wire into the proper shape.

The next step involved soldering the two vertical balusters to the handrail at the top landing of the stairs. I taped the handrail in place on a piece of glass (see **fig. 9** on the next page). The glass allowed me to solder the vertical balusters to the handrail without damaging the surface of my workbench. Using CA I attached the finished handrail to the stairs. Once the CA dried, I spray-painted the whole assembly flat black.

To construct the fuel pump enclosure, I used a ³/₄" square piece of .060" styrene for the base and painted it with Testors' Flat Light Aircraft Gray. A JL Innovative Design Custom no. 817 Phillips gas



Figs. 6 and 7 Tank and pump enclosures. On the prototype (top), the fuel and oil storage tanks are in one enclosure, while the fuel pump is in another. Thomas modeled these areas using kitbashed and scratchbuilt components.

pump provided the fuel dispenser. I removed the Phillips 66 decal and used a piece of 28AWG black wire to replace the short hose included in the kit. After bending it into position, I attached the hose to the pump outlet and the fuel nozzle with CA.

Concrete bollards protect the pump enclosure at each corner. I modeled the bollards from styrene rod painted Krylon Short Cuts Sun Yellow.

The fencing around the tank and pump enclosures is BLMA Models no. 4210 Chain-Link Fence. [BLMA was purchased by Atlas Model Railroad Co. in 2016 – *Ed.*] Made from etched stainless steel, the BLMA fence looks realistic but is the bright silver of a new fence. Since I wanted my models to look like it had been in the elements for some time, I sprayed the fencing with Testors' Dullcote, then brushed on a wash of India ink and 70 percent isopropyl alcohol.

I replaced the styrene rods that the kit includes for the fence posts with K&S

Precision .020" music wire. I cut the wire into $1^{1}/2$ " lengths and attached them to the fencing with CA. I allowed for $^{1}/4$ " of the post to be above the fence to later attach the barbed wire.

The fence for the storage tank enclosure was built in two sections with space for a gate on each side. I used a straightedge to bend the fence at one of the posts into a 90-degree angle at the appropriate location. Next, I drilled holes for the posts in the foam base and used Aleene's Tacky Glue to secure the posts. For the gates I cut the vertical posts off at the bottom of the fence.

The fence around the fuel pump enclosure was constructed in a similar fashion, but the side with the gate had a full section that had to be cut shorter. Using scissors, I carefully measured and cut the fence section that would attach to the post. After the three full fence sections were attached to the foam layout base, I glued the remaining gate section in place.

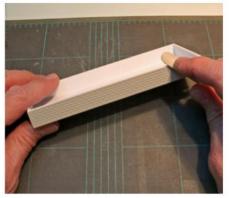


Fig. 8 Enclosure walls. The enclosure walls are made of concrete block textured sheet laminated over .060" styrene. After assembly, Thomas filed all the joints smooth.

Figure 10 shows how I modeled the barbed wire on the posts above the fence with Berkshire Junction Fine White EZ Line. Starting with the lower wire just above the fence, I made a hitch in the line and looped it over the first post. After adjusting the loop's position, I attached it to the post with a drop of CA applied from a straight pin. With the remaining line, I then made a complete turn around each of the corner posts and one of the intermediate posts on the longer run. The key is to not pull the line too tight but just tight enough to keep it from sagging. Once I reached the last post I made another hitch in the line over that post and secured it with CA.

After the CA dried I went back and adjusted the line on each corner post and where it touched the intermediate posts.

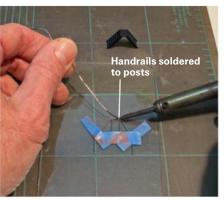


Fig. 9 Stairway handrails. The stairways to the tank enclosure feature handrails made of .020" music wire. Thomas bent the handrails then soldered them to the vertical posts.

Once I was satisfied with its location I secured the EZ line to each post with a drop of CA. I repeated the procedure for the second and third lines. I then cut the line that went across the gate openings. I completed the barbed wire for the gates at my workbench, then added the finished gate to the fence. Finally, I used black weathering powder to tone down the white color of the EZ line.

With the fence complete, I cemented the fuel tanks into position inside the storage tank enclosure and added piping modeled with 18AWG aluminum wire. The storage tanks and enclosure walls were weathered with PanPastels and AIM weathering powders, then placed into position inside the fence. The stairs were added to each end with small concrete landings modeled from .060"



Fig. 10 Barbed wire. Berkshire Junction EZ Line provided an effective scale model of barbed wire along the top of the fencing. Thomas kept the elastic thread tight to avoid sagging.

styrene. An application of Heki Wild Fiber Grass completed the scene.

Sand tower

After searching through various manufacturers' websites, I couldn't find a model that looked similar to the GNRR sand tower. Instead I'd have to scratchbuild one. I measured the prototype's base and photographed the structure. Based on my field measurements, I made an HO scale drawing. [Readers can download Thomas' sand tower plan at www.ModelRailroader.com – *Ed.*] I estimated the position of the tower bracing. This drawing allowed me to cut the plastic pieces to the proper length and aided in the assembly process.

The first step was to construct an 8 scale foot square box for the sand

>>

Materials list

Berkshire Junction

White EZ Line

BLMA

4210 chain-link fence

Evergreen Styrene

210 .030" rod 291 .060" angle 9020 .020" sheet 9040 .040" sheet 9060 .060" sheet

Heki

HK1575 Wild Fiber Grass HK1576 Wild Fiber Grass

JL Innovative Design

817 Phillips gas pump

Kadee

2012 50-foot black Apex running board

K&S Precision Metals

5499 .020" music wire

Krylon

SCS-036 Short Cuts Sun Yellow

OOK

18AWG aluminum wire

Pikestuff

8 two-stall enginehouse

Plastruct

90542 ³/32" H column 90682 HO scale handrail 90740 .040" square strip 90810 .250" square strip 91620 HO scale cement block sheets

Rust-Oleum Painter's Touch 2X

249126 Flat White 249127 Flat Black 249128 Aluminum Metallic

Testor Corp.

1233 Flat Light Aircraft Gray 4876 Model Master Concrete 79660 Dullcote

Tichy Train Group

8002 safety cage ladder and staircase kit

Vallejo

71.075 Model Air Sand (Ivory)

Wm. K. Walthers Inc.

933-3105 Piping Kit

Wiking

66401 Still R70-16 Forklift

Miscellaneous

28AWG black wire Assorted pallets, 55 gallon drums, figures, and details AIM and PanPastel weathering powders

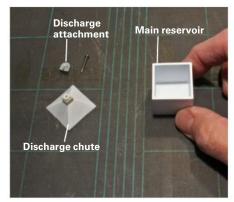


Fig. 11 Sanding tower. The reservoir and chute are made of .060" styrene. Thomas will screw the scrap piece to the chute as an attachment point for the discharge pipe.

reservoir from .060" styrene. Using the score and snap technique, I cut the styrene to the exact dimensions. I applied Plastruct Bondene to the inside joints to cement the pieces together.

For the roof of the box I cut a piece of .020" styrene and cemented it in place. Once the cement dried, I then sanded the joints smooth.

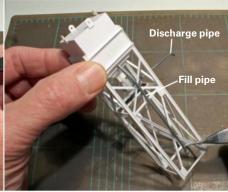
Next, I cut four triangular pieces for the sloped discharge chute and notched one point to accommodate the Plastruct no. 90810 .250" square strip that represented the chute. I added bracing at the edges and glued the triangular pieces together with Bondene, keeping the .250" square strip centered between the pieces. A small scrap piece of styrene tube was attached to the bottom of the square chute portion to allow the chute pipe to pivot.

I found a Walthers roof ventilator in my scrap box and cut the semicircle portion off to use as the discharge pipe attachment point. I drilled a hole in the .250" strip and another in the flat portion of the semicircle piece. Then I inserted a screw from inside the chute to hold the whole assembly together. All the components prior to assembly are shown in **fig. 11**. Once I was satisfied that everything fit, I glued the sloped chute to the sand reservoir box.

Next, I began assembling the legs and braces for the tower. Using the drawing as a guide, I cut the Plastruct no. 90542 ³/₃₂" styrene H-column to length.

Prior to gluing the legs to the reservoir assembly, I attached two thin strips of styrene around the sloped portion of the chute to represent the braces for the panels. Next, I glued two of the legs to the sand reservoir box and cut two pieces of Evergreen no. 291 .060" angle for the upper and lower horizontal braces. Once





Figs. 12 and 13 Sanding tower details. Following his scale drawing, Thomas built up the tower from Plastruct components. Then he attached the reservoir to the top of the tower. The walkway (shown in the left photo) is made from a section of a Kadee boxcar running board. The discharge and fill pipes (shown in the right photo) are made of components from a Walthers piping kit.

these were glued in place I measured and cut the X bracing. I cut corner bracing plates $\sqrt[3]{16}$ x $\sqrt[1]{4}$ from .020" styrene and glued them in place from the horizontal angle braces to the column. I followed the drawing to determine if the corner braces were flush with the outside or the inside edge of the column.

When gluing the X bracing in position I constantly referred to the prototype photo to verify I had it in the correct orientation. The upper X bracing was assembled in the same manner as the lower portion, but without the corner bracing plates.

I repeated the same assembly process for the other side of the tower. The remaining two sides were similar, but the X braces had to be filed slightly to fit in to the web of the column.

I made lift plates for the top of the sand reservoir from .020" styrene sheet and drilled a hole in the plates prior to gluing them in place on each side. Following the prototype photo, I added additional angle bracing to each side of the sand reservoir.

With the bracing completed, I began work on the walkway next to the upper horizontal brace. I cut the walkway from a section of a Kadee no. 2012 50-foot Apex running board. Then I cemented Plastruct no. 90740 .040" square strip to each side. Once the walkway assembly was complete, I attached it to the tower, as shown in **fig. 12.**

Now on ModelRailroader.com

Download Thomas' scale drawings of the sanding tower and his staircase handrail bending template. Find the link under Online Extras at www.ModelRailroader.com.

I cut a piece of small-diameter pipe with curved section (part no. 29 from the Walthers Piping Kit) to use as the discharge pipe. See **fig. 13**. I filed a slight angle on the pipe's straight section to facilitate attaching it to the rounded discharge chute. The I attached the pipe with CA.

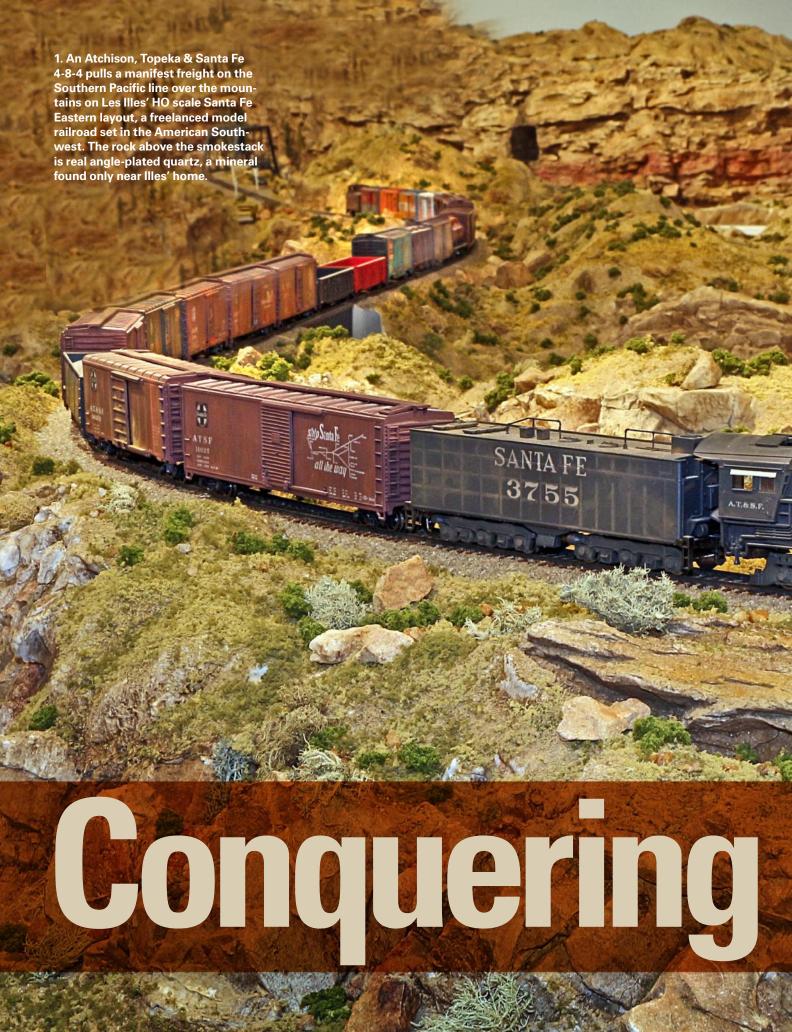
To make the fill pipe shown in **fig. 13**, I used the same diameter pipe but bent at a slight angle at the top, so it could attach to the sloped portion of the chute. A coupling (part no. 17) was used for the fill pipe cap at the bottom. The fill pipe assembly was glued to the tower using CA at the points where it touched the X bracing and the top. I constructed a counterweight assembly using parts from my scrap box and attached it to the discharge pipe side of tower.

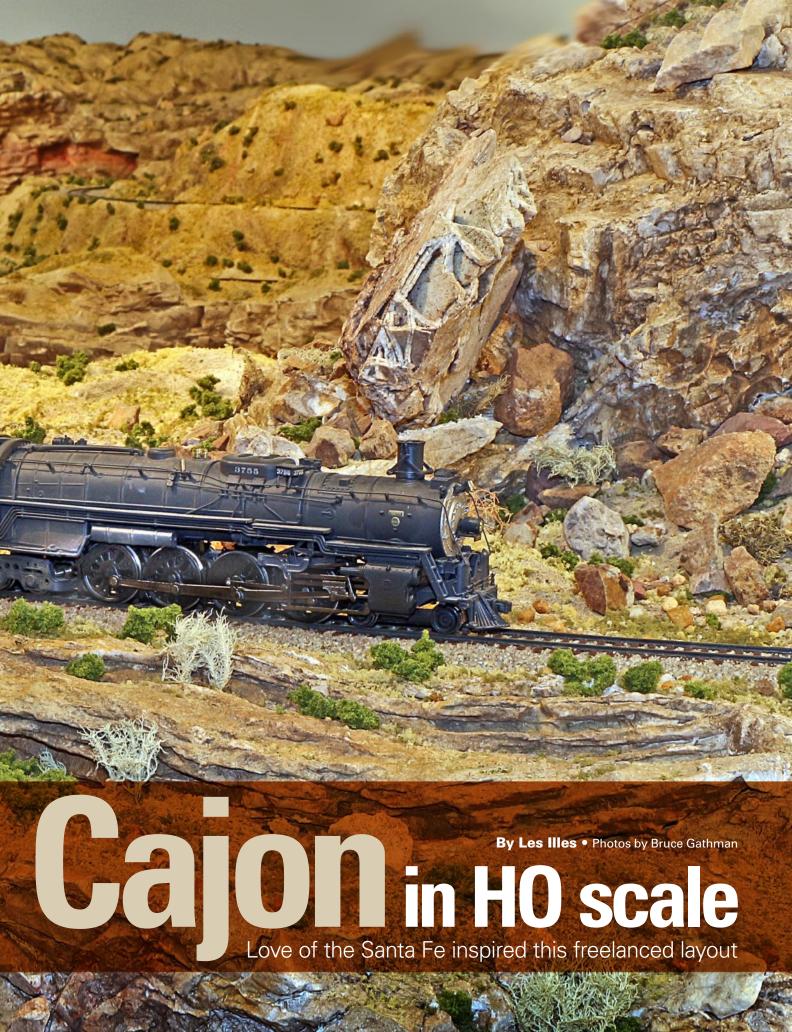
With construction of the sand tower complete, I painted the entire assembly with two coats Rust-Oleum Metallic Aluminum. After the paint thoroughly dried, I sprayed it with Testors' Dullcote in preparation for weathering.

I used AIM powders to weather the structure before attaching it to a piece of .060" styrene I'd painted and weathered for the concrete base. The final step was to attach a piece of Berkshire Junction Fine White EZ Line from the counterweight assembly to the discharge pipe. I then installed the sanding tower on the layout and finished the scenery.

This compact diesel terminal provided me with a series of enjoyable modeling projects. The finished result captures the look of its prototype, and adds fueling and sanding operations to my layout.

Thomas Klimoski wrote "From grass mat to weed patch," in the January 2012 Model Railroader. He and his wife, Diane, live in northeast Georgia.









3. Modern BNSF Ry. power meets vintage Santa Fe E units near an interchange between the two main lines. Les has had the signal bridge for more than 30 years. The BNSF diesels are Athearn and Kato models; the E units are by Kato.

y love for the Atchison,
Topeka & Santa Fe
began with a Lionel
O gauge steam passenger set my parents gave
to me and my older
brother for Christmas when I was 8. We
set it up on the Ping-Pong table with fake

snow for that Christmas-village look. I still have a photo of us with that layout. I built two other O gauge layouts before going off to college.

That Santa Fe affection was reinforced on a family train trip from Cleveland to California in 1950. We also rode the Santa Fe coast line from San Diego to

2. This view of the model railroad shows the rugged desert scenery that dominates most of the layout. Cajon is seen across the aisle.

The layout at a glance

Name: Santa Fe Eastern

Scale: HO Size: 25 x 35 feet

Prototype: Santa Fe (BNSF Ry.) and Southern Pacific (Union

Pacific)

Locale: Cajon Pass in California

Era: 1940s to present **Style:** walk-in

Mainline run: 600 feet in three

lines

Minimum radius: 30"

Minimum turnout: no. 8 (main),

no. 6 (yards)

Maximum grade: 2 percent Benchwork: open grid

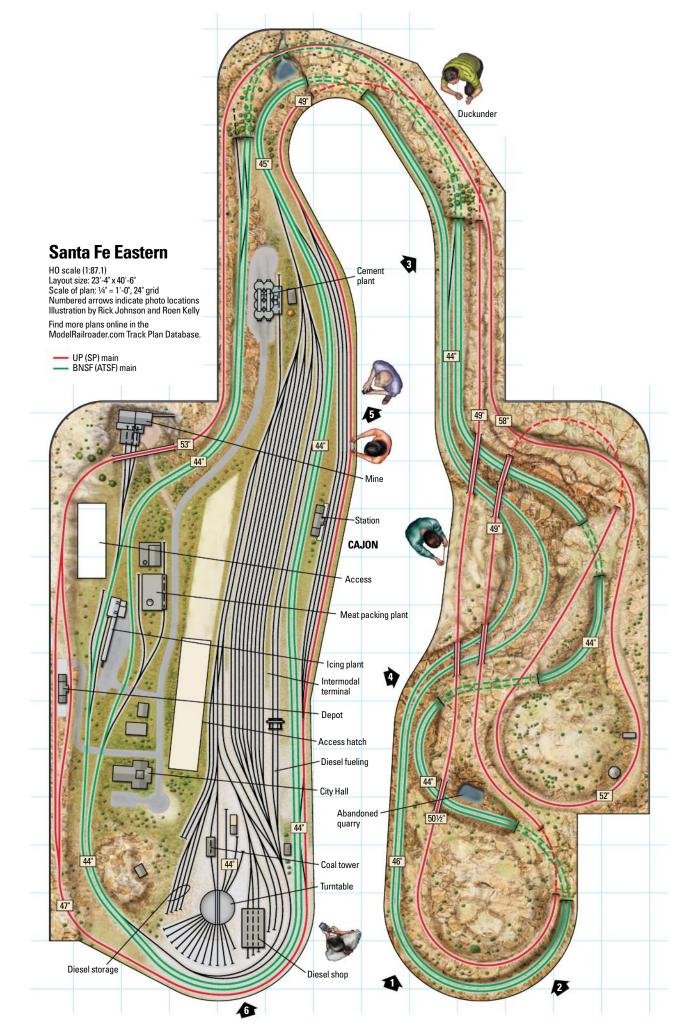
Height: 43" to 58"

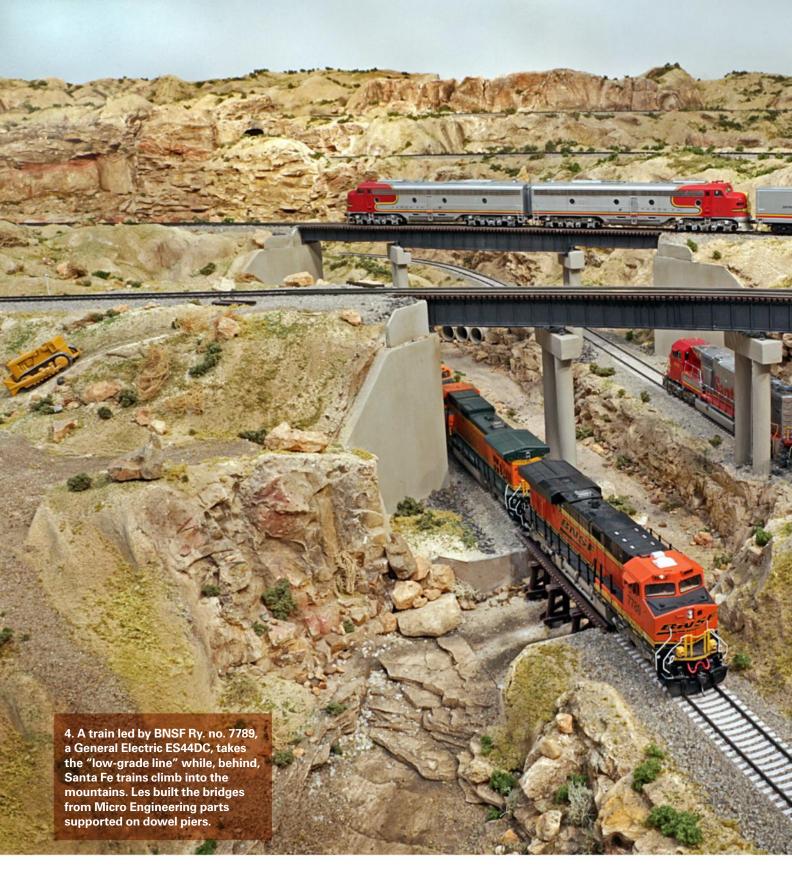
Roadbed: 1/2" plywood, Homasote,

and cork

Track: Micro Engineering code 83
Scenery: Hydrocal hardshell
Backdrop: hand-painted on walls
Control: Digitrax DCC with

wireless throttles





Los Angeles. Ever since then, it's been Santa Fe all the way.

After college I got married, started a family, and switched from O to HO scale due to space constraints. I've built four layouts, one of which lasted 25 years.

Then it came time to retire and move south. In the new house we had room on

the lower level for either two more bedrooms or one large room for trains. Naturally, the trains won. The area has four windows and an outside door to bring in materials needed for the layout.

After eight years of construction I've completed my dream layout. My layout is based on Cajon Pass, with the double-

track Santa Fe main and the single line of the Southern Pacific (now Union Pacific). The Santa Fe main line is Micro Engineering code 83 weathered rail with concrete ties. The single UP main, at a higher elevation through the mountains, is also Micro Engineering code 83, but with wood ties. Since UP has trackage



rights on the BNSF Ry., this gave me plenty of operating options.

The layout was designed for one-man operation, but the layout can handle four trains running at once. Any more is a challenge. With the ability to operate multiple trains under Digital Command Control operation, I do have to remind

my grandsons, who love to run the trains, about collision avoidance.

I run both 1940s steam engines and the latest Electro-Motive Diesel and General Electric locomotives as power for 40-car intermodal trains, 35-car coal trains, and general freight trains. All three mains are each 200 feet long, so



5. A crane hoists a replacement blower fan to the roof of the Hoffa Cement silo complex. The industry was built from a Walthers kit. The Liebherr crane is a Kibri model.

with plenty of operating space, I'll often run two trains on the same track with some passing sidings.

Desert scenery

Focusing on Cajon Pass has given me the fun of modeling plain desert and also plenty of rock formations and tunnels. My son, who lives in Las Vegas, often drives to Los Angeles through the pass. He tells me it looks just like my layout, or vice-versa.

Reading *Model Railroader* in the late 1940s and early '50s, I often marveled at the rock formations on John Allen's HO scale Gorre & Daphetid layout. Over the years I've developed a simple method of making rubber molds from real stones and casting rocks from Hydrocal. I've given seminars to the National Model Railroad Association on my technique.

Not all the rocks on my layout are castings, though. One odd-looking outcropping I like to point out to visitors (seen in the photo that opens this article) is an actual specimen of angle-plated quartz, a rare crystalline formation found in my hometown and nowhere else in the world.



6. A Walthers 120-foot turntable is the centerpiece of the Cajon locomotive terminal. Since Les runs power ranging from the transition era to the present, the terminal has both steam and diesel servicing facilities.



Meet Les Illes

Les Illes, his wife, Suzanne, and their Sheltie retired from northern Ohio, where he was a general contractor and she was an interior designer. They now live in the Greenville, S.C. area, but often visit his son's house in Highland Park, Ill., from which Les travels to Rochelle or Joliet to railfan the BNSF Ry. and Union Pacific. He also finds time for three rounds of golf most weeks.

Construction

The great part of building a new house was planning a large area for the train layout. I'm proud of the fact that I did all the framing, trackwork, scenery, and wiring myself. In order to avoid the glare of fluorescent lights, I took advantage of the room's 10-foot-high ceiling and put in eight lighting tracks with 33 spotlights. This gives more natural lighting in all areas. I had a professional artist paint the sky and clouds.

Before I started this layout, I learned from the Apple Valley club in Hendersonville, N.C., [see the March 2015 MR –Ed.] to prime and paint all the wood and Homasote before assembly to lessen warping due to humidity. I use 2 x 4s for the main benchwork frames and legs with 1 x 4 joists on 16" centers. The roadbed is ½" plywood topped with Homasote and cork roadbed. That was also primed and painted. The elevated tracks are on the same base, but supported with 1 x 2 risers.

I've always wanted my railroad to have broad, sweeping curves, as these make long trains look more realistic. The minimum radius on my layout is 30", with some curves 36" to 48". Most grades have been kept to 1 percent, and the steepest in the mountains is 2 percent.

I also installed a removable panel in the exterior wall that lets me park my large-scale trains on a three-track yard under my HO layout when they're not in use. The garden railway is a 200-foot loop through the trees and rocks in the back yard, with a double-track steel truss bridge over the stream. This layout uses Micro Engineering nickel silver code 250 track. I run my large-scale trains with battery power and radio control.

Now that my HO layout is "finished," I'll go back and do some better detailing and scenery, and most important of all, enjoy running trains.

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The photo that opens this article, on page 46, is this month's free computer desktop wallpaper. Find it under Online Extras on our website, www.ModelRailroader.com.



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Can't find the locomotive you want in the hobby shop? Try scratchbuilding. Brooks Stover shares how he modeled this Buffalo Creek & Gauley Whitcomb 65-ton diesel locomotive in S scale using styrene, brass, and surface detail decals.

SCRATCHBUILD ADIESEL SHELL from styrene

This S scale Whitcomb 65-ton locomotive started as a cardboard mock-up

By Brooks Stover • Photos by author

ne of the advantages of modeling a small railroad is that you can realistically re-create all the equipment the line had at a specific time. I achieved that goal on my circa 1958 S scale Buffalo Creek & Gauley (BC&G). I've modeled the road's three 2-8-0 Consolidation steam locomotives, its Mack railbus, the major pieces of maintenance-of-way equipment, and the

lone in-service caboose. With the scenery on my layout also near completion, I've been looking at other periods in the railroad's history for modeling projects.

The original BC&G closed in 1965, but in the early 1970s the railroad was purchased by Majestic Mining Co. The new owners reopened most of the BC&G line to serve a small mining operation not far from the original tipple.

The first engine it purchased was an ex-Pennsylvania Ordinance Works 65-ton Whitcomb diesel. Majestic retained the BC&G name and locomotive numbering system. The diesel became BC&G no. 20, as shown in fig. 1. It was the only diesel locomotive to wear BC&G livery. I thought it would be fun to model this small engine and then use modeler's license to incorporate it into my operating scheme.



Fig. 1 Prototype research. There are few in-service images of Buffalo Creek & Gauley no. 20. This Doug Bess photo helped Brooks build an accurate model of the railroad's only diesel.

Prototype research

To the best of my knowledge, a 65-ton Whitcomb has never been offered in S scale. My plan was to research the engine's dimensions, find a suitable S scale chassis, and scratchbuild the body shell in styrene.

It turned out the engine was bigger than I first thought. At 40 feet long, it was just a couple of feet shorter than a Baldwin S-12 diesel locomotive. American Models produces an S-12, and as luck would have it. I had one on hand. The wheelbase on the Baldwin trucks is longer than the Whitcomb, though the sideframes are similarly configured. The two engines' overall dimensions were close enough that I could build a reasonable representation of the Whitcomb by scratchbuilding a body to fit on the Baldwin chassis.

The Internet proved invaluable for this project. I was able to find a dimensioned drawing (**fig. 2**) and a direct side view photo of a 65-ton Whitcomb. Using my photocopier, I reduced the image and drawing to S scale. The scaled images, along with the photos of the BC&G engine that I have in my collection and images of similar engines, provided the necessary information to build the model.

Drawings and profile template

When dimensions can't be spot on, as in this case, I focus on making sure the model captures the character of the prototype. There was also the issue of making sure that the motor, running gear, and electronics would all fit within the compact body shell.

I started by making a simple side view drawing of the American Models chassis, including the motor and drive train. Then, using the photos and dimensioned line drawings as guides, I added a body

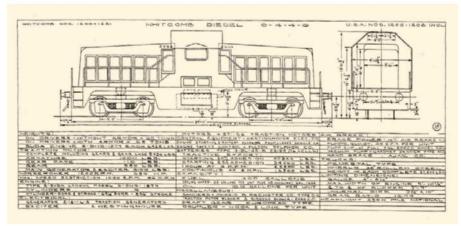


Fig. 2 More data. An online dimensioned drawing of a Whitcomb diesel was another valuable resource Brooks found. Though the drawing is for a version of the locomotive used in Europe in the 1940s, it contained useful data.

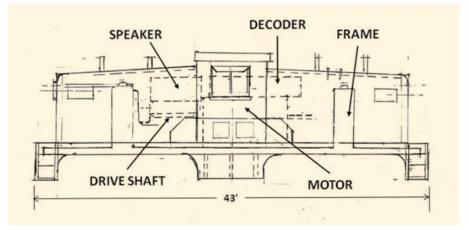


Fig. 3 Plotting it out. Brooks made this drawing of the Baldwin S-12 chassis and his Whitcomb shell to confirm the motor, decoder, and speaker would fit under the shell. He modified the shell's profile to accommodate the components.

profile to the drawing so I could evaluate alternative placements for a Digital Command Control decoder and sound speaker. See **fig. 3**. It turned out that some deviations from the prototype's profile were required for the shell to fit on the chassis, but the final drawing gave me confidence to proceed. To simplify construction I made the end panels vertical even though on the prototype they were canted in slightly at the top.

Next, I made a 3-D mock-up of a SoundTraxx Tsunami decoder and used my drawing to fabricate a simple cardstock centerline profile template that included a representation of the speaker. Placing this template on the Baldwin chassis with the decoder mock-up in place confirmed what the drawing showed, that the components would fit under the adjusted profile, as shown in **fig. 4** on the next page.

But the question remained: Would the three-dimensional body have the character of the prototype, given the adjustments I'd made?

3-D cardstock mock-up

To confirm that the finished model would have the right look, I made a complete 3-D mock-up of the body shell from .020" cardstock. This isn't as difficult as it may sound. The Whitcomb is basically all flat surfaces and is symmetrical end to end. I scored and folded the cardstock wherever possible and used tape to hold parts together.

The first step was to make a simplified walkway assembly. See **fig. 5**. Then I mocked up the cab and worked out the clearances for the decoder, as shown in **fig. 6**. I drew a few details, like the access panels and louvers, on the cardstock hoods. I used cotton swab sticks to represent the exhaust stacks.

Comparing the cardstock model with prototype photos confirmed that a convincing model could be built over the Baldwin chassis (fig. 7). More importantly, all the components would fit neatly inside the shell.

The area of the model that varies the most from the prototype is the length of

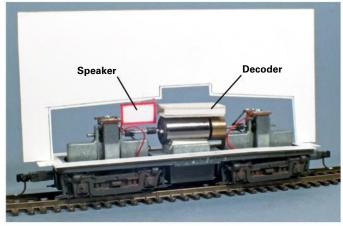


Fig. 4 Template time. This cardstock centerline template, designed to represent the inside surface of the body shell, confirmed the major engine components would fit. Brooks also made cardstock mock-ups of the decoder and speaker.

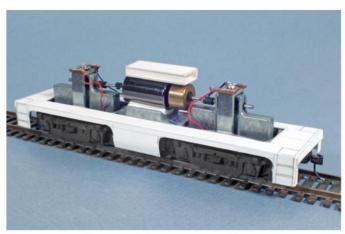


Fig. 5 Cardstock walkway. Brooks made this representation of the walkway assembly to test clearances on the chassis, trucks, and couplers. The mock-up needs just enough detail to confirm clearances and overall size.

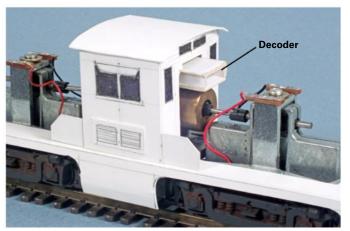


Fig. 6 In the clear. Next, Brooks built this cab mock-up to establish clearance requirements for the motor and decoder. Building a mock-up prevents wasting more expensive material like styrene or brass.



Fig. 7 Ready to proceed. Comparing the mock-up to prototype photos confirmed that even with slight deviations, the model captured the character of the Whitcomb 65-ton diesel locomotive.

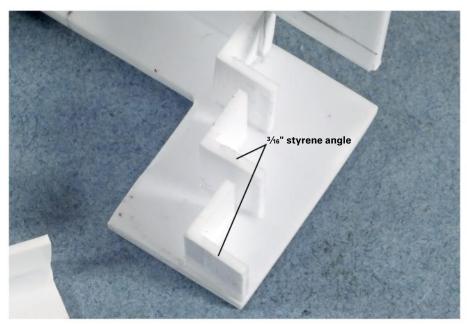


Fig. 8 Step on up. Brooks used $\frac{3}{16}$ " styrene angle for the corner steps. When installed, the inboard wall of the stairwell (not shown) resulted in a strong corner structure.

the skirting between the trucks. The longer Baldwin trucks make the skirting shorter than the prototype. Fortunately the engine will be black and the shorter skirting will be relatively inconspicuous.

Switching to styrene

I built the styrene walkway assembly first, turning to my mock-up for reference. I used .040" styrene sheet for the walkways, .060" sheet for pilots, and .030" for the side skirting.

The corner steps are ${}^3\!/\!{}_6{}^{"}$ styrene angle trimmed to size (**fig. 8**). The styrene assembly is sturdy and allowed me to re-create prototype details such as the open space between the steps and the slight overlap of the steps relative to the risers.

The four cab walls were the most intricate parts to fabricate. I made the walls from .030" styrene, carefully cutting the 10 window openings with a sharp hobby knife and cleaning up the

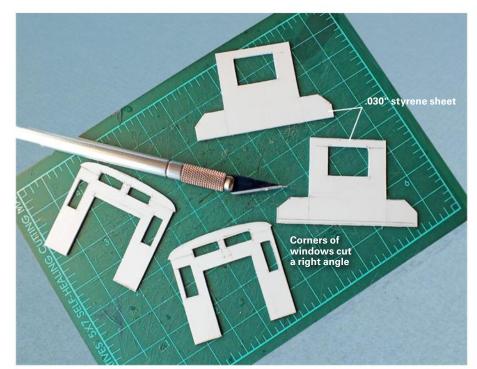


Fig. 9 Cutting the cab. The most intricate part of the project was cutting the cab walls and window openings. Brooks cut the parts from .030" styrene sheet using a hobby knife with a no. 11 blade.

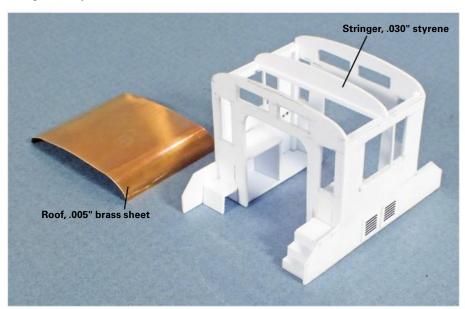


Fig. 10. Styrene and brass. After assembling the cab walls, Brooks added a styrene stringer across the middle of the cab. This provided additional support for the arched roof, which he made from .005" brass.

edges with small files. The windows on the full-size engine had curved corners, but to simplify things, I squared off the windows on the model. See fig. 9.

I assembled the four cab walls in a gluing jig. Then I added a styrene stringer across the middle of the cab, parallel with the end walls. This provided additional support for the arched roof, which I formed from .005" brass sheet, shown in **fig. 10**. I secured the roof to the styrene with cyanoacrylate

adhesive (CA). Then I glued the cab to the walkway assembly.

On the pilots, I used 5/32" o.d. styrene tube to model the poling pockets, 1/8" styrene angle for the footboards, and .020" brass wire for the uncoupling levers. The diamond plate tread decals are from Archer Fine Transfers.

I used .032" brass wire, bent to shape, for the handrails. I inserted the stanchions, which are straight lengths of the same diameter brass, up through holes

Materials list

American Models

Baldwin switcher chassis

Archer Fine Transfers

AR88070 diamond tread AR88075 railroad louver mix

B.T.S.

02077 three-chime air horn

Evergreen styrene

153 .060" x .060" strip 225 .156" round tubing 250 .100" quarter round 294 .125" angle 296 .188" angle 9009 .005" sheet 9010 .010" sheet 9030 .030" sheet 9040 .040" sheet

Floquil (Discontinued. Substitute paint in parentheses) 110010 Engine Black (Model Master 1747 Gloss Black) 110013 Grimy Black (Model Master 2079 Schwarzgrau RLM 66)

Model Master enamel paint

2118 Deep Yellow

9060 .060" sheet

SoundTraxx

827111 TSU-1000 digital sound decoder for Baldwin VO

Miscellaneous

1/16" heat-shrink tubing 3/32" brass tube .005" sheet brass .020" brass wire .020" cardstock .032" brass wire .250" OD brass tube 3M adhesive transfer tape 1" square 8Ω hi-bass speaker Headlight lenses

drilled in the walkway. I soldered the stanchions to the handrails from the back so the joint would look cleaner. See **fig. 11** on the next page.

Then I used a dot of CA to secure the brass stanchions to the styrene walkway before trimming them to length from the bottom. I fabricated a somewhat simplified version of the end railings. Even still, the assembly proved fairly complex (this was my first time soldering handrails in place). I discovered that I could

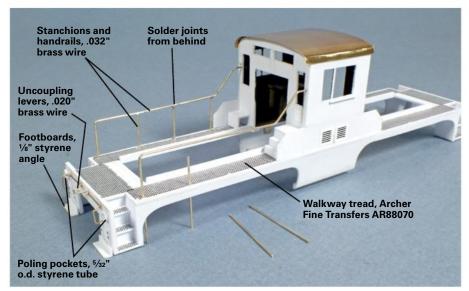


Fig. 11 Coming together. With the cab attached to the walkway assembly, Brooks started adding details, including the footboards, uncoupling levers, and handrails. He used raised surface decals to add the walkway tread.

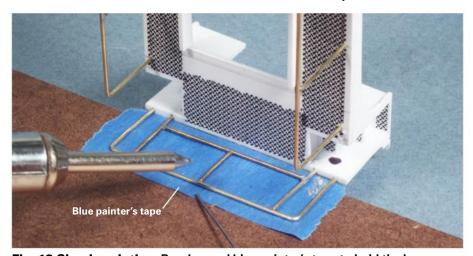


Fig. 12 Simple solution. Brooks used blue painter's tape to hold the loose stanchions for the end rails in place during soldering. He cleaned any residue off the brass prior to painting.

hold the brass pieces in place with masking tape for soldering, as shown in **fig. 12**. I removed any adhesive residue before painting.

Modeling the hoods

The challenge in building the styrene shell was modeling the radius on the edges of the hoods. Roger Nulton, a fellow S scale modeler, suggested styrene quarter round. **Figure 13** shows the process. First, I glued .060" x .060" styrene strip framing to the .040" styrene hood panels. Then I attached the .100" quarter round (6" radius in S). Again, all gluing was done in a framing fixture to keep the parts square and flush.

The Whitcomb had six access doors on each side of each hood. Each door had two adjustable flaps for cooling. I cut the 24 hood doors from .010" styrene sheet, to which I applied 3M adhesive transfer tape [See Brooks' article "11 ways to make peel-and-stick parts" in the August 2015 issue of *Model Railroader – Ed.*] Attaching styrene sheet with adhesive transfer tape produces a strong, neat, and permanent bond. The tape is particularly useful for thin styrene, as it doesn't soften or distort the part like glues can.

After the doors were cut from the sheet, I removed the paper backing and attached the peel-and-stick parts to the hoods. Uniform spacing of the doors was accomplished with a piece of .040" x .040" styrene as a guide. See **fig. 14**.

Similarly, I cut 48 peel-and-stick flaps measuring .100" x .200" from .005" styrene. Then I added Archer Fine Transfers' raised body louver decals, custombent .020" brass lift rings and grab irons,

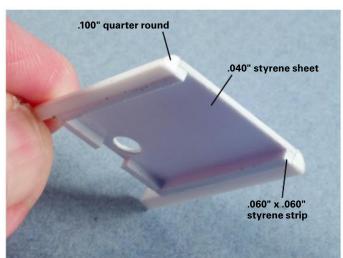


Fig. 13 Hood curves. Brooks used .100" styrene quarter round to model the radii on the corners of the hoods. He attached the quarter round to the .040" styrene panels after adding .060" x .060" styrene strip framing.

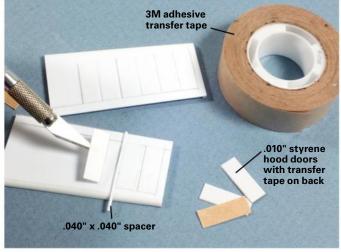


Fig. 14 No glue necessary. Instead of securing the .010" styrene hood doors with glue, Brooks used 3M adhesive transfer tape. He used a piece of .040" x .040" styrene strip as a spacer when installing the doors.

³/₃₂" brass tube exhaust stacks, and headlights, all of which are shown in **fig. 15**.

Painting and detailing

I designed the hoods to be removable. This lets me reach the chassis for maintenance and allows the hoods to be painted separately from the walkway/cab assembly. If the hoods had been attached, the railings would have interfered with paint coverage on the hood.

I painted the body Engine Black, the trucks Grimy Black, and the handrails and stanchions Deep Yellow.

Once I'd finished painting the model, I applied custom decals from Rail Graphics. Crew figures are from Arttista, and the three-chime air horn is B.T.S. no. 02077. The bell mounted on the front of the cab is from my scrap box. See **fig. 16**.

The photos of the BC&G's Whitcomb show it was extremely well maintained, so I lightly weathered the model with powdered pastels.

Putting it together

With the shell complete, it was time to find out if the electronic components would fit under it like the mock-up suggested. I attached the decoder to the top of the motor with a thin layer of silicone caulk. Then I made styrene brackets to support the speaker and capacitor.

I'm happy to report that everything fit as planned. I was careful to make the wires no longer than necessary to save space. I gently routed the wires and secured them with heat-shrink tubing and thread.

I used .250" o.d. brass tube to enclose the low-current light bulbs. The tube serves as a heat sink to protect the styrene shell, adds a warm tone to the light, and minimizes stray light. See **fig. 17**.

Scratchbuilt success

Building BC&G no. 20 proved a satisfying project. Though my model isn't 100 percent accurate, it captures the character of the prototype.

If you have a favorite diesel that you'd like to add to your roster that's not commercially available, try using some of the ideas presented here. In the end there's nothing like having a one-of-a-kind locomotive model that you built yourself in service on your railroad.

Brooks Stover, a former automotive engineer, lives in the Detroit area with his wife, Carol. You can learn more about the Buffalo Creek & Gauley and Brooks' S scale layout at www.buffalocreekandgauley.com.

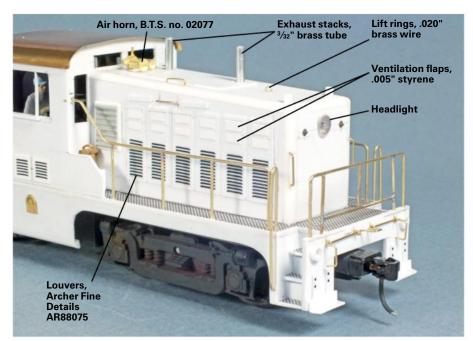


Fig. 15 Final details. Next, Brooks added the ventilation flaps and body louvers to the hood doors. He finished the hoods by adding grab irons, lift rings, and exhaust stacks, using prototype photos as a guide.

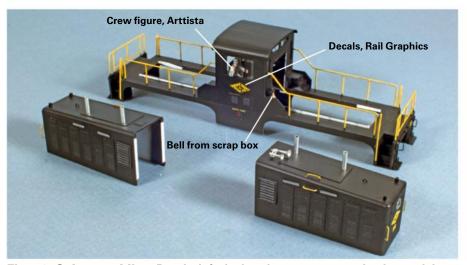


Fig. 16. Subassemblies. Brooks left the hoods separate to make the model easier to paint. This photo also shows the crew figure in the cab and the bell.

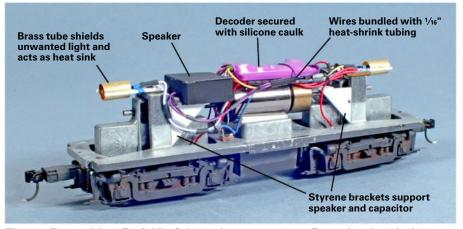
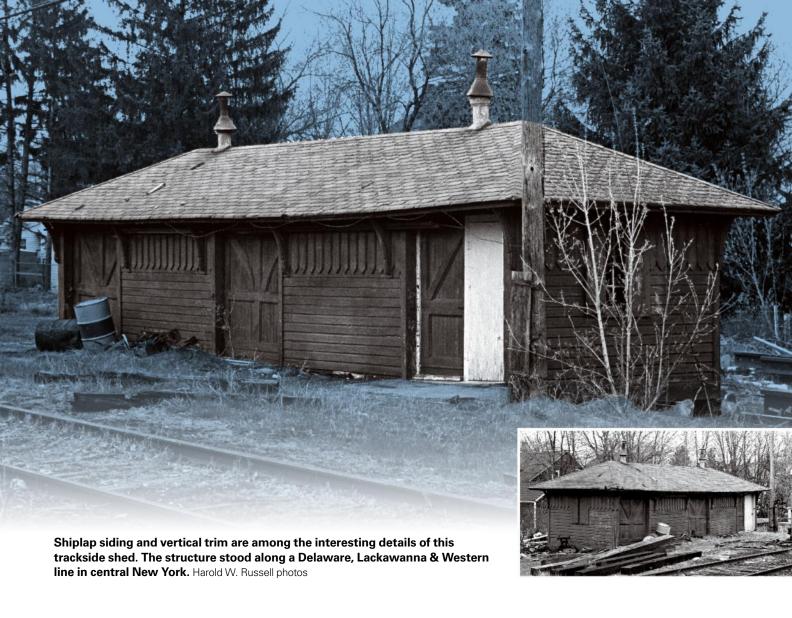


Fig. 17 Everything fits! All of the major components fit on the chassis, just as the cardstock mock-up suggested. Brooks secured the decoder to the motor with silicone caulk.



PLANS FOR A DISTINCTIVE TRACKSIDE SHED

This lineside structure likely held a handcar and other supplies along the Delaware, Lackawanna & Western RR

By Harold W. Russell

The V-shaped vertical siding along the top of the walls first caught my eye when I came across this lineside structure more than 20 years ago. For a simple storage shed, this building is quite ornate. This shed was located along the former Delaware, Lackawanna & Western RR tracks in Norwich, N.Y., a town

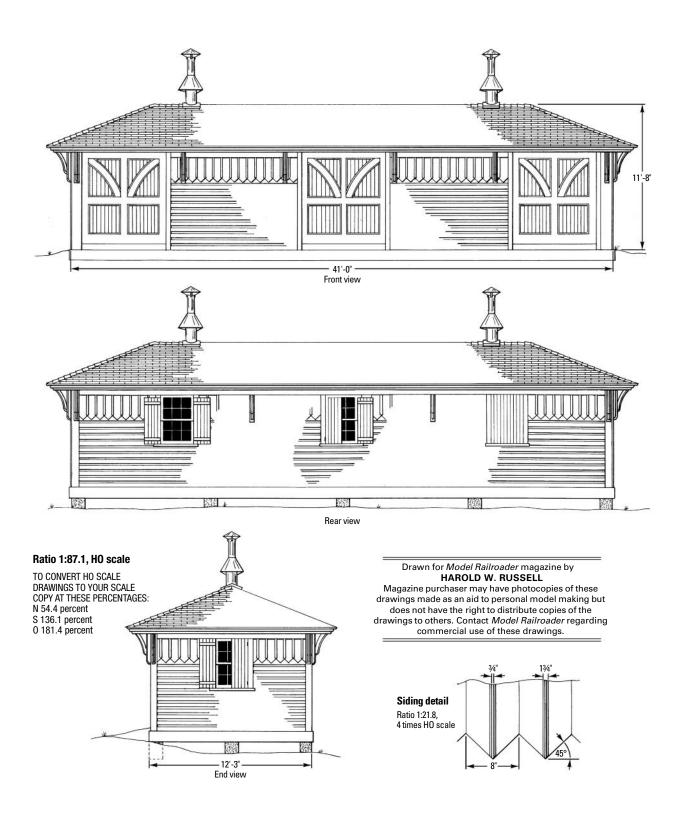
in the center of the state that was on the DL&W main line running south from Utica, N.Y.

When I photographed the building in the early 1990s, the windows were all shuttered, possibly for security. The walls are sided in 5^{3} /4" shiplap. The photo shows modern asphalt shingles, but

the original roofing was more than likely wood shingles.

The building's foundation looked relatively new. The way the ground sloped up to the front indicated that it was probably moved from another location.

Judging by their size, one or both of the doors could have served a handcar,



or in more recent times, a track speeder. The white door in the photo looks like a later addition. Reflecting the original design, my plans show all the doors as the same.

I assume the original structure was painted in the Lackawanna's standard structure colors of dark green with dark red trim. Whether or not it's modeled as an exact DL&W prototype, this shed would make an interesting addition to a lineside scene.

Harold W. Russell has contributed prototype drawings to Model Railroader magazine for 50 years.

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Eastbound CSX freight Q-640 rolls through the Cleveland Terminal Subdivision at Collinwood, Ohio, on April 9, 2011.

Railfanning nearby as a child led Perry Pollino to ask Bob Sprague for a track plan of the area in N scale. Thomas Mik photo

Railfan memories spurred creation of this N scale track plan

By Bob Sprague

hat's better than a railroad in a spare bedroom? Two railroads in a spare bedroom, of course.

Along the south shore of Lake Erie, CSX and Norfolk Southern main lines run in parallel. Near Willoughby, Ohio, they draw within 50 yards of one another. It was here that a young Perry Pollino would ride his bike to watch what were then Conrail and Norfolk & Western trains pass.

Fast-forward to today. Perry hoped to evoke the area around Willoughby in N scale in a bedroom about 11 feet square. He asked me to design a plan for him, and we managed to fit a great deal of operating interest – including two

functioning main lines – into this modest space.

Lots of requirements

Perry had been planning his railroad for a while, and had a list of features he really wanted. Some of these were industries present on the prototype, such as a coal operation in the Eastlake power plant, a propane dealer, a scrap dealer, a lumberyard, and the Lubrizol chemical plant in nearby Painesville.

Other elements were more fanciful. Perry had to have an intermodal yard, a place to unload auto racks, and a turntable capable of handling his Challenger steam locomotive. Perry's idea to incorporate this last item was a rail museum

The track plan at a glance

Name: Willoughby, Ohio

Scale: N (1:160) **Size:** 11'-0" x 15'-3"

Prototype: Norfolk & Western and

Conrail

Locale: northern Ohio

Era: 1980s Style: walk-in Mainline run: 85 feet

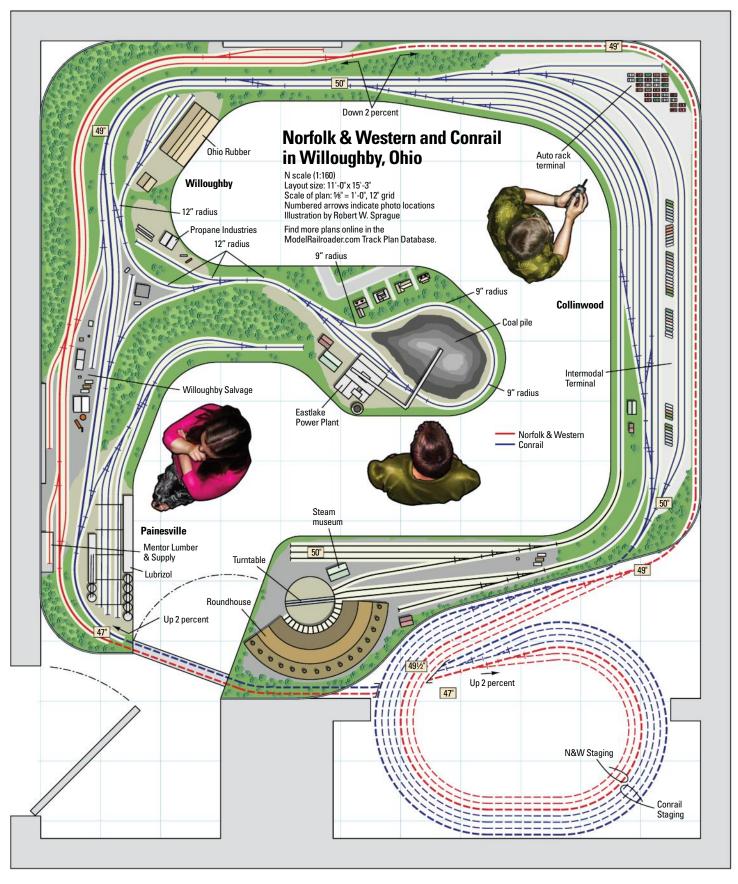
Minimum radius: 15" (main), 12"

(wye), 9" (balloon track)

Minimum turnout: Peco small

radius

Maximum grade: 2.25 percent





Conrail F7A no. 1678 waits at a grade crossing in Willoughby, Ohio, in January 1977, having just stopped at the Eastlake Power Plant. Serving the plant is an important operational aspect of the track plan. Charles Whipp photo

with a roundhouse similar to "The Age of Steam" in Sugarcreek, Ohio.

Perry wanted a layout that evoked Willoughby, but he didn't think he could get both railroads and the wye to the power plant into his bedroom-sized space. I was a bit more confident. I liked the wye and surrounding trackage at Willoughby and wanted to see how close I could get to the prototype track arrangement. I also thought that the operating potential of modeling both railroads was worth the complexity and would be practical in N scale.

With auto racks and Challengers set to traverse the rails, it was important to maintain a broad minimum radius for the main lines. We chose 15" curves and Peco medium-radius turnouts in code 55 for reliable operation. Still, it was possible to include most of Perry's desired features along with a working version of Willoughby in the plan.

Backstage

Although the entrance door in Perry's railroad room is tucked into an alcove, there's a closet from which the folding doors will be removed. By using this space for staging loops, the visible portion of the layout can be expanded while maintaining a 24" to 30" operating aisle.

I fit four Conrail and three N&W staging tracks into the closet. A 2.25 percent grade is enough to allow the tracks to cross over one another, as long as the upper roadbed is kept to minimum depth. Inside the staging loops is an access area large enough to allow a

"mole" – an operator who makes up and breaks up trains and can even "fiddle" cars on and off the railroad for additional operating variety. This arrangement also keeps the staging tracks and turnouts, although concealed from the rest of the layout, accessible for maintenance and rerailing.

The Conrail and N&W main lines run around the perimeter of the room. Trains disappear toward Erie, Pa., to the east, and Cleveland to the west - both destinations represented by the same staging tracks, which form a continuous connection. One design compromise on this plan is that west is to the right and east is to the left from the operator's point of view. Most northern hemisphere dwellers are used to the opposite orientation from maps, but in this case, it worked much better for the Willoughby wye to extend in the direction of Lake Erie, as it does on the prototype. A few directional signs should help keep operators oriented.

The two main lines emerge from Erie staging and cross the entry on a swing gate. Proceeding westward, Conrail serves the Lubrizol plant in Painesville, while the N&W serves Mentor Lumber & Supply, represented by flats on the backdrop. Thanks to N scale, a decent representation of Lubrizol, both mains, and the lumber company fit comfortably on a very accessible 18" wide shelf.

Working in the wye

Wyes always represent a challenge in track planning. Because they head off in

three directions, they simply don't fit well on a linear shelf. I was determined to include the Willoughby wye, though, because it's a signature element of Perry's primary scene as well as the route to the Eastlake power plant.

I placed the power plant on the end of the peninsula, as if sticking out toward Lake Erie. This places the wye at the base of the peninsula, which makes it accessible from both sides. There's also room, with 9"-radius curves that are tight but workable for N scale coal hoppers, to include a balloon track like the one at the prototype power plant. The junk dealer sits between the main lines, while Ohio Rubber and the propane dealer sit on spurs off the wye.

To the west of the wye scene, the N&W disappears into a low trench toward the backdrop on its way to staging. This provides enough space for a version of the Conrail yard at Collinwood, which today also includes an intermodal terminal. A single spur serves as a small auto rack terminal.

Finally, the Conrail main line disappears toward the west behind a version of the steam museum, allowing the roundhouse to serve both as an engine terminal for Collinwood and an opportunity to showcase classic locomotives.

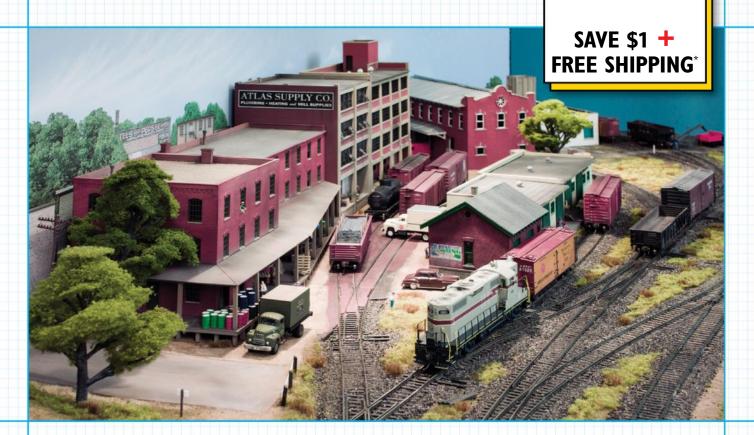
Operating in Willoughby

This plan provides a lot of operating possibilities – almost too many for the number of operators who can fit into a room of this size! Certainly two locals could serve the industries, including the power plant, while a yard operator handles Collinwood. A mainline crew could run through trains on the Conrail and N&W main lines, while the optional mole operator, isolated inside the staging loop, could add operating interest for his or her colleagues working on the visible parts of the layout.

Perry had some intervening events, but is now beginning construction. I'm looking forward to his progress on what should be a very satisfying evocation of fond memories of his youth.

There are many places where two competing railroads run side-by-side in close quarters, but this situation is not often modeled. A scheme similar to this plan for Willoughby provides lots of operating possibilities, and I hope it provides ideas for similar designs.

Bob Sprague is a professional layout designer whose track plans have appeared numerous times in the pages of Model Railroader. He lives in Alexandria, Va.



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DCCCORNER

New sound for an old brass steamer



A Norfolk & Western class J 4-8-4 heads over the Rockfish River bridge with a train on Larry Puckett's HO scale Piedmont Southern layout. Larry explains how he installed a TCS WOWSound steam decoder in this brass locomotive.

In the October 2016 DCC Corner

column, I showed how I installed a sound decoder in a plastic steam locomotive. This month I want take a look at the new TCS WOWSound version 4 steam decoder, and install it in an old brass steam locomotive.

TCS uses large memory chips in its WOWSound decoders, allowing it to install sounds for multiple locomotives along with dozens of horns, bells, whistles, and other sounds.

New decoder versions are added whenever a new set of sound features are released, and that's what we have with the TCS WOWSound version 4 steam decoder. TCS also offers an upgrade service that will bring your sound decoders up to the most recent firmware and software versions. There's a \$20 fee for the upgrade, with discounts for multiple decoders. For more, go to TCS's orders page (www.tcsdcc.com/Zen/index.php) and enter "upgrade" in the search box.

Let's take a look at the new features the folks at TCS have added before moving on to the installation. The biggest difference is the addition of what TCS calls Calibrated Proto Chuff. This feature monitors the load on the locomotive by mea-

suring back-electromotive force (back-EMF), and alters the chuff sounds as the train ascends and descends grades.

You get a louder chuff after a locomotive couples to a string of cars and starts to take up slack, and then feels the full weight of the load. With load-based sounds, the locomotive will continue at the set speed, and operators are expected to use the separate brake on function F7,

which reduces locomotive speed by 20 percent each time the button is pressed. Brakes are released by pressing F6.

Other additions include a total of 60 whistles, 40 bells, and 9 chuff sets, including several narrow gauge locomotives. Finally, many features on the decoder can be programmed using the Audio Assist feature unique to WOW-Sound decoders. WOWSound decoders are rated at 1.3 amps continuous and 2 amps for short durations. Each wired function is rated at 100mA and sound output is optimized for 8Ω , 1W speakers.

The brass locomotive I installed the WOWSound decoder in is an old streamlined Norfolk & Western class J 4-8-4 model made in Japan by Olympia. I'd previously replaced the open frame motor with a Sagami can motor and put in a new gearbox, so it ran fairly well on direct current (DC).

The problem with most brass steam locomotives of this vintage is they pick up power from the right rail with the locomotive wheels and the left rail with the tender wheels. This and their long, stiff wheelbase makes them susceptible to power interruptions due to dirty or uneven track, so a TCS Keep-Alive capacitor circuit was a necessity.

Normally I'd install the speaker in the floor of the tender. However, in this model, that wasn't an option. The tender body has wide flanges that rest on the tender floor, and there's a brass center sill

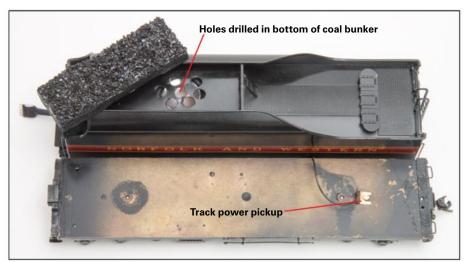


Fig. 1 Let the sound out. Larry drilled holes in the bottom of the coal bunker and installed the speaker underneath. He made a removable coal load using a foam block. The wire screwed to the tender floor is the left track power pickup.



Learn even more by watching the video series "DCC Programming" at www.ModelRailroaderVideoPlus.com.

running down the middle of the underside of the tender, which would interfere with drilling holes. Instead, I installed the speaker under the coal load.

I expected excellent sound from this arrangement since the sound waves have a more or less unobstructed path to my ears. With lots of room inside the tender, I used a 1" diameter high-bass speaker with a metal dust cap, maximizing the low-frequency output of the decoder.

To let the sound out, I drilled a series of holes in the floor of the coal bunker (**fig. 1**). I then cut and shaped a foam block to fit in the bunker. Next, I cut out a ³/₄" diameter hole in the foam insert directly over the holes I drilled. I glued a piece of wire screen over this opening in the foam using epoxy cement.

Once the cement was dry, I painted the insert black. Then, I applied a layer of epoxy cement, being careful to only dab it randomly over the wire screen. Finally, I sifted on a layer of coal, making sure to leave some thin spots over the wire screen to let the sound out (**fig. 1**).

I soldered the wires from the decoder to the contacts on the speaker. I applied a thin line of Pliobond adhesive to the plastic speaker frame, being careful to keep it off the speaker cone, and set the speaker in place against the holes I'd drilled in the coal bunker. With the speaker installed, I used some double-sided foam tape to attach the decoder and Keep-Alive circuit board inside the tender body (**fig. 2**).

Getting a reliable electrical pickup connection can be a challenge with brass locomotives. I drilled a hole in the tender floor and installed a small screw. I then soldered the black decoder wire (left rail power pickup) to a small metal tab and screwed it down tight (**fig. 1**).

For the rear light, I installed a 3mm warm white light-emitting diode (LED) with a $1 \mathrm{K}\Omega$ resistor and, making sure to observe polarity, I soldered the blue (positive) and yellow (negative) wires to the LED leads. A couple drops of Testor's Clear Parts Cement secured the LED in the light tube.

I still needed a way to get the remaining wires from the tender to the locomotive. To allow room for a TCS connector, I cut out a section of brass under the tender deck plate using a cutoff disc in a motor tool. I then covered the point where the wires were soldered to the connector with heat-shrink tubing to insulate

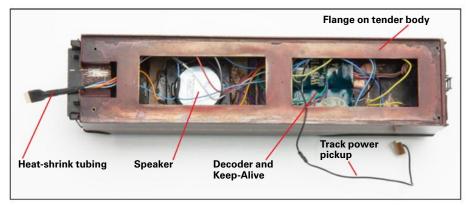


Fig. 2 Putting the electronics in. Larry installed the speaker under the coal bunker and used some double-sided foam tape to attach the decoder and Keep-Alive circuit board inside the tender body.

the wires and provide added protection from the repeated flexing I expected them to endure. I soldered the red, white, blue, orange, and gray wires on the harness to the corresponding decoder wires.

On the locomotive, I was able to pass the harness wires through an opening under the cab deck (**fig. 3**). The Sagami can motor has polarity markings on it, making it easy to get the orange (positive) and gray (negative) wires soldered to the motor correctly. To provide pickup from the right rail, I soldered the red wire to a metal washer under a screw in the frame.

Finally, I installed another LED in the light tube behind the headlight and connected it to the blue and white wires. With all the wiring completed, I reassembled the locomotive and tender and headed for the programming track.

Using Java Model Railroad Interface's (JMRI) DecoderPro in my computer and programming on the main, I set the decoder for heavy steam, selected the N&W whistle, and programmed the address to correspond with the road number on the locomotive. [JMRI is available for free download at www.jmri.sorceforge.net. – *Ed.*] I activated the TCS Audio Assist feature and went through the steps to set up the Calibrated Proto Chuff feature.

This is an easy process requiring you to run the locomotive at speed step 20, unloaded, on a flat section of track. Then you repeat this process with the locomotive pulling a heavy train – I used a long string of passenger cars.

The result was stunning. The locomotive chuffed loudly as it took up slack, then quieted down as it picked up speed on the flat tangents on my layout. The

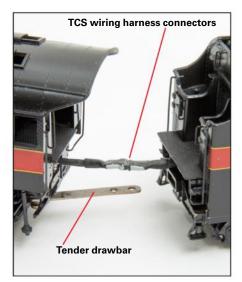


Fig. 3 Making the connection. Larry passed the TCS harness wires through an opening under the tender cab deck.

combination of the decoder's CD-quality digital recordings and the high-bass speaker put out much more volume than I expected, and I had to drastically cut the master and individual sound volume levels to prevent damaging the speaker.

The final results produced a deep bass coming through like no other installation I've ever heard. Now I need more of these for my other steam locomotives. There's nothing like sound to bring an old brass steamer back to life! To hear the final installation, drop by my website, www.dccguy.com.

Now on ModelRailroader.com

Check out a demonstration of the latest version of TCS's WOWSound steam decoder by clicking on the link at www.ModelRailroader.com.



PRODUCTREVIEWS UNION PACIFIC PACIFIC

ScaleTrains.com HO Union Pacific GTEL lives up to Museum Quality expectations

With all the roadnumber-specific,

superdetailed, sound-equipped models available today, the bar is set high when a new top-of-the-line HO scale locomotive comes to market. ScaleTrains.com just nudged that bar a bit higher with its Museum Quality series Union Pacific gas turbine-electric locomotive (GTEL). In addition to its scale fidelity and exquisite detailing, the model is available with a pair of ESU LokSound Select decoders that provide prototypically accurate sound, lights, and animation, including some effects never before seen on a North American scale model.

ScaleTrains.com also sells the GTEL without the Museum Quality features as part of its Rivet Counter series.

The prototype. A GTEL used essentially a jet engine to turn a generator that provided electricity for truck-mounted

traction motors. Through the early 1950s General Electric built increasingly powerful GTELs for UP, culminating in the 8,500 hp "Super Turbine." The locomotive is made up of three units: an A (control) unit, B (turbine) unit, and fuel tender. The A unit had an 8-cylinder diesel engine that powered compressors and other auxiliary components. The engine also powered the locomotive during low-speed hostling moves.

From 1958 to 1961, General Electric delivered a total of 30 Super Turbine GTELs to UP. Due to their noise level, the new turbines gained the nickname "Big Blows." The GTELs soldiered on through the 1960s, but rising maintenance and fuel costs led to all 30 Big Blows being retired by 1970.

The model. The measurements of the ScaleTrains.com model match those of

prototype diagrams reproduced in *Turbines Westward* by Thos. R. Lee (AG Press, 1975). Our review sample models UP no. 26, which is on display at the Utah State Railroad Museum.

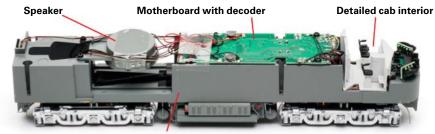
The plastic body shells of the A and B

The plastic body shells of the A and I units and tender feature well-defined molded details that match prototype photos of no. 26. Many of the model's details are separately applied parts, including etched-metal grills, wire grab irons, and flexible plastic side ladders.

The rooftop dynamic brake equipment on the A unit has an "H – I" configuration, as opposed to the "H – H" configuration of earlier Super Turbines. The horn placement, above the radiator on the A unit, is also correct for no. 26.

Our review sample included some details exclusive to Museum Quality series models. The A unit's cab doors feature separate handles and spring open to a fully detailed interior. The B unit features sliding side access doors that reveal a model of a GE turbine engine within. The fuel tender also features separately applied truck safety chains.

In addition to the molded rubber radiator hoses on the end of the A and B units, the Museum Quality model also includes user-installed, separate m.u. connections between the A and B units. However, these parts are tricky to install, and I had trouble keeping them connected when running the locomotive.



Die-cast metal chassis

The A unit (shown above) and the B unit each features a DCC sound decoder and a die-cast metal chassis that surrounds a flywheel-equipped motor.

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Mechanism. As on the prototype, knuckle couplers connect the three units. I removed the shells from the A and B units by first removing the front and rear couplers, then removing four additional screws on the bottom of each unit's diecast metal chassis. The A and B units each have a flywheel-equipped motor that powers truck-mounted gearboxes.

Both units have DCC sound decoders plugged into 21-pin sockets on printedcircuit (PC) motherboards and enclosed 28mm round speakers. The tender features a lighting decoder that controls its directional backup light. All exterior and interior lighting on the A and B units, as well as the tender, is provided by surfacemounted light-emitting diodes (LEDs).

Performance. During testing, I ran the A and B unit together, since they wouldn't have been run separately. I tested the GTEL with an NCE DCC system. Out of the box, both units are perfectly speed matched. The ESU decoders provided smooth speed control from less than 1 scale mph to a prototypical 64 scale mph top speed.

The decoders feature ESU PowerPack energy storage modules. These capacitors provide several seconds of power to keep the locomotive rolling smoothly with uninterrupted sound over dirty rails or dead spots on the track.

To change the road number I simply placed the A and B units and tender on our programming track and changed the factory address of "3" to the locomotive number (26).

Like all LokSound decoders, those included with the turbine feature

programmable configuration variables (CVs) that allow users to adjust sound effect volume levels, set up speed tables, map functions, and more. Quick start instructions are included with the model. LokSound user manuals are available as free downloads at www.esu.eu/en/start.

Sound and lights. Pressing F8 starts up the diesel engine sounds, which play through the A unit's speaker. The speed of the locomotive is limited to 30 scale mph until the turbine is started by pressing F3. The jet-engine whine of the turbine plays through the B unit's speaker. On our Museum Series review sample, this function also causes the turbine blades, visible through the exhaust opening on the B unit, to spin.

Another exclusive Museum Quality series feature is an extended start up, which simulates the crew readying the locomotive. After I press F8, the cab light comes on, then the number boards. After a pause, the cab light goes out and the instrument panel lights illuminate. This sequence is followed by the sound of the diesel hostler engine starting. Pressing F5 triggers "Night Time Mode," illuminating the walkway light between the A and B units and the ground light under the engineer's side truck on the A unit. The Museum Series model also includes classification lights that can be toggled between white, green, red, and off with the press of a button (F6).

The standout Museum-Quality DCC features involve the wheel sensors on the A and B units. These sensors trigger flange squeal effects when each unit rounds a curve and "frog clunk" sounds when the wheels roll through a turnout or crossing. It was as much fun listening to the GTEL creep through a yard as it was seeing it roar along the main line.

The dual-mode decoder operated smoothly on our DC test track. However, the decoder's sound functionality is limited in DC operation. The headlights operate according to direction and the turbine blades spin. It's worth purchasing a starter DCC system or a sound controller such as the MRC Tech 6 to experience all the unique effects.

With its custom electronics and a level of detail that rivals any brass model, the ScaleTrains.com Museum Quality series GTEL is almost as awe-inspiring as its prototype, especially when it's screaming down the rails. - Dana Kawala, senior editor

HO scale Union Pacific GTEL

Price: \$724.99 to \$774.99 (Museum Quality), \$574.99 to \$599.99 (Rivet Counter, DCC sound), \$424.99 to \$449.99 (Rivet Counter, DC, no sound)

Manufacturer

ScaleTrains.com Inc. 7598 Hwy. 411 Benton, TN 37307 www.scaletrains.com

Era: 1958 to 1970

Road numbers

18, 26, 30 (Museum Quality and Rivet Counter series) 1, 5, 7, 14 (Rivet Counter) 4, 9, 15, 21, 27 (Museum Quality)

- 21-pin DCC socket (DC version)
- All-wheel drive and electrical pickup (A and B units)
- ESU LokSound Select decoders (A and B units, DCC-equipped versions only)
- Five-pole skew-wound motors with dual brass flywheels (A and
- Light-emitting diode (LED) illumination
- Metal knuckle couplers at correct height
- Minimum radius: 18" (without hoses between units), 22" or greater recommended
- RP-25 metal wheels in gauge
- Weight: 1 pound 9.3 ounces (A unit), 1 pound 5 ounces (B unit), 4.6 ounces (tender)

HO scale UP GTEL

Drawbar pull	112 110 00	ale freight cars	
	112 HU SC	ale freight cars	
Scale speed (DC)		Scale speed (DCC)	
Volts	Scale mph	Speed step	Scale mph
6.5 (start)	<1	1	<1
8	9	7	17
10	35	14	34
12	60	28	64

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Subscribers can read an extended review, see bonus photos, and watch a video of the ScaleTrains.com GTEL. Find the links under Online Extras at www.ModelRailroader.com.



PRODUCTREVIEWS



Accurately modeled HO EMD GP38-2 features powerful motor and sound

A four-axle road switcher that would look at home on almost any HO scale layout set in the last 45 years has been added to MTH Electric Trains' lineup. From the entry-level Ready2Rail series, this new Electro-Motive Division GP38-2 isn't as detailed as the firm's top-of-the-line models. However, the locomotive features a powerful can motor, an accurate plastic body shell, and metal Kadee knuckle couplers, and is available with MTH's Digital Command Control-compatible Digital Command System (DCS) with sound.

A best-seller. Electro-Motive Division's GP38-2 was one of its most popular four-axle road switchers, selling 1,081 units domestically and almost 400 more in Canada and Mexico. Another 20 equipped with steam generators for passenger car heating and unofficially designated GP38P-2 were sold to the National Railways of Mexico.

Externally, there's no definitive spotting difference between a GP38-2 and its predecessor GP38; two of the more common spotting features, a bolted-on battery box access plate (as opposed to a latched door) and a water-level sight glass in the right-side hood door near the radiator section, aren't found on all versions. The main difference between the two is the use of modular electronics in the Dash-2. The ease of maintaining these components was a great contributor to the GP38-2's popularity.

The GP38-2 was built from 1972 to 1986, making it a common sight on the rails well into the modern era. Many of the venerable engines are still in service on branch lines and short lines today.

First impressions. The paint on our sample is crisp and even, with sharp separation between colors and no gaps or voids where lettering crossed panel lines. The tiny access panel warning stickers (such as Danger High Voltage) were all legible under magnification.

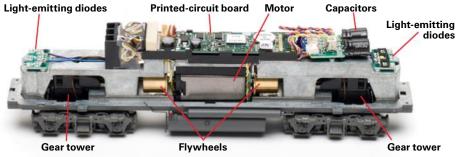
The model is equipped with detailed and accurate clasp-brake Blomberg trucks. The sideframes bear the correct non-rotating Hyatt oil roller bearings, as well as the Locomotive Finished Materials "LFM" mark cast into the top left.

Like other Ready2Rail models, grab irons are molded into the body shell, as are lift rings, grills, and other details.

The model is offered with or without dynamic brakes, depending on the prototype. Our Union Pacific sample was not equipped with dynamic brakes. All the MTH models have the squared-off air filter enclosure characteristic of an early production GP38-2.

The model's dimensions and detail placement match drawings published in *Model Railroader Cyclopedia: Vol. 2, Diesel Locomotives* (Kalmbach Publishing, 1980, out of print). The model's extended fuel tank matches prototype photos of UP no. 322 I found online.

On the test track. I ran the engine first using direct current (DC). The engine came to life at 6V with a realistic



The HO scale locomotive's die-cast metal frame encloses the motor, flywheels, and gear towers. The printed-circuit board is attached to the top.

startup sound sequence. The built-in capacitors prevented the stuttering characteristic of other sound-equipped models under DC. The locomotive also started moving smoothly and steadily; at 7V, it rolled at 2 scale mph.

At our standard DC testing limit of 12V, the model reached 41 scale mph. At our Model Rectifier Corp. Tech 4 power pack's peak output of 13.5V, the diesel reached 74 scale mph, close to the prototype's 65 mph top speed.

Though I couldn't control the model's sound effects under DC, the automatic sounds were impressive. The motor sound was authentic (and loud), and a brake squeal was heard when I quickly reduced the throttle. Occasional cab chatter played randomly, whether the engine was running or stopped. The capacitor kept the sound uninterrupted when I flipped the direction switch.

I had more control of both the engine and the sound effects using DCC. The locomotive responded smoothly through 28 speed steps, reaching a higher than prototypical 84 scale mph in step 28.

The locomotive has working green classification lights on the nose and red markers on the rear of the long hood. Function key 5 lets you turn on or off all lights except the front and rear headlights, but that would also shut off the illuminated number boxes. However, the manual listed a function for the class/marker lights. Following the directions, I remapped that function to F4, which previously triggered the cab chatter.

Using a DCS system I had access to all the sound effects. The GP38-2 accelerated in 1 scale mph increments from less than 1 scale mph to 84 scale mph.

The engine had no trouble at all with the 18" radius curves and no. 4 turnouts on our Beer Line project layout. It easily navigated a 10-car train forward and backward, even over the sometimes wide or uneven gaps between layout sections. Its drawbar pull is equivlaent to 56 free-rolling HO freight cars on straight and level track.

Sound and fury. MTH's GP38-2 matches an accurate body shell with authentic sound effects and a smooth-running mechanism powerful enough to handle whatever you care to throw at it. This value-priced HO Geep would also make an excellent starting point for a superdetailing project. – *Steven Otte*, *associate editor*

MTH HO EMD GP38-2 diesel

Price: DC, \$129.95; with DCS and

sound, \$199.95
Manufacturer

MTH Electric Trains 7020 Columbia Gateway Dr. Columbia, MD 21046 www.mthhotrains.com

Era: 1972 to present

Roadnames: Union Pacific, BNSF Ry. (post-2005 herald), Canadian National (with website), Chessie System (Baltimore & Ohio reporting marks), Conrail, CSX (YN2 scheme), Long Island (blue wave scheme), Maryland Midland, New York & Atlantic (two road numbers), Norfolk Southern (Thoroughbred scheme, three road numbers, and First Responders scheme, one road number), Pittsburgh & Lake Erie, and Southern Pacific (bloody nose). Three road numbers each unless noted.

Features

- All-wheel drive and pickup
- Blackened metal RP-25 contour wheels in gauge
- Directional light-emitting diode (LED) headlights
- Five-pole skew-wound motor with flywheel
- Kadee metal knuckle couplers at correct height
- Proto-Sound 3.0 with MTH Digital Command System (DCS version only)
- Minimum radius: 18"
- Weight: 15 ounces

MTH HO GP38-2

Drawbar pull	4 ounces 56 HO sca	4 ounces 56 HO scale freight cars		
Scale speed (DC)		Scale speed (DCC)		
Volts	Scale mph	Speed step	Scale mph	
7 (start)	2	1	4.5	
8	6	7	31	
10	15	14	63	
12	41	28	84	

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PRODUCTREVIEWS



Bachmann introduces new N scale lighted streamlined passenger cars

If it's time to streamline the passenger service on your N scale layout, Bachmann has the cars for you. Three new fluted-side cars are available in three liveries, plus painted silver but unlettered.

The prototype. Bachmann offers a coach, observation, and baggage car in its new line. The coach matches drawings for a Budd Co. 48-seat car built for the Atchison, Topeka & Santa Fe in 1953 for service on the *El Capitan*. In 1971, most of the 45 cars went to Amtrak.

The prototype for the observation car was built by Pullman-Standard for Pullman service on the joint Rock Island-Southern Pacific *Golden Rocket*. The car, named *La Mirada*, was delivered in 1948, and sold for dismantling in 1971.

The baggage car is similar to 21 cars Santa Fe ordered from Budd in early 1941 and took delivery of in early 1942. The cars were retired between 1968 and 1970.

The models. The coach measures to within inches of drawings I found in *The Passenger Car Library Vol. 5, Santa Fe and Southern Pacific* by W. David Randall (RPC Publications, 2002). Window locations match published photos, although they lack the center mullions of the prototype. The molded-on roof grab irons on our sample were on the opposite end of the car from the prototype photo I referenced. The interior, molded in tan plastic, matches the layout in Randall's book.

Our samples were painted for the Pennsylvania RR. The railroad had Budd cars in its *Senator* and *Congressional* trains, but the window layout of those cars was different, and the observation had a blunt end, rather than a round

end. The silver paint is evenly applied, and the Tuscan Red paint on the letter boards is opaque. All lettering and logos are sharp and easy to read.

The baggage car's body measured about 2 scale feet longer than the plan in Randall's book, but the overall length of the car over the buffers was within scale inches. The longer body resulted in a truck center spacing about 2 scale feet too long. The extra 2 feet also showed up in the distance between the baggage doors.

The observation car measured within inches of drawings in *The Official Pullman-Standard Library Vol. 8, Rock Island*, by W. David Randall and William G. Anderson (Railway Production Classics, 1990). The window locations matched published photos in the book, but the model's fluting is different, matching the pattern of Bachmann's other two cars. Like the Budd cars, the roof is fluted, but Pullman-Standard cars had a smooth roof. Finally, the interior layout differs in some details from the Rock Island car.

I removed the shells by spreading the sides of the cars and pulling on the trucks to remove the floor and interior. When reassembling the car, be careful of the two springs that carry current up to the roof-mounted light-emitting diode (LED) light bars.

The trucks are simplified General Steel Castings type 41-N with rotary-arm snubbers. The 9-foot wheelbase is 6" longer than the prototype. Turned metal wheels are pressed onto plastic axles. I twisted three wheelsets slightly to pull them into gauge.

Plastic knuckle couplers are mounted at the correct height in swinging draft-

N scale passenger cars

Price: \$49, baggage car; \$59 coach and observation

Manufacturer

Bachmann Trains 1400 E. Erie Ave. Philadelphia, PA 19124 www.bachmanntrains.com **Era:** 1952 to 1971 (as decorated)

Roadnames: Pennsylvania RR; Atchison, Topeka & Santa Fe; Baltimore & Ohio; painted silver but unlettered

Features

- Body-mounted E-Z Mate Mark II couplers at correct height
- Lighted interior (coach and observation)
- Metal wheels on plastic axles
- Weight: 1.4 ounces

gear boxes that allow the cars to negotiate tight model railroad curves. Optional Rapido-type couplers are included.

The cars all weigh 1.4 ounces each, matching National Model Railroad Association Recommended Practice RP-20.1 for N scale car weight. These free-rolling cars had no trouble negotiating the 13" radius curves and Peco medium turnout staging ladders of our 2015 N scale Red Oak project layout.

Although there are some detail discrepancies on two of these cars, they all performed well and share features for many railroads. Modelers wishing to add passenger operations to their layouts have three good options here. – *Eric White, associate editor*







I can't begin to tell you (all of you) how much I enjoy these videos and how helpful they are! There always seems to be something in them that I can (or should) use.

- RUSSELL HJELMBERG



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PRODUCTREVIEWS

QUICKLOOK

Rivarossi HO scale 50-foot boxcar

Price: \$19.99; four-pack, \$69.99

Manufacturer

Hornby Hobbies 3900-C2 Industry Dr. E Fife, WA 98424-1829 www.hornbyamerica.com

Road names. Sliding-door car: Great Northern; Chicago, Burlington & Quincy; Illinois Central; and Louisville & Nashville. Plug-door car available in five road names.

Era: 1963 to 1976 (as decorated) **Comments:** Hornby Hobbies has released newly tooled HO scale 50-foot sliding- and plug-door boxcars in its Rivarossi line. The models feature a one-piece injection-molded plastic body with a separately applied brake wheel and molded ladders. stirrup steps, and tack boards. The sliding doors are positionable; the plug doors are not.

Both versions of the boxcar use the same onepiece plastic

underbody with molded details. A pair of steel weights above each truck are attached from the inside with screws.

The model is nominally an American Car & Foundry (ACF) 50'-6" Precision Design boxcar. I compared the model to prototype drawings in Edward S. Kaminski's American Car & Foundry Company Box Cars, 1960-1981 (Signature Press, 2015). Most of the major dimensions follow the drawings. The length over the strikers is a scale 1'-2" short as the model doesn't have a cushioned underframe. The model has 14 body panels; the ACF car has 12.

Discrepancies between the model and the full-size Great Northern no. 39562 protoype are a different sill and grab irons on the sides and ends instead of ladders.

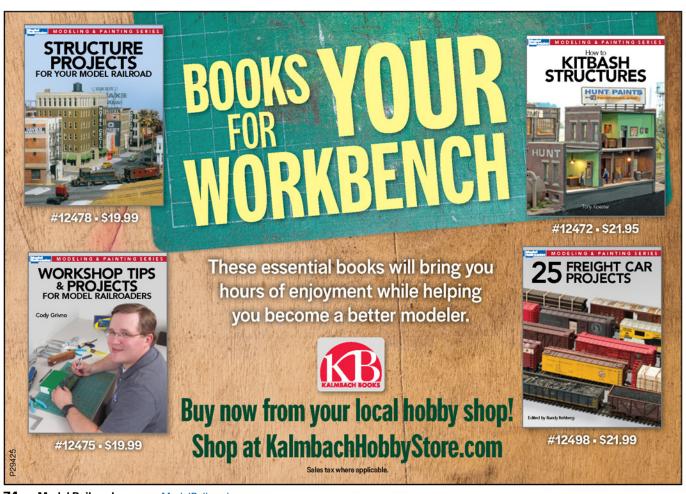
The model weighs 3.7 ounces, which is .8 ounce too light based on National Model Railroad Association recommended practice 20.1. The model uses .088" (semi-scale) metal wheelsets. Two wheelsets were tightly

gauged. The plastic couplers were

.040" too low.

I tested the car on our Wisconsin & Southern project layout, where it ran without incident. I also ran the car through Atlas code 83 Snap-Switches. Again the model performed well and the semi-scale wheels didn't bottom out in the frog.

This model is aimed at budgetconscious modelers, and \$19.99 for a ready-to-run car is hard to beat in today's market. - Cody Grivno, associate editor



QUICKLOOK

ANE Model Lococruiser DCC decoder

Price: \$28.95 Manufacturer ANE Model Ltd. Distributed by Heartland Hobby Wholesale 6929 Seward Ave. Lincoln, NE 68507

www.hhwonline.com

Comments: For those looking for a straightforward to use, easy to install Digital Command Control (DCC) motor decoder, the Lococruiser line from ANE Model provides some reliable options. I tested the LC-201 decoder that includes a wiring harness with an 8-pin plug. The board is also available in 21-pin plug and wire-only versions.

The board measures .2" x 1.1" x .6". I installed our test sample into the 8-pin socket of a Kato HO scale General Electric C44-9W.

The decoder's current draw ratings are 1.5A continuous and 2A peak. This is enough to handle the stall current of most HO locomotive motors.

I set the decoder-equipped Dash 9 on our test track and easily changed both the long and short address and added acceleration and deceleration momentum. In addition to the option for 28 or 128 speed steps, the decoder allows for 3-point and 28-point user-loadable speed curves. A printed instruction sheet lists all the decoder's programmable configuration variables (CVs). Although it supports programming on the main, the decoder responded more reliably when I used an isolated programming track.

Out of the box, the decoder's back-electromotive force (back-EMF) control is impressive. I had our test locomotive crawl up and then back

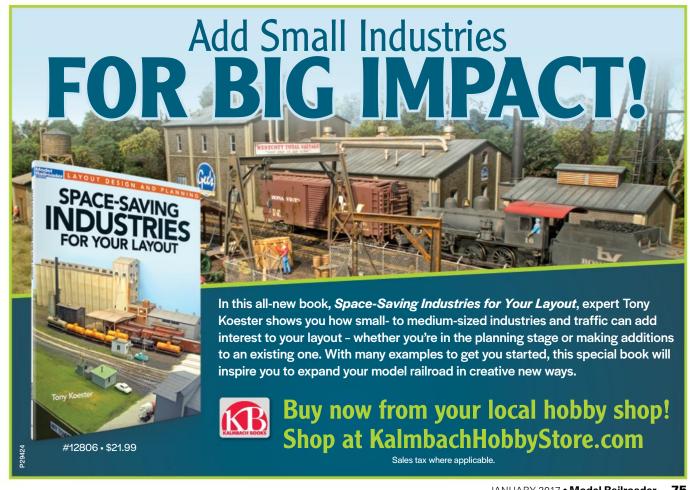
down a 3 percent grade at a steady 1 scale mph. I also advance-consisted the locomotive to an ESU-decoderequipped Atlas Dash 8-40B.

My favorite feature on this decoder is the "Motor Brake" that let me stop and start the locomotive using a function button independent of the throttle setting. The braking rate is adjustable using CV63.

In addition to directional headlight control, the decoder has four separate 100mA lighting outputs. Each output can be programmed for an effect, such as for a flashing strobe light. Two outputs could also be used to program alternately flashing ditch lights.

The decoder is dual-mode, so it won't be damaged if placed on a direct-current (DC) layout.

With programmable speed control, lighting, and brake effects, the ANE Lococruiser provides an easy way to add DCC to an HO locomotive. - D.K.



ONOPERATION

The poetry and purpose of operations

Just picked out the first train set for the kids, did you? Or has life recently given you an opportunity to explore an interest kindled long ago, perhaps as one who remembers that first train set fondly? No matter how you found *Model Railroader*, there's a good chance that if this is your first issue, you're a newcomer to the hobby. Welcome!

Our hobby enjoys tremendous variety. Some collect off-the-shelf locomotive models. Others build well-detailed models, specializing in chosen eras or favorite railroads. There's wonderful satisfaction in creating a complete scene, expertly blending buildings with landscape and other elements. Technology seduces, whether it takes the form of Digital Command Control, computeraided design, 3-D printing (such as that offered by Shapeways), or advanced control and signal systems.

It's fun to build the models and create the scenes. It's also fun to put the models to work, inviting friends for an operating session that brings your railroad to life. Operation gives a railroad purpose, turning it into a transportation network that moves people and goods. It adds another dimension to model railroading.

For many, operation came soon after a train rattled around the first loop of track. I remember dropping to track level to watch my Lionel Berkshire streak by, imagining I was trackside.

It didn't take long for me to notice that prototype trains picked up or dropped off passengers or freight. I simulated this, measuring distance by the number of laps around my loop. A depot, a milk platform, and a log loader crowded together on the layout, but I'd make four turns around the oval to stop at the depot and milk platform, then three more to switch the log loader.

The National Model Railroad Association's Operations Special Interest Group, or OPSIG, is the place to go to learn operation. This group embraces the view of "model railroading as railroad modeling," as MR contributing editor Tony Koester observed. Formed in the early 1990s, OPSIG's purpose is developing and sharing ways to make model railroads come to life so realistically that the distinction between model and prototype blurs.



Ray deBlieck and Seth Neumann work the NUMMI job through Warm Springs, Calif., bringing Seth's Union Pacific Niles Canyon Line layout to life. NUMMI was the Toyota/General Motors assembly plant in Fremont, Calif. Seth Neumann photo

Group membership includes a subscription to *The Dispatcher's Office*. It's a quarterly publication that's a valuable reference for information ranging from historic timetable-and-train-order procedures to present-day track warrant and Form D control systems. The group has a strong presence at NMRA national conventions and lists many regional events featuring operating sessions that welcome guests.

I polled a group of experienced model railroad owners recently, asking them to describe the appeal of operations. More than one referred to a session as a Civil War re-enactment for railroading. The two activities do have much in common. Re-enactors strive for complete authenticity, carefully researching military units to make historically accurate uniform and equipment choices. A photograph of a 21st-century encampment may be indistinguishable from a Matthew Brady original.

Similarly, we use era to guide choices of rolling stock, motive power, structures, and environment. Role-playing adds realistic atmosphere. A yardmaster's headaches come from challenging problem-solving, whether he's a professional railroader or a modeler. The cadence of a conductor repeating a track warrant, summarizing it "Two boxes checked, box 2 box 10" pleases me as much as a dispatcher dictating an order,

saying and spelling "901, n-i-n-e n-a-u-g-h-t o-n-e."

My poll turned up another appealing quality of operation. Many described it as a multi-player strategy game in which participants cooperate, not compete. Like a complex game, a typical operating session sees rapidly changing situations. A tardy connection holds up a hotshot, threatening other trains with cascading delays. A dispatcher misjudges a meet, bottlenecking the line. A locomotive's Digital Command Control decoder hiccups randomly and frustrates the host, despite his thorough preparation.

Working through these situations creates camaraderie that has rooted many long friendships. Rare is the session that doesn't see poking fun at one another. A good one will raise plenty of laughter, some of it worth years of reruns, to the victim's chagrin!

There's poetry, as well as purpose, in railroading that stirs chords deep in the soul. A long freight puts this poetry to music, playing a song rung by steel wheels and sung by high-pitched turbochargers, swelling to a chanting crescendo as it passes.

A successful operating session moves me the same way, especially when a heavy drag punctuates its end, climbing toward the tunnel near our home as I shut off the lights and the footsteps of my friends fade into the night.



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TRACKSIDEPHOTOS

The Burlington Route Christmas train makes its way through the night along the Mississippi riverbank, passing a riverboat lit up and packed with holiday revelers. The scene is part of the Twin City Model RR Museum in St. Paul, Minn., which celebrates the holidays with special "Night Train" events from November through February. More information is at www.tcmrm.com. Paul Kampe shot the photo.

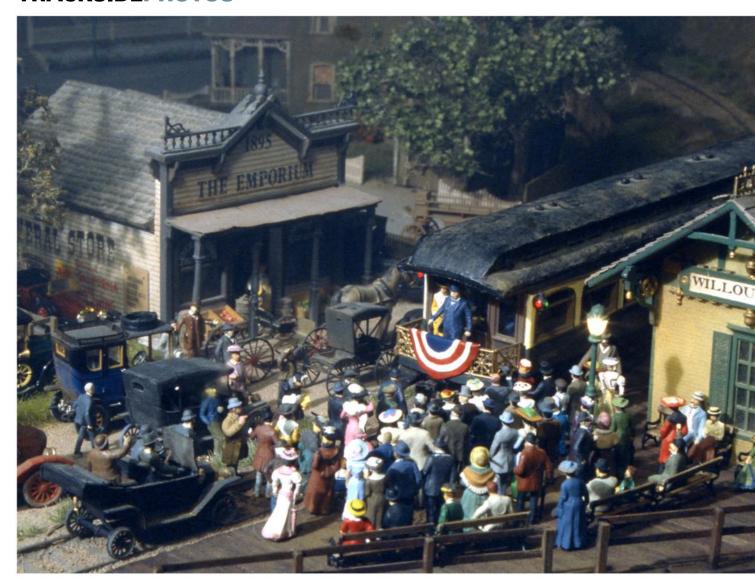
Want to see your work in Trackside Photos?

Trackside Photos is a showcase for the work of Model Railroader readers. We encourage contributions. Send your photos (digital images 5 megapixels or better) to: Model Railroader, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612; or upload them to http://fileupload.kalmbach.com/ Submission/contribute/. Include caption information, such as what's going on in the picture; the layout's scale, era, and locale; and information about the rolling stock or structures shown. For a copy of our photo submission guidelines, contact associate editor Steven Otte at 262-796-8776, ext. 370, or sotte@mrmag.com.





TRACKSIDEPHOTOS



- ▲ Newly elected to office, Sen. Owen waves goodbye to his supporters as his special train departs for Washington and his inauguration. Ken Kirkwood of Yucaipa, Calif., set up and photographed the patriotic scene on his freelanced HO scale Ma & Pa K Ry.
- Train no. 40, headed by Electro-Motive Division GP9 no. 2374, departs Milwaukee's Goose Island Yard, headed for Rochester, Minn. David Brookey of Madras, Ore., shot the photo outdoors on an HO scale diorama. The Geep is a Proto2000 by Walthers; the trailing FP7 is a heavily modified Proto 1000 model.





- ◀A semaphore gives a Great Northern class O-4 Mikado the all clear to lead its freight train across the diamond at Adrian, Wash. Don Cook of Waukegan, Ill., shot the scene on film with a pinhole camera on his HO scale Great Northern Spokane Division model railroad. The steam locomotive is a brass import from Sunset; the signal tower was built from a Suydam kit.
- ▼ A dilapidated Electro-Motive Division diesel gingerly makes its way down a spur that has likewise seen better days, heading for an infrequently rail-served cereal plant in Argentina. Davide Raseni of Trieste, Italy, built and photographed the HOm (1:87 proportion, 1-meter gauge) diorama. The locomotive is a Frateschi model made in Brazil.





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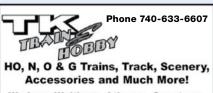












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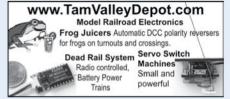
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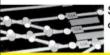


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CT, TRUMBULL: Classic Shows, LLC, Train and Toy Show, Sunday, January 8, 2017, 9:00am-2:00pm. The Marriott-Trumbull, 180 Hawley Lane, exit 8 on Route 8, from the Merritt Parkway exit 51 northbound or exit 52 southbound. Admission \$6.00, children 12 and under free with adult. Information 203-926-1327 or www.ClassicShowsLLC.com

DELAND: 58th Florida Railfair, Volusia County Fig. DELAND: S8th Fiorida Hailrair, Volusia County Fairgrounds (Tommy Lawrence Airena). January 14-15, 2017, Saturday 9:00am-4:00pm and Sunday 10:00am-3:30pm. Adults: \$9.00, good for both days (under 12 free). Over 300 tables. Large operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213, 703-536-2954. E-mail: rrshows@aol.com

FL, FORT MYERS: Scale Rails Annual Train Show. Araba Temple, 2010 Hanson Street. February 4-5, 2017, Saturday & Sunday, 10:00am-4:00pm. Admission Adults: \$7.00, Teens: \$2.00, Children under 12 free. Dealer & collectors: 100+tables, new & used equipment for all scales. Contact Jim Overman, 239-272-6396

FL, LARGO: Suncoast Model Railroad Club Train Show/ Open House, December 10-11, 2016. SHOW- Minnreg Hall, 6340 126th Ave. N., Largo. Saturday 9:00am-3:00pm and Sunday 10:00am-3:00pm. Admission: \$7.00. Free park-ing. Food

FL, ORLANDO: Central Florida Railroad Modelers Open House, 2500 Silver Star Road, Suite 1700, Zip: 32804. January 14-15, 2017, Saturday 10:00am-5:00pm and Sunday 12:00pm-5:00pm. FREE Admission. Spouses & Children Welcome. HO Scale, Fully Scenicked Layout in a 2,000 Square Foot Clubhouse. Telephone: 407-417-1096 www,CentralFloridaRailroadModelers.org Email: CFRRM@Yahoo.com

FL, STUART: Martin County Model Railroaders 10th Annual Train Expo. Martin County Fairgrounds, 2616 Old Dixie Hwy. January 21-22, 2017, 9:00am-3:00pm. Admission: Adults \$6.00. Operating layouts, sales tables, displays & NMBA information. Information: Bill Smet. 772-233-0279. mcmr2616@yahoo.com or PO Box 1498, Stuart, FL 34995.

GA, ATLANTA: 52nd Model Train & Railroadiana Show. Infinite Energy Center, 6400 Sugarloaf Parkway, Duluth, GA 30097. Saturday, January 21, 2017, 9:00am-4:00pm. Adults: \$9.00 (under 12 free). Operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954, E-mail: rrshows@aol.com

GA, SAVANNAH: Coastal Rail Buffs 28th Annual Model RR Train Show. National Guard Armory, 1248 Eisenhower Drive, Zip: 31406. January 21-22, 2017, Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Adults 2 day \$7.00; Students/Seniors \$5.00, Active Duty Military/under 12 FREE. Dealer tables, operating layouts in O, HO, N. See www.coastalrailbuffs.org

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IA, MONTICELLO: M.V.M.R.R.C. Train Show and Swap Meet. Berndes Center, Jones County Fairgrounds, 766 N. Maple St. Sunday, January 29, 2017, 9:00am-3:30pm. Admission \$5.00, children under 12 free Contact Denny Beasley, CircleBarB607@aol.com or phone 319-270-1171 between 6 and 10 PM.

IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the State Fairgrounds. Sunday, March 19, 2017, 10:00am-4:00pm. Early Bird shopping starts at 9:00am. Free parking. Largest show in downstate Illinoisi For info call Ray at 217-544-4295 or visit www.springfieldtrainfair.com

IN, AUBURN RxR Mania Train Show. Kruse WWII Museum, (National Military History Center), 5634 County Road, 11-A. From Interstate 69, Exit 326; Saturday, February 4, 2017, 9am-3pm. Adults \$5.00. Under 12 free. \$20/table, 5+ tables \$15 each. Info: www.RxRMania.com or call Jim (260) 627-2176.

IN, NOBLESVILLE: Central Indiana Division /NMRA Train Show. Hamilton County 4H Fairgrounds, 2003 Pleasant Street. Sunday, January 29, 2017, 10:00am-3:00pm. Admission \$3.00 r \$5.00 family. Dealers, Portable Train Layouts, Clinics, Door Prizes, Dealer Tables \$12.00. Contact Tom Cain at 317-696-2818 or atsf93@comcast.net

IN, WARSAW: Warsaw Model Train & Toy Show, Kosciusko County Fairgrounds, 1400 E. Smith St. December 10, 2016, 11:00am-3:00pm. Admission \$3.00, 12 and under free. All gauges. Tables \$15.00, free parking, lunch available. Contact: Gabe Fitzsimmons, 574-527-8554 or fitzgl01@gmail.com

MN, WOODBURY: Newport Model RR Club Flea Market & Train Show. Woodbury High School, 2665 Woodland Drive, Zip: 55125. January 14, 2017, 9:00am-2:00pm. Admission \$5.00. Future Show: April 29, 2017. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Ed. 651-233-3310

NC, GREENSBORO: 9th Annual 'Greatest Little Train Show'. AMTRAK Depot, West Concourse, 300 E. Washington St. Saturday, March 18, 2017, 10:00am-3:00pm. \$5.00 adults, under 12 free. Onsite CMR layouts open. Downtown city meter/parking free on weekends. Contact Walt Sabin, 336-312-4198. Carolinamodelrr@aol.com or CMR, PO Box 13642, Greensboro, NC 27415.

NC, NEW BERN: 22nd Annual Train Show, New Bern Riverfront Convention Center, 203 South Front St. March 4-5, 2017, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Admission \$7.00, under 12 free w/adult. Operating layouts, 25+ vendors, food concession, door prizes. Carolina Coastal Railroaders, Joseph T. Hofmann, 252-474-4153.

NY, LINDENHURST: Northern Spur Train/Diecast Vehicles/
Toy Meet, Firemen's Memorial Park, 555 Heiling Blvd. (north of Hartford St.) January 15, 2017, February 19, 2017, March 19, 2017, September 24, 2017, November 5, 2017. 8:30am-1:00pm. \$5.00 adults, under 16 free w/adult. Handicap accessible. Contact: Carmelo Sancetta. PO Box 1286M. Bay Shore, NY 11706 631-666-6855

NY, WEST SENECA: TCA Upstate NY Chapter Train Show. Ismailia Shrine Center, 1600 Southwestern Blvd., Zip Code: 14224. Sunday, January 8, 2017, TCA Members: 9:00am-10:00am. Public: 10:00am-3:00pm. Admission: Adults \$5.00, under 17 free with paid adult. Contact: Chuck 716:390-8216, E-mail: usnyc2015@gmail.com or www.upstate-ny-tca.com

OH, CLEVELAND: Thirtieth annual Snow Dogs Train and Toy Show, UAW Hall, 5615 Chevrolet Blvd., Parma. Saturday, January 7, 2017, 10:00am-3:00pm. Adults \$6.00, under 10 free. Free parking. All gauges, layouts. For tables or info, call 440-526-9864 or MACSIR@aol.com Ask for Lee.

PA, ELIZABETH TOWNSHIP: Central VFC of Elizabeth Townships 2017 Winter Train Show, Court Time Sports Complex, 95 Enterprise Drive, Elizabeth, 15037. January 7-8, 2017. Doors open on the 7th @ 10:00am and 9:00am on the 8th. Admission \$5.00. For info and group rates www.Central147.com or call 412,751.9712 or call 412-751-9712

WI, LA CROSSE; The 26th Annual Great Tri-State Rail Sale. La Crosse Center, 2nd & Pearl Streets. January 28, 2017, 9:00am-3:00pm. Admission \$5.00, under 12 free. 300 Tables; All Scales; Model, Toy & Antique Trains & Memorabilia. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-781-9383.

WI. STEVENS POINT: CWMR 20th Annual Model Railroad Wi, SIEVENS POINT: CWMH 20th Annual Model Hailroad Show. Holiday Inn Convention Center Hotel, 1001 Amber Avenue. January 21-22, 2017, Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Adults \$4.00, kids 12-17 \$2.00. Many layouts, swap/sales tables, vendors. Paul Clasen, 4546 Buckhorn Lane, Stevens Point, WI 54481, 715-341-5253 or designcentralwi@yahoo.com

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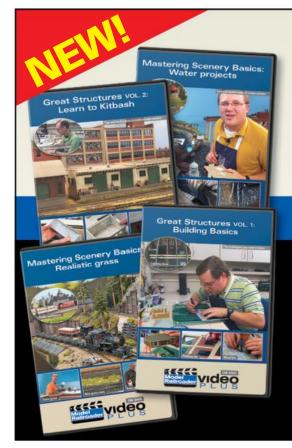
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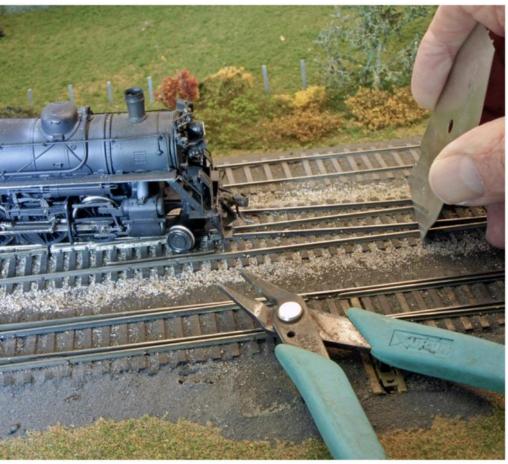
STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION
(Required by 39 USC 3685)

1. Publication title: Model Railroader
2. Publication No.: 529-810
3. Filing date: October 1, 2016
4. Issue frequency: monthly
3. Filing date: October 1, 2016
4. Issue frequency: monthly
5. Number of issues published annually: 12
6. Annual subscription price: \$42.95
6. Annual subscription price: \$42.95
7. Annual subscription price: \$42.9

13. Publication title: Model Kailroader			
14. Issue date for circulation data below: Sep	tember 2	016	
15. Extent and nature of circulation:			
	rage no.	Actual no. copies	
copies ea		of single issue	
during pr		published nearest	
12	months	to filing date	
a. Total number of copies (net press run)	149.898	142.120	
b. Paid and/or requested circulation	11,000	112,120	
Paid or requested mail subscriptions	89,157	87,752	
Paid in-county subscriptions stated	05,157	01,132	
on Form 3541	0	0	
	U	U	
3. Sales through dealers and carriers,	18,070	16 620	
street vendors, counter sales, et al.	10,070	16,620	
4. Other classes mailed through the USPS	U	U	
c. Total paid and/or requested	107 227	104 202	
circulation (sum of 15b1-15b4)	107,227	104,392	
d1-3. Free distribution by mail	100	220	
(samples, complimentary, or other free)	180	230	
d4. Free or nominal rate distribution	_		
outside the mail	0	0	
e. Total free distribution			
(sum of 15d1-15d4)	180	230	
f. Total distribution			
(sum of 15c and 15e)	107,407	104,622	
g. Copies not distributed	42,491	37,498	
h. Total (sum of 15f and 15g)	149,898	142,120	
 Percent paid and/or requested circulation: 	99.83%	99.78%	
16. Paid Electronic Copies			
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paid electronic copies (sum of 15c and 16a)	114,771	110,805	
c. Total print distribution +			
paid electronic copies (sum of 15f and 16a)	114,950	111,035	
d. Percent paid (both print and electroic copi			
16b divided by 16c times 100)	99.84%	99.79%	
17. This statement of ownership will be			
printed in the January 2017 issue of this publication.			
18. I certify that the information above is tru		mplete.	
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Nicole McGuire, Vice President, Consumer Marketing, Date: September 27, 2016

Taking a broader view



Why did something I did years ago suddenly start giving me fits? Am I focusing so much on "this" that I'm missing a looming issue with "that"? Tony Koester photo

When we're trying to learn, or to teach, something, it's usually a good idea to eliminate distractions and focus on one key aspect of the lesson at hand. "Too much information" is not helpful.

A good example occurred every time I taught a student to land a sailplane (glider). As we descended to land and the ground appeared to come rushing up at us, it was hard to concentrate on the one thing he or she needed to determine right now: Where was the aircraft going to contact the runway?

I handled the first few landings on a grass runway, instructing the student to watch the ground just over the nose. "Notice how it looks like some of the runway is rushing under the nose," I'd coach the student, "and the more distant ground appears to be moving away from us? Now find that spot on the ground between them where it appears not to be moving. That's where we're going to touch down."

If that null point wasn't quite where we wanted to set the aircraft down, we could still make adjustments using spoilers in the wings.

It would be handy if model railroads had built-in spoilers so we could make last-second adjustments to the apparent course. As with aircraft, however, it's better to make any large adjustments well in advance. That avoids a lot of excitement later on.

There's no such thing as a perfect track plan or model railroad. There's no such thing as a perfect full-size railroad, either, so why should our expectations for our 1:160th or 1:87th or 1:48th version thereof be any higher?

There is, however, a difference between imperfections in design and poor workmanship. Needing a new crossover to make it possible to run around a recent pickup is not the same level of concern as having the picked up car repeatedly derail on an out-of-gauge turnout. One is a design issue, the other is just sloppiness.

Taking time to do good work helps to alleviate workmanship concerns. Zero Defects is a good – if elusive – goal, yet definitely something to strive for. But the perfect track plan is, like the perfect landing, a moving target. We learn, we design and build, we learn some more, we rebuild – it's an ongoing process.

When I was first learning to fly sail-planes, I discovered something that I later watched for as my students progressed: As my skills developed, I tended to focus on the one or two things I still wasn't doing as well as I should. The result: My previously learned skills were relegated to the back burner, and things I had done well time and time again suddenly got away from me. Once I figured this out and widened my focus a bit, I was ready to solo. What a wonderful experience that turned out to be!

So I watched as students became more proficient, then suddenly let polished skills wither. I could see the frustration in their faces.

I'd coach them to widen their view just a bit, then a flight or two later, I could sign them off to solo. It worked every time.

I often see frustration among my modeling friends. They are making great progress on all fronts when something they thought was well behind them goes awry. I see it in myself, in fact: "That was working perfectly for the past 10 years! Why am I having problems with it now?"

The answer is I probably didn't do it as well as I thought I had, and for sure I hadn't given it a lick of thought over the intervening years. As I plow ahead on one course, tightly focused on achieving the desired results, I need to back off a bit and take a larger view. What am I missing? What do I need to do right now to avoid problems down the road?

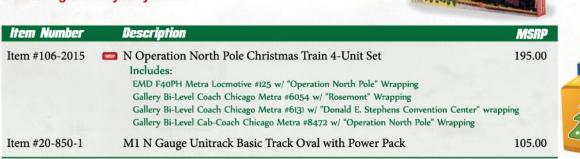
Newcomers to our hobby are almost surely overwhelmed by the steep learning curve. We can help them by pointing out what they need to focus on next, and that they also need to avoid focusing so tightly that they "land the plane – but off the runway."



Operation North Pole (ONP) is a volunteer-based public charity. ONP works with Chicago's major children's hospitals, providing a day of fun and fantasy for families who have a child battling a life threatening illness by hosting a fantasy trip to the North Pole.

Each year Operation North Pole charters a special Metra train, designing special vinyl wraps that adorn both the outside and the insides of the cars. Each years' design is unique, making each train a festive and colorful display!

Kato USA has partnered with Operation North Pole to bring this special Christmas Train - a replica of the real life Christmas Train that was operated in 2015 to life as a means to support ONP's goal of spreading the magic of the holidays. To that end a portion of the proceeds from every sale of an Operation North Pole Christmas Train Set goes towards this charitable venture to help fund the chartering of this yearly train!





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