

Small track plan for HO scale p.48



Model Railroader®

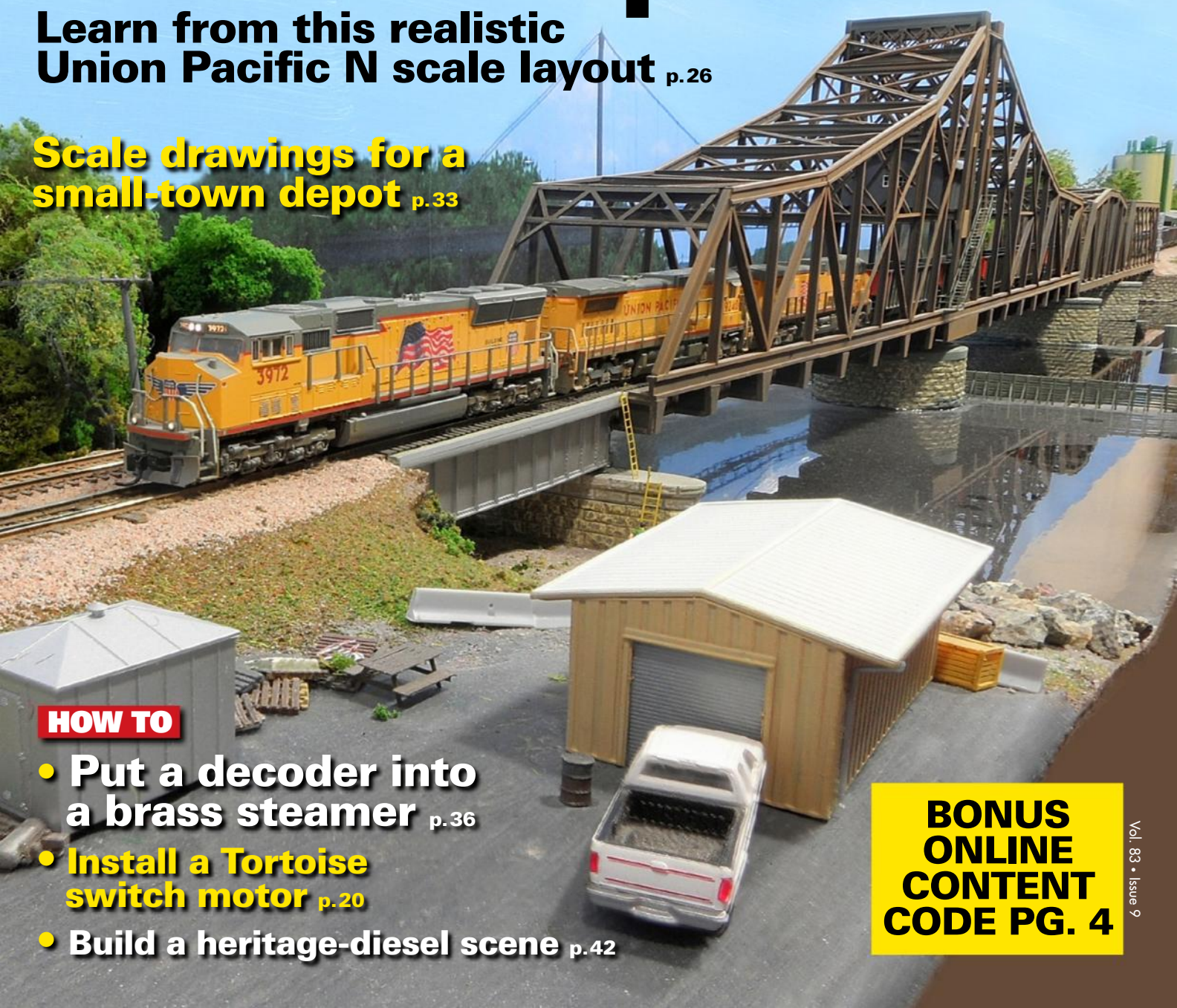
**New N scale
Amtrak set** p.60

September 2016
www.ModelRailroader.com

Built for operation

**Learn from this realistic
Union Pacific N scale layout** p.26

**Scale drawings for a
small-town depot** p.33



HOW TO

- **Put a decoder into a brass steamer** p.36
- **Install a Tortoise switch motor** p.20
- **Build a heritage-diesel scene** p.42

**BONUS
ONLINE
CONTENT
CODE PG. 4**

MAKING RAILROAD HISTORY

WALTHERS PROTO[®]

EMD SD45 DIESEL HO SCALE

SoundTraxx[®] Tsunami[®] Sound & DCC \$299.98 Each

Standard DC \$199.98 Each



JULY DELIVERY - ORDER TODAY!

- Powerful WaltherProto[®] drive
- More than 1200 in freight service from 1966 to the early 2000s
- Limited edition - one time run of these roadnumbers

- Available with SoundTraxx[®] Tsunami[®] Sound for DCC & DC layouts
- Road-specific details

Santa Fe[®]

- Cab-mounted headlights
- Leslie S-3L air horn
- Can-style radio antenna



920-41067 #1835 Tsunami Sound & DCC
920-41068 #1851 Tsunami Sound & DCC

920-48067 #1843 Standard DC
920-48068 #1886 Standard DC

Conrail

- Cab-mounted headlights
- Small two-strap signal equipment box
- Rear wheel-type hand brake



920-41071 #6114 Tsunami Sound & DCC
920-41072 #6125 Tsunami Sound & DCC

920-48071 #6118 Standard DC
920-48072 #6135 Standard DC

Canadian Pacific - Twin Flags Scheme

- **NEW** - Front pilot-mounted operating ditch lights
- Pilot-mounted plow
- Nathan K3 air horn on stand



920-41069 #5494 Tsunami Sound & DCC
920-41070 #5496 Tsunami Sound & DCC

920-48069 #5495 Standard DC
920-48070 #5497 Standard DC

Wisconsin Central

- **NEW** - Operating front pilot-mounted ditch lights
- Front pilot-mounted plow
- Winterization hatch



920-41073 #7496 Tsunami Sound & DCC
920-41074 #7517 Tsunami Sound & DCC

920-48073 #7504 Standard DC
920-48074 #7531 Standard DC

**Sold Out at Walther's*

WALTHERS

Support your local hobby shop • visit walthers.com • call 1-800-4-TRAINS

Availability and prices shown were accurate at press time, for updates visit walthers.com.

*The Santa Fe marks are licensed marks owned by the BNSF Railway Company. ©2016 Wm. K. Walther's, Inc.



Spectrum



Blue & Black
Item No. 80511

Gray & Black
Item No. 80512

Red & Black
Item No. 80513

THE BIGGEST CAR ON THE RAILS JUST GOT BIGGER!

Bachmann takes enormous delight in introducing the 380-Ton Schnabel Transformer Car with Retort/Cylinder Load. The Schnabel car's unique design allows it to carry extremely heavy or oversized loads, such as generators and transformers for power stations, by making the load an element of the car. A whopping 32.5' long and meticulously detailed, see why our new Schnabel is the biggest thing in HO modeling!

Features include:

- 16 sets of 125-ton roller-bearing trucks
- prototypically correct 36" metal wheels
- RP25 wheel contours
- 8 span bolsters
- retort/cylinder load
- molded hydraulic lines and pumps
- 32.5" long
- performs best on 22" radius curves or greater

Shipping now! • MSRP \$349.00 each



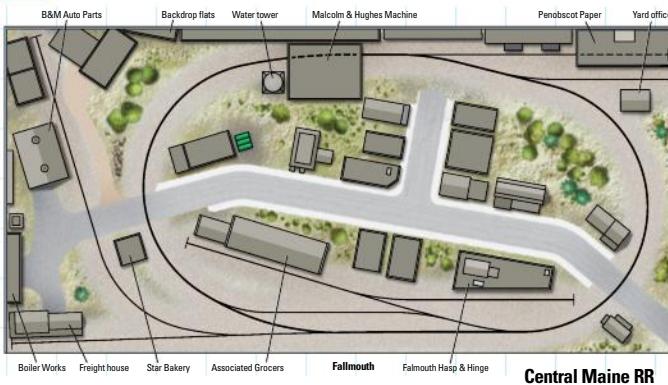
Bachmann Industries, Inc. • 1400 East Erie Avenue • Philadelphia, PA 19124 USA • www.bachmanntrains.com

Online Content Code: MRR1609

Enter this code at: www.ModelRailroader.com/code to gain access to web-exclusive content

IN THIS ISSUE

48



26 Modern-era masterpiece **MREXTRA**

The N scale Union Pacific Geneva Sub replicated realistic operation along a busy double-track main line
by Daryl Kruse ▶ Online bonus ModelRailroader.com

33 Plans for a small-town station

Dormers and diamond-pane windows highlight this former Buffalo & Pittsburgh structure
by Harold W. Russell ▶ Online bonus ModelRailroader.com

36 Add DCC & sound to a brass steam locomotive

A plastic tender provides room for a decoder and two speakers by Peter Hall

42 Build a prototype setting for a heritage fleet

A club member answers a challenge to build a diorama of the roundhouse at the North Carolina Transportation Museum by Douglas Kirkpatrick

48 A space-saving urban track plan

The Central Maine RR packs plenty of action in less than 4 x 8 feet by Paul Boehlert

52 Switching in a small town

A 2 x 4-foot module is enough to provide interesting operating and modeling opportunities by Peter Vassallo

68 Trackside Photos

by Steven Otte ▶ Online bonus ModelRailroader.com

NEXT ISSUE



Lance Mindheim builds a floating-shelf layout, learn how to use light-emitting diode strings for lighting projects, Americanize European buildings, and more in the October issue.

Small track plan for HO scale p.48

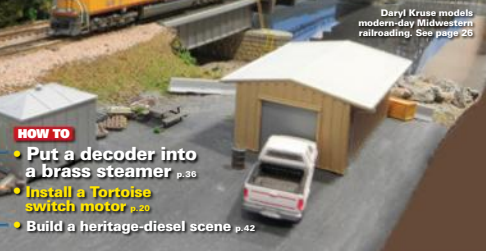
New N scale
Amtrak set p.60
September 2016
www.ModelRailroader.com

Model Railroader

Built for operation

Learn from this realistic Union Pacific N scale layout p.26

Scale drawings for a small town depot p.33



HOW TO
• Put a decoder into a brass steamer p.36
• Install a Tortoise switch motor p.20
• Build a heritage-diesel scene p.42

On the cover: A Union Pacific freight crosses the Mississippi River on Daryl Kruse's N scale Union Pacific Geneva Sub layout.

Daryl Kruse photo

IN EVERY ISSUE

6 Digital MR

The latest features on our website by Dana Kawala

8 From the Editor

From \$1.92 to \$41.95 by Neil Besouglouff

10 News & Products

Hobby industry news by Cody Grivno

16 Ask MR

Why do larger containers go on top? by Steven Otte

18 N Scale Insight

Freelance flavor on the N scale Tehachapi Loop by Jim Kelly

20 Step by Step **MRVP**

Install a Tortoise switch motor and control it with a stationary decoder by Eric White

58 DCC Corner

Speed matching for DCC consists by Larry Puckett

60 Product Reviews **MREXTRA**



N scale SDP40F and Southwest Limited from Kato, HO General Electric Dash 8-40BW from Atlas, and more by Dana Kawala

67 On Operation

Meets, superiority, and train orders by Jerry Dziedzic

81 Index of Advertisers and Cartoon

82 Trains of Thought

Raising expectations by Tony Koester

MREXTRA www.ModelRailroader.com subscriber extra
MRVP Video on www.MRVideoPlus.com

YOU RIDE THEM, NOW OWN THEM!

HO MODERN COMMUTER TRAINS FROM ATLAS

including the ALP-45DP Locomotive, Cab Cars and Trailers



Multi-Level Trailer



Multi-Level Cab Car



Multi-Level Trailer with Safety Slogan



Multi-Level Trailer with Toilet



Visit <http://www.atlasrr.com/commuter/NJT/> for more information

For a copy of our latest All Scales Catalog,
please call 908-687-0880 or visit www.atlasrr.com/catalog

Products bearing NJ TRANSIT marks are made under trademark license from NJ TRANSIT.



ATLAS MODEL RAILROAD CO, INC. • 378 Florence Ave., Hillside, NJ 07205 • www.atlasrr.com • www.atlaso.com

Geneva Sub online extras

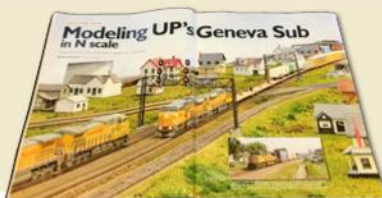


Layout video tour

Daryl Kruse's N scale Geneva Subdivision modeled a modern-era double-track main line. Check out this video to see long freight trains run through the detailed Midwestern scenery. Click on the link under Online Extras.

Bonus article download

Learn more about the design of the Geneva Subdivision in this article from *Model Railroad Planning* 2013.



Computer desktop wallpaper

New model railroading inspiration

Get inspired each month with free images that you can use as a background on your computer screen. This month's wallpaper is a trackside photo from Ron Foreman's narrow gauge diorama. Be sure to visit www.ModelRailroader.com to get the latest featured photo.



Diesel demo on the MR&T

Atlas HO scale GE Dash 8-40BW

MREXTRA

Check out this HO scale General Electric Dash 8-40BW decked out in a heritage livery for our own staff layout, the Milwaukee, Racine & Troy. The new Atlas locomotive model also features a powerful ESU LokSound Select Digital Command Control decoder. Subscribers can see and hear the HO diesel as it hauls freight around the MR&T.



Prototype plans

Drawings of a vintage depot

Learn about this small-town station on page 33 of this issue. Registered members of our website have access to dozens of prototype plans, including those for this depot. Click on Tips & Projects under the How To tab.



MR Video Plus



How to install a Tortoise

In this bonus video from Model Railroader Video Plus, producer David Popp shows how to install a Tortoise by Circuitron switch motor. Click on Free Videos at ModelRailroaderVideoPlus.com.

Free e-newsletter

Join our online community

Take advantage of all the member benefits of registering at ModelRailroader.com. In addition to a weekly newsletter, you'll gain access to the MR forums, bonus articles, select videos, and more. Best of all, registering is quick, easy, and free.



MREXTRA

www.ModelRailroader.com
subscriber extra

MRVP

Video on www.MRVideoPlus.com

ONE STOP SHOP



We Supply the World

AMERICA'S LARGEST
INTERNATIONAL MAIL ORDER
DISCOUNT TRAIN STORE

N, HO, O, ON30, S & G

SHOP ON-LINE 24/7

FOR YOUR FAVORITE PRODUCTS:

ATHEARN • ATLAS • BACHMANN • BROADWAY LTD. • DIGITRAX
INTERMOUNTAIN • KADEE • KATO • LGB • LIONEL • MAINLINE
MANTUA • MICROTRAINS • MODEL POWER • MRC • MTH • NCE
PECO • PIKO • PROTO • RAPIDO • SOUND TRAXX • TCS • TRAINLINE
WALTHERS • WILLIAMS • WOODLAND SCENICS • AND MORE...

SIGN-UP FOR OUR E-MAIL SALES

TRAINWORLD.COM

1-800-541-7010

e-mail: ORDERS@TRAINWORLD.COM

751 McDONALD AVE., BROOKLYN, NY 11218

HUGE INVENTORY • GREAT SELECTION • FAST SHIPPING

10% OFF IN-STOCK

HO, N & ON30 ITEMS

NO NEW RELEASES. CANNOT BE
COMBINED WITH ANY OTHER OFFER.
MENTION CODE WORD MRAS16
EXPIRES 9-15-16

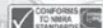
**LC2xx series DCC
decoder for HO scale**

*High Performance
High Compatibility
Multi-lighting function output*



- Conforms with NMRA specifications and is certified by the NMRA DCC
- Suitable size for HO scale locomotives
- 4 to 6 100mA function outputs with short circuit protect
- Includes Back-EMF with client motor control
- Operates on a 28 step adjustable speed table
- Supports long address and bit mode program

www.anemodel.com



HO Code 83

PECO

**83
LINE**

**THE TRACK SPECIALIST'S
'4 WORDS OF
WISDOM'**



**#6
Double
Slip
(Unifrog)**

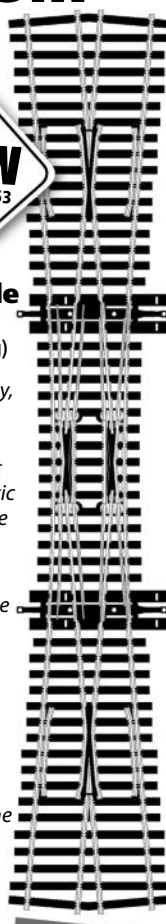
DESIGN High quality, fine detail – no ugly cast frogs. Design based on A.R.E.A. drawings and built to NMRA standards. Realistic and dependable – will serve your railroad for years!

CHOICE Insulfrog or Electrofrog, and now for the new Double Slip, Unifrog – all self-isolating, DCC friendly whichever format you choose and they work straight out the pack!

AVAILABILITY Always available, reliable supplies. Made by one of the world's most experienced track manufacturers.

PRICE Great value for money – a top quality product that won't let you down, all for a fair price.

**PICK UP A FREE
COPY OF THE
NEW CATALOG**
from your local dealer



Turn your PC into a
Centralized Traffic
Control Facility!

Monitor and control the
operation of your entire
model railroad from a
state-of-the-art control
console displayed in full-
color on your PC screen.

- All gauges, Z to G
- DCC or conventional
- Just plug and play
- Easy-to-use software
- Works on any PC

Automate signals, turnouts, reversing loops, sound, lighting, collision avoidance, and much more.

Make your trains obey signals, make station stops, or run according to time tables. Configure routes and dispatch trains with a single click of the mouse.

All automatically from your PC...

Introducing the "Train-Brain," the fast, affordable way to add computer control to your model railroad.

Think computer control is too expensive? Our starter kit with **all** the hardware **and** software needed to get into model railroad computer control costs **just \$99**.

www.cti-electronics.com

Tortoise



For 25 Years, Simply...

The BEST!

**Slow
Motion
Switch
Machine**

**MADE IN THE
USA**

800-6000 \$21.95
6006 6-PACK \$126.00
6012 12-PACK \$245.00

- Enclosed Gear Drive Mechanism (NOT a Screw-Drive Machine!)
- Simple Mounting - All Linkage Included!
- 2 Sets SPDT Auxiliary Contacts

**AT YOUR LOCAL HOBBY SHOP OR DIRECT
INCLUDE \$8.00 FOR SHIPPING & HANDLING**

Send SSAE for more info or \$8.00 for complete
60 page Catalog & Application Book to:

CIRCUITRON

211 RocBaar Dr., Romeoville, IL 60446-1163

Tsunami2

SoundTraxx continues our legacy of innovative products with Tsunami2, a brand new line of digital sound decoders that have more sounds, smoother operation and some completely new ways to do more with your trains. The operative word is "operation", with three prototypical braking methods, the best-ever Dynamic Digital Exhaust™ for both Steam and Diesel versions and oodles (yes, oodles!) of amazing new sounds and effects. From the first DCC sound decoder, to the first Functional Brake, Equalizer - and a whole lot more - SoundTraxx has been leading the way in sound for your railroad for over 25 years.

SOUNDTRAXX

141 Burnett Drive, Durango, Colorado 81301
(970) 259-0690 Fax: (970) 259-0691 Website: www.soundtraxx.com

Tsunami2 Features:

- 32-Bit Processor capable of 16 simultaneous sound channels
- Flex-Map technology allows mapping any function to any function key
- Hyperdrive2 motor control
- Adjustable reverb
- Built in Equalizer
- 20+ Different Lighting Effects
- Steam, diesel and electric versions with multiple selections in each decoder
- Over 60 whistles, over 40 horns, multiple prime movers, chuffs, bells and more!

Think you've heard it all? Visit our website today! We've got something to make you giggle!

From \$1.92 to \$41.59



A few months ago on the ModelRailroader.com forum there was a then-and-now discussion about “dollar” projects.

In the 1950s, *Model Railroader* published stories about scratchbuilding rolling stock – from boxcars to covered hoppers, for about \$1 each. There were similar stories about modeling structures from cardstock and wood.

Associate editor Gordy Odegard wrote this parts list for a 70-ton covered hopper project in the June 1955 issue:

Basswood, brass wire, 1/32" brass strip and angle, 1/2" of brake chain

(Estimated at 85 cents total since the above items are bought in bulk)

1 set brass ladder stock	.15
1 pair Varney freight trucks	.50
1 pair couplers	.10
1 Ajax brake detail set	.15
2 no. 2 x 1/4" wood screws	.02
Varney roof walk set	.15
Total cost	\$1.92

Gordy, always an optimist, apparently rounded this down to \$1 for the story.

Today, readers occasionally suggest that *Model Railroader* publish new stories about making freight cars for next to no cost.

In the same ModelRailroader.com forum discussion, a reader using the screen name JaBear built an HO scale flatcar based on a story written for the

March 1958 issue by editor Paul Larson. Larson's story wasn't labeled as a “dollar” project, but it was quite similar.

Here's JaBear's 2016 price list (I've condensed it for simplicity):

1 pair archbar trucks, these vary between \$2.39 and \$8.35 so ...	\$6.10
Styrene sheet (multiple sizes)	\$8.38
Kadee no. 5 couplers	\$4.05
Kadee coupler boxes	\$3.08
Kadee centering springs	\$2.97
Queenposts, stake pockets	\$5.00
Brake detail set	\$3.00
Turnbuckles	\$3.00
2-56 screws	\$3.51
Phosphor bronze wire	\$2.50
Total cost	\$41.59

The cost – from \$1.92 to \$41.59 over the course of 60-plus years – wasn't the real point of the forum thread.

It was this, written by Dave Nelson, another forum participant:

“I do wonder how the Dollar Model series would be received now. Even adjusting for inflation, while some of those structure models were exquisite, some were fairly crude with the main advantage being the cheapness and the ability to say ‘I made this.’ The standards are so high now. ...”

True, our standards are high. But that's because we are all far, far better model railroaders than 60 years ago.

Gordy Odegard, Paul Larson, and their contemporaries would be amazed by just how far our hobby skills have come – at the cost of just \$41.59.

NEIL BESOUGLOFF

Model Railroader

Model railroading is fun!

Founder A.C. Kalmbach 1910-1981

Editor Neil Besougloff
Managing Editor Hal Miller
Senior Editor Dana Kawala
Associate Editors Cody Grivno, Steven Otte, Eric White
Contributing Editors Tony Koester, Pelle Søbørg, Larry Puckett

Phone 262-796-8776
E-mail mrmag@mrmag.com
Fax 262-796-1142

Model Railroader Art Team

Art Director Thomas G. Danneman
Senior Graphic Designers Scott Krall, Drew Halverson
Lead Illustrator Rick Johnson
Production Coordinator Cindy Bader

Model Railroader Video Plus

Producer A. David Popp
Associate Producer Kent Johnson
Associate Editor Ben Lake
Editorial Assistant Jenny Maaske

Customer Sales and Service

Phone 800-533-6644
Outside U.S. and Canada 813-910-3616

Customer Service
Modelrailroader@customersvc.com
Digital
Modelrailroader.digital@customersvc.com
Back Issues
Modelrailroader.SingleCopy@customersvc.com

Advertising Department

Group Advertising Manager Scott Redmond
Ad Sales Manager Paul Steinhafel
Ad Sales Representative Martha Stanczak
Ad Services Representative Daryl Pagel

To purchase an advertisement

Phone 888-558-1544, ex. 643
E-mail adsales@mrmag.com

Circulation Department

Circulation Manager Catherine Daniels
Single Copy Specialist Kim Redmond

To sell Model Railroader in your store:

Phone 800-558-1544, press 3
Outside U.S. and Canada 262-796-8776, ex. 818
E-mail tss@kalmbach.com
Website www.Retailers.Kalmbach.com
Fax 262-798-6592

Kalmbach Publishing Co.

President Charles R. Croft
Senior VP, Sales & Marketing Daniel R. Lance
VP, Content/Editorial Director Stephen C. George
VP, Consumer Marketing Nicole McGuire
Corporate Advertising Director Scott Bong
Corporate Art Director Maureen M. Schimmel
Art and Production Manager Michael Soliday
General Manager Brian J. Schmidt

SUBSCRIPTION RATE: Single copy: \$5.99; U.S.: 1 year (12 issues) \$42.95; 2 years (24 issues) \$67.95; 3 years (36 issues) \$94.95. Canadian: Add \$13.00 postage per year. Canadian price includes GST. BN 12271 3209 RT, payable in U.S. funds. All other international subscriptions: Add \$20.00 postage per year, payable in U.S. funds, drawn on a U.S. bank. ©2016, Kalmbach Publishing Co. Title registered as trademark. All rights reserved.



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.

HALFPRICEHOBBY.COM

100's of HO and N Scale specials
at 50% off of M.S.R.P. at
www.halfpricehobby.com

Regular Stock items always discounted
from 20 to 50% off with low flat rate
shipping of \$8.99

Featuring products from Athearn and other
quality brands

Special orders and pre-orders accepted at
regular discounted prices.
Please email service@halfpricehobby.com
for pricing and availability.

Sacramento Shops Reprint



For more on this
fine history by Bob
Pecotich, visit our
web site at www.signaturepress.com

Price: \$85
California residents
add \$6.80 sales tax.
(See website for shipping.)

SIGNATURE PRESS

Order direct: 11508 Green Rd., Wilton, CA 95693
• Visa & Mastercard orders: 1-800-305-7942 •
or order securely at: www.signaturepress.com
see our web site for information on all our books

Call **TODAY** to order! 1-800-466-3131

Storage Boxes

Foam Lined
Self Closing
Fully Assembled



HO Scale
Holds 16 Cars - \$23.95
N Scale
Holds 48 Cars - \$23.95
Tote Bags
\$31.95
Plus S&H

AXIAN TECHNOLOGY

623-580-0800

fax: 623-580-8008

21622 N. 14th Ave. • Phoenix, AZ 85027-2806

www.axiantech.com

TCS WOWSound

- WOWKits -

• Easy Installation • Economical Price
Step-by-Step installation pictures on
our website

All Inclusive!
MSRP \$129.95
Includes Onboard Keep-Alive™

WOWSteam Version 4 Shipping

• 5 NEW Chuff sets (9 total) • 45+ Different Bells • 60+ Different Whistles
- All in ONE decoder -

Upgrade your WOWSound (Steam or Diesel) decoder to the latest version.
Visit www.TCSDCC.com for more information

There may be some other well
known tourist attractions in Florida,
but model railroaders in all scales
from points all over the world know
READY TO ROLL

is their #1 destination because of
our extensive in store inventory
while providing the best possible
customer service we can, honest
pricing, dependability & reliability,
year-in and year-out since 1990 in
this same building. If you haven't
checked us out yet, give us a try to
see what the excitement is about.
We'll say "Hi!" when you stop by or
watch for an e-mail - wait for a call.



BENCHWORK in a HURRY



Use Our Simple Modular System

You Design Any Size Layout
For Any Gauge Track
We do the Woodworking
Easy to Assemble

Sievers

BENCHWORK

PO Box 100

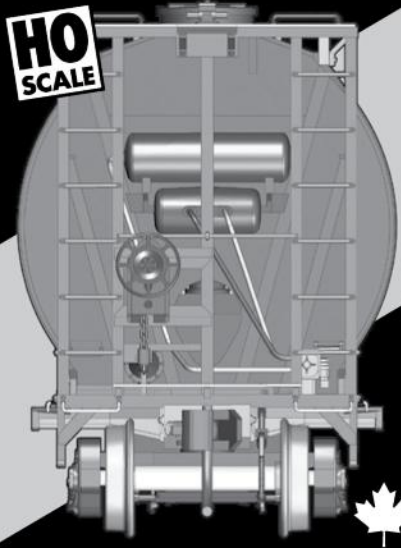
Washington Island, WI 54246

920-847-2264

www.sieversbenchwork.com

3800 cu. ft. CANADIAN CYLINDRICAL HOPPER

**HO
SCALE**



RAPIDOTRAINS.COM

**CABOOSE
HOBBIES**
A Real Toot!

Denver • Colorado • U.S.A.

World
Famous
Since 1938!



HO scale Electro-Motive Division SD9 diesel locomotive. This six-axle WaltherProto road switcher is decorated for Duluth, Missabe & Iron Range; Burlington Northern; and Southern Pacific (black widow and scarlet and gray schemes). The model is offered in four road numbers per scheme (two each in direct current and

Digital Command Control) and features prototype-specific details, metal grab irons and lift rings, and light-emitting diode headlights. A direct-current model sells for \$199.98. A model with a dual-mode SoundTraxx sound decoder lists for \$299.98. Wm. K. Walther Inc., 414-527-0770, www.walthers.com

Industry news

■ **Oregon Rail Supply to remain in business.** Oregon Rail Supply, manufacturer of HO scale signals and other accessories for model railroaders, announced that it will remain in business after the death of its founder.

"We appreciate the concern and patience shown us by so many, following the unexpected death last August of my husband, Dick Yager, the founder of Oregon Rail Supply," said Suzanne Yager, owner of Oregon Rail Supply, "His son, Rick, and I are proud of the quality products Dick developed and brought to the model railroad market over the years. It is our intention to continue providing the HO scale Oregon Rail signal products which have meant accurate scale realism at affordable prices."

For more information about Oregon Rail Supply, visit the firm's website at www.oregonrail.com.

HO scale locomotives

■ **Electro-Motive Division GP40P-2 diesel locomotive.**

Southern Pacific (American Revolution Bicentennial scheme in one road number, scarlet and gray in two numbers). Single

rear headlight, split fuel tank with steam generator water tank, and train indicator number decals. Direct-current model, \$169.98; with dual-mode SoundTraxx Tsunami2 sound decoder, \$269.98. April 2017. Genesis series. Athearn Trains, 800-338-4639, www.athearn.com

■ **Bombardier Transportation ALP-45DP dual-mode locomotive.**

NJ Transit. Four road numbers. Illuminated, directional light-emitting-diode headlights, ditch lights, and red marker lights; positionable non-functioning pantograph; factory-applied railings, air horn, and antenna; and Kadee couplers. Direct-current model with 8-pin socket and 21-pin plug for Digital Command Control decoder and space for a speaker, \$169.95; with ESU LokSound Select sound decoder, \$279.95. Fourth quarter 2016. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

■ **Electro-Motive Division F7A and F7B diesel locomotives.** Burlington Northern (ex-Northern Pacific units), Canadian National (circa 1973 to late 1980s rebuilds), and Chesapeake & Ohio (1952 to 1963 "low bow wave" scheme). Two A units and two A-B sets per road name. Prototype-specific details, brass air

horn, and Proto-Max couplers. Direct-current models: A unit, \$179.98; A-B set, \$349.98. With SoundTraxx dual-mode sound decoder: A unit, \$279.98; A-B set, \$549.98. December 2016. WaltherProto. Wm. K. Walther Inc., 414-527-0770, www.walthers.com

HO scale freight cars

■ **Assorted freight cars.** Arthur (N.D.) Farmers Elevator Co., West Bend (Iowa) Elevator, and Thompson (N.D.) Farmers Coop Elevator Pullman-Standard 4,750-cubic-foot-capacity covered hopper (single car, \$18.98; three-pack, \$55.98). Baltimore & Ohio three-bay offset hopper, \$16.98. Central of Georgia United States Railroad Administration two-bay hopper, \$15.98. Chicago & Great Western 41-foot gondola (single car, \$16.98; three-pack, \$49.98). Louisville & Nashville 40-foot single-sheathed boxcar, \$16.98. Spokane, Portland & Seattle 40-foot boxcar, \$16.98. West India Fruit & Steamship Co. 40-foot refrigerator car, \$17.98. Western Pacific 50-foot riveted-side boxcar with Superior doors, \$16.98. Plastic kits with plastic wheelsets and Accumate couplers. Accurail, 630-365-6400, www.accurail.com

► Mobile Updates



Scan the code to access *Model Railroader's* website for weekly News & Products updates.

■ **40-foot flatcar with stakes.** New road numbers: Atchison, Topeka & Santa Fe; Burlington Northern; Canadian National; CP Rail; New York Central; Northern Pacific; Pennsylvania RR; Southern Pacific; Spokane, Portland & Seattle; and Union Pacific. Three numbers per scheme. Modeler-installed stakes, factory-installed brake wheel, and McHenry scale couplers. \$24.98. April 2017. Roundhouse line. Athearn Trains, 800-338-4639, www.athearn.com

■ **Berwick Forge & Fabricating 50-foot boxcar.** New paint schemes: Bangor & Aroostook, BNSF Ry. (post-2005 scheme), CSX, Kansas City Southern, Mississippi Delta, Railbox (original herald), San Luis Central, and Union Pacific (BKTY reporting marks and GATX lettering). Three road numbers per scheme. Wire grab irons, blackened metal wheels, and Accumate couplers. \$32.95. Fourth quarter 2016. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

■ **45-foot 100-ton three-bay hopper.** Bessemer & Lake Erie (Rock Island patchout and black with yellow reflective stripes), BNSF Ry. (black with post-2005 herald), Canadian National (ex-Chesapeake & Ohio), Denver & Rio Grande Western (black with blue rotary end), Pennsylvania Power & Light (Mineral Red with yellow rotary end and black with Reddy Kilowatt, six road numbers each), Pennsylvania RR (black with keystone herald and yellow dot), Reading Co., Wheeling & Lake Erie, and Western Pacific (blue and white rotary ends). Four numbers per scheme unless noted. Factory-installed grab irons and metal wheelsets. \$25.95. February 2017. Bowser Manufacturing Co. Inc., 570-368-2379, www.bowser-trains.com

■ **General American Transportation Corp. 4,566-cubic-foot-capacity covered hopper.** Archer Daniels Midland (molecule logo), Missouri Pacific (screaming eagle herald), General American (gray buffer service car in two road numbers and Wonder Bread/Hostess Cakes), Union Pacific (aluminum with red "Union Pacific" road name). Four numbers per scheme unless noted. Photo-etched metal running boards and crossover platforms, sepa-



HO scale flatcar load. This turbine blade and blocking load is from American Model Builders. The kit includes a cast-resin 102-scale-foot turbine blade, a laser-cut H frame with sling, and a cast-resin end frame. The load can be straddled between two 60- or 89-foot flatcars or a single 89-foot flatcar with an idler flatcar between loads. A single load kit is \$19.95; a three-pack is \$51.95. American Model Builders, 314-646-8588, www.laserkit.com

ately applied I-beam posts at bolsters, and die-cast metal semi-scale Type E couplers. \$39.99. September 2016. Rivet Counter line. ScaleTrains.com, 844-987-2467, www.scaletrains.com



■ **Pennsylvania RR/Penn Central Shops 52'-6" corrugated-side gondola.** Pennsylvania RR (original November 1966 scheme, 12 road numbers), Conrail (class G43 1988 coil-service scheme), Penn Central (class G43B October 1969 scheme and class G43C April 1970 scheme). Six numbers per scheme unless noted. Three side, two end configurations, and four floor configurations; Kadee scale couplers; and 100-ton trucks with 36" metal wheelsets. \$38.95; undecorated kit (six versions), \$32.95 each. Tangent Scale Models, 828-279-6106, www.tangentmodel.com



■ **Evans 4,780-cubic-foot-capacity covered hopper.** New paint schemes: Comet Rice, Archer Daniels Midland (molecule logo), Boston & Maine,

Farmers Coop Grain Co. (Merna, Neb.), and FMC Chemicals. One road number per scheme. Etched-metal running boards and crossover platforms, factory-installed grab irons, and Proto-Max couplers. \$37.98. Walther's Proto. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

HO scale passenger equipment

■ **Bombardier bi-level commuter cars.** Caltrain (red-and-gray scheme and ex-Metrolink), Coaster, GO Transit, Metrolink, and Northstar. Five road numbers per scheme (single cab car, single coach, and coach three-pack). Bombardier trucks with outside brakes, wire grab irons, and detailed interior. Single cars, \$51.98 each; three-pack, \$149.98. February 2017. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com

■ **NJ Transit multi-level cab car, trailer coach, and trailer coach with toilet.** Multi-level cab car and trailer coach with toilet in four road numbers each; multi-level trailer car in 16 numbers (12 in standard scheme, four with safety slogans). Cab car features illuminated, directional light-emitting-diode (LED) headlights, ditch lights, and red marker lights; 21-pin plug for Digital Command Control; and provisions for mounting a speaker. All cars have interior seat detail, LED interior lighting, metal wheels, and Kadee couplers. Cab car, \$99.95; trailer car, \$84.95; three-pack (cab car, trailer coach, and trailer coach with toilet), \$269.85. Fourth quarter 2016. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



Phoenix Thunderstorm. Add stormy weather to your model railroad with this device from Phoenix Sound Systems Inc. The Phoenix Thunderstorm includes a black box that contains processing, audio, and control systems; a relay-controlled light-emitting-diode strobe light to simulate cloud-to-cloud lightning displays; a length of EL wire and power inverter to simulate a lightning bolt; and a speaker. The device operates from 12V to 30V and is compatible with Digital Command Control (DCC). Flash-and-boom can be triggered on demand with a button or DCC function; it can also be set to activate randomly. Price varies with options selected. Phoenix Sound Systems Inc., 800-651-2444, www.phoenixsound.com

H0 scale train sets

■ **Amtrak and Pennsylvania Streamliner train sets.** Includes Electro-Motive Division F7A diesel locomotive with separately applied air horns, all-wheel drive and electrical pickup, and die-cast metal frame; matching fluted-side coach, dome, and observation car; 36" x 45" oval of Bachmann E-Z Track; and Athearn TrainPak power pack. \$219.98 each. October 2016. Roundhouse line. Athearn Trains, 800-338-4639, www.athearn.com

■ **NJ Transit commuter train set.** Includes Bombardier Transportation ALP-45DP dual-mode locomotive, multi-level cab car, and multi-level trailer. \$354.85. Fourth quarter 2016. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

H0 scale structures

■ **Assorted structures.** Pergola (\$13.99), adventure playground (\$18.99), arcade (\$13.99), avalanche barriers (\$14.99), bleachers (\$18.99), birdhouse (\$9.99), doghouse (three styles, \$9.99),

kennel (\$13.99), playground equipment (\$10.99), and soccer goals and corner flags (\$11.99). Laser-cut cardstock kits. Noch GmbH & Co. KG, www.noch.com

H0 scale details and accessories

■ **Ford F-850 boom truck.** Burlington Northern, Baltimore & Ohio, Chicago & North Western, Nickel Plate Road, Penn Central, and Southern Pacific. Positionable boom, raised and lowered outriggers, and rolling vinyl tires. \$24.98. April 2017. Athearn Trains, 800-338-4639, www.athearn.com



■ **Assorted wagons.** Hay wagon, log wagon, passenger wagon, and cattle

transport vehicle. Laser-cut cardstock kits. \$17.99 each. Noch GmbH & Co. KG, www.noch.com



■ **Modern wide gas pumps extension kit.** Laser-milled styrene parts, black wire for hoses, and self-adhesive signs. Enough parts to build four pumps on two islands. For Summit USA Shell gas station kit (sold separately). \$25. Summit USA LLC, 337-436-8481, www.summit-customcuts.com

■ **Gooseneck wall-mount lights.** Two lights with warm white light-emitting diodes, 36" of wire, and one linker plug. For structures, rural outbuildings, billboards, signs, factories, and more. Footprint is .484" x .283". 30mA set. \$14.99. Just Plug Lighting System. Woodland Scenics, 573-346-5555, www.woodlandscenics.com

N scale locomotives

■ **4-6-6-4 steam locomotive.** Northern Pacific (two road numbers) and Spokane, Portland & Seattle (one number). Detailed boiler backhead, tender light, five-pole skew-wound motor with dual flywheels, and McHenry couplers. With SoundTraxx Tsunami dual-mode sound decoder, \$479.98. June 2016. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com

■ **Electro-Motive Division GP7 and GP9 diesel locomotives.** New paint schemes. GP7: Central of Georgia (black and imitation silver, two road numbers), Chattahoochee Industrial RR (one road number), Southern Ry. (black and imitation silver, two road numbers), and Wabash (blue and gray). GP9: Baltimore & Ohio (blue, gray, and gold), Great Northern (Big Sky Blue, two numbers), Metro-North (red, blue, and silver, one number), New York Central (black and white), and Northern Pacific (black and yellow). Three numbers per scheme unless noted. Roof-mounted air tanks, golden-white light-emitting-diode headlights, and Accumate couplers. Direct-current

model, \$119.95; with NCE motor decoder, \$154.95. Fourth quarter 2016. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

N scale freight cars

■ **Bethlehem Steel Co. F89F flatcar with Whitehead & Kales bi-level auto rack.** Louisville & Nashville, Northern Pacific, Rock Island, Seaboard Air Line, Southern Pacific, and Southern Ry. (enclosed sides). Three road numbers per scheme. Die-cast metal underframe, 70-ton roller-bearing trucks with 33" metal wheelsets, and body-mounted McHenry couplers. \$39.98. April 2017. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com

■ **52-foot mill gondola.** Amtrak; Atchison, Topeka & Santa Fe; Chicago & North Western; Detroit, Toledo & Ironton; Golden West Service (with GVSR and DRGW reporting marks); and Norfolk Southern (horse head silhouette herald). Three road numbers per scheme. Screw-mounted 100-ton roller-bearing trucks, metal wheelsets, and McHenry couplers. \$19.98. February 2017. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com

■ **Trinity 25,500-gallon tank car.** New paint schemes: AIG Rail Services (TCBX reporting marks), Archer Daniels Midland (GATX reporting marks), Deep Rock Refining Co., First Union Rail (XTRX reporting marks), Flint Hill Resources, Norfolk Southern (First Responders scheme, two road numbers), and Trinity Industries Leasing (asphalt service). New road numbers: Archer Daniels Midland (molecule logo), AGP Refined Oil, BASF (GATX reporting marks), and Cargill Vegetable Oils. Three road numbers per scheme unless noted. Prototype-specific detail fittings and components, jacket seams on body, and see-through walkway and platform grating. \$32.95 (NS, \$37.95). Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

N scale passenger cars

■ **Bombardier bi-level commuter cars.** Caltrain, Coaster, GO Transit, Metrolink, and Northstar. Five road numbers per scheme (single cab car, single coach, and coach three-pack). Screw-mounted trucks, separately applied grab irons, and detailed interior. Single cars, \$46.98 each; three-pack, \$134.98. February 2017. AthearnN.



N scale assorted freight cars. New offerings from Micro-Trains include a CSX (with Chesapeake & Ohio reporting marks) 100-ton three-bay hopper with coal load (\$25.30) and Soo Line 61-foot bulkhead flatcar with cast-resin slab-steel load (\$27.90). The injection-molded

plastic models have plastic wheelsets and Magne-Matic couplers. Each car is offered in two road numbers. Micro-Trains Line Co., 541-535-1755, www.micro-trainsline.com

Athearn Trains, 800-338-4639, www.athearn.com



■ **Heavyweight diner.** New paint scheme: Chicago, Burlington & Quincy. Injection-molded plastic model with removable roof, detailed interior, Magne-Matic couplers, and plastic wheelsets. \$29.95. Micro-Trains Line Co., 541-535-1755, www.micro-trainsline.com

N scale train sets

■ **Operation North Pole train set.** Includes a direct-current Electro-Motive Division F40PH diesel locomotive, two bi-level coaches, and one bi-level cab-coach. Track and power pack sold separately. Based on 2015 version of the full-size train operated by Metra on Union Pacific North, Northwest, and West Lines. \$195 (a portion of the proceeds from the sale of every set will be donated to Operation North Pole to help fund the wrapping of future "North Pole" trains). Late October 2016. Kato USA Inc., 847-781-9574, www.katousa.com

N scale structures



■ **Diesel enginehouse.** Laser-cut cardstock and fiberboard kit with peel-and-stick doors, windows, and trim and cast metal roof vents, lights, smoke

jacks, and details. Footprint is 5 1/8" x 3 1/4". \$39.95. Monroe Models, 320-250-5610, www.monroemodels.us



■ **Bus camp.** Two repurposed transit buses, rooftop railing and outdoor furniture, approximately 16" of barbed-wire fencing, laser-cut shed and front gate, and color sign sheet. \$45.95 (two direct sale add-on buses, \$10.95). The N Scale Architect, 607-746-8416, www.thenarch.com

N scale details and accessories

■ **53-foot trailers.** Alliance Shippers Inc., Clipper Controlled Logistics, Roadway, Triple Crown, and Yellow. Three trailer numbers per scheme. \$19.95. Fourth quarter 2016. Trainworx Inc., 970-874-9747, www.train-worx.com

O scale freight cars

■ **United States Railroad Administration single-sheathed boxcar.** New paint schemes: Duluth, Missabe & Northern; Grand Trunk Western; Maine Central; and Richmond, Fredericksburg & Potomac. New road numbers: Pennsylvania RR and Southern Pacific. Four numbers per scheme. Sprung, die-cast metal Andrews trucks; prototype-specific doors and ends, and 33" wheels. \$69.95. Fourth quarter 2016. Atlas O, 908-687-9590, www.atlaso.com

SHOWCASE-EXPRESS
Wall to Wall Expandable Display Case
Case Size Available: Z, N, HO, S, O, G, #1 & Standard Gauge
Lighting Kits and Backgrounds Available
Join Top to Bottom
or End to End
714-842-0672
www.SHOWCASE-EXPRESS.COM

Z-Stuff for Trains

Just connect two wires
for a working signal!

www.z-stuff.net S-Scale

- LED lights HO-Scale
- Optical Sensors N-Scale



Orders:
ZstuffExpress.com 708-352-9105
Z-Stuff for Trains 585-377-0925

CUSTOM MODEL RAILROADS

Construction of Fine Scale Model Railroads
Private Layouts - Museum Exhibits - Custom Structures
Let us build the Model Railroad of your Dreams



Quality built layouts since 1991

www.custommodelrailroads.com

Rubley Building
NEW FROM CMR
- Kit features tab and slot construction
- Laser cut acrylic and cast parts
NEW HO & N KIT
Custom Model Railroads
3937 Keswick Road
Baltimore, MD 21211
410-889-0010
www.custommodelrailroads.com

NEWS&PRODUCTS



FolkArt Painted Finishes textural paint. These water-based, non-toxic paints from Plaid Enterprises Inc. can be applied to wood, plastic, papier mache, metal, and more. Colors in the FolkArt Painted Finishes series include Light Rust, Barnwood Tint, Barnwood Wax, Dark Concrete, Dark Rust, Light Concrete, Light Moss, and Dark Moss. A 4-fluid-ounce bottle retails for \$7.99. Plaid Enterprises Inc., 800-392-8673, www.plaidonline.com

Z scale locomotives



■ **Electro-Motive Division SD45 diesel locomotive.** New paint scheme: Conrail. Four road numbers. Injection-molded plastic model with can motor, dual flywheels, traction tires, directional light-emitting-diode headlights, Auto-Latch couplers, and optional pilot and plow. American Z Line, 614-764-1703, www.americanzline.com

Z scale freight cars



■ **Pullman-Standard PS2-CD 4,750-cubic-foot-capacity covered hopper.** New paint schemes: Burlington Northern (Arthur, N.D., Farmers Elevator Co. patchout); Chicago & North Western (Klemme, Iowa, Co-op Grain patchout); Frito-Lay Inc.; and Jewell, Iowa, Co-op Elevator. Single cars and four-pack. Metal wheelsets and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

Electronics/controls

■ **Sound cards.** First- and second-generation Electro-Motive Division diesel locomotives with turbochargers. Includes

horn, bell, and other sound effects appropriate for each style of locomotive. For N and HO scale Kato Soundbox. \$29.99 each. Kato USA Inc., 847-781-9574, www.katousa.com

■ **WOWSteam version 4 sound decoders.** Features calibrated proto chuff (automatically chuffs loudly when pulling a heavy load or going uphill and coasts when going downhill), adjustable rod clank and snifter valve sounds, improved Audio Assist, five new chuff sets, more than 20 new whistles and 20 new bells, and selectable power braking. WOW121 – steam (with 21-pin plug), \$99.95; WOW101 – steam, \$109.95; WOW101 – steam-KA (with Keep Alive), \$129.95. Train Control Systems, 215-453-9145, www.tcsdcc.com

■ **Tsunami2 digital sound decoders. TSU-1100 series.** Micro universal-style 1 amp decoder with four function outputs, 16 simultaneous sound channels, and reactive dynamic digital exhaust. Ideal for N and HO scale locomotives. Steam locomotives (10 exhaust chuffs and more than 60 whistles), Electro-Motive Division diesel locomotives (nine EMD diesel engines and more than 40 air horns), General Electric diesel locomotives (eight GE diesel engines and more than 40 air horns), Alco diesel locomotives (nine Alco diesel engines and 40 air horns), Baldwin and other diesel locomotives (Baldwin, Fairbanks Morse, Galloping Goose, and Whitcomb engines with more than 40 air horns), and electric locomotives (traction motors, compressors, and more than 40 air horns and whistles). \$129.95 each.

FIND
MORE
FREE
MAGAZINES

[HTTP://SOEK.IN](http://soek.in)


SoundTraxx, 970-259-0690,
www.soundtraxx.com

Track

■ **HO Commuter Train True-Track starter set.** Code 83 track with 16 curved sections (22" radius), six straight sections, a straight rerailer, and straight terminal section. \$69.95. Fourth quarter 2016. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

Decals

■ **Assorted gondola decals.** Penn Central classes G43A, G43B, and G43C (1968+, completes three cars, \$12) and Pennsylvania RR class G43 (1966+, completes one car, \$6). Daniel Kohlberg, paducah.home.mindspring.com

■ **Assorted decals.** Baltimore & Ohio and Chesapeake & Ohio diesels (1965-1972) and Norfolk Southern covered hoppers (American Car & Foundry, Pullman-Standard, and Trinity 4,000-cubic-foot-plus capacity). HO \$8, N \$6.50, and O \$11.95. Microscale Industries, 714-593-1422, www.microscale.com 

Club offerings



■ **Crescent Lines 50-foot boxcar.** Accurail HO scale model custom-decorated for the Crescent City Model Railroad Club. One road number. \$30 plus \$6 shipping (add \$2 shipping for each additional car). Crescent City Model Railroad Club, 601 N. Lester Ave., Metairie, LA 70003-6131

■ **Know Thy Hudsons.** By Thomas R. Gerbacht. Covers New York Central Hudson-class steam locomotives. Hardcover, \$85.45 (NYCSHS members, \$69.46) plus \$5.50 shipping (international shipping higher). Ohio residents add 8 percent tax. New York Central Systems Historical Society, www.nycshs.net

Micro-Mark®
Berkeley Heights, New Jersey 07922

**SIZZLIN'
SUMMER
SALE!**

sale ends Sept. 9

**BIG SAVINGS ON THOUSANDS
OF ITEMS, INCLUDING...**

MicroLux Tilt Arbor Table Saw

44% OFF!



#80463

To receive sale prices, place your order online at
www.micromark.com/4256
FREE CATALOG with ANY order!

Sale prices guaranteed through September 9, 2016

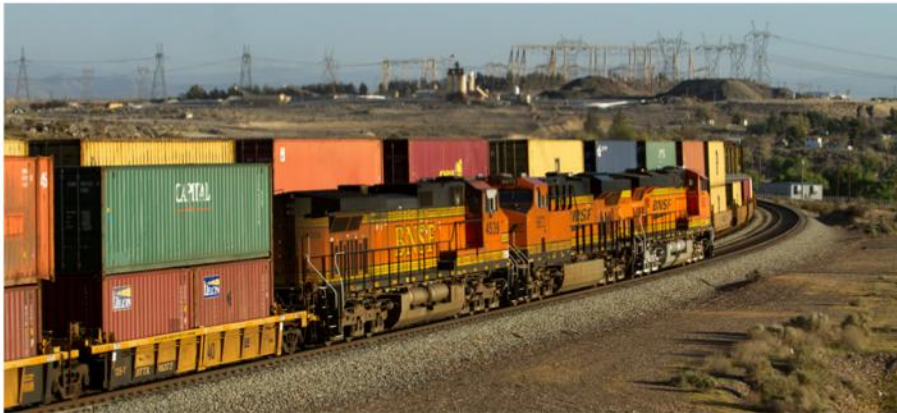
 **PARAGON**
ROLLING THUNDER™

IN STORES NOW!



- HO SCALE
- SOUND/DC/DCC
- AVAILABLE IN 11 TYPES
- **ORDER NOW**

WWW.BROADWAY-LIMITED.COM



While you'll sometimes see 40-foot or longer intermodal containers on top of two 20-foot containers – as in this photo shot at Oro Grande, Calif., in March 2015 – you'll never see 20-foot containers on top of anything but other 20-footers. Scott A. Hartley photo

Why do larger containers go on top?

Q I've noticed on double-stack trains that there are usually two 20-foot containers on the bottom and either a 40-foot or larger container on the top. Is this because the 20-foot can handle more weight by volume than the larger containers? Or is it because of the weight the two 20-foot containers can support?

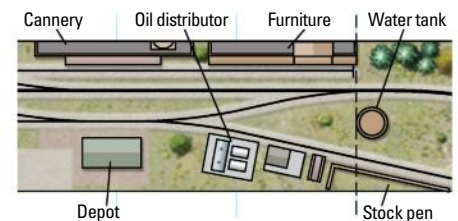
John Crawford, no address given

A It's because containers' load-bearing members are at their corners. While the walls of a container will support its contents, only the ends can bear the weight of another container from above. A 40-foot container can go on top of two 20-footers, because the outer ends of the shorter containers correspond to the ends of the longer container on top. But the 40-foot type has no such support in its center for two smaller containers to rest on. Likewise, you'll notice the main structural supports for 45- and 53-foot containers are inset from the ends, so they can be stacked with 40-footers. But you'll never see 20-foot containers on top of anything but other 20-footers.

website, but couldn't get the correct wording. Help! What's it called?

Gregory Goldstein, Vallejo, Calif.

A It's called a "standards gauge," and it's made by the National Model Railroad Association. It's available in scales from N to O, and you can find it at Walther's by searching the category "Tools" for manufacturer "NMRA." You can also buy it directly from the NMRA. Look for the "NMRA Store" link at top left of its home page, www.NMRA.org.



Q The small model railroad plans in your March 2016 issue are very intriguing, since they can be achieved by the average modeler. However, the layouts are cramped by prototype standards. How would railroads handle shared spurs like those on the Fall Creek Branch (shown above)? It seems to me that today's industries rarely share spurs, but maybe this was a more common practice when railroads were the predominant method of moving freight and more factories surrounded the railroad.

Michael Gron, Hartford, Conn.

A Industries sharing spurs is actually not that uncommon a practice, especially among industries that don't generate enough rail traffic to justify the expense of a turnout of their own. Even a spur that serves just one industry might have multiple car loading or unloading spots for different cargos that would offer similar switching challenges.

Cars being loaded or unloaded that block another car from being switched would have to be moved as part of that maneuver, but would have to be promptly put back once the other car had been dropped off or picked up. This would require communication between the train crew and the industry's agent to clear personnel and equipment (forklifts, ramps, unloading hoses) from the blocking car and secure it for movement.

Complications like these caused headaches for both the prototype and

Q After 54 years of armchair modeling and collecting, I'm starting to build a layout. A few years ago, I purchased a Digital Command Control system. My problem is that I have many, many direct-current engines and just a few with DCC decoders. Is it advisable to wire a layout with switchable DC and DCC, using one or the other, but not both at the same time?

James Wallace, Clovis, Calif.

A You can do that easily. Simply wire your layout in a block-fashion as you would for DC. Then connect your power bus wires to the center contacts of a double-pole, double-throw (DPDT)

electrical switch. (Make sure you use a center-off or break-before-make switch, to prevent even momentary connection of the two systems to each other.) Connect the track outputs of your DCC base station to one side of the switch and a DC power pack's +/- terminals to the other side. Then you can switch back and forth as needed. Direct-current engines can't be run on DCC, so if you don't want to remove these engines from the layout between sessions, wire some storage tracks for them with a switch to cut the power during DCC sessions.

Q I need to purchase one of those metal track width measuring devices. I searched the Walther's

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

Steve Otte

their customers. But to us model railroaders, they merely add to our local freight job's operating interest.

Q I plan on scratchbuilding a small coaling tower for a simple locomotive servicing facility on my mid-to-late 1800s Western mountain layout. I have lots of photos of such stations from MR magazine. The problem is, however, that it's not clear in any of them how the coal was loaded into the tower. Can you tell me how this was done?

Jim Albright, Verona, Wis.

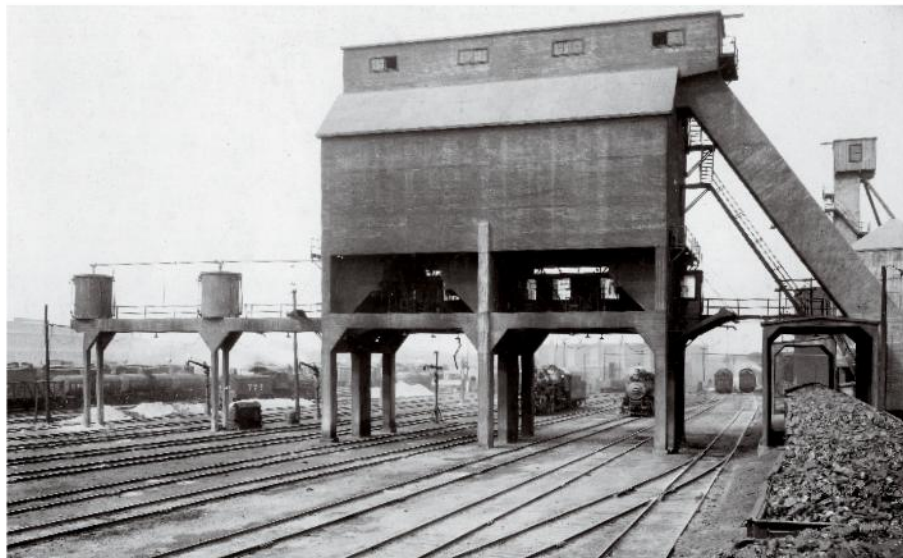
A In the steam era, hoppers or drop-bottom gondolas would deliver coal to a between-the-rails dump pit either under or alongside the coal tower. A bucket conveyor, screw auger, or conveyor belt would then lift the coal into the elevated bin. A tall square shape, whether vertical or diagonal like the one in the photo at right, should be sufficient to represent an enclosed conveyor.

In your layout's era, though, labor was cheaper than machinery. Unless you're talking about a busy engine terminal or a major railroad, coal-fired locomotives would likely have been loaded with fuel by hand, either by a swinging bucket crane or energetic young men with shovels.

Q What are the wiring and operating differences between turnouts with insulated frogs and non-insulated frogs, and which is the best option for the inexperienced hobbyist, particularly in the area of electrical wiring?

Thomas Palmer, Stow, Ohio

A Insulated-frog turnouts have, as their name implies, frogs that are electrically isolated from the surrounding track in the turnout, or plastic frogs that don't conduct electricity. You can get away without powering insulated frogs if you run long-wheelbase locomotives with all-wheel electrical pickup. This is the easiest way for beginners. But if you run short-wheelbase locomotives, engines with traction tires that don't conduct current, or steam engines that only pick up power through a few drivers, you may have trouble with engines stalling on unpowered frogs.



A string of drop-bottom gondolas loaded with coal, right, are lined up at the dump shed of a coaling station in this undated company photo. The diagonal conveyor above the shed lifts the coal into the bins. Atchison, Topeka & Santa Fe photo

If you want to power the frogs to minimize locomotive stalling, you have to do so separately, using a circuit that will change the polarity of the frog's current based on the direction the switch is thrown. You can do this by fabricating a ground throw out of a single-pole double-throw (SPDT) slide switch; via the secondary contacts on a switch motor like a Tortoise by Circuitron; or with a Digital Command Control-aware device like a Tam Valley Frog Juicer.

Live-frog turnouts (like Electrofrog turnouts from Peco) come wired with jumpers that power the frog with current picked up by the points contacting the stock rails. Though this is a lot simpler for wiring purposes than powering an insulated frog, it can be less reliable (due to the rails getting dirty).

Q When I watch Drew's Trainside Adventures on Model Railroader Video Plus and see pictures of real railroads, the tracks are often messed up (kinks, bends, and dips) and the curves are tight, but it doesn't seem to affect the train. The last one I saw, the locomotives were actually bouncing up and down! So why does the trackwork have to be so perfect on our model railroads?

Gary Del Moro, Cresskill, N.J.

A The answer to your question is two-fold. First, the MRVP crew stays well back off of railroad property when filming Drew's Trainside Adventures,

using extra-long telephoto lenses to "get close" to the action. Long lenses optically compress the depth of images, making kinks look worse than they really are.

The second answer is that model trains, being much smaller and lighter than the prototype, are more likely to derail on irregular track work. Smooth track is doubly important because model locomotives need consistent wheel-to-rail contact to pick up power, an issue not faced by diesel and steam prototypes. So even though the prototype's rails are straighter than they look, our scale rails have to be even straighter than that.

Q I'm modeling a river on my layout. What do I use to seal the extruded-foam insulation board and plywood bottom before adding the resin water so it doesn't leak out?

Gary Dietzel, Bemus Point, N.Y.

A Start by sealing all the joints between wood and foam with a clear latex adhesive caulk. Once that's cured overnight, place newspapers or a drop cloth under the layout and line the riverbed with a coat of plaster. Watch for plaster drips to locate any persistent leaks and fill them with more caulk once the plaster's dry. Paint the riverbed, glue down scenery along the edges (like sand, rocks, fallen trees, or old tires), and once that's dry, pour in your resin.

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

Freelance flavor for my N scale Tehachapi Loop

"Gotta get 'em." Last summer InterMountain announced it was taking reservations to produce N scale SD45 locomotives for Allen McClelland's Virginian & Ohio and Tony Koester's Allegheny Midland. I could just see Allen's blue engines and Tony's red units helping haul the Southern Pacific and Santa Fe trains on my Tehachapi Loop.

True, I fancy myself something of a prototype modeler, and Tony and Allen's railroads were freelance lines – fictional, if you will – but soundly based on prototype principles and certainly real and inspirational to me.

After that initial wave of excitement, some doubts began to creep in. These were Eastern regional lines, small railroads really, and their engines would be unlikely to turn up in trains in Southern California where my layout is set. The pool power you'd see out there in 1985 was from the big boys: Conrail, Norfolk & Western, Union Pacific, and that ilk.

Then came an "Aha!" moment. In the mid-1970s Allen and Tony, along with Steve King with his Virginia Midland, had joined forces to form a conglomerate called Appalachian Lines, a combine similar to Family Lines or Chessie System, and big enough to likely turn up in nationwide power pools. These Appalachian Lines engines retained their original identities, including colors, but shared a common (and very sharp) corporate look. I could justify their presence on the Tehachapi Loop to any who might require such justification.

(Bitter aside: I'm still upset that Tony abandoned the AM after 25 years and began building his present day Nickel Plate railroad. I was a member of the MR staff in the AM's heyday, and red diesels on the cover were always a good bet to do well on the newsstand.)

Disappointing news. Every November comes Trainfest, the wonderful show held at the Wisconsin State Fair grounds here in greater Milwaukee. I stopped at the InterMountain booth to see how the V&O and AM engines were coming. Maybe I'd even be able to drool over some samples, or better yet, purchase some production models.

Turns out the engines weren't there, nor would they ever be. InterMountain hadn't gotten enough reservations, and unfortunately that included none from me. Not that mine would've made any difference, but I still consider it a lesson learned. I've never reserved an announced product, but I'd better get started if I want to make a small contribution to not being disappointed.

Freelance cars and N-scalers. As I've said before, I'm a fan of cars painted and lettered for freelance roads if they're plausible and if I've visited the line or met the owner. That goes quadruple if they're MR authors. If the equipment is appropriate for my time period I like to run it on the railroad, although I wouldn't want a preponderance of it and I can certainly appreciate the views of those who wouldn't want to run it at all.



Jim Kelly

Freelance cars decorated for the Milwaukee, Racine & Troy; Virginian & Ohio; and the Canandaigua Southern all find a place on Jim Kelly's N scale layout. Bill Zuback photo

Both Fox Valley Models and Wheels of Time have offered N scale V&O and AM cars I'm proud to run on the railroad. I also have a Virginia Midland car that is a rare error – the logo didn't get stamped on one side. (If this were stamp collecting, it might be worth millions.)


Fox Valley Models has also done N scale models of cars for *Model Railroader* magazine's HO club layout, the Milwaukee, Racine & Troy, and for magazine anniversaries. Micro-Trains Line made models of the Wisconsin & Southern *Model Railroader* car, and of course I'm more than partial to those.

The National Model Railroad Association (NMRA) has offered models of cars for well-known freelance layouts for years, doing them in HO, N, and sometimes larger scales as well. Several years ago, though, it found itself with an overabundance of N scale freelance cars and blew them out the door for \$5 each.

I was quick to take advantage, as these were beautiful Micro-Trains cars, worth it for the trucks and couplers alone. Plus, they included John Armstrong's Canandaigua Southern and Dean Freytag's Davies Steel Co.

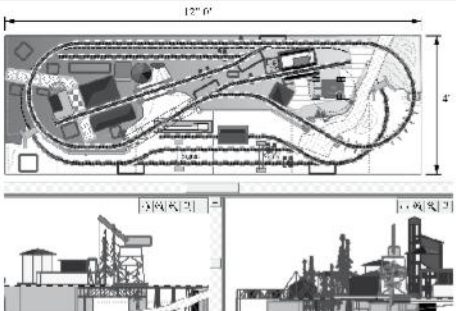
Why not in N? InterMountain's cancellation of the Appalachian Lines project and the NMRA's difficulty in selling those freelance cars put me to wondering. Why weren't these projects better received? First might just be market size. HO modelers outnumber our N scale brethren about three to one.

Another factor is these legendary roads I've been discussing were all built in HO scale, except for Steve King's, which is N. The best-known N scale layouts follow prototypes. I'm thinking of Mike Danneman's Denver & Rio Grande, Bill and Wayne Reid's Cumberland Valley System, and a half-dozen more.

I've always thought it would be cool to have my own road name, and even the recognition that comes with it, but today we just don't see much of that. I think it's mostly a consequence of product availability. It's just so much easier to get the information and products you need to follow a favorite prototype. 

CADRAIL THE RAILROAD DESIGN PROGRAM Advanced Layout Design

Cadrail.com



Sandia Software 104 Pequeno NW
Abq., NM 87107
505-821-0014

Internet DL \$89.95, Parcel Post with manual & CD \$129.95
US add \$8.00 S&H, all others add \$15.00 S&H.
Visa, MC, Dis, Am Ex, M.O., CK. Prices subject to change.

HAWKINS RAIL
37 YEARS OF SERVICE

- GRAIN IS MOVING AT HAWKINS RAIL! -

See 130 car unit grain train running on the in-store layout. Many out of production items from estates. Providing same day shipment for 37 years! Call Jack Hawkins at 765-742-5577

See You at the UPHS Convention
3501 Union St., Suite 6. *Everything for the serious modeler.*
Hours: Mon-Fri 12-5, Sat 10-5
Closed Sun. Evenings by appointment.
ALL MODELS SUBJECT TO PRIOR SALE.

WE DO NOT HAVE A CATALOG. We ask that you call us or send us your want list with SSAE. We will advise you of the price, availability, and shipping charges. International shipments made only to countries accepting insured mail. We have no minimum order. Personal check orders are held 4 weeks. MASTERCARD and VISA accepted. Sorry, collect calls are not accepted, but feel free to call with your railroad questions, model or prototype.

HAWKINS RAIL SERVICES

Mail to:
P.O. BOX 6008
LAFAYETTE, IN 47903
PHONE: 765-742-5577

YOUR #1 MODEL RAILROADING SOURCE

SUBSCRIBE TO MODEL RAILROADER TODAY!

Go To <http://subscribe.trains.com/help>

Model Railroader MAGAZINE

microAIRWIRE® Wireless Battery Operation For HO

From the acknowledged experts in wireless, battery powered model railroading, comes a new series of AIRWIRE decoders small enough for HO scale. Imagine no layout wiring, no reverse loop nightmares, and no track or wheel cleaning. The first two members of the *microAIRWIRE* series offer slim designs suitable for narrow hood diesels. Use our award winning T5000 Wireless Throttle for operating or programming the *microAirWire* Booster or Motion Decoder - it can program any DCC configuration variable (CV). Plenty of expansion with 17 unique frequencies and 9999 addresses per frequency. Expect long running times with high capacity lithium batteries. Higher amperage versions coming soon!

uAW M15 - 1.5 Amp Motion Decoder

- ✓ 1.5 Amp Fully Protected Motor Driver
- ✓ 10V to 18V Battery Range
- ✓ Precision Motor Control with Cruise
- ✓ FWD/REV Headlights with Special Effects
- ✓ 4 LED Drivers with Special Effects
- ✓ Easy Programming with AIRWIRE Throttle

Only 0.6 x 2.4 x 0.25 inches



Download user manuals and information brochure from the CVP website - www.cvpusa.com


uAW B15 - 1.5 Amp DCC Booster

- ✓ For TCS-WOW & Soundtrax HO Decoders
- ✓ 1.5A Continuous, 5A Peak, Fully Protected
- ✓ Stuck Horn Protection
- ✓ AIRWIRE Throttle Programs Decoders
- ✓ 10V to 18V Battery Range
- ✓ Easy and Simple To Setup And Use

CVP Products POB 835772 Richardson, Tx 75083 www.cvpusa.com

PREBUILT & PRELIT HO BUILDINGS FROM MENARDS®

Menards® Hobby Shop
(279-5001) ... \$59.99

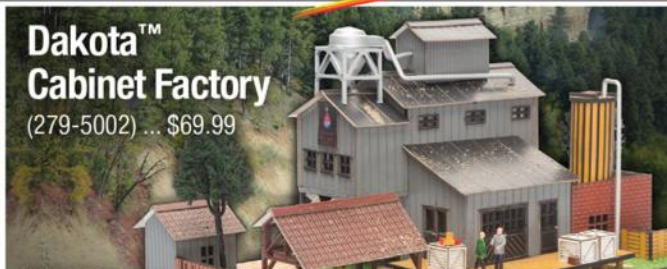


Dimensions:
3"W x 6"L x 3.5"H

Add some excitement to your layout with the prelit and preassembled HO gauge Menards Hobby Shop. From miniaturized train sets to enthusiastic shoppers, this model has everything! Constructed on a sturdy platform, this preassembled building is a realistic recreation of a hobby shop from the good old days. Adding to its authenticity, the storefront is decorated with tiny train sets and vintage advertising. With the addition of a 4.5-volt AC adapter (sold separately, Menards SKU# 289-4005, 4006), the outdoor signage and building's interior will illuminate, allowing you to take in every detail of this charming shop.

Take a look inside and you will see something special in every corner of the store. Eight figures, including Jack the German Shepherd, are scattered throughout to give the shop a friendly personality. As you take in all the diminutive details, you'll see a young boy gazing in wonderment at all the train displays, a father and daughter strolling into the store as they are greeted by the shopkeeper, and a calm cat lying on a dumpster near the back office door. With the Menards Hobby Shop, your train layout will be a sight to behold!

Dakota™ Cabinet Factory
(279-5002) ... \$69.99



Dimensions:
6"W x 10.5"L x 5"H

The prelit and preassembled HO gauge Dakota Cabinet Factory is constructed of wood and stands sturdily on a rigid, grass-covered platform. This building is full of unsurpassed details such as hand-weathered bricks and sawdust covered roof tops. Other details include authentic signage, storage and electrical sheds, realistic looking trees, coal and much more. Figurines included are 3 workers and Jack the German Shepherd who lounges happily in the shade.

Perhaps the most impressive feature is the electronic Sherwin-Williams® paint sign. Lit by LED lights, this sign blinks brightly with the famous Sherwin-Williams paint splash. This building also features 2 exterior LED yard lights. This building will light up with the addition of a 4.5-volt AC adapter (sold separately, Menards SKU# 289-4005, 4006)



These turnouts serving the ore loading facility are on the opposite side of the Eagle Mountain RR 2016 project layout from the control jacks for our NCE Powercab DCC system, so the staff installed Tortoise by Circuitron switch motors to control them. This month, we share tips for installing these popular devices on your layout.

Install a Tortoise switch motor and control it with a stationary decoder

You've probably seen the line in a layout visit story that says "I control my turnouts with Tortoise by Circuitron switch motors," and you may be wondering what this means. No, people don't have land-dwelling shelled reptiles mounted under their layouts.

A Tortoise switch motor is a device designed to move the points of a turnout. In addition to contacts to operate the motor, it has built-in double-pole double-throw (DPDT) contacts that can power frogs

or illuminate signals on the layout or a control panel.

The Tortoise is a stall-motor machine, which means the motor has current flowing through it even when it isn't moving and requires a constant current to keep the points in place. Many people use a DPDT toggle switch to operate the Tortoise, but we installed a stationary decoder as part of our Digital Command Control (DCC) system.

Since we're using an NCE Powercab for DCC control,

I chose an NCE Switch-It Mk2 stationary decoder. It has outputs for two turnouts, the same number as on our layout. As with mobile decoders in locomotives, stationary decoders don't have to be manufactured by the same company as the DCC system.

In this month's Step by Step, I'll show you how I installed a pair of Tortoises and an NCE stationary decoder to control them on our 2016 project layout, the Eagle Mountain RR.

► Materials list

Circuitron
800-6000 Tortoise slow-motion switch motor

NCE
Switch-It Mk2 stationary decoder

Digi-Key
EDC 306100-ND edge connector

Step 1 Installing the turnouts

We used mainly Peco Electrofrog code 83 no. 5 turnouts on the Eagle Mountain RR. These turnouts have a power-routing feature, but I wanted to use the contacts on the Tortoise switch motor to power the frogs on the turnouts.

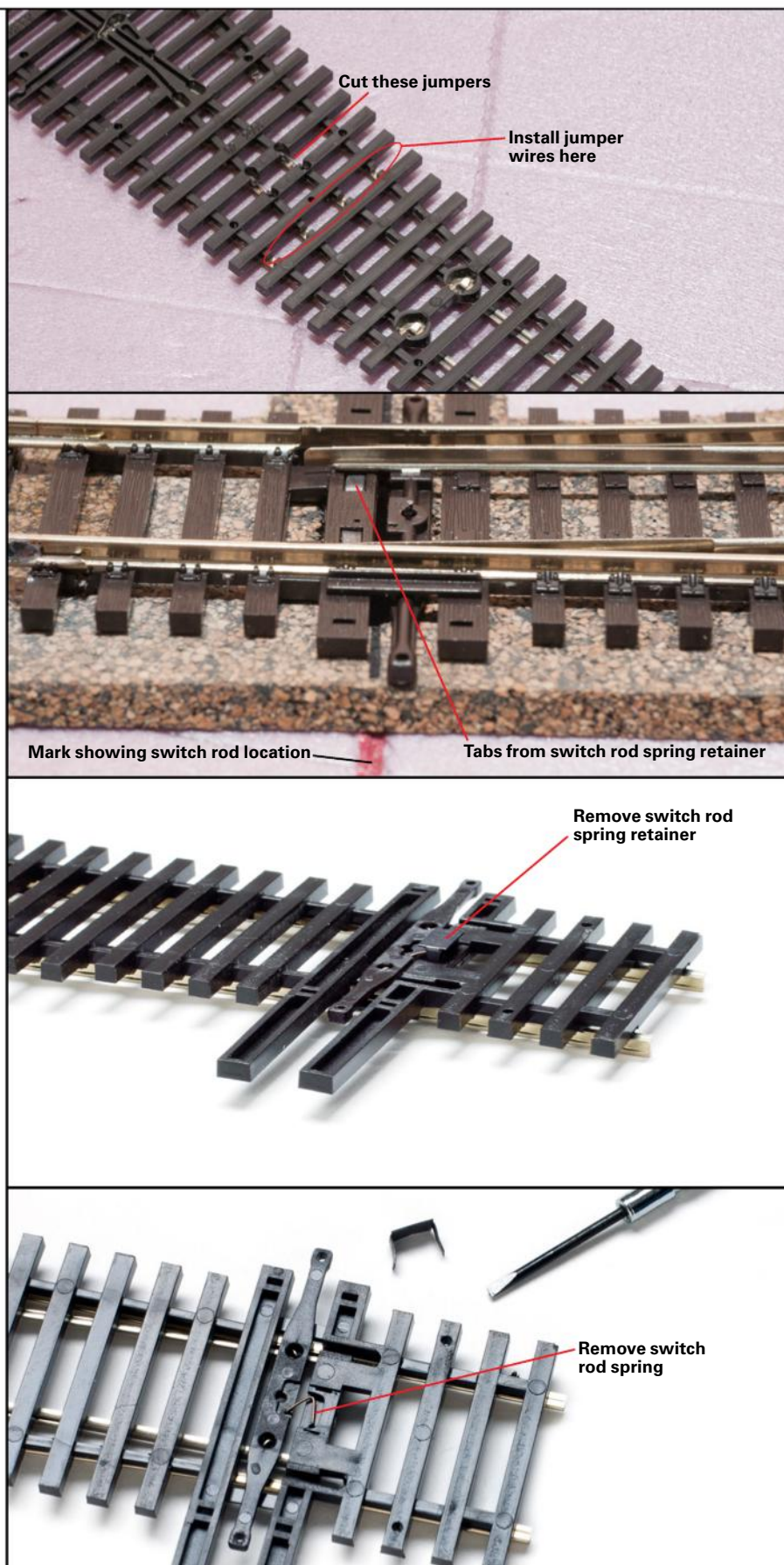
To do this, I clipped the jumper wires connecting the frog to the closure rails. Then, I added jumpers between the closure rails and the adjacent stock rails. Finally, I added an extension to the bare factory-installed wire leading from the frog.

With the wiring taken care of, I turned to the points. Peco uses a spring to keep the points in position against the stock rails. Removing this spring makes it easier for the Tortoise switch motor to move the points.

To remove the spring, start on the top of the turnout and pry up the tabs for the switch rod spring retainer. Flip the turnout and remove the retainer and the spring. I reinstalled the spring retainer to fill the hole in the top of the turnout.

As I was drawing the track plan on the layout surface, I noted the location of the switch rod and the frog. I drilled a $\frac{1}{8}$ " hole at the frog, then used the same long bit to drill a series of holes under the switch rod. I used a utility knife under the layout to clear a slot through the $\frac{1}{2}$ " plywood subroadbed. The slot needs to be at least $\frac{1}{4}$ " wide to allow the actuating wire from the switch motor to move freely. I used a hobby knife to cut through the Homasote roadbed, and a long serrated knife on top of the layout to make a slot in the extruded-foam insulation board layout base.

When I started track laying, I used the holes in the layout to locate the turnouts. When they were correctly positioned, I laid the rest of the track around them. (See "Laying track and wiring the 4 x 6-foot Eagle Mountain RR project layout" in the March 2016 Step by Step column.)



STEPBYSTEP

Step 2 Switch motor installation

Before I started working under the layout, I collected all the components I'd be using and connected them for a bench test. I used short lengths of wire to connect the stationary decoder to the power panel, then more short lengths of wire and jumper wires to connect the decoder to a Tortoise motor.

This helped me understand how everything worked together and helped me plan my installation. I also knew everything worked before I crawled under the layout.

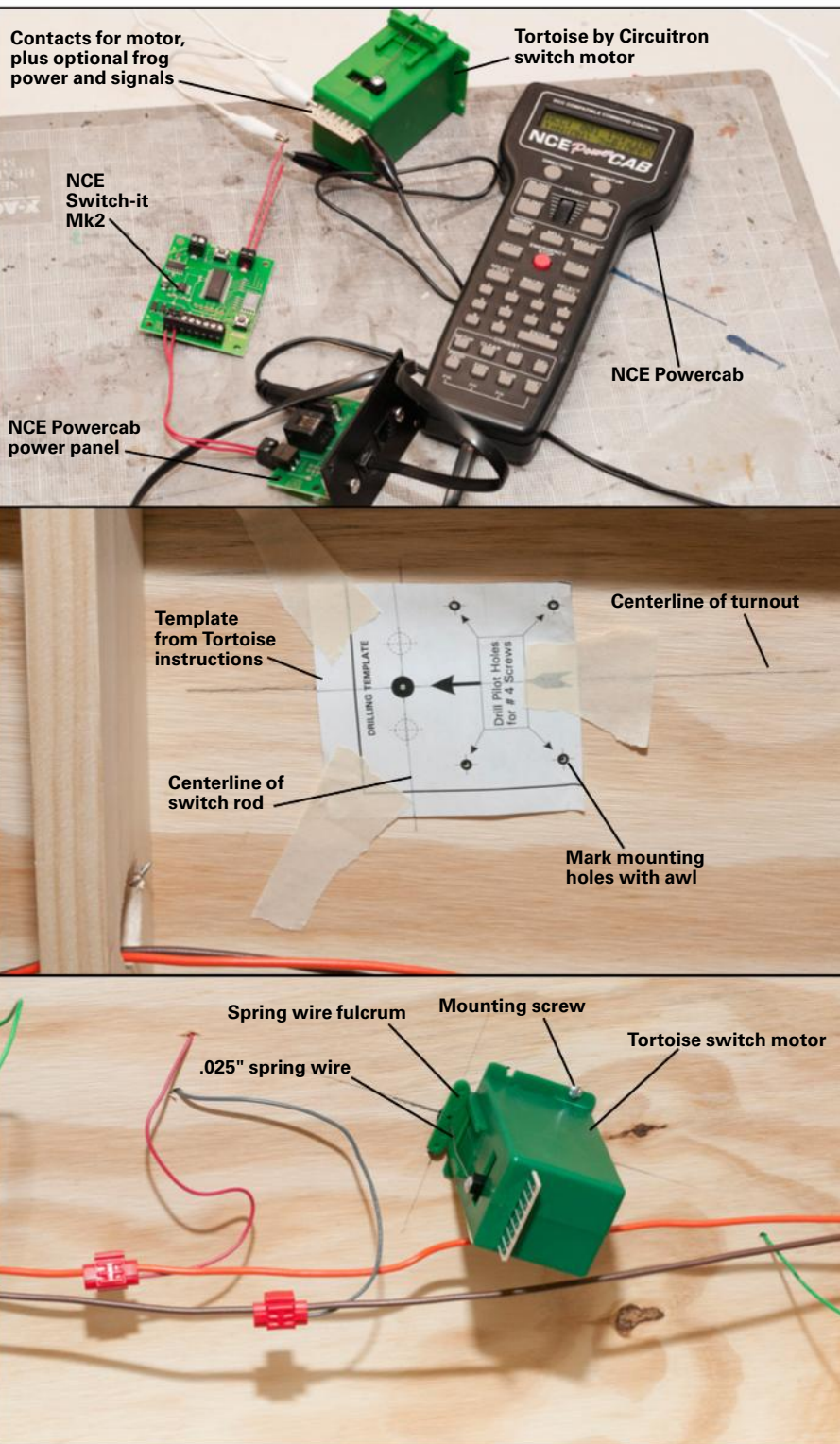
With the turnouts installed, it was time to add the switch motors. Using a straightedge, I marked the centerline of each turnout and the switch rod. These marks would help me locate the Tortoise switch motor.

The Tortoise instructions include a mounting template. I aligned the template with the centerlines I drew on the bottom of the layout, then taped it in place. I used an awl to punch through the paper and mark the location of the Tortoise mounting screws.

Following the instructions, I drilled pilot holes for no. 4 mounting screws. The instructions also have a template for bending the spring wire that will transmit the motion of the switch motor through the benchwork to the points. Circuitron includes a length of .025" spring wire, which is long enough for benchwork 1" thick or less.

Our benchwork is 2½" when the extruded-foam insulation board scenery base is taken into account, so I used a longer piece of .025" wire in place of that supplied by Circuitron. Since I'd removed the switch rod spring, the .025" wire was stiff enough to hold the points in place. The template made it easy to bend the wire in the proper configuration to reliably move the points.

I cut my wire a little long, then installed it on the switch motor following the instructions. Once the Tortoise was mounted to the bottom of the layout, I adjusted the fulcrum so the motion of the motor held the points securely against the stock rails on both sides.



Once that was done, I trimmed the spring wire with a cutoff disc in a motor tool to just above the top of the switch rod. You don't want it too short where it could drop out of the switch rod, but you don't want it protruding so much that it could snag a coupler trip pin.



Subscribers to MR Video Plus can watch David Popp install Tortoise switch motors at www.MRVideoPlus.com.

Step 3 Wiring it up

I wanted to do as little soldering under the layout as possible, so I used edge connectors to attach the wiring to the Tortoises. Circuitron offers an application note on its website with the details and specifications for compatible edge connectors. I used some that were left over from switch motor installations on *Model Railroader's* club layout, the Milwaukee, Racine & Troy.

The part we used was made by Sullins, and is listed as obsolete on the Digi-Key website. Circuitron gives a number for an EDAC part, EDC 306100-ND, which is available. Other retailers offer similar connectors. We used pieces of .060" styrene to blank the unused pins on the connectors.

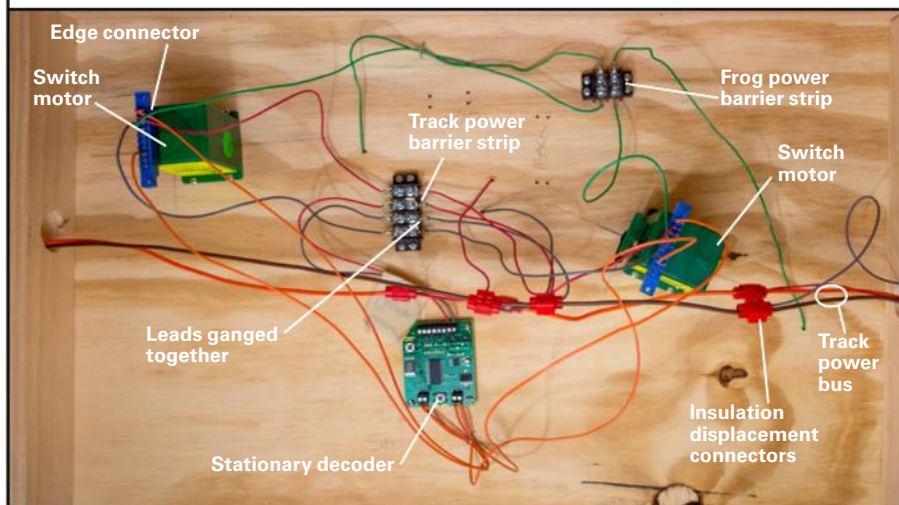
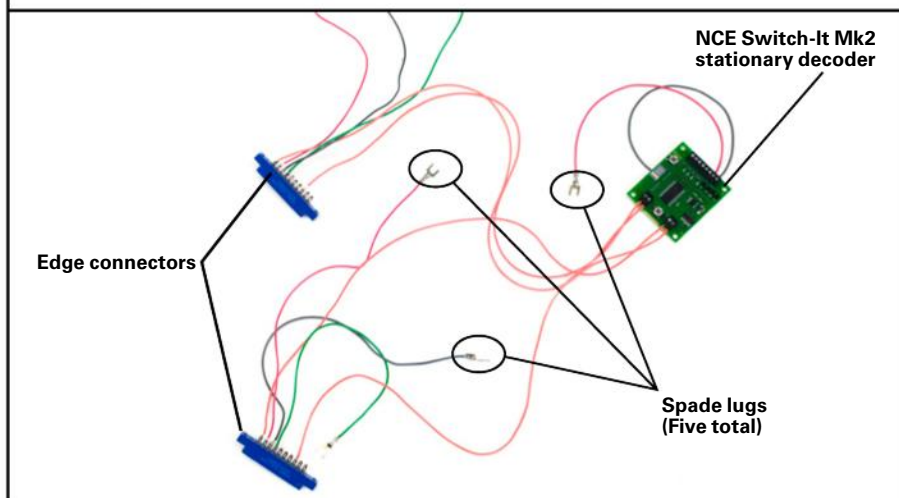
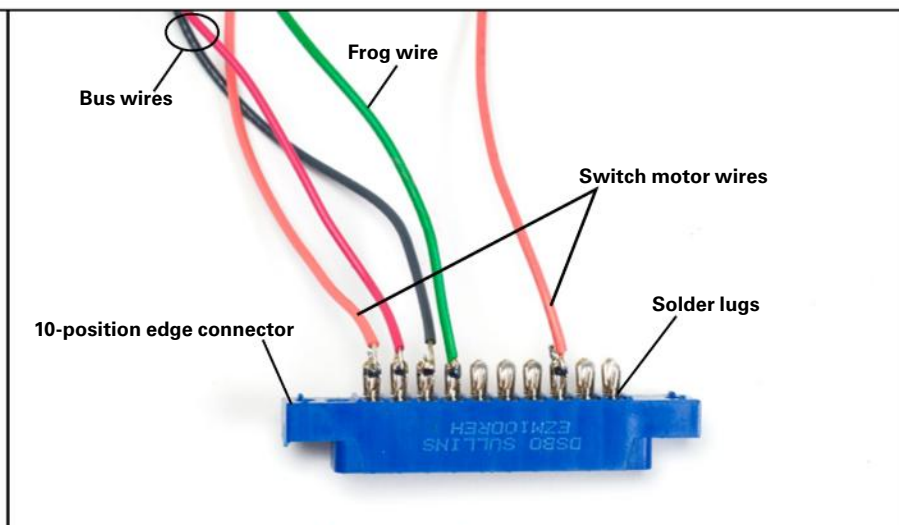
Using the Tortoise instructions for guidance, I soldered leads to pins 1, 5, 6, 7, and 8. Pins 1 and 8 were connected to one of the outputs of the stationary decoder. Pin 5 is the frog lead, and pins 6 and 7 connect to the track power bus. Testing the parts on the bench helped me determine which pins should get which wires to allow the Tortoises to operate the way I wanted them to.

I used terminal strips to make the connections to the track. To keep the wiring neat, I soldered spade lugs on the ends of the wires going to the bus and frogs. The wires are attached to the power bus with insulation displacement connectors. The only under-layout soldering I had to do was to attach spade lugs to the frog leads from the turnouts.

Once the soldering was finished, I marked the locations of mounting holes for the decoder and terminal strips, drilled pilot holes, and attached the parts to the bottom of the layout with screws. I used gang plates to connect the bus wires into groups.

The last thing to do was to program the decoder. This is covered in six steps on the Switch-It decoder instruction sheet.

With the decoder wired into the track bus, I pushed the select button to choose which output to program. Then I pushed the program output



button, causing the display on the decoder to flash "P." Then I used the Powercab to select accessory, SEL ACCY, entered "1" as the address, and checked to see which way the points moved. If they had moved opposite of the direction I wanted, I could switch

the motor power leads from the decoder to the Tortoise. Fortunately, it all worked as I'd planned.

Now, a few presses on the Powercab is all it takes to line the turnouts to the desired route while switching the leads to the ore loader. **MR**

TIMBERLINE
TRAIN SHOP, LTD



N SCALE MODEL TRAINS
5228 Main Street, Downers Grove, IL 60515
WWW.TIMBERLINETRAINSHOP.COM
630.324.6136
SALES@TIMBERLINETRAINSHOP.COM

KALMBACH
HOBBYSTORE
Find More of What You're Looking For

Shop for books, DVDs, downloads, gear and other products related to your favorite hobby.

Visit KalmbachHobbyStore.com




N scale's best magazine, published for model railroaders by model railroaders.

Available at your favorite Hobby Shop

Subscribe at: www.nscalerailroadn.com Or send check or money order to:
North American N Scale, PO Box 77296, Seattle, WA 98177-0296

Subscriptions: US: \$30 for 6 issues (\$32.85 in WA state)
Canada & Mexico: US \$54;
Overseas Air: US \$82
All back issues are available.
Please visit www.nscalerailroadn.com for rates.

N SCALE RAILROADING MAGAZINE
16th Anniversary Issue
September/October 2016

SEE THE DIFFERENCE... IN N SCALE

View Photos and Learn More at www.ScaleTrains.com

Preorder now at www.ScaleTrains.com and Select Retailers



SEPARATELY APPLIED GRAB IRONS
Scene and photography by Ken J Johnson
First test model shown

H-H, H-I, I-I DYNAMIC BRAKE CONFIGURATIONS

TURBINE FAN BLADE VISIBLE INSIDE EXHAUST

23C & 24C TENDERS

Road Number Specific ScaleTrains

- All-new locomotive
- Road number specific details
- Numerous separately-applied detail parts including grab irons
- LED headlights and numberboards
- Both "A" and "B" units powered
- Photo etched metal grilles and walkways
- And much more...

© 2016 ScaleTrains.com, Inc. ScaleTrains.com, Rivet Counter, and respective logos are trademarks of ScaleTrains.com, Inc. ScaleTrains.com, Inc. 7598 Highway 411 Benton, TN 37307 844-9TRAINS 844-987-2467 International 423-299-3689



YOUR SOURCE FOR REALISTIC N SCALE STRUCTURES

N SCALE

NEW CITY STRUCTURES



NEW MERCHANT'S ROW I
OCTOBER 2016 DELIVERY
933-3850 \$39.98
7-1/2 x 3-1/2 x 2-3/8"

FALL DELIVERY (UNLESS NOTED)

- Authentic American designs
- Fits all popular modeling eras
- More than 60 different N Scale kits & accessories available
- Highly detailed, designed for easy construction



NEW MOTORIZED 130' TURNTABLE with new Cornerstone Turntable Control Box for easy operation & programming
OCTOBER 2016 DELIVERY
933-2618 \$349.98
10-3/8 Overall Diameter

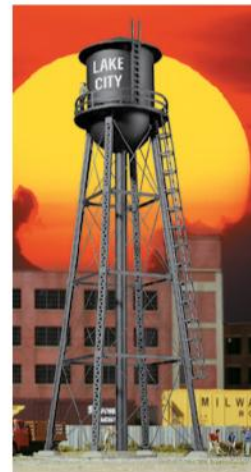
NEW TWO-STALL 130' BRICK DIESEL HOUSE
OCTOBER 2016 DELIVERY
933-3266 \$59.98
10-13/16 X 6-13/16 X 3"



Prototype photo by Dr. Richard Stemler Morning Sun Books collection, used with permission of Morning Sun Books Inc.



METRO POWER & LIGHT
IN STOCK
933-3837 \$59.98
2-3/8 x 2-3/8 x 7"



NEW CITY WATER TOWER
AUGUST 2016 DELIVERY
933-3832 black \$39.98
2-3/8 x 2-3/8 x 7"

COMING SOON - all-new N Scale Vintage Dairy Queen® and DQ® Grill & Chill® - photos & info in the August Walther's Flyer or online at www.walthers.com!

WALTHERS

Support your local hobby shop • visit walthers.com • call 1-800-4-TRAINS

Delivery date, availability and prices as shown were accurate at press time, for updates visit walthers.com. Preproduction models shown assembled and painted, some details and colors may vary. ©2016 Wm. K. Walther's, Inc. DQ®, Dairy Queen® & the ellipse shaped logo, are trademarks owned or licensed by American Dairy Queen Corp. Manufactured under license from American Dairy Queen Corp.

MODERN-ERA MASTERPIECE

The N scale Union Pacific Geneva Sub replicated realistic operation along a busy double-track main line

By **Daryl Kruse** • Photos by the author



Dismantling layouts is part of my hobby lately; I've taken down two in the last six years. In 2008 I dismantled my N scale Union Pacific Rochelle Subdivision, featured in the November 2008 *Model Railroader*. That layout was replaced by the bigger and more prototypical N scale Union Pacific Geneva Subdivision, which was still under construction when I wrote about it for *Model Railroad Planning 2013*. I kept working on the 25 x 48-foot model railroad, and more of the finished scenes are featured in this article. Due to a job move from Rochelle, Ill., to Marietta, Ga., the Geneva Sub was dismantled in

July 2014 and is being resurrected at our new home.

From the beginning I planned the Geneva Subdivision layout with the idea that it would be eventually moved. In anticipation of this move, the entire layout was built in 8-foot sections with terminal strips for wiring between sections. With the layout being reassembled in Marietta, I can attest that this advanced planning paid off.

Goals

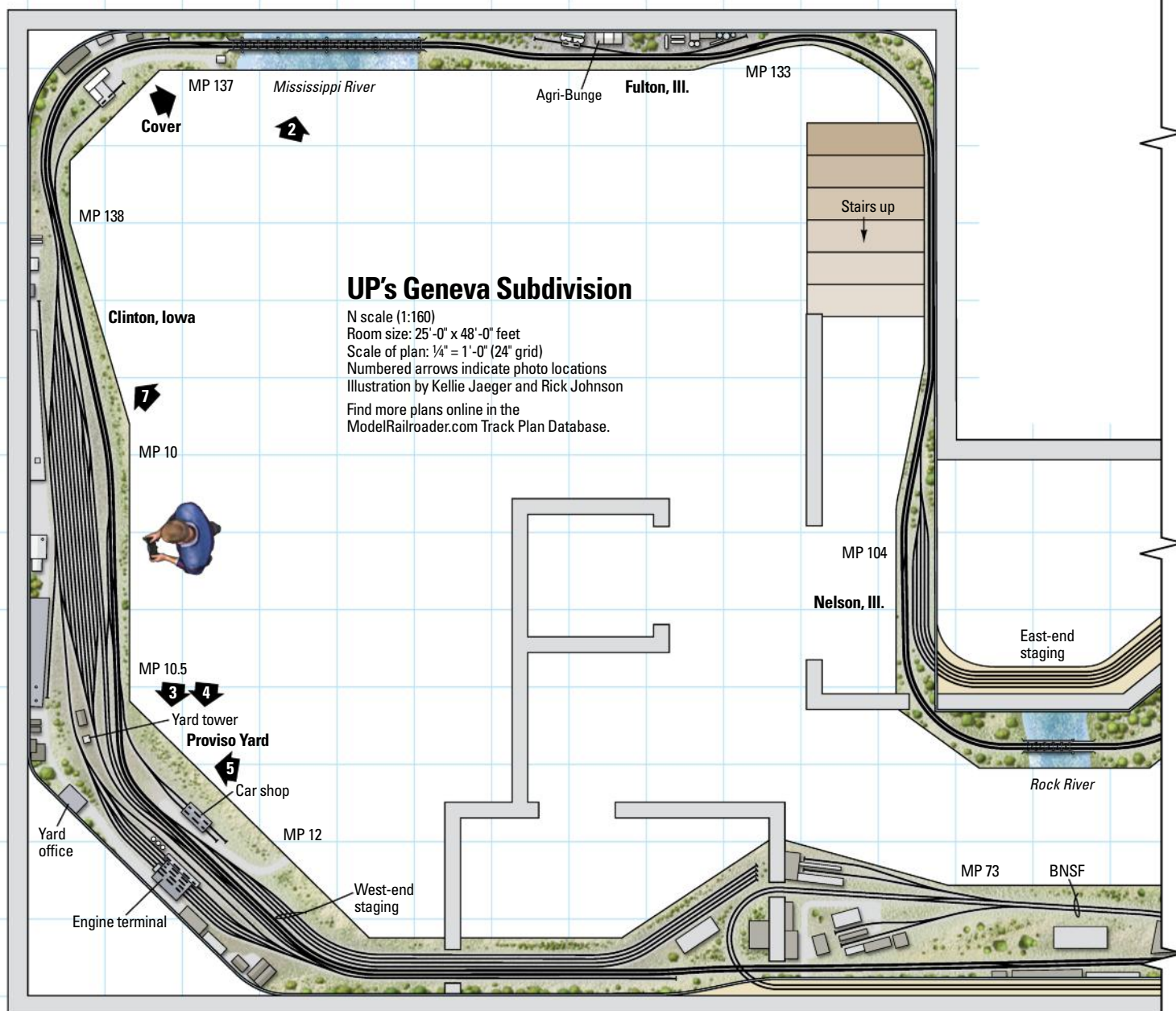
Building the Geneva Sub was a great experience. I used the entire basement, which enabled longer runs, more yards,

more industries and, best of all, more operations. But I didn't want to go too far in adding to the layout's size and complexity. It was more important to take advantage of N scale's strength of portraying overall scenes. I also wanted a layout that I could build, maintain, operate, and enjoy by myself, as well as with friends during operating sessions.

During layout planning, if there's a lack of space, the usual temptation is to depict single-track, Class 2 or smaller railroads. Conversely, if there's ample room, some modelers will try to cram as much railroad into that space as possible by using multiple levels and peninsulas.

1. A manifest freight meets an intermodal unit train on Daryl Kruse's N scale Geneva Sub. The 25 x 48-foot layout models the modern Union Pacific through Illinois and Iowa.





2. The Mississippi River crossing between Clinton, Iowa, and Fulton, Ill., is a signature scene on the layout. Here, westbound coal train CABAT crosses the scratchbuilt bridge on its way toward Clinton. The photo backdrop shows the highway suspension bridge that also crosses the river at the prototype location.

► The layout at a glance

Name: Geneva Subdivision
Scale: N (1:160)
Size: 25 x 48 feet
Prototype: Union Pacific
 (ex-Chicago & North Western)
Locale: Northern Illinois
Era: Present
Style: single deck
Mainline run: 160 feet
Minimum radius: 36"
Turnouts: no. 10 (mainline), no. 8

(secondary and yard track)
Maximum grade: 0.5 percent
Benchwork: open-grid
Height: 55"
Roadbed: 3/16" cork (main), 1/8" cork
 (secondary and yard track)
Track: Micro Engineering Code 55
 flextrack with handlaid turnouts
Scenery: plaster on screen wire
Backdrop: plastic roof flashing
Control: Digitrax DCC

Now on ModelRailroader.com

Registered members of our website can watch a layout video and read Daryl's previous *Model Railroad Planning 2013* story. Click on the links at www.ModelRailroader.com.

Scenery and structures

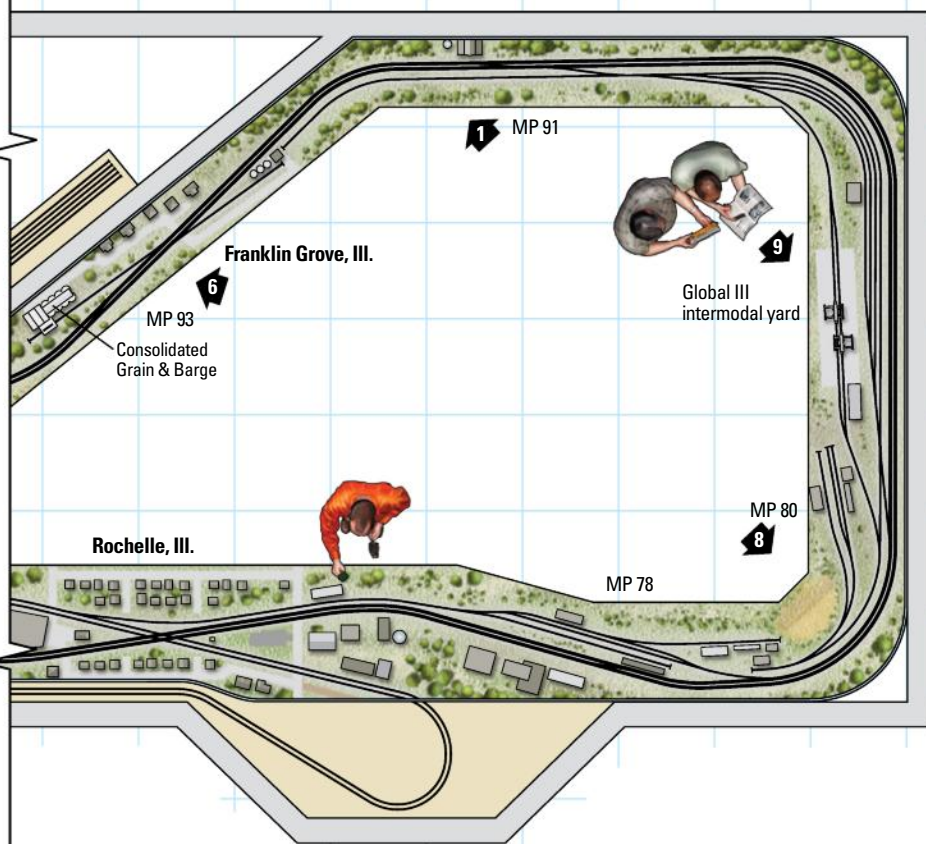
Mountain scenery is quite spectacular, but I find flat, prairieland scenery just as interesting. Although the prairie lacks towering peaks and rock faces, it has bridges crossing rivers, interesting structures, highways paralleling tracks, grasslands, and corn and other crop fields. As with modeling any type of scenery, getting the look of the prairie right means researching the prototype. With the Geneva Sub being a modern-era layout, research meant getting myself trackside and taking lots of photos. It helped that I lived less than a mile from the UP/BNSF Ry. crossing in Rochelle and a 90-minutes or less drive to any part of the prototype Geneva Sub. From the Mississippi River crossing in Clinton, Iowa, to Proviso Yard in the west Chicago suburbs, I spent many hours taking pictures of the UP main line and surrounding structures and scenery.

There are many scratchbuilt models on the Geneva Sub depicting actual structures along the prototype. Notable examples include the Mississippi River rotating bridge and Tomas Betts factory in Clinton, Iowa; engine terminal, yard tower, yard offices, pedestrian walkway, and warehouses in Proviso; and the railfan gift shop and pavilion, water tower, overpass, and select houses in Rochelle. I planned more structures for Franklin Grove and the Global III intermodal yard in Rochelle, but we moved before I could complete them.

I find it isn't necessary to scratchbuild all structures to capture the look of the prototype. I have many out-of-the-box kits on my layout. Visitors familiar with the prototype recognize the main scratchbuilt structures. This then gives the impression that more of the structures match the prototype, especially since I laid out the tracks and surrounding roads similarly to the actual locations.

Prairie scenery presented some challenges, including modeling the different types of grasses and creating convincing cornfields. The latter was especially important, since cornfields dominate the northern Illinois landscape.

Applying static grass was a big help in modeling the variety of grasses along the



My goal was to fully model the look and feel of double-track Class 1 railroading across northern Illinois.

With multiple levels and peninsulas no matter where you look, left or right, up or down, the railroad is there. Contrast this experience to watching prototype trains pass by on a long straight track or broad curve. You have to be facing one direction to see the train, and if you want to see it again, you have to move down the line. I wanted to re-create this trackside experience.

To accomplish my goals, I followed several standards while designing and building the Geneva Sub. These standards included:

- Minimum radius of 36" (comparable to 66" in HO scale)
- No. 10 mainline turnouts
- No. 8 secondary and yard turnouts
- Double-track main line
- Single-level plan at a 55" height
- No peninsulas or turnback curves
- Wide aisles and plenty of open space for operators and visitors



3. Proviso Yard is a hub of activity, just like the prototype. The sprawling yard also features a busy locomotive servicing terminal (background) and car shops (foreground).

right-of-way. Photo backdrops proved the best way to depict the vast cornfields around Rochelle. I took the photos from overpasses to get the appropriate views. Using my computer, I scaled the photos and printed them out in color. I then laminated the images, cut them out, and taped them to the layout backdrop.

Track

I used Micro Engineering code 55 flextrack with handlaid no. 8 and no. 10 turnouts powered by Tortoise by Circuitron slow-motion switch motors. Stationary Digital Command Control (DCC) decoders control all turnouts and can be activated by fascia-mounted push buttons or through the dispatcher's screen on the computer. During op sessions, I disabled the fascia buttons for the mainline turnouts.

I built all 118 turnouts using Fast Track jigs. The first few took more than 3 hours each to build and install. As I gained experience, I cut that time in half, but it remained a time-consuming process. The turnouts operate extremely well and cars roll flawlessly through them.

Mainline track on the Union Pacific has a 30" profile. Viewing the prototype track, it's easy to see the height difference between the main and secondary lines. I simulated this difference on the Geneva



4. The scenery is bare plywood and the locomotive shops are nonexistent in this photo of the same scene as above, reprinted from *Model Railroad Planning 2013*. Note the handlaid turnouts in the ladder tracks on the left.



5. The control tower at Proviso Yard is a familiar landmark to many railfans. Daryl was in the process of scratchbuilding the structure when he had to dismantle his layout.

Sub. In N scale 30" scales out to $\frac{3}{16}$ " (.1875"). Standard N scale cork is $\frac{1}{8}$ " thick, but I needed an additional $\frac{1}{16}$ " to achieve the correct track height. To accomplish this, all mainline track has $\frac{1}{16}$ " cork sheet between the plywood sub-roadbed and the $\frac{1}{8}$ " cork roadbed.

After installing the track, I airbrushed it with Floquil Rust and Railroad Tie Brown paint. I used Arizona Rock & Mineral ballast for all the track. I then used my airbrush again to weather the finished right-of-way.

Realistic operation

Operating sessions were when the Geneva Sub was at its best. During a typical session, 17 trains ran daily, including six manifest freights that either originated or terminated at Proviso Yard, four coal trains, five intermodal trains, and a couple of autorack trains. Six of the 17 trains had a stop along the main to pick up and/or set out cars. Some of these stops involved simple switching, while others served multiple industries and required runarounds or other more complex moves. Four trains had no stops, but either originated or terminated at Proviso or Global III. There were also seven run-through trains.

Switch jobs included two yard switchers in Proviso, one yard switcher at

CTC and signaling



6. Eastbound auto rack train ACOIPR rolls through Franklin Grove. Centralized Traffic Control and operating signals dictate train movements.

As per the prototype, the Geneva Sub double-track main line was fully signaled with Centralized Traffic Control (CTC). Railroad & Co. software together with Digitrax BDL16 LocoNet occupancy detectors and SE8 signal decoders allowed a dispatcher to control traffic flow during op sessions. All my signal models were from Sunrise and Scale Model Division (both firms are no longer in business).

I also used the Railroad & Co. software to control all 118 Tortoise-powered turnouts. The software contained the logic to line up yard throat turnouts for all yard tracks both at Proviso and Global III as well as the staging yards and even engine facilities tracks. – Daryl Kruse



7. A westbound manifest train rolls past the Clinton, Iowa, side of the main classification yard. The opposite end of the ladder tracks represent UP's Proviso Yard, located in the Chicago suburbs.



8. Just outside of Rochelle, Ill., the winter wheat harvest is in full swing as a manifest freight heads west. A prairie landscape provides ample opportunity for modeling a surprising variety of scenery.



9. A yard crew at Global III shuffles well cars under transfer cranes, while a Piggy-Packer gets ready to load a trailer onto a flatcar. Although compressed in size, the scene captures the ongoing activity of the sprawling intermodal yard.


Global III, and a BNSF switcher that moved cars between Rochelle industries on the BNSF main and the UP/BNSF interchange tracks. A couple BNSF trains ran periodically on a BNSF loop.

The Geneva Sub had something for everyone. I had the operating sequence all set up so that my friends and I could move traffic during an operating session, or I could run all the trains by myself over the course of a couple weeks.

Just like the prototype, the layout had a double-track main line from end to end. Many believe that single-track main lines are more interesting to operate than double track. However, with six trains per day stopping on the main to pick up and set out cars, operations on my double-track layout were a challenging and entertaining puzzle.

For car routing we used computer-generated switch lists created with the QB64 BASIC programming language. The computer program put together outgoing train consists for yard switchers to build and provided instructions for the switchers to sort cars from incoming trains. During an operating session, yard crews at Proviso built three outbound trains and sorted three inbound trains. A yardmaster organized the paperwork and coordinated the two yard crews, one working each side of Proviso Yard. We had tons of fun on the Geneva Sub.

The future of the Geneva Sub

The layout came apart and was moved in 11 sections to the new basement in the South. The sections are being put back together in a new, even bigger, and hopefully better configuration, as I continue re-creating modern Midwestern class I mainline action in N scale. 

Meet Daryl Kruse

An N scale modeler for 50 years, Daryl Kruse's layouts have been featured in *Great Model Railroads*, *Model Railroad Planning*, *Model Railroader*, and other hobby publications. A lifelong educator, Daryl is currently the principal of Faith Lutheran School in Marietta, Ga. He and his wife, Patti, have four grown children and four grandchildren.





This circa-1997 photo shows the station as it looked when Harold W. Russell took the measurements for his drawings. When it was used by the railroad, the structure was painted two-tone gray. Harold W. Russell photo

Plans for a SMALL-TOWN STATION

Dormers and diamond-pane windows highlight this former Buffalo & Susquehanna structure

By Harold W. Russell

I was out on one of my railroad measuring and photographing trips when I first saw the former Buffalo & Susquehanna station from Rushford, N.Y. I considered passing it by as just another common wood station. However, the diamond-pane windows and dormers gave the building a certain charm and distinction that required further investigation.

Fortunately the building's owner, Mike Ronan, and his wife were cordial hosts. The couple allowed me to measure and photograph the building inside and out.

The station was built 5 miles east of Rushford. The rail line through the southwest New York community was out of service by 1917. The station was saved in 1930 and moved to a farm 100 feet across the road, where it stands today.

A look inside

The waiting room and ticket office walls were plaster-covered and the roof and the insides of the dormers were lined with hardwood.

The large dormers allowed ample light to enter. The waiting room had a bench that ran along two walls. The interior doors were five-paneled hardwood with hardwood trim.

An 8-foot-high partition with a large ticket window separated the ticket office from the waiting room. The office had a hardwood cupboard against the wall that was common to the baggage/freight room. The stationmaster sat at a desk that spanned the length of the bay window.

The baggage/freight room was more utilitarian. The walls were open studs and

the roof was supported by trusses on 24" centers. The heavy oak freight doors moved on tracks toward the end of the building. Diamond-pane windows were used above them to preserve the architectural theme of the building. A single window on the end, along with the dormer, allowed light to enter the room.

Two stoves using a common chimney served both the baggage/freight room and the office. The wall behind each stove was covered with sheet metal.

The building had no inside plumbing. Undoubtedly, bathroom facilities were located outside. **MR**

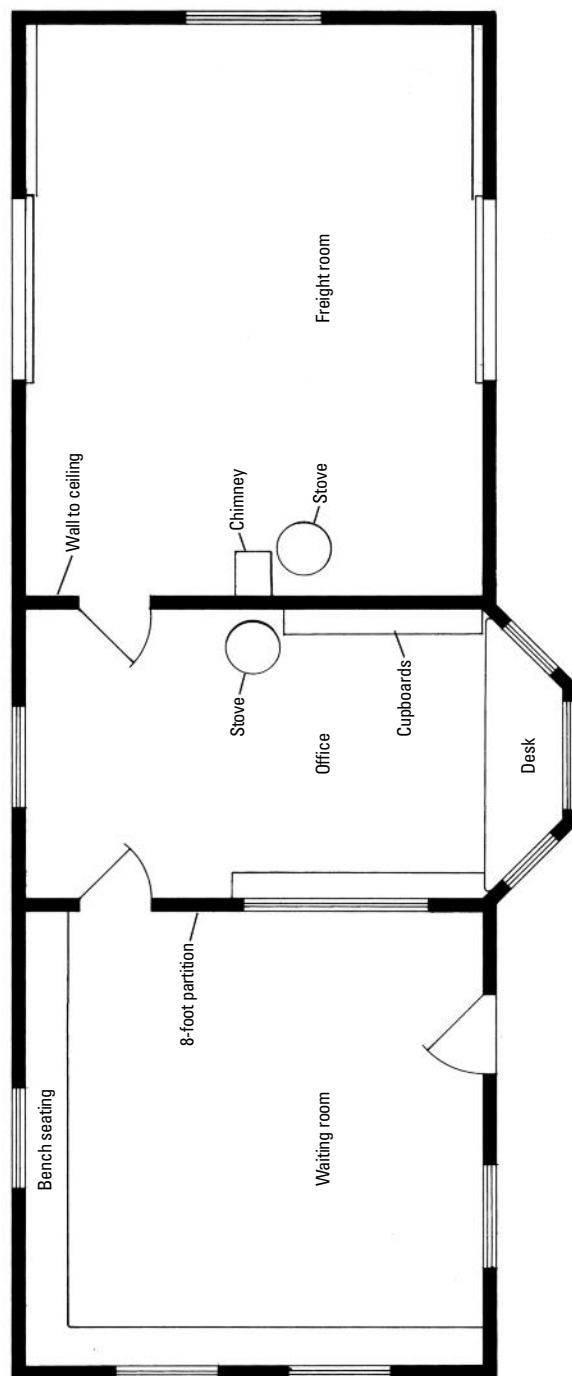
Harold W. Russell has been writing articles and preparing prototype drawings for Model Railroader magazine since the 1960s.

Buffalo & Susquehanna depot, Rushford, N.Y.

Drawn for *Model Railroader* magazine by
HAROLD W. RUSSELL
Magazine purchaser may have photocopies of these
drawings made as an aid to personal model making but
does not have the right to distribute copies of the
drawings to others. Contact *Model Railroader* regarding
commercial use of these drawings.

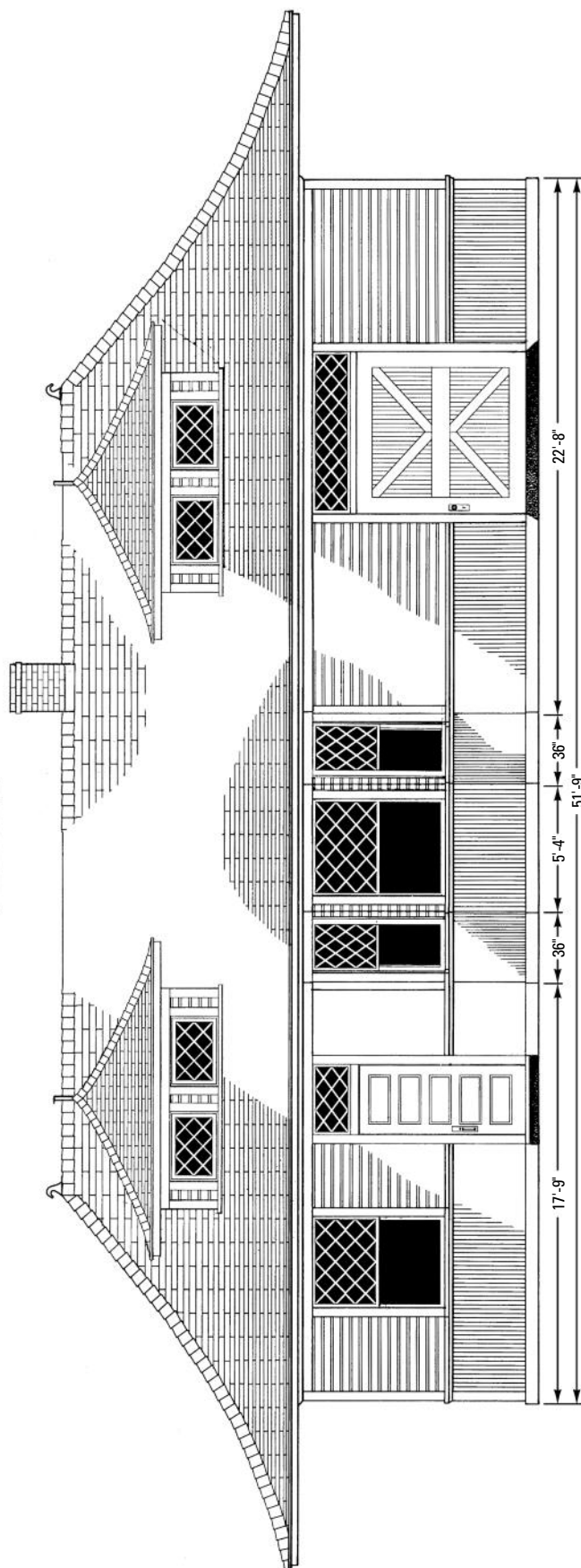
Ratio 1:87.1, HO scale

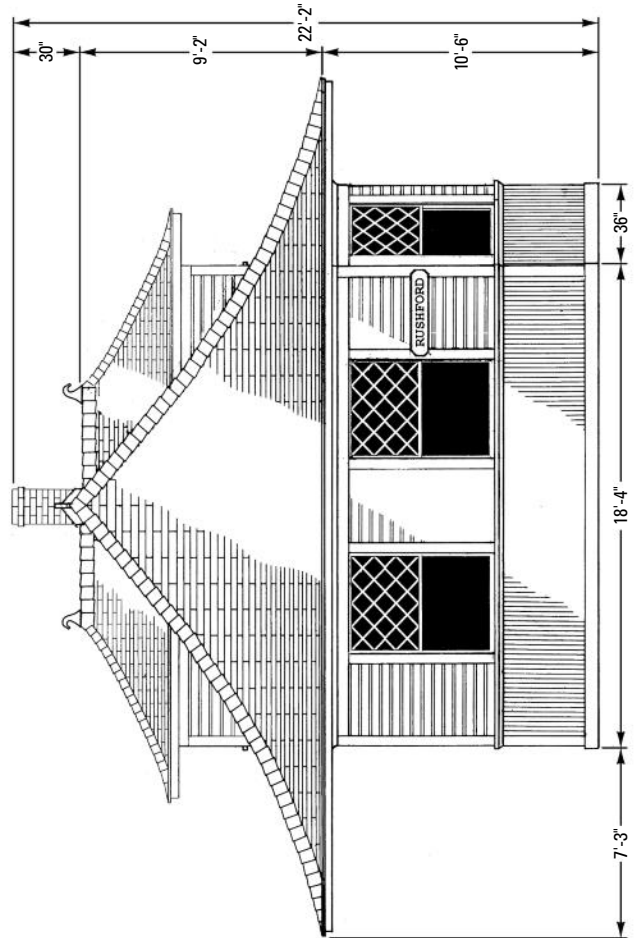
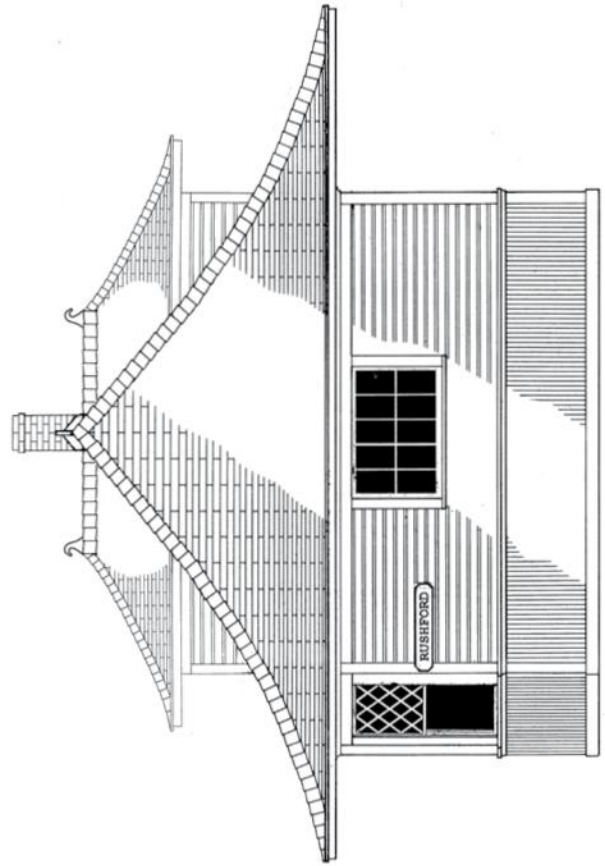
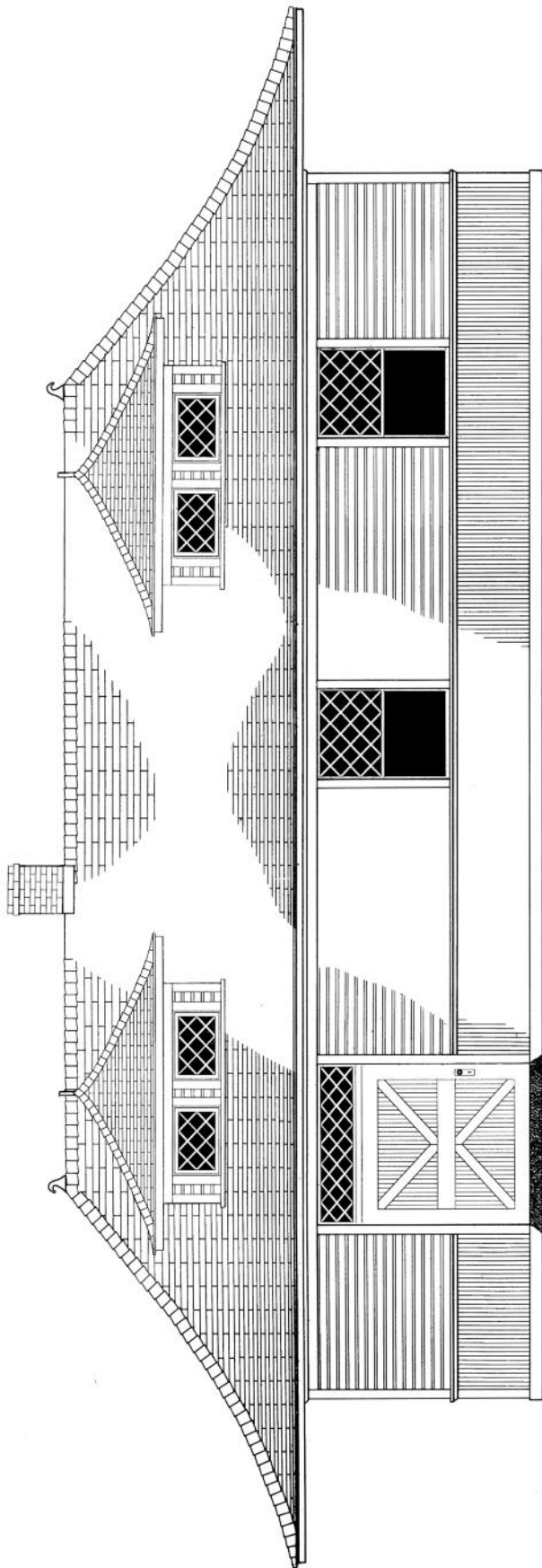
TO CONVERT HO SCALE
DRAWINGS TO YOUR SCALE
COPY AT THESE PERCENTAGES:
N 54.4 percent S 136.1 percent O 181.4 percent



Now on ModelRailroader.com

Registered users of our website can
download these drawings for per-
sonal use. Look under online extras
at www.ModelRailroader.com.







Peter Hall had a Balboa HO scale Southern Pacific Mt-4 4-8-2 brass steam locomotive he wanted to upgrade with Digital Command Control and sound. He replaced the brass tender with an upgraded plastic version from Bachmann.

ADD DCC & SOUND TO A BRASS STEAM LOCOMOTIVE

A plastic tender provides room for a decoder and two speakers

By Peter Hall • Photos by the author

Owners of brass steam locomotive know adding Digital Command Control (DCC) and sounds can be a rewarding upgrade. The variable is the amount of room in the tender. On my Balboa HO scale Southern Pacific class Mt-4 4-8-2, there wasn't enough room to install two speakers and a decoder. So I had to go to plan B.

The Bachmann 16,000-gallon tender is an excellent reproduction of the SP

class 160-C-1 tender. [Bachmann offered the Hicken-style Vanderbilt tender separately as item no. 89912, now discontinued. Models may still be available online and at model railroad swap meets. – Ed.] It comes with a front bulkhead that can be removed to gain access to the inside of the tank. Using this tender seemed like the ideal way to add DCC and sound to my 4-8-2. The project also gave me the opportunity to upgrade the details on this tender.

Remove and replace

First, I removed the tender's front bulkhead. Inside is a flat metal weight, a printed-circuit (PC) board, wiring, and a recess for a small speaker. See **fig. 1**.

Wires for the trucks and backup light are attached to the PC board. Since I wanted to preserve the wires for both, I cut them where they attached to the board, twisted them together, and moved them out of the way. Later, I added a mini-plug to each wire.

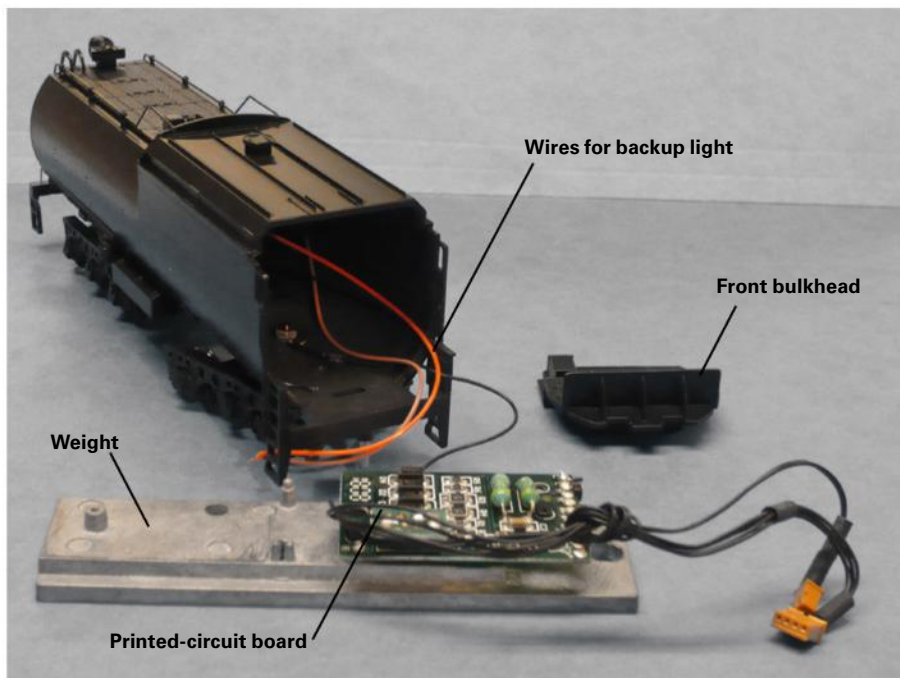


Fig. 1 Out with the old. Peter removed the weight and printed-circuit board from the tender. He saved the wires for the trucks and backup light.

Next, I removed the screw on the bottom of the tank and slid the factory weight out. I also removed the bottom hatch cover to provide better access.

I replaced the weight with a piece of flat $\frac{1}{8}$ " x $1\frac{1}{2}$ " x 8" brass bar stock, as seen in **fig. 2**. The bar has a 32-degree bevel on the two long edges, which matches the curve of the tender sides.

I set the brass inside the tender so I could locate the holes for the screws in the bottom of the tender. The front screw hole is .210" from the leading edge, on center. I drilled and tapped it for a 1-72 screw and re-inserted the plate. With the first screw in place, I located, drilled, and tapped the hole for the rear screw.

The rear of the tender is round. This results in a gap that could have a negative impact on sound quality. To remedy this, I made a semi-circular filler plate from .060" styrene. With the weight in place, I slid the styrene plate in place and glued it to the rear of the tender. The styrene overlaps the weight, sealing the cavity.

Finally, I removed the tender's upper internal ribs. I used a curved scribing tool to score the ribs where they attached to the body. After several passes, I snapped out the ribs with long-nosed pliers.

Modifying the weight

Next, I had to make openings in the brass weight for the two speakers. First, I measured the dimensions of the speaker openings, taking into account that the plastic speaker frames would be glued end-to-end.

Then I located the center line of the tender on the brass plate and the oval speaker openings. The ends of the ovals have a radius of .470". I located the focal point for each oval, and at each point drilled a clearance hole for a pushpin.

I inserted a pin through the plate and tightened it into a piece of wood secured to the drill press base. After I offset the end-mill bit by .470", I started cutting the ovals, as shown in **fig. 3**. By making shallow cuts and multiple passes, I was able to cut an arc in the plate at each end of the oval. I was careful not to let the two arcs connect so the pin would hold the brass in place.

Once I'd removed a sufficient amount of material, I clamped the brass in place

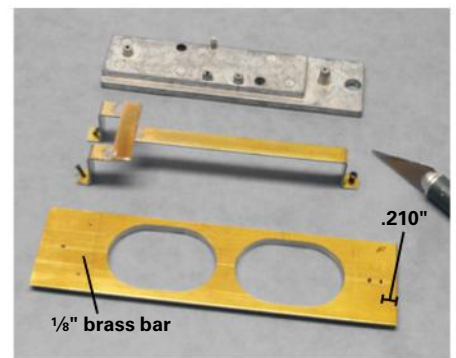


Fig. 2 A new weight. The replacement tender weight is a piece of $\frac{1}{8}$ " brass bar. Peter beveled the long edges to a 32-degree angle to match the curve of the tender's side.

and connected the two arcs with straight passes of the bit to complete the ovals.

Speaker preparation

Next, I glued the two speakers end-to-end on a smooth, hard surface. When the glue was dry, I added .020" x .030" styrene strips on the edges of the speaker face to create a gluing face for the adhesive that will hold the speakers to the brass plate. See **fig. 4** on the next page.

Then, I connected two opposite electrical terminals with a jumper wire, as shown in **fig. 5**. I also filled the screw holes in the speaker plates so no sound would reflect back through them.

With the speakers finished, I drilled holes in the bottom of the tender using an assortment of bits, as seen in **fig. 6**. The pattern maximizes the amount of open space while preserving the strength of the plastic frame.

Truck electrical pick-up system

I decided the tender needed to pick up left-rail power with both trucks. I wired

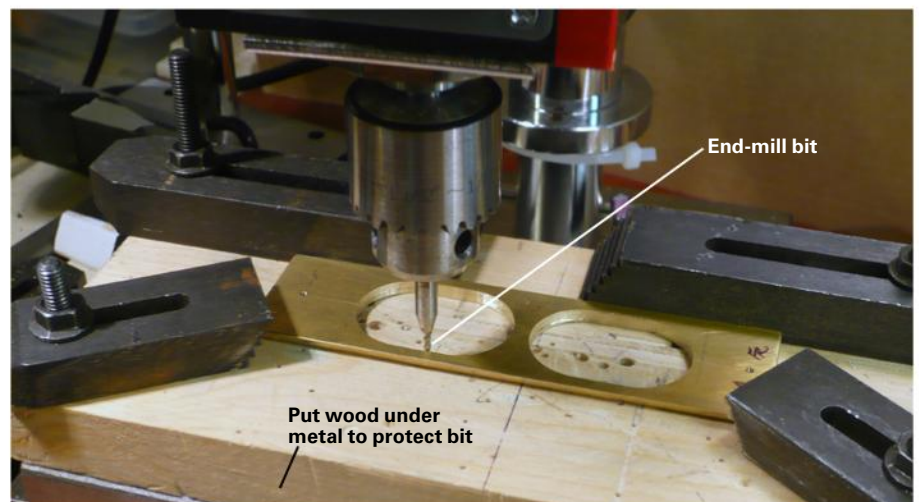


Fig. 3 Cutting ovals. Peter used an end-mill bit in a drill press to cut ovals in the weight for the speakers. He cut through the metal in multiple passes.

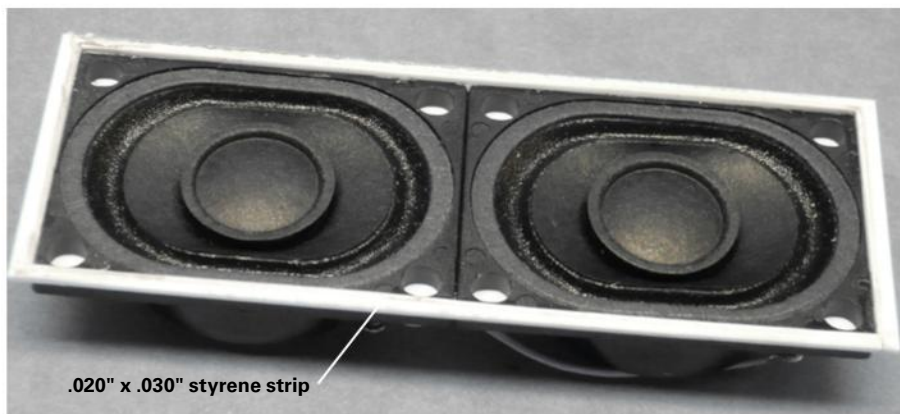


Fig 4. Framing the speakers. A frame made from .020" x .030" styrene strip provides a sufficient gluing surface to attach the speakers to the brass weight.

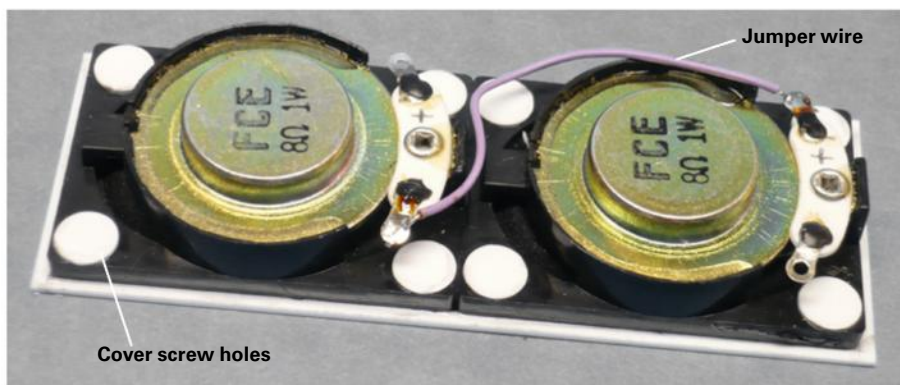


Fig. 5 Last tweaks. Peter added a jumper wire to the opposite terminals on the speakers. He covered the screw holes to prevent sound from reflecting back.

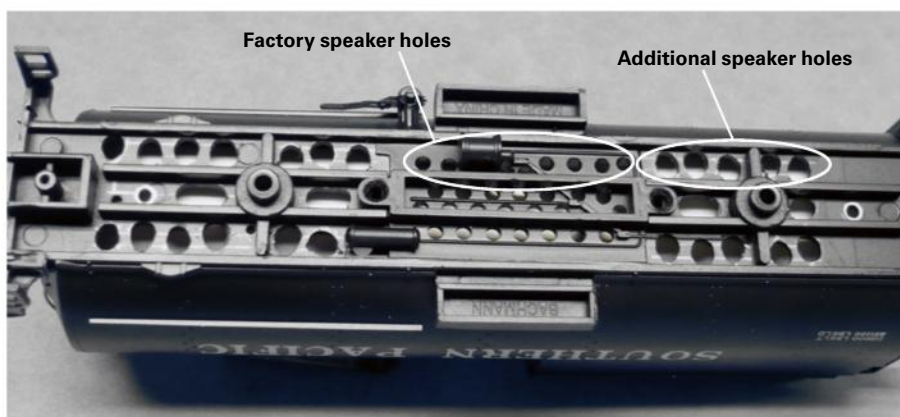


Fig. 6 Let them hear it. To get the most out of the two downward-firing speakers, Peter drilled extra holes in the bottom of the tender.

both pickup tabs together to a single black wire that would be connected to the decoder's black wire, as seen in **fig. 7**, opposite. I added a mini-plug to the wire to make the connection easier. My convention is that the wires from the decoder always have sockets, and the external device have plugs. This reduces the chance that a stray wire from the decoder will contact a power source.

After installing the pickup wire, I attached the trucks to the tender body. This is a bit tricky, as the nut for the rear truck is hard to reach. To simplify the

task, I made a reach rod, as shown in **fig. 8**. The tool is couple of square brass tubes soldered together with a slot in the end. The slot is sized to hold the hex nut while driving the screw from below. I also add a spring between the electrical tab and the nut to improve contact.

I found the two axle wipers tend to stay in one position regardless of how the truck turns. This occasionally results in the wipers being off-center and not making good contact.

To fix this, I drilled and tapped two locations on each truck for a

1.4mm x 2mm screw on either side of the front wiper. See **fig. 9**. These screws hold the wiper perpendicular to the two outer axles of the truck. Be careful that the screws don't keep the wiper from contacting the axle.

Installing the decoder

The space over the speakers will hold the decoder, but I wanted to keep it off the backs of the speakers. To do this, I built a bracket from .015" brass strip, as shown in **fig. 10**. At the rear, the bracket has to clear the light-emitting diode (LED) that's mounted on the back bulkhead, hence the Y-shaped design.

With the bracket ready, I glued the SoundTraxx speakers to the frame with silicone sealant. I mounted the bracket to the plate with 1.4mm x 4mm screws (rear) and a 2.0mm x 4mm screw (front).

Then I added the SoundTraxx decoder and began soldering the wires. I added sockets to the decoder's wires to mate with the wires from lights and the motor. I used Miniatronics 2-and 3-pin Micro Mini connectors between tender and locomotive. I covered all the solder joints with heat-shrink tubing. I used electrical tape to secure the decoder to the bracket, and to secure the decoder's capacitor to the bracket [the capacitor keeps locomotives running during brief power interruptions. – *Ed.*]. Then, I soldered the two purple wires to the speakers. See **fig. 11**.

The final step is installing the brass weight and electronics inside the tender shell. I connected the black wire socket to the truck pickup plug and the yellow/blue sockets to the orange/brown from the rear light LED (the orange wire is the common). Then I slid the assembly into the tender body, folding the wire carefully to prevent kinks or breaks. I wrapped the unused wires and tucked them into a piece of heat-shrink tubing.

I cut two rectangles in the lower corners of the front bulkhead to run the Micro Mini connectors from the tender to the engine, as shown in **fig. 12**. Then, I reattached the front bulkhead and connected the tender to a previously converted GS-4 locomotive. It worked! The sound was loud and deep.

Installing a can motor

Now it was time to convert the MT-4 locomotive to a can motor. I used a NorthWest Short Line no. 20324-9 with an 18mm brass flywheel, as seen in **fig. 13** on page 40. The motor sits in a brass cradle in a bed of silicone. I drilled and tapped a hole in the bottom of the cradle for a 4-40 screw. I also added a

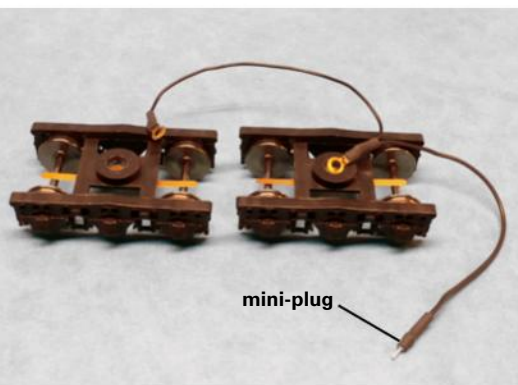


Fig. 7 Electrical pickup. Peter added left-rail electrical pickup to both trucks with a single wire. The mini-plug attaches to the black wire on the decoder.

torque arm to fix the relative position of the motor and gearbox. The existing gearbox wasn't noisy, so I kept it.

The flywheel had to be turned to clear the rear driver leaf springs on the frame. I did this with a small lathe. Since I completed this installation, I now put the red (engine frame) wire on the center of the Miniатronic three-wire harness, leaving the orange and gray wires to the outside. This way there's no chance that a stray current will get to the decoder by mistake.

Next, I attached the plug end of the Miniатronics 2-pin Micro Mini connector to the headlight wires. I used the proper resistor values for the 1.5 volt headlight, covered the joints with heat-shrink tubing, and threaded the wires between the top of the boiler and the frame that holds the weight in place.

I milled a slot in the weight for the new torque arm. I secured the wiring with a piece of electrical tape, and left enough extra wire in the back end of the locomotive so the wiring would be a comfortable fit when the tender was connected.

I also made one cosmetic repair to the locomotive. I installed a new blow-down muffler that had been missing on the engineer's side. See **fig. 14**.

Tender details – sides and ends

Now that the mechanical part of the modification was completed and working properly, it was time to make some cosmetic improvements. The detail on the Bachmann tender is good, but not correct for the SP.

The steam, air, and signal lines are cast into the tender frame just above the trucks. I wanted to add the steam and air connections to the rear, as well as the piping leading to them, so I stripped off the molded piping and rerail frogs. The

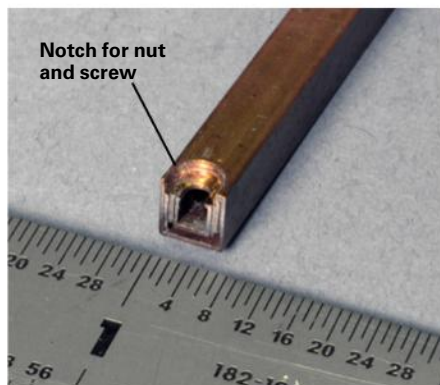


Fig. 8 A homemade fix. To hold the nut that secures the truck screw from inside the tender, Peter made this tool. The end is notched to hold the nut and provide clearance for the screw.

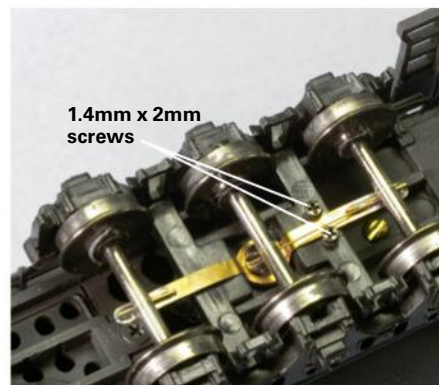


Fig. 9 Wiper fix. The wipers would occasionally get off center and not make good contact with the axles. To remedy this, Peter put a 1.4mm x 2mm screw on each side of the front wiper.

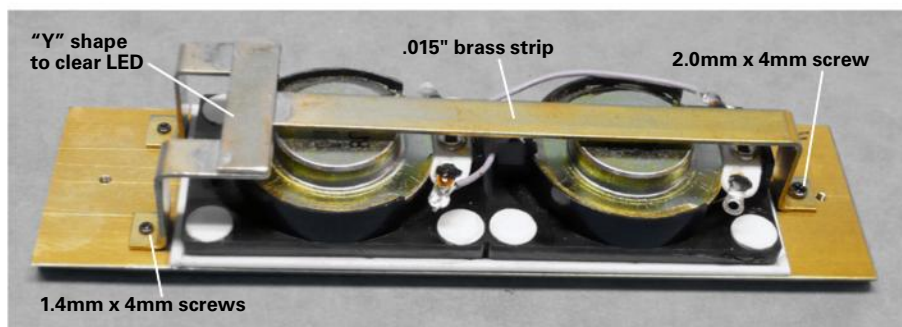


Fig. 10 Decoder bracket. Peter made this bracket from .015" brass strip to keep the decoder of the backs off the speakers. The "Y" shape is necessary to clear a light-emitting diode at the back of the tender.

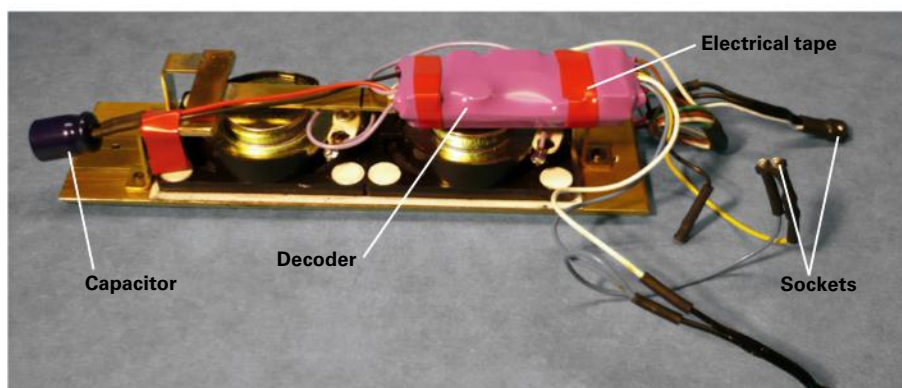


Fig. 11 Installing the decoder. The decoder is attached to the .015" brass strip with electrical tape. The sockets attached to the decoder's wires connect with pins attached to the ends of the wires for the lights and motor.

easiest and most accurate way to do this is to use a horizontal mill attachment in a drill press, as shown in **fig. 15**.

Then I made a new steam line from .047" wire. I bent the wire in a series of complex curves at the rear to mate with a Cal-Scale no. 274 steam hose casting. I used a large union and hard solder to join the line to the casting at the union.

The steam line runs behind the tool box on the left side of the tender. I used .010" x .030" flat brass to make six brackets to hold the line in place. I bent



Fig. 12 Running wires. Peter cut notches in the bulkhead for the wires that run from the tender to the engine.

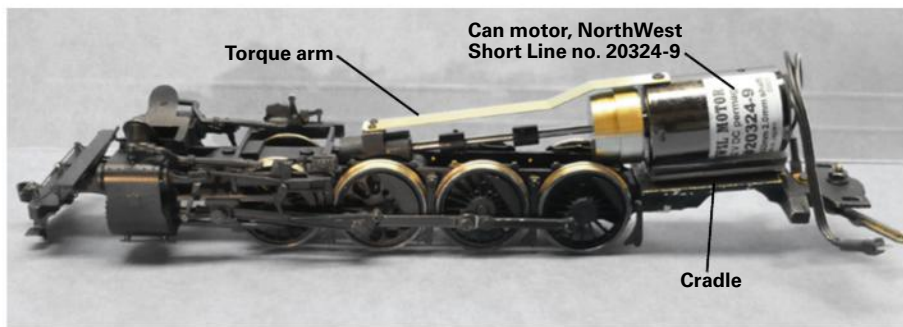


Fig. 13 A shiny new motor. A can motor replaced the original motor. Peter added a torque arm to fix the relative position of the motor and gearbox.

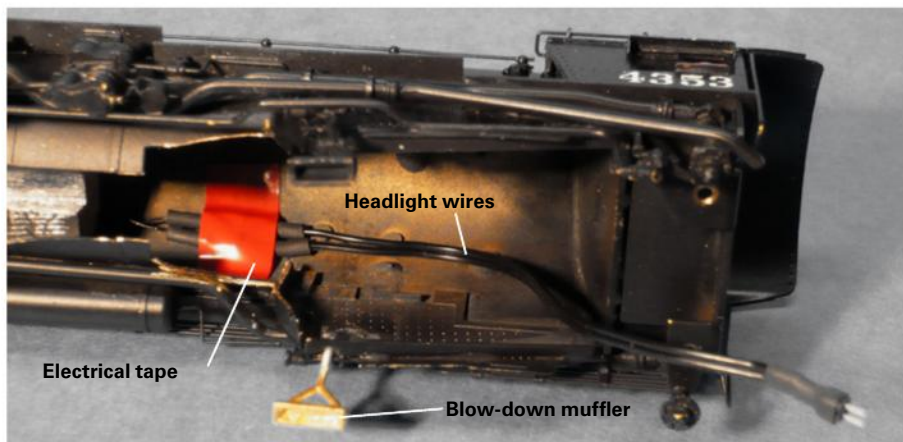


Fig. 14 Under the shell. Peter used electrician's tape to secure the headlight wires to the bottom of the locomotive shell. He also added a blow-down muffler when the shell was removed.



Fig. 15 A close shave. Peter removed the molded piping and rerail frog with a horizontal mill attachment in a drill press. The drill press should be run at low speed to avoid melting the plastic.

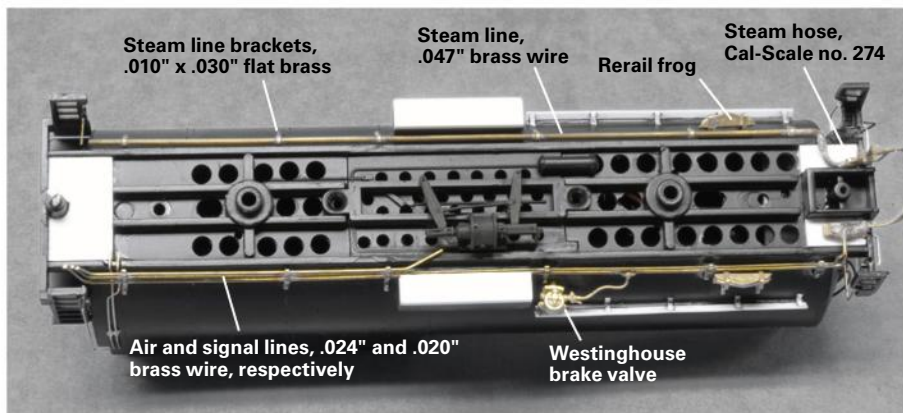


Fig. 16 Details galore. Separately applied details enhanced the Bachmann tender. Peter used commercial castings and wire to add the side and end details.

the top of each bracket to conform to the tender body, and drilled a hole and soldered a piece of .015" wire. This was inserted into the tender wall and serve as an attachment point for the brackets.

The air and signal piping runs along the right side of the tender frame. I made these pipes from .024" (air line) and .020" (signal line) brass wire. I formed the lines to mate with the Cal-Scale no. 274 casting that holds the air and signal lines at the rear of the tender.

I created six piping brackets for the lines, and drilled holes in the tender body at the proper locations to hang the piping as before. It's important that these new pipes do not interfere with free movement of the wiring harnesses at the front of the tender.

The Westinghouse brake valve and rerail frogs were mounted in a similar manner. Two lines for the retainer were added on the front right side wall, as seen in **fig. 16**.

I couldn't find suitable brackets for the piping runs, so I built my own. To make brackets for the air lines, I made a die into which I could press the .010" x .030" flat brass. I milled four parallel grooves into a piece of brass bar .050" apart, then soldered four strips of .020" wire into the grooves. This created three parallel valleys. See **fig. 17**.

Then I laid three strips of .020" wire into the valleys and soldered one end to a scrap of brass stock. This created three parallel ribs to press into the valleys.

Then I folded a length of .010" x .030" flat brass over one of the wires and laid the "sandwich" on top of the valleys. I put a length of .250" steel rod with a flat surface into the drill press to use as a ram, and pressed it down on top of the brass strip, crimping the strip around the rods and creating the brackets.

Finally, I drilled holes in the end of the strips and soldered short bits of .015" wire into them to attach the frogs and line brackets to each side above the new piping. In order to drill the holes in exactly the same place in each bracket, I built a small jig out of styrene.

Tender details – roof

Next, I replaced the handrails at the front sides of the tender with .020" wire. I installed a new handrail on the rear bulkhead and three on the forward bulkhead as well.

I was unable to find prototype photos that showed two long angles on the top of the oil tank, so the middle two had to be removed. I carefully sliced them off with a sharp flat blade and smoothed the

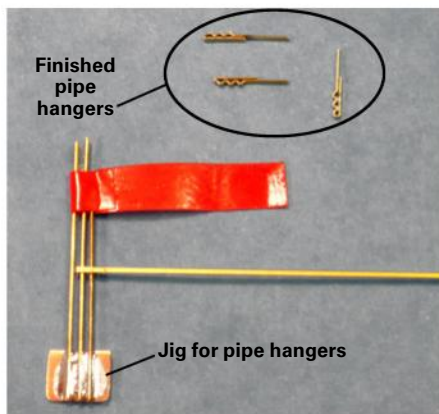


Fig. 17 Pipe hangers. Peter made a jig to form the pipe hangers for the sides of the tender. He used a piece of .250" steel rod in a drill press to stamp the .010" x .030" flat brass over the jig.

area with progressively finer sandpaper from 220 to 800 grit.

Then I worked on the horizontal handrails connected to the rear of the oil tank bulkhead. I attached the front of each handrail to the back of the bulkhead. I re-formed the handrails to a flat profile and inserted them into new holes in the back of the bulkhead.

Between these two handrails are four angled support brackets between the water tank deck and the back of the oil tank. I used a hole punch to make these from .015" styrene sheet, and glued them in place.

The water tender platform also needed improvement. I found a Precision Scale Models brass tender platform casting would fit perfectly. I clamped the tender again, milled away the existing hatches from the tender, and installed the new casting.

I next added an oil tank dip stick and a couple of small oil tank heater lines, with valves, at the front of the oil tank, as shown in **fig. 18**.

The last part of the conversion was edge-gluing styrene to the water guards. I used three flat strips under the water guard to hold them in place.

I removed the factory-applied SOUTHERN PACIFIC lettering because it was one size too small. After I painted the tender body, I lettered it with decals from Microscale set no. 87-75.

Star of the show

Finally, I reassembled the locomotive and tender and connected them. The locomotive performs well with the new motor, and the sound emanating from the tender is excellent.

If you have brass steam locomotives sitting on the sidelines waiting to be

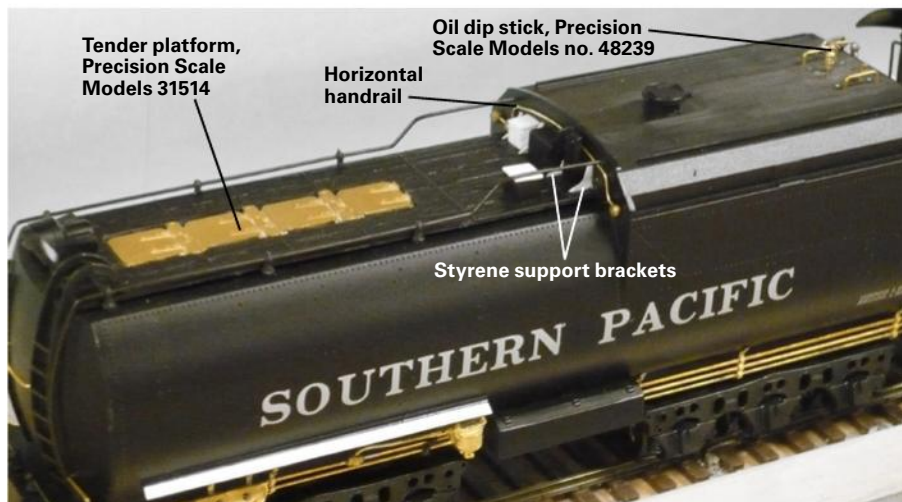


Fig. 18 On the deck. Peter didn't overlook the tender deck. He added new hatches, brackets, and more to enhance the plastic tender.

Materials list

Bachmann

88912 Southern Pacific tender

Cal-Scale

274 steam hose

Evergreen styrene

121 .020" x .030" strip
132 .030" x .040" strip
9015 .015" sheet
9060 .060" sheet

Miniatronics

18C0310 1.5V, 30ma miniature lamp
50-001-02 2-pin connector
50-003-01 3-pin connector

K&S Corp. brass shapes

8151 1/8" square
8154 7/32" square
9886 3/16" channel

NCE Corp.

211 8-pin plugs

NorthWest Short Line

406-6 18mm flywheel
1144-5 1.4mm x 4mm screws
1204-5 2.0mm x 4mm screws
20324-9 can motor

Precision Scale Models

3022 SP-type blow-down muffler
3446 Westinghouse brake valve
31269 Buda rerail frogs
31514 tender tank platform
48239 oil tank dip stick

RadioShack

2711115 470Ω, 1/2 watt resistor
2711321 1,000Ω, 1/4 watt resistor

SoundTraxx

810112 25mm x 14mm speaker (2)
86002 Tsunami heavy steam decoder

Wm. K. Walther's Inc.

1022 1-72 screws
1118 4-40 screws

Miscellaneous

1/8" x 1 1/2" x 8 brass bar stock
5/32" brass channel
.010" x .030" flat brass
.015" brass strip
.015", .020", .024", and .047" brass wire
.250" steel rod
electrical tape
heat-shrink tubing (1/16", 3/64", and 3/32")

upgraded with DCC and sound, give these techniques a try. With a bit of extra detail work, you can make the plastic tender look just as good as the brass locomotive pulling it. [MR](#)

Peter Hall is a native of San Francisco. He enjoyed Lionel and Märklin before set-

ting on the Southern Pacific Coast Line in 1947 in HO scale. Pete's working career spanned 45 years, starting with the U.S. Navy Submarine Service and ending with 20 years as Director of Safety with Amtrak. Pete is married with two adult sons. This is his third Model Railroader byline.



After members of the Northern Virginia Model Railroaders club collected examples of all 20 Norfolk Southern heritage units, Doug Kirkpatrick built this HO scale diorama of the roundhouse at Spencer, N.C., to re-create the scene when the prototype units were gathered in 2012.

BUILD A PROTOTYPE SETT

A club member answers a challenge to build a diorama of the roundhouse at the North Carolina Transportation Museum

By Douglas Kirkpatrick • Photos by the author unless noted

To celebrate the 30th anniversary of the merger of the Norfolk & Western with the Southern Ry., the Norfolk Southern honored many of the railroads that make up the present day NS system by painting locomotives in the original paint schemes of the merged railroads.

All 20 of the heritage locomotives were brought to the Robert Julian Roundhouse in Spencer, N.C., over the July Fourth



ING FOR A HERITAGE FLEET

holiday in 2012 for a family photograph. This once-in-a-lifetime photograph has been published in many magazines. Model manufacturers have now produced all 20 heritage locomotives in HO scale. [In N scale, Kato has produced replicas of the Electro-Motive Diesel locomotives, and Fox Valley Models has produced the General Electrics. – Ed.]

At the Northern Virginia Model Railroaders club, a challenge was presented

by Edward Rosenberg to fellow members to acquire all the heritage locomotives to replicate the Norfolk Southern photo. With the final unit purchased, I volunteered to build a diorama of the Spencer roundhouse to position the locomotives for photographs to re-create the scene. [The Northern Virginia Model Railroaders club layout was featured in the February 2016 issue of *Model Railroader*. – Ed.]

Scoping out the dimensions

The Spencer roundhouse has 37 stalls and sports a 100-foot turntable. Much can be learned from analyzing the Spencer complex that's directly applicable to model applications.

Southern Ry. management wanted as many stalls around the turntable as possible. Designers placed the roundhouse tracks just touching each other around the pit rim. This requires the



The Norfolk Southern heritage units gather at the Robert Julian Roundhouse at Spencer, N.C., in July 2012. Brent Lane photo

roundhouse to be positioned almost 100 feet from the rim to allow sufficient width at the roundhouse doors to clear a locomotive.

The dimensions of the Spencer roundhouse complex allowed each heritage locomotive to be positioned outside the roundhouse and still have clearance off the turntable. This was accomplished by placing each locomotive on every other roundhouse track.

I built only what's seen in the prototype pictures to minimize both the physical size and time required to build the diorama. The diorama is 48 inches wide and 50 inches deep.

Base and turntable pit

Since this is a one-of-a-kind and one-time-use model, I constructed the base from extruded-foam insulation board with 1 x 2 pine for support (see **fig. 1** on the next page). I then covered the foam with a thin coat of joint compound, followed by a coat of tan latex paint.

Finding the center of the turntable is critical to laying out all the tracks. I started with the roundhouse track directly across from where the photographer took the prototype photo and worked around the pit in both directions. I made sure all track centerlines were established before cutting out the turntable pit so the key center point of the table wouldn't be lost.

The foam board is $\frac{3}{4}$ " thick, which is too shallow for the pit. I glued $\frac{1}{4}$ " plywood spacers around the bottom of the pit before attaching foam board to the

bottom of the opening. Joint compound covers the bottom of the pit.

To represent the smooth concrete pit wall, I cut strips of .020" thick styrene the height of the pit. I joined several strips together to form a circle. I used basic geometry to find the length of the wall, which is the circumference of the circle. With a 100-foot turntable, that's πD , or $3.14 \times 100 = 314$ scale feet.

I used $\frac{1}{8}$ " styrene angle to represent the metal lip around the top of the turntable pit. With the prototype photograph as a guide, I replicated the weathering in the bottom of the pit with paint.

Using a NorthWest Short Line Chopper, I cut scale 2-foot-long wood ties to support the turntable pit rail. I made a thin wood spacer with the curvature of the pit wall to align several ties at once around the pit. After painting the pit rail, I glued it in place on top of the ties, shown in **fig. 2**.

Fabrication of the turntable bridge

Since this is a static diorama, the turntable isn't powered, but does have to accurately depict the prototype and hold a locomotive in place.

From a close-up view of the prototype table, I counted 25 railing posts per side mounted to 15-foot-long, or longer, railroad ties. I laid out the dimensions of the turntable on paper taped to a piece of glass to provide a flat surface.

I divided the length of the table into 25 equal sections. Using a pin drop of white glue, I attached a 15-foot-long tie at 23 of the marks. On one end, I added

longer ties cut to support the small operator's cabin.

Once all 25 ties were in place, I glued two 6 x 12-inch runners the length of the turntable directly below where the tracks will be attached. Once dry, I removed the assembly by running a sharp knife between the ties and paper. I flipped the section over and filled in the spaces with 10-foot-long ties.

I added rails and four rows of planks along both sides of the track and one down the middle. The completed assembly is shown in **fig. 3**.

I fabricated the railing posts from scale 4 x 4-inch stripwood and drilled two holes in each to accept brass rods to simulate the lower railings. I used more 4 x 4 inch stripwood for the top railing. I painted the top railing yellow before attaching it to each post. The operator's cabin was made from sheet styrene.

I used $\frac{1}{4}$ " foam core board shaped in the form of plate girders to simulate the turntable bridge. I wanted to have the ability to rotate the table manually, since several of the prototype photographs show the table in slightly different positions.

Track work

After studying the prototype photos, I noticed all of the ties for the lead tracks were covered in ballast up to the top of the rails, which makes the modeling much easier. Today's Spencer roundhouse has been modified for museum purposes, including the removal of many tracks leading to the original stalls. Also,

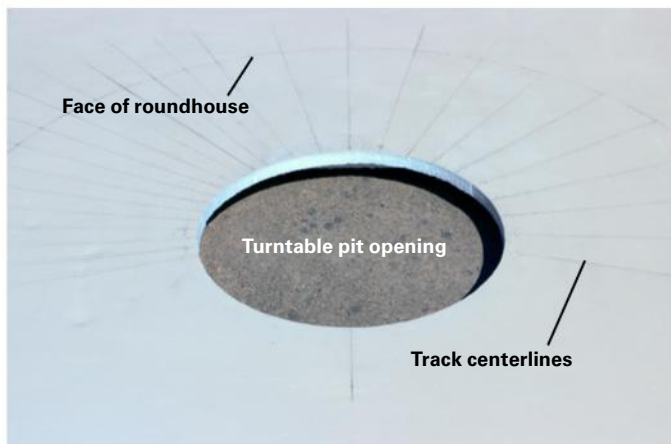


Fig. 1 Foam foundation. Several sections of foam board are supported by 1 x 2 pine. All of the lines were set by the center of the pit opening, so that was removed last.

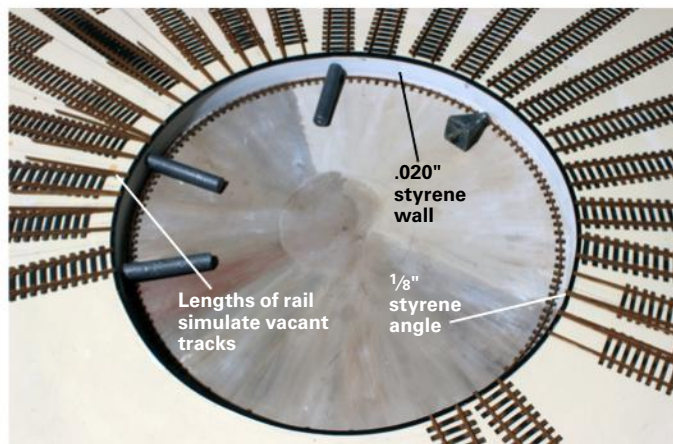


Fig. 2 Putting the rail in the pit. The pit rail is being installed on top of shortened ties. The bottom of the pit was weathered to match prototype photographs.

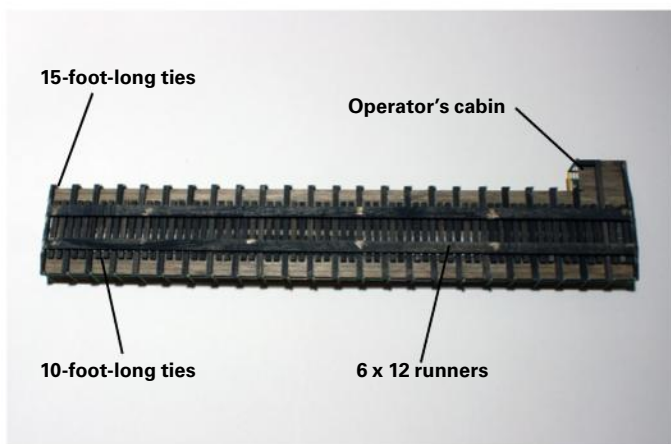


Fig. 3 Turntable construction. The underside of the turntable bridge shows the tie configurations that support the railings and operator's cabin.

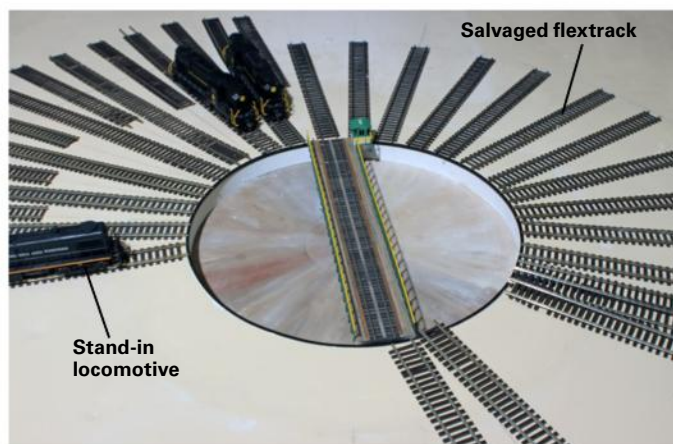


Fig. 4 Checking the fit. Roundhouse tracks are placed temporarily around the pit opening. The locomotives are positioned to ensure head-end clearance.

several of the stalls have been converted to office space with doors and windows.

I carefully identified which tracks held a locomotive and which tracks were left vacant. I used salvaged flextrack cut to length to hold each locomotive, shown in **fig. 4**. Since the locomotives hide the adjacent unoccupied track except for several feet near the turntable, I soldered small lengths of rail to each occupied track. When assembled around the turntable, the illusion is that a track exists for each stall. I also added small sections of track into the roundhouse when they were visible in the photograph.

On the right side of the photograph, I modeled the three approach tracks that service the turntable, since two of the locomotives were staged there. I painted the rails a rust color, not concerned if paint stained the ties since ballast covers the entire area. I glued the track to the foam using a small bead of clear caulk.

With rails in place, I spread ballast over the entire area and used scenic cement to hold it in place.

Fabricating the roundhouse

I used styrene to build the roundhouse because it's easy to cut and assemble. My approach was to design and build a single stall frame made up of the left side and top. Then using the single-stall frame, I constructed a wooden jig as a guide to make 36 additional units (see **fig. 5** on the next page).

Using a Chopper or small miter box and saw, I fabricated individual styrene pieces for each of the stalls. The secret to getting all the individual pieces cut to the same dimension is to set a stop and not move it until all the pieces have been cut.

Once I had all the components, I assembled each frame stall. The prototype stalls that haven't been enclosed with windows and doors have mechanical roll up doors, except the last five stalls on the right, which have traditional double roundhouse doors with significant trim work. The different configurations are shown in **fig. 6**.

I selected the middle of the roundhouse to be the first stall attached to the

base. It included a dual window. The stall also had an interior wall on the left side that allowed the unit to be held perpendicular to the base while positioning it to the track centerline. I used clear caulk to attach each stall to the base.

I then worked my way toward each end. As I attached each successive stall, I made sure it aligned itself exactly with the center of the track. This sometimes required sanding the edge of the stall to obtain the correct distance. If I hadn't take this precaution, 16 stalls later I could've been off significantly in the alignment with the track.

Once all 37 stalls were installed, it was apparent just how much room is required. For the open stalls on the left where the inside of the roundhouse is visible, I used joint compound to "pour" the concrete floor (see **fig. 7**). Before the first application could harden completely, I used a metal rule to make flangeways on the inside of each rail. A second top coat was required to completely level the floor.

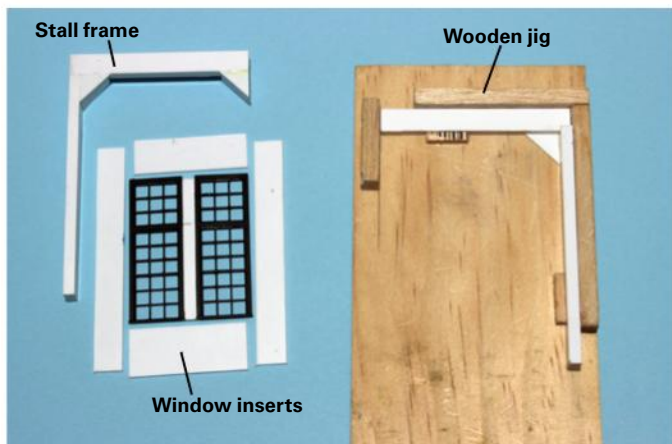


Fig. 5 Build a little jig. A fixture is used to replicate the 37 front frames of the roundhouse. This ensured all of the sections were the same size.

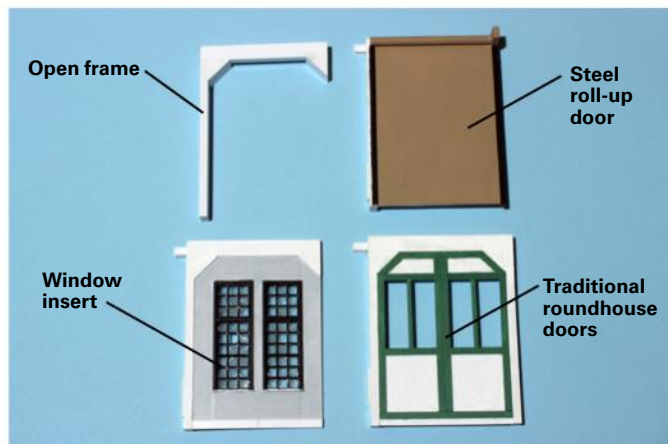


Fig. 6 Four stall configurations. Four different stall designs were required, ranging from a simple open frame to mechanical roll-up doors.

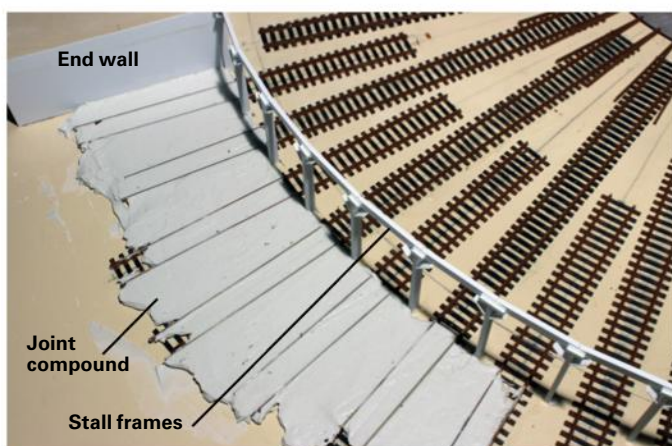


Fig. 7 Paving the floor. Starting from the center track, the roundhouse walls were attached to the base and to each other. Joint compound simulates the concrete floor.

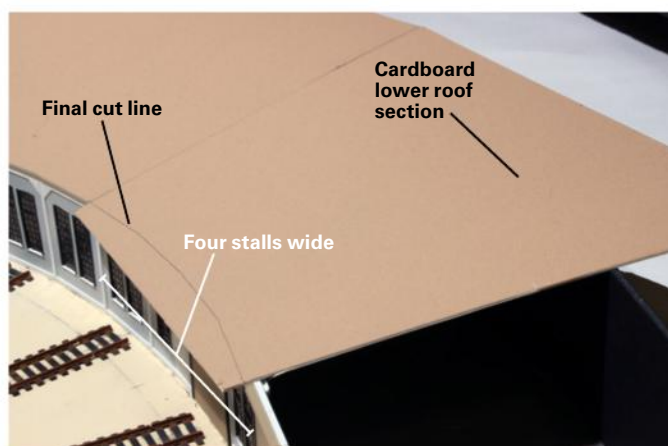


Fig. 8 Fitting the roof. A section of lower roof is test-fitted to determine the amount of overhang on the front wall. The pieces are four stalls wide to control warping.

Only the front sections of the roof were required for the purpose of the photograph. I fabricated a back wall from black foam core board with a height slightly taller than the front to create the correct slope for the roof. Because the roof is semicircular and slopes, a single roof section can't be cut from cardboard without it buckling in the middle. Therefore, I made several individual roof sections that cover four stalls at a time. This minimized the buckling without having to make individual roof sections for each stall.

I made a paper template for the first section, leaving additional overhang in the front of the roundhouse for the final trim. I then transferred the dimensions to a large sheet of cardboard. After cutting out the roof section, I placed it on the roundhouse and marked the front underside for an exact fit (see **fig. 8**). I kept track of which roof section went where on the roundhouse because there were slight variations in the wall location.

Again, I started in the middle, glued on each roof section, and worked toward the ends. After the lower roof was installed, I painted it with Rust-Oleum white enamel and covered it with fine sand (see **fig. 9** on the next page) to produce a gritty texture and to hide any of the seams. I waited 24 hours before removing the excess sand and painting the roof the final light gray color.

The roundhouse end walls are just barely visible in the photo, so sheet styrene covered with brick paper sufficed (see **fig. 10**).

I found windows that closely resemble the upper clerestory windows, all 108 of them, from Tichy Train Group. I used various styrene strips to fabricate an individual unit of four windows with the correct spacing between each window (see **fig. 11**).

The length of a unit is determined by selecting the edges of a single stall and drawing lines on the roof from the center of the turntable, forming a pie-shaped outline. I measured back 40 scale feet

from the front of the roundhouse and then measured the distance between the two lines.

I painted the windows black before assembly and scraped the excess paint off the sides to ensure a solid joint with the styrene. Since not all the windows would be in the photo, I only needed to build 27 of the 37 units.

I cut small plastic triangles for braces on the back of every other window unit to ensure the windows were vertical when attached to a sloping roof, shown in **fig. 12**. The prototype photo shows four of the window units have shades.

I used black foam core board for the upper rear wall. Since the roof is peaked, the back side of the roof would not be photographed. I used the same approach for finishing the top roof as for the lower section.

Details and background

A study of the photo shows the museum tried to minimize any tripping hazards, which included spreading

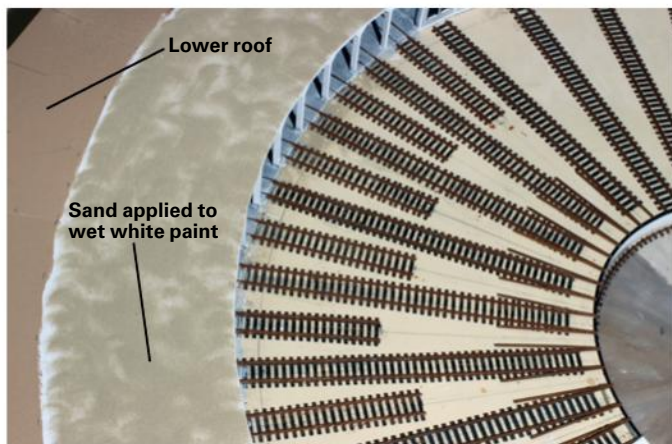


Fig. 9 Gravel roof. A coat of white paint has been applied to the roof, and while wet, fine sand was sprinkled over it for a textured surface.

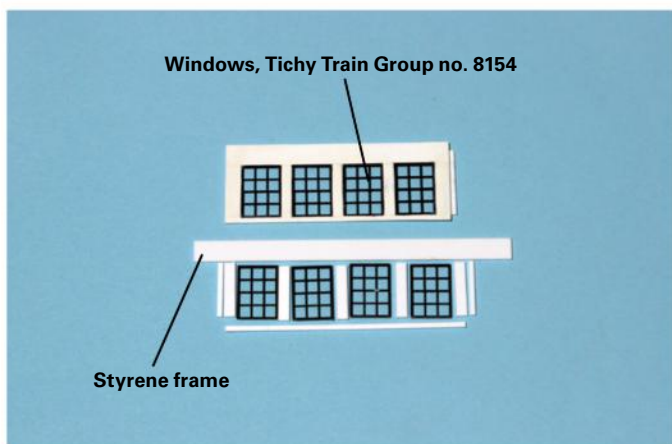


Fig. 11 Clerestory windows. Individual groups of four windows are combined to form the clerestory windows along the top of the roundhouse.

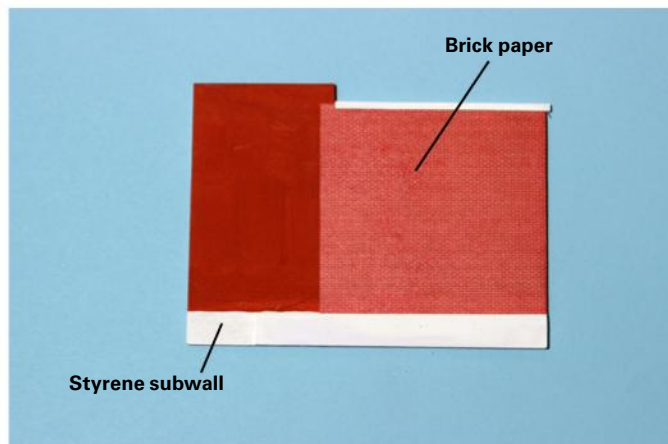


Fig. 10 Brick paper walls. The roundhouse end walls are made from styrene and covered with brick paper. Only a small length was required.

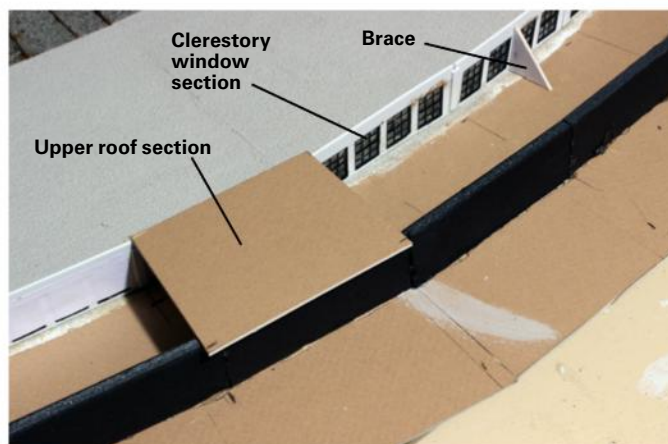


Fig. 12 Window installation. Clerestory windows are attached to the lower roof with vertical bracing installed and a section of the upper roof test-fitted.

ballast over the entire area up to the rail height. There's a prominent sidewalk in front of the turntable pit. I used .030" thick styrene sheet to duplicate it.

I sketched one side of the walkway onto the styrene sheet and removed the material with scissors and a hobby knife. I then used a compass set at 4 scale feet wide to scribe a line for the other side of the walk. I scribed expansion joints in the sidewalk with a dull hobby knife. I used joint compound in front of the sidewalk to replicate poured concrete. Yellow posts and chains were installed around the front of the turntable pit.

I added several roof vents as shown, and positioned two pieces of rolling stock in stalls number 8 and 9 on the left. Since only the very end of each car is visible, I found an old box car and painted each end the corresponding color. I then removed the middle section of the box car with a band saw, and positioned each half at the doorways.

In addition to the photo with this article, I also wanted to duplicate a photo

that shows the countryside behind the roundhouse. I purchased a water tank kit by Walthers and painted a backdrop on a sheet of 1/4" plywood. But after reviewing the results, I decided to forgo the background I struggled to paint. Instead, I used photo-editing software to paste the Spencer background into the model.

Final photographs

Norfolk Southern published several photos of the original event. In addition to one at an angle that included a portion of the Spencer countryside, I made one at a much higher angle. I used an 18-55mm zoom lens with a digital SLR camera to take the photographs. I took the photos in my garage with photo floods, as well as outdoors, shown in **fig. 13**, noting that the original photos were taken on July 4 at midday.


I believe the final scene truly captures in HO scale the celebration in Spencer, N.C. I was also relieved when I had all of the locomotives safely returned to their owners. 



Fig. 13 Project with its inspiration. Edward Rosenberg, who presented the challenge to re-create the scene at the Spencer roundhouse, lends scale to the completed diorama.

Doug Kirkpatrick has been an HO scale modeler since 1965 and a member of the Northern Virginia Model Railroaders for 40 years. His HO scale Virginia & Western was featured in the May 2008 MR. Doug is retired from NASA and lives with his wife, Lorraine, in Falls Church, Va.

A space-saving urban track plan



A Maine Central U18B leads a freight through Bangor, Maine, in this 1983 photo. Although set 20 years earlier, Paul Boehlert's Central Maine RR took inspiration from similar urban New England scenes. Doug Boyd photo, Tom Hoffmann collection

The HO Central Maine RR packs plenty of action in less than 4 x 8 feet

By Paul Boehlert

What's a model railroader to do if he or she is strapped for layout space? For situations where even a 4 x 8-foot layout is too big, I present the Central Maine RR. This HO scale track plan offers a lot of modeling and operating potential in 39 x 80 inches. I designed the track plan with off-the-shelf components and simple benchwork in mind. This makes it an ideal track plan to use for a first layout beyond a starter set loop.

My inspiration for the track plan is the Maine Central RR in an urban setting, such as Portland, Maine, during the late 1960s, when four-axle diesels and 40-foot boxcars were still common. Readily available models of the relatively short locomotives and rolling stock

could easily negotiate the HO scale railroad's tight curves.

I set the freelanced track plan in the fictional city of Falmouth, which was the Colonial-era name of Portland. The scenery and structures could easily be adjusted to fit a variety of locales or time periods.

Easy to build

Although the layout could be easily build with traditional L-girder benchwork topped with plywood, I designed the track plan's footprint (39" x 80") to fit atop two hollow-core door slabs placed edge-to-edge. When I built my version of this layout, I used a 24" wide interior door and one 15" wide panel of a 30" wide bi-fold closet door.

The Central Maine could easily fit in the corner of a room with two sides

against the walls. Since hollow-core doors are self-supporting, mounting two more of them on edge would also work well for the backdrops along the two walls.

Keeping the beginner in mind, I designed the layout to use mainly sectional track from Atlas and Peco. Most of the flextrack used is on relatively straight sections, which would provide a good opportunity to try out tracklaying techniques without having to worry about curve radii. A list of track components is on page 50.

Industrial track is usually on lower profile ballast or at ground level. For this layout, I suggest laying the track on N scale roadbed or directly on the foam scenery base. All the turnouts on the plan are within an easy arm's reach, so




The author's version of the Central Maine RR fits in the corner of a room. The benchwork is 2" thick extruded-foam insulation board on two narrow hollow core doors. Paul Boehlert photo



In the 1960s, Alco RS-3 diesels were workhorses on the Maine Central. Relatively short four-axle diesel locomotives, such as an RS-3, would work well hauling freight on a compact layout like the Central Maine. George F. Melvin photo

An N scale option

This track plan could also easily be converted to N scale. Built in the same layout footprint, an N scale version would lengthen the mainline run and provide opportunities to add more industries. With more room, more than one train could also be run at a time.

Whatever the scale, small layouts offer many benefits. A model railroad such as my Central Maine can be completed in a reasonable amount of time, and doesn't require a great deal of space or resources. I hope this compact track plan inspires you to build your first model railroad. 

Track materials list

Atlas code 83

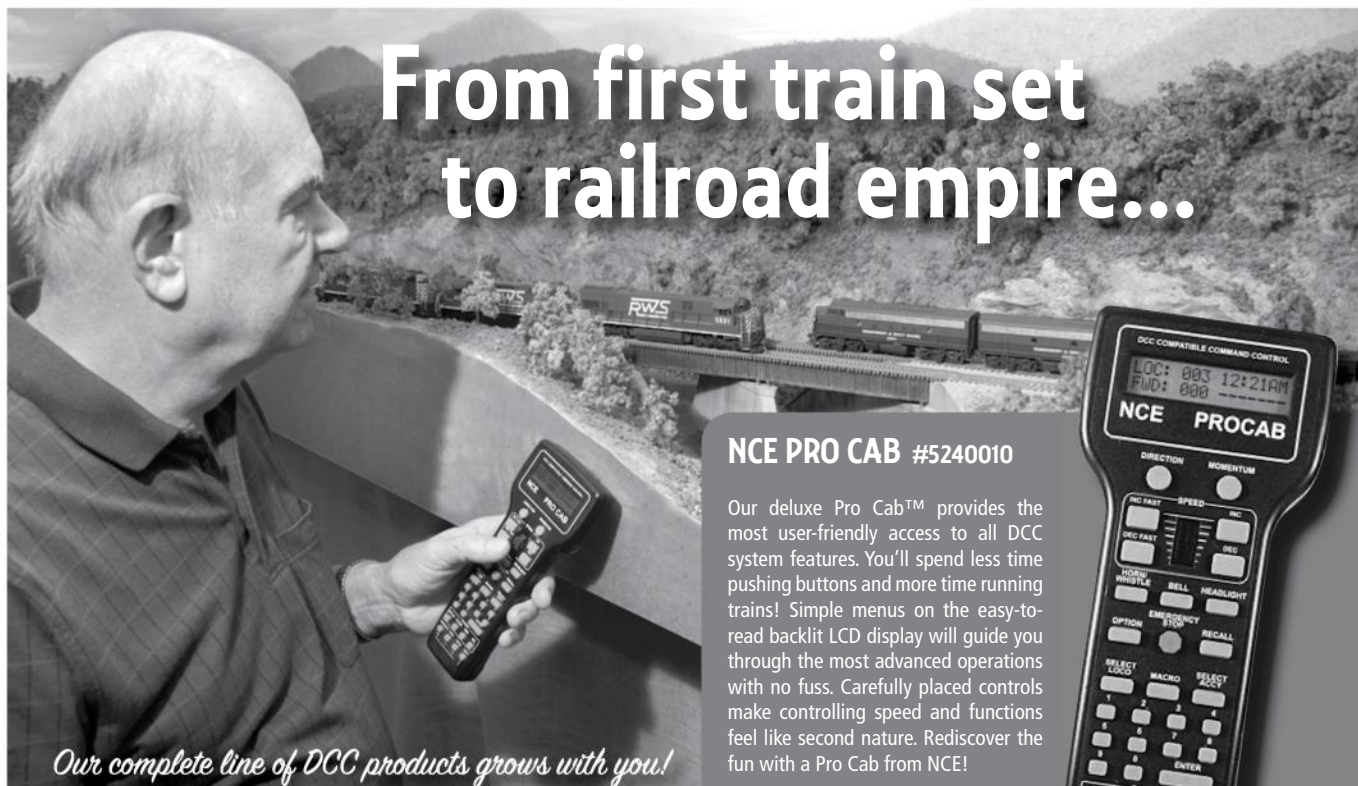
- 510 9" straight (6)
- 521 6" straight (4)
- 524 straight track assortment (1), includes two pieces each of 3/4", 1 1/4", 1 1/2", 2", and 2 1/2" lengths
- 530 15"-radius full section (9)
- 531 15"-radius half section (2)

Peco code 83

- SL-110 rail joiners (1 package)
- SL-8300 code 83 flextrack (8)
- SL-8311 insulated rail joiners (1 package)
- SL-8351 no. 5 right-hand turnout (5)
- SL-8352 no. 5 left-hand turnout (3)
- SL-8377 no. 7 left-hand curved turnout (1)

Living in Whitesboro, N.Y., Paul Boehlert is a small-layout enthusiast who always has a couple of new projects in the works. Paul teaches college English and likes to fly fish when he's not working on his latest model railroad. He's also a professional storyteller whose performances regularly include stories about trains.

From first train set to railroad empire...



Our complete line of DCC products grows with you!

NCE PRO CAB #5240010

Our deluxe Pro Cab™ provides the most user-friendly access to all DCC system features. You'll spend less time pushing buttons and more time running trains! Simple menus on the easy-to-read backlit LCD display will guide you through the most advanced operations with no fuss. Carefully placed controls make controlling speed and functions feel like second nature. Rediscover the fun with a Pro Cab from NCE!



See your dealer or visit ncedcc.com

NCE CORPORATION • 82 EAST MAIN ST. • WEBSTER, NY 14580 • 585.265.0230



**Model
Railroader
MAGAZINE**

Sign Up for Our FREE Email Newsletter

Get the latest news and insights from *Model Railroader* delivered to your inbox every week!

- News and new product announcements.
- Reader-submitted videos.
- Basics on getting started in the hobby.
- Product reviews.
- And much more!

Sign up now at ModelRailroader.com/newsletter

Switching in a small town



A 2 x 4-foot module is enough to provide interesting operating and modeling opportunities

By Peter Vassallo

Photos by the author unless noted

Modular railroading offers advantages for modelers who lack space or time for a larger, more complex layout. In just a few square feet, a detailed scene can be created – rewarding unto itself. And by participating in a club, these scenes can be connected together as modules for larger operations.

In the club I belonged to, the Catskill, Adirondack & Berkshire RR in Albany, N.Y., each module is 2 x 4 feet, with three straight sections of HO gauge track at specified locations parallel to the module's front side. These tracks are necessary to connect the modules, but beyond that, each modeler can choose the module's theme and placement of additional track.

Sometimes 4 feet isn't enough. In that case, two modules can be fashioned together and inserted as a pair into the overall layout.



1. The switcher begins the day at Hamlin by clearing boxcars from the freight house spur. Other cars bound for local delivery stand waiting on the nearby passing track on Peter Vassallo's 2 x 4-foot switching module. The engineer must keep a clear head, as the town's layout presents operational challenges in a tight, compact area.

Portability first

I built my switching layout using only one module for the sake of portability. The overhead view on page 55 shows the track plan. A three-way turnout allows for a short passing track and access to a pair of spurs, one facing and one trailing. When I operate the module by itself, I add short extensions, long enough for a locomotive and two cars, with temporary tracks on either side of the module to switch the layout.

The layout depicts the fictional town of Hamlin, which has a Midwestern theme. I included three industries, chosen to max-



2. The overall dimensions, backdrop height, and colors of fascia and backdrop are standardized, as is the arrangement of the three tracks running lengthwise and parallel to the module's front side. Otherwise the module is unique. Tyler Zarnofsky photo



3. A boxcar loaded with paint cans has just been pulled from the Paint Works factory. This car will soon find its way to the passing track off the main line for eventual through freight pickup later in the afternoon.

imize the variety of freight cars switched. A freight house accepts boxcars, flatcars, and gondolas; a paint manufacturer receives tank cars and boxcars; and a meat-packing plant is served by refrigerator cars and stockcars.

These structures are normally on my narrow gauge HO_n3 layout. They're small, and it's easy to remove them for temporary use with the Hamlin module.

Track and scenery

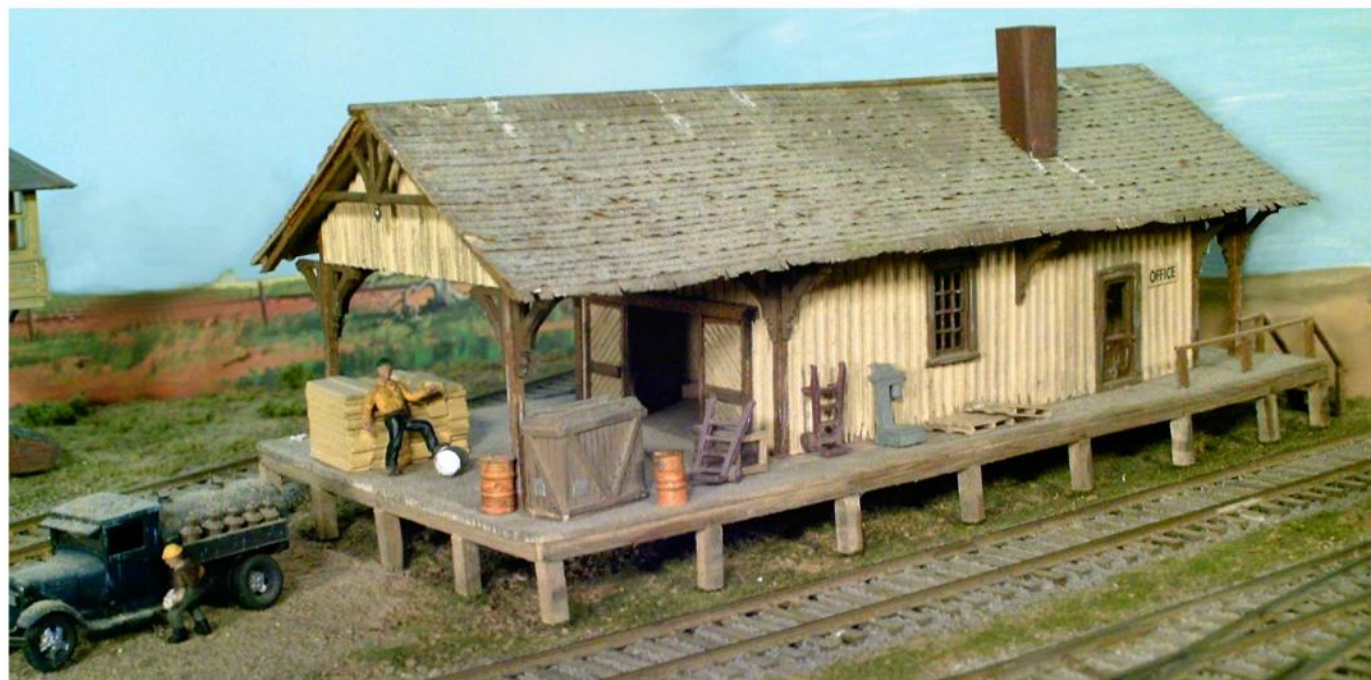
I laid code 83 flextrack on Homasote roadbed glued onto a framed plywood base. I used extruded-foam insulation board to fill in the gaps, then formed and painted it to create the landscape.

To simulate natural variations in grass and foliage, I applied dirt and various shades of ground cover – green, burnt green, and yellow – along with different shapes and sizes of Woodland Scenics ground foam for bushes and trees. I weathered the track with Floquil wood stains and ballasted the roadbed lightly.

I used trucks, figures, and miscellaneous items to detail the scenes around each industry. I also scratchbuilt a small, simple passenger station and placed it toward the module's front, along with line poles with strings attached to represent overhead wires.



4. Patrons await the next passenger train at the Hamlin station. The freight train rumbling past offers a little entertainment.



5. A freight house worker plays kick the can as he organizes the loading dock. A boxcar loaded with lumber is expected within the hour. The structure is a Dyna-Model Products kit.

Backdrops for perspective

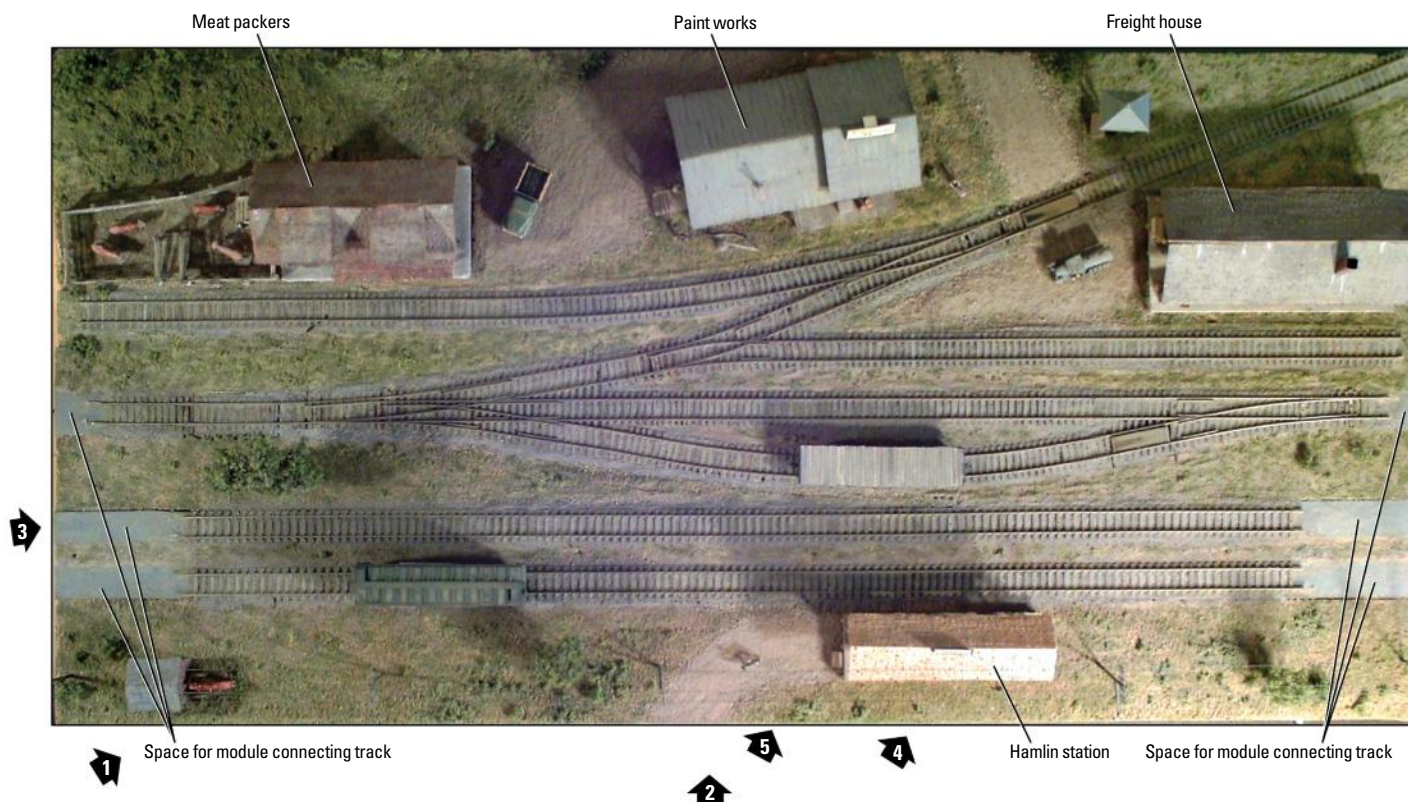
I painted the backdrop – a 4 foot by 15 inch piece of tempered hardboard – light blue with broad sweeps of airbrushed white to simulate a sky of cirrus clouds. I cut fields, a grain elevator, houses, and more from Walthers Instant Horizons backdrops and pasted them on. I blended the foreground into the backdrop with some hand painting.

In addition to an effective switching design, I wanted the module to look good. To create the illusion of depth, two dirt roads angle toward the backdrop, then continue into the painted scene to suggest roads tapering off in the distance.

Operating the module

Operation can be simple or more complex, as desired. The basic idea is that a through train drops off one or two cars at the passing siding for local switching and picks up any cars left there. The operation can be performed directly when Hamlin is connected with other modules, or simulated when it's being used as a standalone unit.

The local switcher, using car forwarding orders, moves inbound cars from the passing siding to the appropriate industries, or outbound cars from the industries to the passing siding. It's also possible to switch cars just on the industry tracks;



The layout at a glance

Name: Town of Hamlin
Scale: HO (1:87.1)
Prototype: freelanced
Locale: fictional Midwestern town
Era: varies with rolling stock
Minimum turnout: no. 4
Maximum grade: none
Benchwork: plywood on open grid
Roadbed: Homasote
Track: Walthers code 83
Scenery: extruded-foam insulation board
Backdrop: tempered hardboard
Control: direct current

for example, an empty boxcar from the freight house to the paint factory for loading. In all cases, the goal is to accomplish the work with the fewest moves.

Up to six cars can be switched at once. Switching difficulty depends primarily on the number of cars involved. The simplest problem with the fewest moves is trading a single car from the passing track for a single car on the freight house spur. Even this simple operation would require 14 moves (with each move defined as an engine change of direction, or a car coupling or uncoupling without a change of direction).

A more challenging task involving six cars might take many dozens of moves. It's fun to imagine realistic car patterns and develop optimal switching solutions for them; an example of one such solution for a four-car problem is given in **fig. 1**.

Control

A small control panel on the rear of the module, shown in **fig. 2** on the next page, contains a track plan, turnout controls, and a direction control switch. This is where the operator

Task: Exchange flatcar (F) for boxcar (B), and stock car (S) for reefer (R).

Switching difficulty: medium
 Numbers indicate siding capacity

1 move is:

a) locomotive change of direction

b) car coupling or uncoupling without change of direction
 *Number of moves may vary depending on your approach to this switching task.

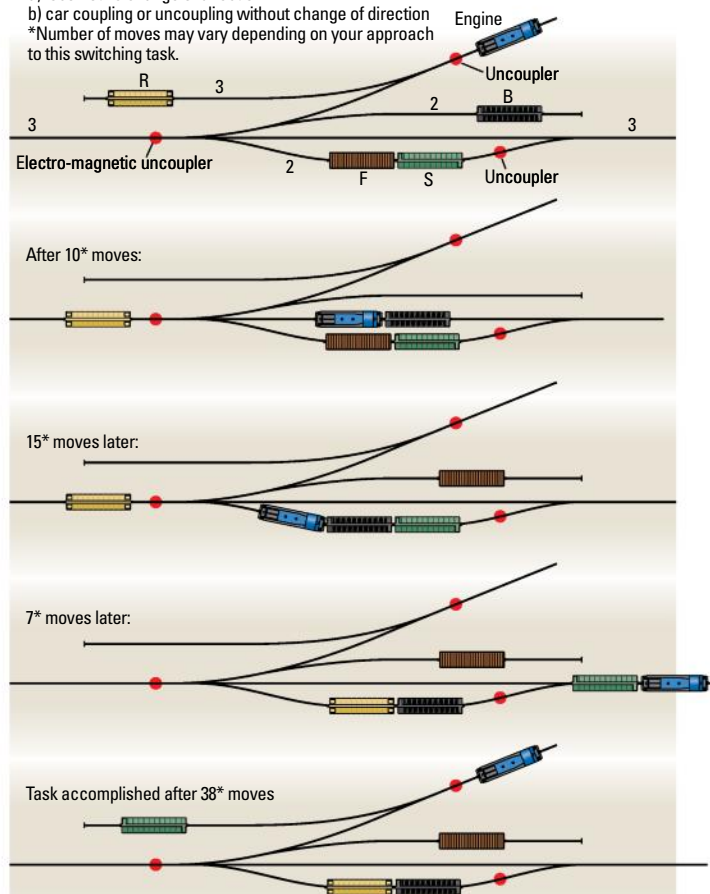


Fig. 1 Switching problem. This diagram shows a typical series of moves on the Hamlin module.

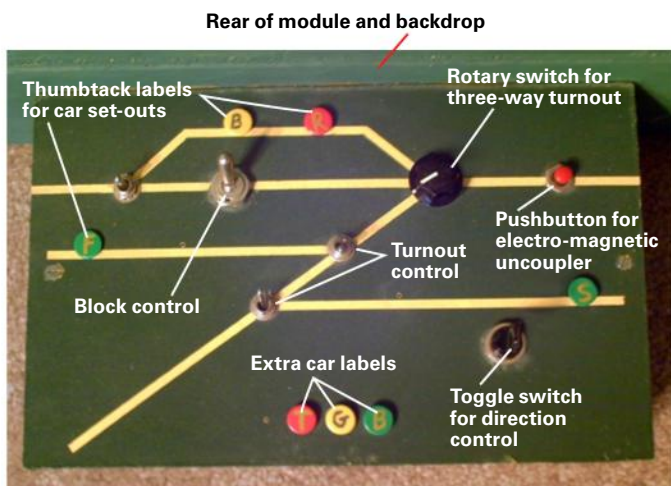


Fig. 2 Simple controls. The control panel is attached to the rear of the module, with switches for turnouts and locomotive direction. Thumbtacks help organize moves.

would stand at a show or when operating the connected layout, looking over the top of the backdrop to follow the action.

Also attached to the rear of the module is a small shelf holding a direct-current (DC) power pack. This power pack supplies variable DC power for the locomotive and constant DC power for the Tortoise by Circuitron switch motors under the module. A rotary switch wired with diodes allows easy alignment of the three-way turnout.

As with John Allen's Timesaver layout, a toggle switch controls engine direction with a constant power setting to simplify the back and forth movements. Kadee delayed-action uncou-

Meet Peter Vassallo

Peter lives in Albany, N.Y., and works as a mechanical engineer. As a boy, he had an N scale layout that was influenced by his father, who also modeled in N scale. He now models in HO scale, standard and narrow gauge, in small sections. His particular interest is in California and Colorado narrow gauge railroads. This is his first byline in *Model Railroader*.



plers and magnets facilitate remote uncoupling; three uncoupling magnets are placed to allow switching of all spurs.

Thumbtacks labeled with letters for each car can be set on the control panel's track plan to indicate the final locations of the cars to be switched.

Hours of enjoyment

The Hamlin switching module has provided hours of enjoyment, and is just one example of what a module can be. Many other variations and settings are also possible. These could be added on at a later time to accentuate or contrast existing modules. Even if you have a larger home layout, building modules allows your creative juices to flow into other new and interesting areas. Keep it in mind and give it a try! **MR**





\$375.00 MSRP

Introducing

DCS240

LocoNet® Advanced Command Station



• **400 Loco Addresses** • **400 Throttle Support**
 • **5 or 8 Amps of Power** • **For Serious Operation!**

Find out more at:
www.digitrax.com



Just Plug[®] LIGHTING SYSTEM VEHICLES

Whether modeling a backcountry drive or a busy downtown scene these Vehicles instantly add light and interest to any layout. Each Vehicle includes a driver and LED headlights and taillights. Simply plug it into a Light Hub Port. Available in N and HO scales.



Green Pickup



Midnight Ride



City Classic



Police Car



Cool Convertible



Heavy Hauler



Comfy Cruise



Station Wagon



Work Truck



Blue Coupe



Fancy Fins



Downtown Drive



WOODLAND SCENICS[®] Purchase from your favorite hobby store.
woodlandscenics.com



A pair of Southern SW1s passes through the Model Railroad Technologies Accutrack II speedometer at 4.1 scale mph. The Accutrack II makes speed matching quick, easy, and accurate, and doesn't require permanent installation on your layout.

Speed matching for DCC consists

In my August 2016 column, I showed how I installed decoders in a pair of Walthers SW1s to be operated as a two-unit consist. Any time two or more locomotives are operated in a consist, you first must make sure they run at essentially the same speed across the throttle range. Speed matching, the subject of this month's column, is the process of adjusting the decoder output to achieve this goal.

Depending on the type and age of the locomotives, you may not need to make

any adjustments. For example, locomotives from the same manufacturer may run at essentially the same speeds, whereas models from different release dates or from different manufacturers may need major adjustments.

Locomotive models may also run at noticeably different speeds when operated in different directions. This can be corrected using forward and reverse trim decoder settings. Some decoders only support using forward and reverse trim with 28-step speed curves.

Back-electromotive-force control (back-EMF) is another potential complication. It allows a decoder to monitor and control speed based on load, and can contribute to smooth running. Any time two or more locomotives are operated in a consist with back-EMF on, they may end up fighting other locomotives in the consist that don't have back-EMF. Dealing with this may require turning back-EMF off or reducing its intensity.

When speed matching I generally recommend using a three-step speed curve approach. This is fast and easy and works with most locomotives and decoders. I used DecoderPro in the Java Model Railroad Interface (JMRI), a free download at www.jmri.sourceforge.net. You can also use a DCC throttle to enter values into the configuration variables (CVs). Three-step speed curves use configuration variables 2, 5, and 6 to set the starting speed, top speed, and mid-point speed, respectively (fig. 1). Some older decoders don't support CVs 5 and 6, in which case you will need to use a 28-step speed curve (fig. 2), and some don't support the use of CV2 in some cases.

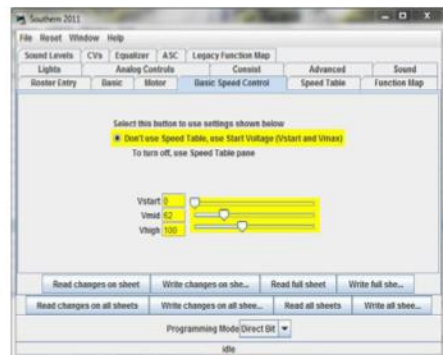


Fig. 1. Doing the three-step. The Basic Speed Control pane in DecoderPro allows you to enter values for CVs 2, 5, and 6 either by keying them in or with the sliders.



Fig. 2. Fancier footwork. Using the Speed Table pane, you can create a three-step curve by designating speeds for steps 1, 14 and 28 and straight-lining the steps between.

Dana Kawala takes you through the steps to speed-matching locomotives in his "DCC Programming" series at www.ModelRailroaderVideoPlus.com.

using either a throttle or DecoderPro (fig. 1). This allows me to quickly optimize the settings for CVs 2, 5, and 6. For more complex programming, I generally use DecoderPro. This program organizes tasks by function, making it easier to figure out how to do more complex tasks. You can also use a 28-step speed curve to mimic a three-step speed curve by setting steps 1, 14, and 28, then straightlining the intermediate steps (fig. 2).

Proceed in consistent steps and keep notes as you make changes. This will help you keep track of what works and what doesn't. Here's my process:

1. Turn off back-EMF if possible, or reduce the intensity. This may not be desirable with some decoders because of complex speed control algorithms and interactions.

2. Set momentum (CVs 3 & 4) to "0".

3. Set all locomotives to move at the same starting speed using CV2 (starting voltage).

4. Set all locomotives to run at the same top speed using CV5.

5. Set all locomotives to run at the same midpoint speed using CV6. With DCC throttles that display speed as a percentage (e.g. Digitrax DT400/402) I use 1 for the minimum, 50 for the midpoint, and 99 for the maximum.

6. Make adjustments for differences in forward and reverse speed using the forward and reverse trim CVs. You have to enable speed curves using CV 29 in order to do this.

7. Once you have all the locomotives running at about the same speeds, then you can begin to restore features like back-EMF and momentum.

Judging locomotive speed can be tricky if done by eye. For accuracy and reproducibility, I use an Accutrack II scale speedometer from Model Railroad Technologies, available from Streamlined Backshop (www.sbs4dcc.com) and others. It's entirely standalone and portable, has built-in calibration for HO (1:87.1), OO (1:76), and N (1:160), and can display speeds in miles per hour or kilometers per hour. The most important thing about the Accutrack II is that it simply sits across your existing track – there are no detectors to install. The locomotive passes between two detector beams set specific distances apart, and a microprocessor in the unit calculates the time this took and converts it to scale speed.

Because my old SW1 model with the TCS decoder ran much slower than the

new one with the SoundTraxx Econami decoder, I ended up increasing the starting voltage of the old model and then dropping the maximum and midpoint voltages of the new model. Fortunately the back-EMF settings of the decoders were not an issue.

With the switchers operating back-to-back in a consist, I turned the rear lights off. The trick to separating them is simple enough – just remap the yellow wire powering the rear headlight to another function button (more on function mapping in a coming column). With DecoderPro you can do this with a couple mouse clicks. Another option is to disconnect the yellow wire from the LED or bulb.

Typically in yards, the forward light on a switcher was on full and the rear light was dimmed. To accomplish this with a pair of locomotives I set the headlights in each locomotive for Rule 17 auto dimming. The TCS and SoundTraxx decoders will then automatically dim the headlight when the locomotives stop or reverse direction.

For those of you without DecoderPro, set CV61 to 49 in the TCS decoder and to 50 in the SoundTraxx Econami decoder. Also set CV49 to 40 and CV50 to 0 in the TCS decoder and 145 and 0 respectively in the SoundTraxx decoder for control of the forward and rear lights. In the SoundTraxx Econami decoder, CV57 and CV58 should also be set to 1 so that the headlight remains on in both forward and reverse directions.

Now let's get these locomotives

ready for an advanced consist. I designated SW1 2011 as the lead unit and programmed a value of 11 into CV19, the advanced consist address. Because the normal direction of travel for unit 2008 was to be reverse, a value of 139 was programmed into CV19 on its decoder. Adding 128 to the consist address sets the locomotive for reverse operation.

Next came the settings for advanced consist function control in CVs 21 and 22. With the older unit I only needed to control the headlight, so I set CV22 to 1, allowing the decoder to respond to consist commands for the headlight. The new unit, no. 2011 with the SoundTraxx sound decoder, required a few more settings. In addition to controlling the head-


CVs for advanced consists

CV number and function (allowed value)

- 2*** Vstart, starting voltage at first speed step (0 to 255)
 - 3** Acceleration (0 to 255)
 - 4** Deceleration (0 to 255)
 - 5*** Vhigh, voltage at maximum speed step (0 to 255)
 - 6*** Vmid, voltage at midpoint speed step (0 to 255)
 - 19** Advanced consist address (1 to 127, add 128 for reversed operation in consist)
 - 21** Advanced consist controls for F1-8 (0 to 255)
 - 22** Advanced consist controls for F0f, F0r, F9-12 (0 to 63)
 - 23** Advanced consist acceleration (0 to 255; 0 to 127 = 0 to +127, 128 to 255 = 0 to -127, values are added to CVs 3 or 4 as an offset respectively)
 - 24** Advanced consist deceleration (values for 24 are calculated the same as 23)
 - 66** Forward trim (0 to 255; 0 to 127 increases speed, 129 to 255 decreases speed)
 - 95** Reverse trim (values for 95 are calculated the same as 66)
 - 245** Econami advanced consist controls, F13-20 (0 to 255)
 - 246** Econami advanced consist controls, F21-28 (0 to 255)
 - 247** Econami advanced consist controls, auto effects (0 to 255)
- *Note: CVs 2, 5, 6 comprise a three-step speed curve

light in forward and reverse, I needed to control the bell, horn, and mute functions. This required setting CV21 to 131 and CV22 to 3. (Note: DecoderPro will set all of these CVs for you as you click settings with your mouse).

This combination of settings gave me a matched consist that operates well together with excellent sound and lights. I've provided a table of CVs used for advanced consist operations along with their functions in the chart.

A complete listing of all my final CV settings for both decoders is available on my website (www.dccguy.com) along with a video showing how to speed match locomotives and additional posts on consisting and back-EMF. 



Electro-Motive SDP40F leads Kato N scale *Sunset Limited* passenger train

When Amtrak began operations in 1971, it inherited a mixed bag of locomotives and passenger cars from participating railroads. In order to survive, the decades-old equipment needed to be replaced. Amtrak's first all-new locomotive was the General Motors' Electro-Motive Division SDP40F.

This locomotive is now offered by Kato in N scale to pull the company's *Southwest Limited* passenger train. This train, like the Amtrak prototype, features repainted Santa Fe *Super Chief* cars, including two newly tooled models – a Budd *Pine*-series 10-6 sleeper and Pullman-Standard 11-double-bedroom sleeper.

The SDP40F. General Motors' Electro-Motive Division worked with Amtrak to develop a new locomotive and keep costs down. The SDP40F was

based on the successful freight SD40-2. The passenger locomotive rides on a longer frame to accommodate a pair of Vapor OK-4625 steam generators and 3,500 gallons of water to supply steam heat for passenger cars. Water was carried both below the frame – the tank was split to carry 2,850 gallons of diesel fuel and 2,150 gallons of water – and at the rear of the engine compartment, where a tank held 1,350 gallons.

Amtrak was concerned about appearances, so the SDP40F has a cowl-style carbody. The shape resembles EMD's earlier FP45 and F45 locomotives. Amtrak also specified EMD's HTC three-axle truck and gearing to allow a top speed of 103 mph. A 3,000 horsepower 16-654E3 diesel engine powered the locomotive.

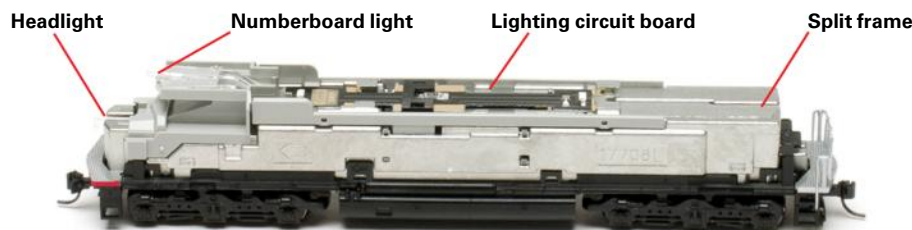
Amtrak ordered 150 units, numbered 500-649 and delivered in 1973 and 1974.

The first 40 units had a pointed nose. Later units had a flat panel above and below the nose door. Though based on the long-lived SD40-2, the Amtrak units lasted less than a decade in passenger service, being phased out in 1981.

Problems with derailments resulted in host railroads imposing speed restrictions or bans on the SDP40F. Since the successful four-axle F40PHs followed soon after the six-axle units, Amtrak favored the F40PHs and never fully resolved the derailment issue.

Many of the locomotives were traded back to EMD as credit toward new F40PH locomotives, which were equipped with Head-End Power (HEP) to work with Amtrak's new electrically heated and cooled Amfleet passenger cars. The remaining 18 SDP40Fs were traded to Santa Fe for switchers.

Car prototypes. The Kato set features two newly tooled passenger car designs: a Budd Co. *Pine*-series 10-roomette, 6-double-bedroom car and a Pullman-Standard 11-bedroom sleeper. The PS car was rebuilt in 1964 from a 24 duplex



Kato uses its split frame for the EMD SDP40F. The wide cowl-type body allows space for more weight than usual, giving the locomotive plenty of pulling power.

Now on ModelRailroader.com

Watch the Kato N scale *Sunset Limited* run along the Model Railroader staff's Salt Lake Route project layout.



roomette sleeper, one of 11 similar cars on Amtrak's early roster.

The models. Kato's SDP40F matches all major dimensions on drawings in the 1974 *Car and Locomotive Cyclopedia* (Simmons-Boardman) and the August 1992 issue of *Model Railroader*. Paint matches photos of as-delivered Amtrak engines, except for a missing ACI label ahead of the Amtrak arrow on the sides.

The nose matches the early production pointed prow, where the panels above and below the door come to a point. Windshield wipers and the side window trim are painted silver. The HTC trucks have molded-on snubbers and brake cylinders.

Grab irons are molded in place on the body shell. The handrails at the rear of the locomotive are molded plastic.

The split frame fills most of the space under the hood, adding weight to the model. The printed-circuit lighting

►► More reviews & videos

At www.ModelRailroader.com

subscribers can read more than 750 previously published reviews and watch more than 150 exclusive product demo videos.

board rides atop the frame. The motor and drivetrain, which powers all wheels, is sandwiched between the frame halves. Drop-in Digital Command Control (DCC) decoders are available from Digi-trax and Train Control Systems. Kato also offers the models with custom-installed ESU LokSound DCC decoders.

The passenger cars matched published dimensions, and the window arrangements matched published photos. The silver paint was evenly applied, and the red, white, and blue striping was sharp. The flush-mounted windows are printed with black gaskets or stainless-steel trim as appropriate.

All wheels were in gauge and all couplers were at the correct height. All of the cars were too light compared to National Model Railroad Association recommended practice 20.1. The baggage car weighed 1 ounce, .3 ounce too light. The other cars, all models of 85-foot cars, weighed between .2 and .4 ounce less than the recommended practice of 1.5 ounces. The cars can be lighted with Kato's no. 11-211/212 Version 2 Interior Light Kit.

On the test track. The Kato SDP40F is a direct-current locomotive. On the test track, the engine started creeping at less than 1 scale mph at 1.8V. By 12V, it was zipping along at 209 scale mph, well above the full-size locomotive's top speed. Drawbar pull of .96 ounce is equivalent to 23 free-rolling freight cars, or about 12 passenger cars.

The SDP40F had no trouble pulling the eight-car *Southwest Limited* set



The set includes (from bottom left, clockwise): ACF baggage no. 1171, PS sleeper *Indian Mesa*, Budd 10-6 *Pine Dale*, Budd 10-6 *Pacific Falls*, PS diner no. 8010, ACF 4-4-2 sleeper *Regal Dome*, PS dome lounge no. 9350, and Budd 10-6 *Pine Leaf*.

Dana Kawala

►► Kato N scale SDP40F

Price: SDP40F, \$125 (DC, no sound), \$250 (custom-installed DCC, sound); Amtrak *Southwest Limited* 8-car set, \$230

Manufacturer

Kato U.S.A. Inc.
100 Remington Road
Schaumburg, IL 60173
www.katousa.com

Era: 1971-1981, passenger cars; 1973-1981, SDP40F

Roadname: Amtrak, phase I and phase 2, two road numbers each

Features

Locomotive:

- 5-pole motor with flywheels
- All-wheel electrical pickup
- Blackened metal wheels, in gauge
- Directional golden white light-emitting diode headlights
- Illuminated factory-printed numberboxes
- Kato magnetic knuckle couplers, body-mounted at correct height
- Weight: 5.6 ounces

Passenger car set:

- Kato magnetic knuckle couplers, truck-mounted at correct height
- Low-flange metal wheels, in gauge

N scale SDP40F

Drawbar pull	.96 ounce	
	12 N scale passenger cars	
Scale speed (DC)		
	Volts	Scale mph
	1.8	<1
	3	12
	6	75
	9	156
	12	209

around our N scale Red Oak project layout. To pull the combined *Southwest Limited* and *El Capitan* train would likely require a second locomotive, but fortunately, Kato offers the SDP40F in multiple road numbers for just such an occasion.

With its good looks, smooth operation, and pulling power, Kato's SDP40F could well outlast the prototype. — Eric White, associate editor



Atlas HO scale Dash 8-40BW models a modern-era four-axle fast freighter

In August 2001, then-associate editor Jim Hediger lauded the HO scale Atlas Dash 8-40B for its performance and detail. With this 2016 release, the locomotive is available with a dual-mode ESU LokSound Select decoder, so it sounds as prototypical as it looks on both Digital Command Control (DCC) and direct-current (DC) layouts.

Prototype. Introduced in 1988, the General Electric Dash 8-40B received many improvements over its predecessors, such as the B39-8. Enhancements included redesigned components, including microprocessors and software, as well as an improved 4,000 hp 7FDL16 diesel engine. GE built 151 Dash 8-40Bs for railroads such as Atchison, Topeka & Santa Fe; Conrail; St. Louis Southwestern (Cotton Belt); and Susquehanna. The locomotives proved especially capable leading intermodal and other hotshot freight assignments.

Beginning in 1990, the Santa Fe received the first of 83 Dash 8-40Bs equipped with a North American cab. Designated Dash 8-40BW, these units were the last four-axle GE diesels built for road-freight service. Many of these diesels, as well as the standard cab Dash 8-40Bs, are still in service.

The model. Our review sample models a Dash 8-40BW. The major dimensions of the Atlas locomotive match a prototype drawing of a Dash 8-40B in the April 1989 *Model Railroader* as well as official GE specifications. The model's plastic body shell uses the same tooling as the 2001 release. The molded details are well defined and match photos of prototype Dash 8-40BWs.

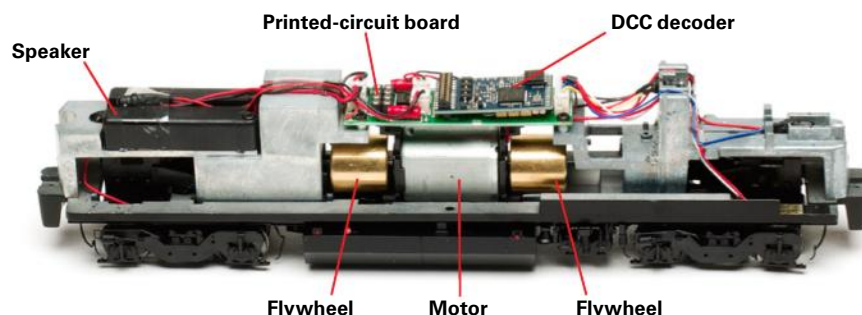
The model features many separately applied details including all handrails and grab irons. Cab details include separate windshield wipers, sunshades, and painted crew figures.

The inspiration for the Atlas model's paint scheme is the *Model Railroader* staff's own freelanced HO scale railroad, the Milwaukee, Racine & Troy (MR&T). Associate editor Cody Grivno painted earlier releases of Atlas Dash 8-40B and Dash 8-BW locomotives with vintage MR&T paint schemes. (To read about Cody's project, check out the January 2014 MR.) Our review sample models a heritage unit wearing the original MR&T scheme that adorned the road's locomotives from 1975 to 1989.

All the white lettering is clearly printed and opaque. Our review sample, no. 1175, is extra special to the MR staff, as it has the name of our late executive editor, Andrew P. Sperandeo, printed under the cab side windows.

A powerful mechanism. After removing the couplers, I easily lifted off the plastic body shell. The can motor and flywheels are mounted in the middle of the die-cast metal chassis. Two drive shafts connect the motor to the truck-mounted gearboxes.

A printed-circuit board is screwed into the chassis above the motor. The



The ESU LokSound Select decoder is attached to a 21-pin socket on the model's main printed-circuit board. The chassis is made of die-cast metal for added heft.

Now on ModelRailroader.com

Subscribers can see and hear the new Atlas HO GE Dash 8-40BW as it makes a run around the *Model Railroader* staff's club layout, the Milwaukee, Racine & Troy.

board includes 8-pin and 21-pin DCC sockets. On our DCC-equipped sample, the ESU LokSound Select decoder is plugged into the 21-pin socket. The speaker enclosure is attached to the weight above the rear truck.

The locomotive easily handled 18" radius curves and no. 5 turnouts. It's drawbar pull is equivalent to 52 free-rolling HO freight cars on straight and level track. During testing on our layout, the model also sped 10 HO freight cars up a 3 percent grade without stalling.

Performance. The dual-mode ESU LokSound Select decoder provided an exceptional operating experience when run on both DC and DCC equipped layouts. The prototype could be geared for speeds up to 75 mph. The model's 63 scale mph top speed is more than fast enough for most model railroads.

On our DCC-equipped layout I appreciated that the Dash 8-40BW already had some momentum programmed into the decoder. When I advanced the throttle, I heard the diesel engine rpm realistically increase before the locomotive started moving. When I decreased the throttle, the rpm decreased and squealing brakes sounded.

The amount of momentum, volume levels of sound effects, and every other aspect of the locomotive's performance can be adjusted in DCC using configuration variables (CVs). I'm glad that the decoder has provision for setting up a simple three-point speed curve, in addition to a full 28-step curve. I advance consisted the locomotive with an MR&T Dash 8-40B for m.u. operation. A printed quick start guide is included, and an extensive user guide is available as a free download at www.esu.eu/en.

The decoder includes 22 user-triggered functions, such as the bell, horn, coupler crash, and dynamic brake fan. Individual function buttons control the dimmable headlight and ditch lights. The engine rpm sounds can also be manually increased or decreased (notched). Other effects simulate cab radio dialog, a talking defect detector, and sanding valves. Every function can be remapped to any throttle key.

The ESU decoder doesn't leave out DC operators. I really enjoyed the built-in momentum when I advanced the speed control knob on our MRC Tech 4 power pack. Both sounds and lights stayed constant as long as I kept the

▶ Atlas HO GE Dash 8-40B/BW

Price: \$279.95 (DCC sound), \$169.95 (DC no sound)

Manufacturer

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

Era: 1989 to present

Road names

Dash 8-40BW: Milwaukee, Racine & Troy (blue/white, one number); Arkansas - Oklahoma (two numbers); BNSF Ry. (three numbers); and Providence & Worcester (two numbers)

Dash 8-40B: Arizona & Eastern (three numbers); CSX (three numbers); YN3 and YN3b schemes); Milwaukee, Racine & Troy (white nose and Operation Lifesaver schemes, one number each); Minnesota Commercial (two numbers); and Saratoga & North Creek

Features

- Accumate plastic knuckle couplers at correct height
- All-wheel drive and pickup
- Directional light-emitting diode (LED) headlights and ditch lights
- ESU LokSound Select dual-mode decoder (DCC version)
- Five-pole skew-wound motor with dual flywheels
- Metal RP-25 contour wheels in gauge
- Minimum radius: 18"
- Weight: 16.5 ounces

HO scale Dash 8-40BW locomotive

Drawbar pull	3.7		
	52 HO scale freight cars		
Scale speed (DC)		Scale speed (DCC)	
Volts	Scale mph	Speed step	Scale mph
7.5 (start)	5	1	1
9	24	7	15
10	38	14	38
12	63	28	63

throttle above 6V. Adding an analog sound controller, such as an MRC Tech 6, allows access to other effects.

With its powerful decoder, the Atlas Dash 8-40BW is better than ever. –
Dana Kawala, senior editor

Styrene strips, sheets and shapes for scratchbuilding and model detailing.

At your favorite hobby retailer



Call or write for free product information
65 E Bradrock Dr. Des Plaines, IL 60018
Toll-free: 877-376-9099 Fax: 847-813-6330
www.EvergreenScaleModels.com

NICHOLAS SMITH TRAINS

Model Railroaders For All Seasons®

VISIT OUR WEBSITE, OR GIVE US A CALL

For orders only: 1-800-848-9119

Product Info (610) 353-8585 • Fax (610) 359-9846

USA Shipping: \$0.00-\$500.00: \$13.00; \$500.01-\$1200.00: \$17.00

MINIMUM ORDER: \$30.00 • 15% Restocking Fee on Returns

No P.O. Boxes Please; PA Residents Add 6% Sales Tax

MTH HO

MTH8021481 PRR GG1 #4907 Red Single PS3..	\$329.99
MTH8021501 PRR GG1 #4900 Green Sing PS3..	\$329.99
MTH8021521 Amtrak GG1 #924 w. PS3.....	\$329.99
MTH8021970 D&RGW F3 A/B DCC Ready	\$149.99
MTH8021980 D&RGW F3 A DCC Ready	\$79.99
MTH8022031 NH Alco FA-1 A/B w. PS3.....	\$264.99
MTH8022150 PRR PA-1 AB DCC Ready	\$179.99
MTH8022151 PRR PA-1 AB Set w. PS3	\$229.99
MTH8022181 UP PA-1 AB Set w. PS3	\$229.99
MTH8032411 PRR H10 2-8-0 w. PS3	\$334.99
MTH80324XX 31/41 Long Island H10 2-8-0 PS3..	\$334.99
MTH8032XX1 49-52 C&O 2-6-6 w. PS3	\$449.99
MTH8032XX1 59-62 DM&IR Yellowstone 2-8-8-4..	\$514.99
MTH8520160 BNSF GP38-2 DCC Ready	\$89.99
MTH8520181 BNSF GP38-2 w. PS3	\$134.99
MTH8520120 CSX GP38-2 DCC Ready	\$89.99
MTH8520211 CSX GP38-2 w. PS3	\$134.99
MTH8520261 Maryland Midland GP38-2 w. PS3..	\$134.99
MTH8520270 Maryland Midland GP38-2 DCC Rdy	\$89.99
MTH8520280 New York & Atlantic GP38-2 DCC Rdy	\$89.99
MTH8520291 New York & Atlantic GP38-2 w. PS3	\$134.99
MTH8520310 NS GP38-2 DCC Ready	\$89.99
MTH8520321 NS GP38-2 w. PS3	\$134.99
MTH8520340 P&LE GP38-2 DCC Ready	\$89.99
MTH8520341 P&LE GP38-2 w. PS3	\$134.99
MTH8520370 UP GP38-2 DCC Ready	\$89.99
MTH8520381 UP GP38-2 w. PS3	\$134.99
MTH8520400 CN GP38-2 DCC Ready	\$89.99
MTH8520411 CN GP38-2 w. PS3	\$134.99
MTH8520430 Chessie/B&O GP38-2 DCC Ready..	\$89.99
MTH8520441 Chessie/B&O GP38-2 w. PS3	\$134.99
MTH8520460 Conrail GP38-2 DCC Ready	\$89.99
MTH8520471 Conrail GP38-2 w. PS3	\$134.99
MTH8520520 Southern Pacific GP38-2 DCC Rdy..	\$89.99
MTH8520531 Southern Pacific GP38-2 w. PS3	\$134.99
MTH8094035 Senate Beer R40 Reefer	\$21.99
MTH809403X 6-8 Jelka Good Luck R40 Reefer ..	\$21.99
MTH809404X 0/1 Hillsboro Pale Beer R40 Reefer.	\$21.99
MTH809404X 2-4 Milwaukee Road R40 Reefer ..	\$21.99
MTH8094046 Cooks Goldblum R40 Reefer	\$21.99
MTH809404X 8-9 Sullivan's Packing R40 Reefer ..	\$21.99
MTH809405X 2/3 Roberts & Oake Meat R40 Reef.	\$21.99
MTH8090047 A-F Milwaukee Road 70 Ton Ore Car	\$26.99
MTH8090049 A-F Soo Line 70 Ton Ore Car	\$26.99
MTH809702X 2-4 BN 70 Ton Ore Car	\$26.99
MTH809702X 8/9 B&LE 70 Ton Ore Car	\$26.99
MTH809704X 3/4 UP 70 Ton Ore Car	\$26.99

KATO N

KAT10001 Hayabusa Shinkansen Set.....	\$209.99
KAT10006 Glacier Express Set	\$189.99
KAT1060800 Undecorated PA/PB	\$99.99
KAT106085 UP Water Tender 2 Pack	\$62.99
KAT106086 UP Excursion Train Passenger Cars..	\$179.99
KAT1060861 UP Excursion Train Pass Cars lights	\$279.99
KAT1060801 Amtrak ACS-64 Bookcase Set	\$172.99
KAT10608011 Amtrak ACS-64 Set DCC	\$234.99
KAT10608012 Amtrak ACS-64 Set DCC/lights ..	\$279.99
KAT1068002 Amtrak Amfleet PV VI Coach Set ..	\$39.99
KAT1068003 Amtrak Amfleet PV VI Coach/Café ..	\$39.99
KAT106550X 1/2 Amtrak Enclosed Auto carries (4)	\$64.99
KAT1260401 UP FEF-3 4-8-4 #844	\$189.99
KAT12604011 UP FEF-3 4-8-4 #844 DCC	\$249.99
KAT1260401LS UP FEF-3 4-8-4 #844 DCC/Snd ..	\$329.99
KAT176312X 5/6 GN SD45	\$74.99
KAT176430X 1/2 Milwaukee Road RSC-2	\$84.99
KAT1765315 UP E9A #944	\$74.99

Hours: M,W,F 10-9 • T & Th 10-7 • Sat 10-5 •

Sun 10-5 (Nov. 1st-Dec. 24th)

2343 West Chester Pike • Broomall, PA 19008

(610) 353-8585 • ESTABLISHED 1909

Prices Subject to Change Without Notice; Not Responsible For Typographical Errors

www.nicholassmithtrains.com

Model Railroader September 2016



ScaleTrains.com debuts HO tank car in two lines

An HO scale TrinityRail 31,000-gallon crude oil tank car is the first freight car in ScaleTrains.com's Operator and Rivet Counter product lines. The ready-to-run injection-molded plastic models feature one-piece bodies with separately applied tank heads. The models are based on prototypes built by TrinityRail in 2014 to transport crude oil.

One car, two brands. As the photo below shows, there are noticeable differences between the Operator and higher-level Rivet Counter lines. The Operator

line tank car has plastic head shields with integrated hazmat placards, solid plastic walkways, drill starter points for adding grab irons (sold separately), one-piece 110-ton trucks, and simplified printing.

The Rivet Counter car has etched-metal head shields, see-through metal walkways, factory-installed grab irons, multi-piece 110-ton trucks with rotating bearing caps that are painted blue, and more printing (simulated reflective stripes, corner sill data, and printed hazmat placards, among other items).

The white paint on both models is smooth and evenly applied, and the color-separation line on the black stripe is crisp. All of the printing is legible.

Tale of the tape. The Operator car weighs 4.9 ounces, which is spot on per National Model Railroad Association recommended practice 20.1. The Rivet Counter car weighs 5.3 ounces, which is .4 ounce too heavy. The die-cast metal ends on the Rivet Counter car account for the difference.

The Operator car has plastic Type E couplers, which are incorrect for modern tank cars. The Rivet Counter car is correctly equipped with metal type SE double-shelf couplers. Both couplers have coil knuckle springs. The couplers lack trip

▶▶ HO crude oil tank car

Price: Rivet Counter – \$38.99 (1-5 cars), \$36.99 (6 to 11), and \$35.99 (12 or more). Operator – \$22.99 (1 to 5), \$20.99 (6 to 11), and \$19.99 (12 or more)

Manufacturer

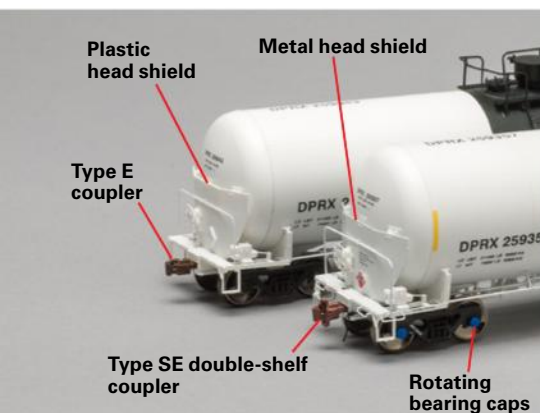
ScaleTrains.com
7598 Highway 411
Benton, TN 37307
www.scaletrains.com

Era: 2014 to present

Road names: First run – Deep Rock Refining Co. and Trinity Industries Leasing Co. Second run – General American (half ladder in Rivet Counter line, full ladder in Operator line), and Valero Marketing & Supply. Undecorated (half and full ladder) offered in Rivet Counter line only.

Features

- Correctly gauged, code 110 (.110" tread) metal wheels
- Injection-molded plastic body with separate end caps
- Type E plastic couplers (Operator): .030" low on both ends
- Type SE double-shelf coupler (Rivet Counter), .030" low on A end
- Weight: Operator, 4.9 ounces; Rivet Counter, 5.3 ounces



The Rivet Counter car (foreground) features a higher level of detail and printing than its Operator Line counterpart in the background.

pins, so they're not compatible with magnetic uncoupling ramps.

The scale 36" code 110 metal wheels were correctly gauged on both cars. The distance between truck centers is a scale 45'-9", and the distance over the strikers is a scale 57'-0".

I tested both tank cars on our Wisconsin & Southern project layout. The cars rolled smoothly while being pulled and pushed in a train. The cars also navigated the Peco no. 5 turnouts flawlessly. The minimum recommended radius for the tank cars is 18", but I think they look more realistic on a 22" radius or broader curves.

Solid trains of crude oil tank cars are a common sight on today's railroad. Whether you want a highly detailed version of the HO scale TrinityRail 31,000-gallon tank car, or one that's a bit more basic, ScaleTrains.com has you covered. – *Cody Grivno, associate editor*



June 11-12 • Tucson, AZ
Tucson Convention Center

July 23-24 • Belleville, IL
Belle-Clair Fairgrounds

July 30-31 • Pomona, CA
Fairplex

September 17-18 • Raleigh, NC
North Carolina State Fairgrounds



July 16-17 • Monroeville, PA
Monroeville Convention Center

August 6-7 • Timonium, MD
Maryland State Fairgrounds

August 13-14 • Edison, NJ
New Jersey Expo Center

August 27-28 • Chantilly, VA
Dulles Expo Center



DuPage County Fairgrounds 9am-3pm
County Farm & Manchester, Wheaton, IL 60187
Largest Monthly Train Show in the US

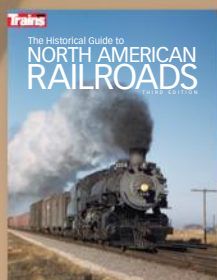
June 5 Aug 14 Sep 11 Oct 9 Nov 13

VISIT TRAINSHOW.COM
FOR THE LATEST
TRAIN SHOW DATES

HAVE TRAINS
TO SELL? CALL
630-290-1962

BECOME A TRAIN EXPERT

Delve into the railroading world with the incredible stories and information found in these unique products! Don't miss out on the sights, sounds and stories that every railfan should know!



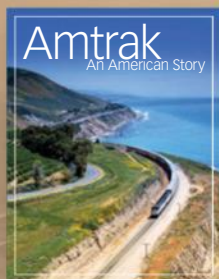
#01117 • \$24.99



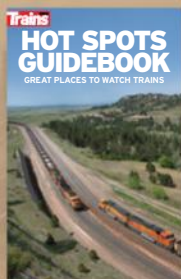
#01211 • \$21.99



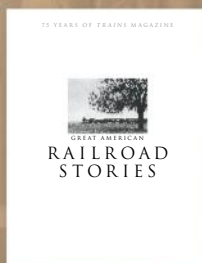
#01302 • \$24.99



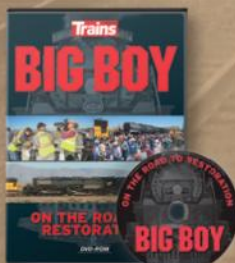
#64445 • \$19.95



#01116 • \$24.95



#01300 • \$24.99



#15109 • \$29.99



#15113 • \$24.99

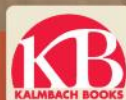


#15111 • \$19.99

P27652

BUY NOW FROM YOUR LOCAL HOBBY SHOPS!

Shop at KalmbachHobbyStore.com or call 800-533-6644



Advertise Here!



To place your ad in

Model Railroader - Call Today!
888-558-1544 ext. 588 or 643

TRAIN COLLECTORS ASSOCIATION™

JOIN TCA!

Friendships that
Last a Lifetime!

Here are just a few great TCA benefits:

- TCA Train Meets (including York, PA!)
- *3* Publications: The Train Collectors Quarterly, National Headquarters News & TCA E-Train, our online magazine
- TCA x-change (online marketplace)
- National Toy Train Museum
- Toy Train Reference Library



Call or visit us online for
your application today!

717.687.8623
www.tcamembers.org

PRODUCTREVIEWS

QUICKLOOK

Walthers HO scale American Car & Foundry 50-foot boxcar

Price: \$24.98

Manufacturer

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

Era: mid-1990s to present (as painted)

Road names: Railbox (mid-1990s repaint and original schemes); Ashley, Drew & Northern; Minneapolis, Northfield & Southern; Port Huron & Detroit; and Vermont Ry. (SSI scheme). Two road numbers per scheme.

Comments: A newly tooled 50-foot boxcar, based on an American Car & Foundry prototype, is the latest addition to the WalthersMainline product line. The injection-molded plastic HO scale model features a one-piece body; a separate roof with eight tabs that lock into corresponding slots on the car's interior; and a single casting for the draft-gear boxes, center sills, body bolsters, crossties, and crossbearers. The air reservoir, brake cylinder, and AB control valve are

separate castings tethered by free-standing piping. The grab irons, ladders, and crossover platforms are molded.

Our sample is decorated as RBOX no. 30284, part of Railbox's 30000 through 30499-series of 5,275-cubic-foot-capacity boxcars built under lot 11-06849 by American Car & Foundry in February and March 1978. This class of cars is used to transport items such as pulpboard, canned goods, and ingots.

I compared the model to a prototype photo of car no. 30284. For the most part, the lettering matches prototype placement. The Railbox logo and "Next Load, Any Road" slogan were positioned a bit high on the model, but not objectionably so.

The Railbox Yellow paint is smooth and evenly applied. The color separation between the yellow body and black door was crisp. All of the printing was legible. I especially appreciated that the correct lot number is stenciled under the consolidated panel.

There was a minor detail discrepancy. The tack and route boards are



molded on the door, but they should be to the left of the door (the tack board under the PLATE C stencil, the route board on the next body panel to the right).

The model's dimensions closely match prototype drawings. The distance over the coupler pulling faces was a scale 1'-6" long, which is typical because model couplers are oversized.

A metal weight secured to the car's interior with three screws accounts for most of the car's 4.5 ounces. The car is at the proper weight per National Model Railroad Association recommended practice 20.1. The 33" metal wheels, mounted on plastic axles, are correctly gauged. The Proto-Max couplers are at the correct height.

The WalthersMainline ACF 5,275-cubic-foot-capacity boxcar features a good mix of molded and separately applied details, allowing the car to withstand typical handling. The car would look good in a manifest freight or parked at an industry. – C.G.

QUICKLOOK

Menards HO assembled structures

Price: Dakota Cabinet Works, \$69.99; Hobby Shop, \$59.99

Manufacturer

Menard Inc.
5101 Menard Dr.
Eau Claire, WI 54703
www.menards.com

Era: 1940s to present

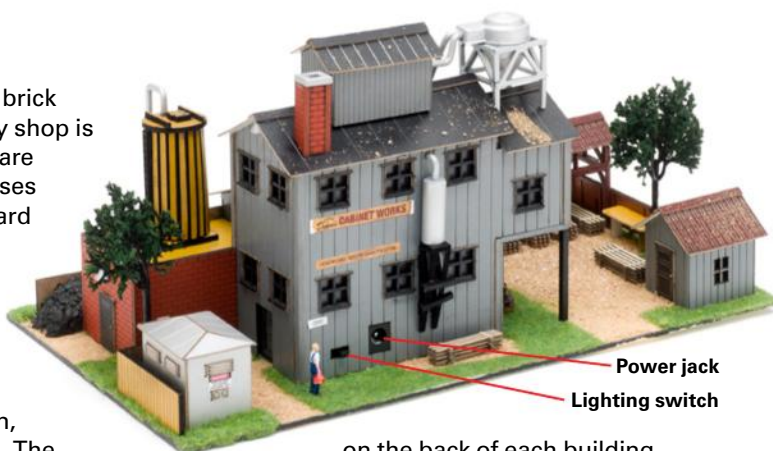
Comments: Menards, a Midwestern home-improvement store chain that's seen success with its line of O scale model railroad cars and structures, is taking on the HO market with smaller versions of its factory-assembled and decorated buildings. Like their larger predecessors, the HO scale Hobby Shop and Dakota Cabinet Works come equipped with light-emitting diode (LED) illumination, lighted signs, hand-painted figures, and other details.

The structures are built primarily of laser-cut wood laminated to tempered hardboard cores that give them a very

hefty feel. Even the brick texture of the hobby shop is etched wood. Both are affixed to sturdy bases – tempered hardboard in the case of the hobby shop, laser-cut acrylic for the factory.

Architectural details are made of cardstock, cast resin, styrene, and acrylic. The windows and doors are assembled in layers from laser-cut acrylic. The hobby shop has clear window glazing to show off the furnished and lighted interior; the factory's windows are frosted.

Both structures are wired with LEDs and flashing signs. The hobby store has interior lighting, a light over the door, and two blinking signs; the factory has one sign and two exterior lights. There are two barrel jacks, one



on the back of each building and one inside, to plug in a 4.5V direct-current power supply, sold separately. A switch to control the lights is next to the rear jack. These could be covered with signs, bushes, or other details if you decide to power the lights from the interior jacks.

It's always good to see a new manufacturer getting into the HO market, and it will be interesting to see what moves Menards makes next. – Steven Otte, associate editor

Meets, superiority, and train orders

There's wry humor in a dictionary definition of meet: "to come into the presence, by chance or arrangement." Two trains will meet one another when they run on single track in opposite directions. It's preferred that they meet by arrangement. The other way hints at the origin of the colloquial expression "cornfield meet."

Timetable schedules can arrange a meet. Here is an example that's thick with information. Take a look at the diagram at right to follow along.

By the rules. Train No. 2, a first-class eastbound train, departs station A at 9 a.m. and runs to station E. Train No. 1, its westbound counterpart, departs E at the same time. The timetable schedules a meet at the passing track at C, with both trains departing there at 10 a.m.

Two rules determine which train stays on the main track at C and which takes the siding. Rule 71 makes trains in the direction defined by timetable superior to trains of the same class in the opposite direction. Rule 89 requires the inferior train to take siding, unless otherwise provided.

Let's define west as the superior direction. This makes No. 2 inferior to No. 1, requiring it to clear the main track at C. Its crew knows that it must enter the siding at the first switch at which it may do so, the switch at the siding's west end. After heading into the siding and clearing the main track, the crew restores the switch so that No. 1 may proceed without delay.

Rule 87 requires an inferior train to clear an opposing superior train by not less than five minutes. No. 2 must then complete the actions just described by 9:55 a.m. If No. 2 fails to clear the main track by this time, its crew must provide Rule 99 flag protection. (See my August 2016 column, "Implementing Rule 99.")

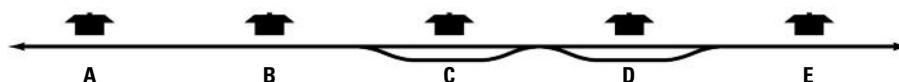
Note the difference between No. 2's arrival time and departure time. It may depart C at 10 a.m., but it must arrive there by 9:55 a.m.

Timetables often indicated scheduled meets in bold, annotated with the number of the train to be met. No. 1's departure at C would appear as **10:00AM2**. No. 2's entry would show **10:00AM1**.

All's well when both trains run on time. A day comes, however, when No. 2



Delaware & Hudson's AM-2 meets a Conrail eastbound at Reilly's, a D&H crew change point near Scranton, Pa., in April 1979. Jerry Dziedzic photo



arrives at C and finds that No. 1 is delayed. No matter how much its passengers fume, No. 2 may not proceed because Rule 87 leaves no doubt: No. 2 must be clear of the main at 9:55 a.m.

Train orders. This, perhaps, was the situation that Charles Minot faced in 1851. He was an Erie RR superintendent who is generally credited with creating the first train order when he grew impatient waiting for an overdue train. He wired a station ahead and instructed its operator to hold the other train there. He then instructed his own engineer to proceed. Fearing a collision, the engineer refused, so Minot took the throttle.

Minot's act was a seminal event in railroading, adding train orders to timetable operation. Train orders could, by the authority of a dispatcher, create train movements not provided for by timetable. This is another way to set a meet.

Let's return to our example. The dispatcher was alerted to engine problems on No. 1 well before No. 2 was due to depart A. So No. 2 could proceed at C without delay, he would issue a Form S-A order to No. 1 at E and No. 2 at A, reading: "No. 1 meet No. 2 at D." Both trains' movements are affected by this order, so each must receive a copy.

No. 2, the inferior train, heads in at station D in the same manner described

above. The dispatcher may change this by wording the order, "No. 1 take siding meet No. 2 at D." This makes No. 1 responsible to clear the main track at D. However, the first switch at which it may enter the siding is the east switch, and it must do so there.

Meets are dramatic railroading, whether by arrangement or chance. It's exciting to witness two trains passing, especially when the meet sets up a shot. We'll leave it to human nature to explain why train wrecks draw crowds. Happily, bruised egos are the only casualties our layouts see.

Recommended reading. A railroad rulebook contains a complete set of the rules and forms you'll see in this column. It's useful to collect a rulebook and an employee timetable for reference. They're usually available at train shows and internet auction sites. Items from major railroads are plentiful and relatively inexpensive.

Rulebooks could vary as railroads adapted general rules to their own specific demands. I chose the "Condensed Code of Operating Rules" as the standard for this column. It adapts a prototype code to model railroad use by eliminating rules that are rarely applicable on our layouts. These make good reading when the operation bug bites you. **MR**

TRACKSIDE PHOTOS



Now on ModelRailroader.com

Ron Foreman's photo, above, is this month's free computer wallpaper. You can download it from the Online Extras section of our website, www.ModelRailroader.com.



▲ High on the Mousebelly Branch of the 3-foot-gauge Devil's Gulch & Helengon RR, engineer "Wild Bill" McFlannel guides his train of silver ore. Ron Foreman of Glendale, Calif., photographed the scene outdoors on an HOn3 diorama. The scenery is a combination of carved foam terrain and natural materials. The ore cars were "down-scaled" from O scale Grandt Line kits.



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.

TRACKSIDE PHOTOS



▲ The line over Cajon Pass is shared by the Union Pacific and Southern Pacific, bringing a mix of equipment through San Bernardino Station. Here, UP's *City of Los Angeles* makes a stop. David Bigge of Thayne, Wyo., scratchbuilt the 5½-foot-long HO station from medium density fiberboard and urethane detail castings. David also shot the photo.

► Milwaukee Road bipolar E-3 pulls the *Olympian Hiawatha* over the summit of the Cascade Range at Hyak, Wash., past one of the railroad's electric substations. Historian Noel Holley took four years to scratchbuild the HO scale scene, including a detailed transformer room with sound and light effects. John Bescup of Houston, Texas, shot the photo.





▼ The Grand Road has brought out its cleanest General Electric ES44AC to haul the railroad's CEO from Terror Creek to Denver in the railroad's new business car. Paul Brennecke of Golden, Colo., photographed the scene on his Grand Road, an 8 x 13-foot N scale layout. Paul used image-stacking software to keep both foreground and background in focus.



◆ A Lehigh Valley class M-36 Camelback locomotive hauls a train of empties back to the interchange. The locomotive is scratchbuilt on an IHC 2-8-0 frame, with rebuilt valve gear to represent the prototype. The tender is also scratchbuilt from styrene. Casey Peters of Lancaster, Pa., photographed the HO scale scene on an 18" x 30" diorama.



Any Time. Any Place. Any Topic.

MR ALL-TIME DIGITAL ARCHIVE

No matter where you go, *Model Railroader* can go with you. With the All-Time Digital Archive you have immediate access to the latest digital issue of *Model Railroader* and the ability to reference every issue since January 1934 in our online library.

Only *Model Railroader* magazine subscribers can explore this comprehensive resource. Don't miss out on nearly a century's worth of model railroading information and tips available for you to read in digital format.



P28806

ADD THE ALL-TIME DIGITAL ARCHIVE NOW!
Call 800-533-6644

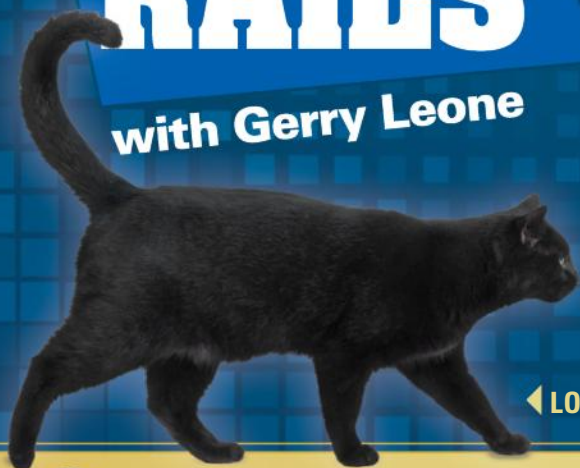


EVERYONE **MODELS BETTER** WITH VIDEO PLUS



OFF THE RAILS

with Gerry Leone



Master model railroader Gerry Leone brings his great skill set, keen sense of humor, and his occasional furry assistant, to our new series, "Off the Rails." Learn workshop tips, tricks, and techniques, get introduced to useful, "how did I ever live without these" tools, and maybe even find a few ideas on how to prevent mishaps on the workbench. Get inspired by Gerry's genius, have a little fun, and become a better modeler along the way!

◀ LORETTA, OCCASIONAL FURRY ASSISTANT



Subscribe now at MRVideoPlus.com/intro

Original programming | Interactive viewing experience | Non-stop model railroading entertainment

Hayes Wheel Stops
N & HO \$2.59 S & O \$3.25
2 pair per package



white metal casting
TOMAR INDUSTRIES
9520 E. NAPIER AVE.
BENTON HARBOR, MI 49022

Visa/MC welcome
Toll Free: 877-697-9731
Fax: 269-944-1901
WWW.TOMARINDUSTRIES.COM

TrainSetsOnly.com

- ✓ Competitive Pricing
- ✓ 1000's of Items In-Stock
- ✓ Quick Shipping
- ✓ Great Service
- ✓ N, HO, O, and G Scales

Locos • Rolling Stock • Track • Power • Structures • Scenery

Valley Trains N Hobbies

Specializing in N scale, locomotives, rolling stock, scenery, DCC & decoders! We also have HO! See us at Greenberg Shows in Edison, NJ.

www.valleytrainsnhobbies.com

THE TRAINMASTER, LLC
Detailed Craftsman Kits

www.TheTrainMaster.com

Pursuing Excellence

SOLID DESIGN LIMITED RUNS • ONE-OF-A-KIND

Oh Yes! We Are Still Making Decals! Quick! Custom!

Decals

SPECIALTY WORK FOR YOUR HOBBY
EMAIL: dandydecals@gmail.com www.soliddesign.bizland.com
8005 ORE KNOB DR., FENTON, MI 48430 • (810) 629-4790

YardSaleTrains.com

Hard to Find Near New Exclusive N Scale

Kato • Atlas • MTL • Kadee • DC or DCC • Scenery
Track • Buildings • Details • Bridges • Tools

www.yardsaletrains.com
(720) 840-7274

Jamestown Train Depot
Quality New & Used Train Sales

www.JTTrains.com

Sales, Service, Repair & Upgrades
All Scales & Makes - Digitrax Dealer

Model Scenery & Structure WINSTON SALEM, NC

Call anytime 24/7 **336-924-0285**

custom layouts
design build install

www.modelsceneryandstructure.com

railroadbooks.biz

has 1,800 plus new titles, all at discount!

Domestic shipping FREE over \$50.00

E-mail for free printable PDF list. chuck@railroadbooks.biz
www.railroadbooks.biz

International Service, Book Search.
SEND: \$2.00 for paper book list.
PO Box 4, Bloomington, IN, 47402-0004 U.S.A.

Digital Sound Modules

Bring your layout to life with sound

Over 150 sound modules to choose from
Trains-Bells-Animals-Nature-City-Industrial

www.ittproducts.com
818-926-1143 Dealers Welcome

FIFER HOBBY SUPPLY LLC
Your Local Internet N Scale Hobby Shop

WWW.FIFERHOBBY.COM

NEW! PICTURE WINDOWS

www.cityclassics.biz

ALLEGHENY SCALE MODELS
BRASS LOCOMOTIVES AND ROLLING STOCK

HO, O, S, N, and Large Scale Out of Production Models
Sales, Consignments, Estates, Appraisals

www.alleghenyscale.com

phone: 908-684-2070
fax: 908-684-8911
oscale@alleghenyscale.com

470 Schooley's Mtn. Rd.
Suite 8-117
Hackettstown, NJ 07840

Need Track?

Walthers, Digitrax & Cobalt Dealer

Full line of On30, HO, N Scale Peco/Atlas track
Micro-Engineering & Caboose Industries.
Handlaying supplies, ties, rail spikes, etc.
Full line of Kadee couplers, Tortoise and more!

WWW.BILLSTRAINS.COM

For Questions and Non-Computer Users, CALL ME!
phone: (813) 653-3322 • e-mail: billstrains@aol.com

Most Everything over 30% off list price!

HO

www.RiverPointStation.com

River Point Station Division of ITI
115 Maple Street, Warwick, RI 02888-2130 USA
Tel. (401) 467-6907 rps-info@riverpointstation.com
Available Worldwide at Hobby Stores
Dealers may order from RPS or through Walthers

Custom Layout Building

Layout Design

By Lance Mindheim

www.shelflayouts.com
301-404-8164

S Scale Trains

22 steam & diesel engines
25 freight cars, passenger and cabooses. The most realistic track made. 33 year reputation.

Send \$7 for 68 pg catalog

www.americanmodels.com
Phone 248-437-6800

AMERICAN MODELS 10087
Colonial Ind, S Lyon MI 48178

ALL ELECTRONICS CORPORATION

Electronic Parts and Supplies for Your Project.

www.allelectronics.com

AffordableModelRailroads.com
GETTING YOUR DREAMS ON TRACK

WE WILL BUILD ON YOUR SITE or In Our Shop

Layout Design & Construction

MR@AffordableModelRailroads.com
(800) 216-9202

The Nation's Premier On-Site Builder. We Build New or Complete Unfinished And In Progress Layouts. Design, Build, Fix And Complete Any Size or Scale!

For The Finest Railroad Backdrops

BackdropJunction.com

After You've Looked at the Others...

Progressive pmd Model Design

MUSEUM QUALITY - CUSTOM LAYOUT MODELING SERVICE

WHAT CAN WE BUILD FOR YOU?

WWW.PROGRESSIVEMODELDESIGN.COM
211 RocBaar Drive, Romeoville, IL 60446
(815) 886-9010 FAX: (815) 886-9076

ULTIMATE MODEL MAGIC™

WIG-WAG, LLC
www.wig-wag-trains.com
Personal service, Great pricing.
Your N-Scale supplier! Actual cost shipping.
1-888-298-7177

Timberline Scenery
All Timberline trees & tree kits are **BOTTLE BRUSH TREES!**
Check out our trees • ground cover paints • stains • rocks & more at...
www.TimberlineScenery.com

HO/N/O signs, billboards, laser-cut structures and much more from:
Blair Line, LLC
PO Box 1136, Carthage, MO 64836
www.blairline.com

Rix Products
Pikestuff
Web site: www.rixproducts.com
Send LSASE for new 20 page catalog.
3747 Hogue Rd. Evansville IN. 47712
Phone (812)426-1RIX FAX (812)423-3174
Model Railroad Structures & Accessories

www.mountbluemodelco.com
On30 18 ft Passenger Car kits
Mount Blue Model Co. PO Box 460 WHB, MA 02381

TK TRAINS HOBBY
Phone 740-633-6607
HO, N, O & G Trains, Track, Scenery, Accessories and Much More!
We have Walthers, Athearn, Spectrum, Branchline and many others!
Visit us on line for great savings!
www.tandkhobby.com

Touch Toggles *Elegant*
Run track circuits, Tortoises, twin-coils, servo motors, and more with a touch!
See our website for a video introduction
Made in the USA
www.berrethhillshop.com

Ron's Books
The largest railroad book seller with over **4,500** titles and over **400** DVDs & Blu-rays! Free shipping on orders over \$25 in the U.S. Send \$3 for a catalog.
P.O. Box 714
Harrison, NY 10528
914-967-7541
ronsbooks@aol.com
Online catalog at ronsbooks.com

BACKDROPS
HO, O, N Scales
WWW.TRAINJUNKIES.COM
----- 10 Feet Long -----

HO SCALE
New!
Barber S-2
50-Ton Trucks
Tahoe Model Works
TEL: 775-600-9992 Send SASE for flyers
PO Box 3935 • Carson City, NV 89702
www.sunshinekits.com/tahoe.html

CHOOCH
Great Scenery
www.ChoochEnterprises.com

Circuits4Tracks
Electronic Kits or Ready-to-use Circuits
<http://circuits4tracks.daxack.ca>
See website for manuals and application notes plus news on our Signaling System design.
Inquiries: 905-787-1203 • circuits@daxack.ca
Use coupon code **MRR2016SE** to receive 5% off product total until October 15, 2016

A well juiced frog is a happy frog
Frog Juicers are automatic DCC polarity reversers for frogs on turnouts and crossings
www.TamValleyDepot.com
Available direct and from many dealers

SPRING MILLS DEPOT
WWW.SMD.CC
Affordable storage systems for HO and N scale. High quality extremely limited custom run HO scale cars.
RESERVE NOW: B&O I-1, I-1A, I-2, I-3, I-5, I-5 C/D!
NEW SCHEMES INCLUDING: GM&O, ALTON, B&OCT!
COMING 2016!!!!

BPL BRASSWORKS
The first stop for those with distinctive taste. Fine scale brass models, both old and new.
WWW.RAILMODEL.COM
BUYING? Outstanding support • trades, reservation management, multiple payment options, one-on-one service, daily updates, latest projects!
SELLING? A single model or extensive collection, experience and robust resources bring you comfort and confidence • consigning or selling
Email: info@railmodel.com
Phone: 262 375-1107 Fax: 866 719-7977
10936 N Port Washington Suite 240
Mequon, WI 53092

RAILROAD PROTOTYPE MODELERS
RPM
CHICAGOLAND
23RD ANNUAL "NAPERVILLE" CONFERENCE
OCTOBER 20-22, 2016
LISLE, IL
WWW.RPMCONFERENCE.COM

Looking for a signaling solution or fast clocks? Look no further!
LOGIC RAIL TECHNOLOGIES™
"Sophisticated Model Railroad Electronics"
Order from our online store or call us!
21175 Tomball Pkwy Suite 287 Houston, TX 77070
Phone: (281)251-5813
<http://www.logicrailtech.com>
info@logicrailtech.com

MODERN Buildings in HO & N!
(337) 436-8481
www.summit-customcuts.com

DON BLACK
WE BUY & SELL BRASS
VISIT US ONLINE
WWW.DONBLACK.COM
HUNDREDS OF PICTURED MODELS TO CHOOSE FROM
Don Black 119A Bernhurst Rd New Bern NC 28560
Toll Free 1-866 HO BRASS

RAIL LINE MODELS
"N-HO S-O"
RAILROADLINEMODELS.COM

Litchfield STATION
SOUNDTRAXX
Custom Installation Available
We carry the HOTTEST DCC Products!
623-298-7355
www.LitchfieldStation.com

PHOENIXUL
1/2oz OILERS
ULTRA LITE—LIGHT—MEDIUM—HEAVY
GEAR—NLGI 2 / PTFE GREASE
NLGI 1 GREASE
PTFE POWDER—BEARING
RAIL CONDITIONER—2oz OIL—MOTOR CLEANERS—OIL KITS...
ASK FOR IT AT YOUR LOCAL HOBBY SHOP
phoenixul@phoenixul.com castbiz.net

Classified Advertising

Schedule of Events Rate: \$35 per issue (45 word maximum). Ads will contain the following information about the event: state, city, sponsoring organization and name of event, meet, auction or show, dates, location, times, admission fee, name and/or telephone number and/or email of person to contact for information. Name, daytime telephone number and street address of the person providing the information is also required but need not be included in the ad. Unless otherwise requested, ads will be published in the issue month that the event occurs in. Additional months are available at the \$35 per issue fee. Please specify issue date(s).

Word Ad Rates: per issue: 1 insertion — \$2.03 per word, 6 insertions — \$1.89 per word, 12 insertions — \$1.77 per word. \$30.00 MINIMUM per ad. To receive the discount you must order and prepay for all ads at one time. Count all initials, single numbers, groups of numbers (i.e. 4-6-0 or K-27), names, address number, street number, street name, city, state, zip, phone numbers each as one word. Example: John A. Jones, 2102 South Post St., Waukesha, WI 53187 would count as 10 words.

For MR's private records, please furnish: a telephone number and, when using a P.O. Box in your ad, a street address. *Model Railroader* reserves the right to refuse listing.

All Copy: Set in standard 6 point type. First several words only set in bold face. If possible, ads should be sent typewritten and categorized to ensure accuracy.

Send your submissions to: *Model Railroader* — Classifieds 21027 Crossroads Circle, P.O. Box 1612 Waukesha, WI 53187-1612 Toll-free (888) 558-1544 Ext. 815 Fax: 1-262-796-0126 E-mail: onlineclassifieds@kalmbach.com

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

Note to Readers: Show dates, times and locations sometimes change. Confirm the details before driving any distance.

Schedule of Events

AR, JACKSONVILLE: Train Show, Jacksonville Community Center, Municipal Drive. August 27-28, 2016, 10:00am-4:00pm. Admission \$7.00, 12 and under free w/ adult. Vendors, Clinics, Contests. Contact RAIL & SPRUE Hobbies, 1200 John Harden Drive, Jacksonville, AR 72076, 501-982-6836 or railandsprue@aol.com

CA, LOS ANGELES: The L.A. Div. proudly presents the PSR/NMRA 2016 Convention "LA Junction", September 21-24, 2016. Tour the finest layouts in LA, attend tours of prototype railroad facilities and great clinics. <http://www.psrconvention.org/lajunction/index.html> Contact: James Keena, pjkeenawhitte@msn.com

CA, SACRAMENTO: T.T.O.S. River City Toy Train Meet. Scottish Rite Center, 6151 H Street, Zip Code: 95819. Saturday, October 1, 2016, 10:00am-3:00pm. Single \$5.00, Families \$9.00, children under 12 free with adult. Free parking. Contact John DeHaan (eves.) 707-642-8023 or Beverly Horner, alternate contact: 209-745-3505

CA, SIMI VALLEY: Swap Meet, Santa Susana Railroad Historical Society, Santa Susana Park, 6503 Katherine Rd., August 27, 2016, 7:00am-10:00am. \$2.00 donation, kids under 12 free. All scales, equipment, scenery, books and photos. For vendor table availability contact Dave, 661-753-6006 or e-mail events@santasusannadepot.org

CT, GREENWICH: Southern Connecticut Model Train Show, Greenwich Civic Center, September 25, 2016, 9:00am-3:00pm. Adults \$7.00, under 12 free. Valley HO Trak Layout & NH SME. Clinics, 150 tables; trains, books, artwork, DVDs. Door prizes, free parking, refreshments. Ron's Books, PO Box 714, Harrison, NY 10528, 914-967-7541, ronsbbooks@aol.com, southerncttrainshow.com

FL, BROOKSVILLE: Regal Railways presents Toy Trains & Hobby Show. Hernando Fairgrounds, 6436 Broad St. Saturday, September 24, 2016, 9:00am-2:00pm. Adults \$5.00. Vendors, videos and operating layouts. Serving lunch items. Contact Joe at 727-244-1341 or visit: www.regalrailways.com for more information.

FL, LARGO: Suncoast Model Railroad Club Train Show/ Open House, September 17, 2016. SHOW: Minnreg Hall, 6340 126th Ave. N., Largo, 9:00am-3:00pm. Admission: Adults \$7.00, Teens \$7.00, under 12 free. Free parking. Food/snacks. OPEN HOUSE: Clubhouse, 12355 62nd Street N, Unit A. Visit www.suncoastmrrc.com

IA, HAMPTON: NCIMRRC Train Show, Franklin County Convention Center, 1008 Central West, Sunday, October 30, 2016, 9:00am-3:00pm. Admission \$5.00. Trains (all scales), memorabilia and collectibles to buy, sell and trade. Individual tables welcome. For information or table reservations contact, Eastside Trains, 641-456-1998, e-mail eastsidetrains@gmail.com

IL, DECATUR: Decatur Train Fair 2016. Decatur Civic Center, 1 Gary K Anderson Plaza, Corner of Eldorado Street and Franklin Street. September 17-18, 2016. Saturday 10:00am-4:00pm, Sunday 11:00am-4:00pm. Adults \$5.00, under 12 free with adult. Steven Bricker, 217-864-4397, sabricker@comcast.net

IL, KANKAKEE: Kankakee Model Railroad Club Train Show. Gov. Small Memorial Park Civic Center, 803 South 8th Ave. Sunday, October 23, 2016, 9:30am-3:00pm. Admission: \$3.00, under 5 free. 8' tables \$15.00 and 6' tables \$12.00. Operating layout. Contact Irv at 815-465-2420 or daswoodwerkhau@yahoo.com for more information.

IL, ST. CHARLES: 25th Annual Chicago Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd. Sunday, October 16, 2016, 10:00am-3:00pm. Admission: \$6.00 (includes tax). Tables \$60.00. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

IN, HAMMOND: Monon Railroad Historical Society Train Show. Ramada Inn Hotel/Conference Center, 4141 Calumet Ave. Sunday, October 2, 2016, 10:00am-3:00pm. Admission \$3.00 or \$5.00 per family. Kids are free. Vendor Tables \$16.00. Contact Ron Simunic 812-322-7306 or Simunic22@att.net

IN, SOUTH BEND: NMRA Michiana Division Conference. Morris Inn, Notre Dame campus, September 30 - October 1, 2016. Admission \$35.00 (NMRA Members \$30.00), Saturday only \$20.00. Clinics, Workshops, Free-Mo layout and more. Registration info at <http://michiana-nmra.org/> or contact Bob Blake at rm7blake@earthlink.net or 203-788-1342

KS, WICHITA: 22nd Annual Model Train Show. Cessna Activities Center, 2744 George Washington Blvd. September 24-25, 2016, Saturday 9:00am-5:00pm and Sunday 10:00am-3:00pm. Admission \$7.00, children 12-under free. All gauges. 40+ vendors. 10+ exhibits. Children's area. Contact Rich Meister, amlyer1@cox.net, 316-587-5885 or garymicholas@hotmail.com, 706-248-6433, Wichita Toy Train Museum

MI, CLINTON TWP: St. Louis Men's Club, Mount Clemens Michigan Train Show. St. Louis Church Comm. Center, 39140 Ormsby Street. Saturday, September 24, 2016, 10:00am-3:00pm. \$3.00/person, \$5.00/family, under 12 free. \$10/table. Contact Carl Hikade, 181 Riverside Drive, Mt. Clemens, MI 48043, 586-463-5184 or e-mail: cdhikade@juno.com

MI, HASTINGS: Train Show & Swap Meet at Barry Expo Center, 1350 North M-37 Hwy. September 17, 2016, 10:00am-3:30pm. Admission: \$5.00 13 and older. Sponsored by Iron Rails & Battle Creek MRRRC's, Inc. Over 120 dealer tables, door prizes, several operating layouts. Information: Brad Miles, 269-953-9171, magicb@aol.com Website: www.bcmrrc.net

MI, WYOMING (GRAND RAPIDS): Grand River Valley Railroad Club Fall Train Show. Saturday, October 15, 2016. Home School Building, 5625 Burlingame Ave. 10:00am-3:00pm. Adults \$5.00, 12 and under free. 210 vendor and display tables. Food. Free parking. Door prizes. Operating layouts. G-to-Z scale. Contact Ken Skopp, 616-667-9680, kwsopp@gmail.com. www.grandrivervalleyrrc.org

NC, SPENCER: Model Train and Railroadiana Show at the North Carolina Transportation Museum. August 20-21, 2016, Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Speakers, train rides, largest preserved roundhouse! Details: nctrans.org or 704-636-2889, ext. 251

NH, CONCORD: Concord Model Railroad Club Show at the Everett Arena, Loudon Road. Sunday, August 21, 2016, 10:00am-3:30pm. Adults \$5.00, children under 12 free with an adult, \$12.00 per family max. Dealers, door prizes and operating layouts. For more information: www.trainweb.org/cmrc/index.html

NY, PALMYRA: Upstate N.Y. Chapter TCA Train Show. Wayne County Fairgrounds, 250 West Jackson St., September 17-18, 2016, Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Adults \$5.00, under 17 free with paid adult. Contact: Chuck 716-390-8216 or E-mail: usnyc2015@gmail.com Website: www.upstate-ny-tca.com

OH, FOSTORIA: 15th Fostoria Rail Festival, 1001 Park Avenue, Zip: 44830. Saturday, September 24, 2016, 10:00am-4:00pm. Admission: \$4.00, children 10 and under free w/adult. Information: Fostoria Rail Preservation Society, 419-435-1781, EllenGatrell@gmail.com, www.FostoriaIronTriangle.com, Fostoria Rail Park Facebook

OH, MANSFIELD: Firelands Model Train and Toy Show sponsored by: Firelands Society of Model Railroaders. Richland County Fairgrounds, 750 N. Home Rd. Saturday, September 17, 2016, 10:00am-4:00pm. Adults \$5.00, active military and 18 and under free. 150+ tables, operating layouts. Contact: Rick, 419-318-0980. Map at: www.fsomr.com

OH, PAINESVILLE: Railroad Memorabilia Show Painesville Railroad Museum (Painesville Depot), 475 Railroad Street, Zip Code: 44077. Sunday, August 28, 2016, 10:00am-4:00pm. 216-470-5780 Email: prmm@att.net www.painesvillerrailroadmuseum.org

SC, MYRTLE BEACH: GSMRRC 7th Annual Myrtle Beach Train Show. Inlet Square Mall, Unit 45, 10125 Hwy.17 ByPass, Murrells Inlet, SC 29576, 843-651-6990. November 12-13, 2016, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Adults \$5.00, 12/under free. Vendors, Operating Layouts, Door Prizes, (32,000 sq. ft. available). Contact Joe Corsetti, 843-236-9148, yrusoslo728@aol.com

SC, MYRTLE BEACH: GSMRRC 7th Annual Myrtle Beach Train Show. Inlet Square Mall, Unit 45, 10125 Hwy.17 ByPass, Murrells Inlet, SC 29576, 843-651-6990. November 12-13, 2016, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Adults \$5.00, 12/under free. Vendors, Operating Layouts, Door Prizes, Contact Joe Corsetti, 843-236-9148, yrusoslo728@aol.com

TX, PLANO: NTC 2nd Annual Fall Plano Train Show. Plano Centre, 2000 E. Spring Creek Parkway. October 1-2, 2016, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Adults \$8.00, 12 and under free w/paid adult. 12 operating layouts, gauges N to G. Dealer tables and How-To Clinics. Information: Chris Atkins, chris@railroadmodeler.com 469-438-0741

TX, TEMPLE: 34th Annual Temple Model Train Show. Frank Mayborn Convention Center, 3303 North 3rd St. September 17-18, 2016. Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Adults \$6.00, 12/under free. \$1.00 discount for seniors, active duty military and their dependents. FREE PARKING. Ron Miller, 254-749-0700, Centra Mod, Inc. www.centramodrr.com

VA, VIRGINIA BEACH: Tidewater Division's 27th Annual Train Show & Sale. Virginia Beach Convention Center, 1000 19th Street, Zip: 23451. October 8-9, 2016, 10:00am-4:00pm. Admission: \$8.00. Equipment, Supplies, Tools, Train Doctors, Test Tracks, White Elephant Tables, "How To" Clinics, Operating Layouts. Info: 757-409-3623, E-mail: kttsad1994@cox.net Flyer: <http://nmra-mre-tidewater.org>

WA, CHEHALIS: Lewis County Model Railroad Club, Annual Harvest Train Show & Swap Meet. Southwest Washington Fair Grounds, Blue Pavilion, 2555 N. National Ave. October 8-9, 2016, Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Admission \$5.00, under 10 free. Free parking. Contact: Ted Livermore, 360-985-7788 or tedstrains@Lewisco.wa.gov

WI, MILWAUKEE: Trainfest, at Wisconsin State Fair Park. November 12-13, 2016, 9:00am-5:00pm. WISE Div. NMRA. Exhibitors include Operating Layouts, Major Manufacturers, Modeling Clinics, and Hobby Vendors. Admission Information and Tickets available at www.trainfest.com Contact us at info@trainfest.com

Classifieds

Wanted-N Scale

#1 ESTATE BUYER OF N SCALE COLLECTIONS! We buy all makes and types - including Brass & European! Even Nn3! Call us TOLL FREE: 1-866-462-7277. Don Black 119 Bernhurst Road, New Bern, NC 28560. E-mail: don@donblack.com

A FAMILY-OWNED COMPANY, Irek's Toys and Trains, purchases trains of all types from brass to plastic. We also offer a competitive consignment option. No collection too small or large. Estate specialists. A leader in model train sales. Fast, Easy, Professional and Friendly service guaranteed. Willing to travel. Call, write, fax or e-mail. Ask for Chris, 972-675-8697. Fax: 972-767-4785. E-mail: thetrainguy@gmail.com or write to 120 East FM 544, Suite 72 #328, Murphy, TX 75094.

ALWAYS BUYING N Scale Collections- Kato, Atlas, Micro-Trains, Custom Painted, Brass or Plastic. Quality Items Wanted- Over \$1,000,000 Available. Please call Dan Toll-Free at: 1-877-227-5557 or 352-292-4116. Mail your list to: Dan Glasure, PO Box 755, Ocklawaha, FL 32183 or E-Mail: Dan@DainsTrainDepot.com

BUYING N scale train collections, large or small. Call Tom 630-443-9137.

CANADIAN TRAIN COLLECTIONS AND ESTATES: Buying entire collections anywhere in Canada or the USA. Brass, plastic, engines, cars, buildings, memorabilia - everything! Call Dan toll-free 1-877-955-7245. E-mail: trainsandsuch@telus.net

For Sale-HO Scale

ATHEARN PARTS- Closing out. All engine shells \$4.00 each. All freight shells \$1.00 - \$2.00 each. Many other parts 50-60% off retail. Call RJ Rennie, 440-234-7186. 197 Best St., Berea, OH 44017.

DISMANTLING A LARGE HO Erie R.R. based mid-1950's layout. Most loco's and cars in original boxes. For complete list send S.A.S.E. to Joel Johnson, 12359 Nantucket Dr., South Lyon, MI 48178-9595.

HAG, MARKLIN, TRIX, FLEISCHMANN and other European brands at very competitive prices. World class repair facility. E-Shopping fast, convenient, secure, reliable! Please visit us on the web at www.helmuthshobbies.com Helmut's Hobby Specialties, 83 Brookshire Dr., Warrenton, VA 20186. 540-349-4910.

LIQUIDATION- Car kits & assembled kits w/Kadee couplers, Building kits & some locomotives. All late 60's thru 80's. Send LSSAE (68 cents) for 12 page list or Email kcyunker@centurylink.net for Excel spreadsheet.

For Sale-HO & N Scale

GOT DIRTY TRACK? HO & N scale track cleaners. Made in USA. Dealer inquiries welcome. www.StealthTrackCleaner.com 616-784-4104

WWW.AZTECTRAINS.COM Track cleaning cars from Z to G. Phone: 775-883-3327; Fax: 775-883-3357

Wanted-HO Scale

#1 A+ ESTATE BUYER OF ALL TRAIN ESTATES- Brass Pieces & Collections wants your material. Including all types of Brass, old trains, kits, plastic, diecast, buildings, etc. - we buy it all. Buildings and estates included. We seek better items for personal collections. Call us before you sell for our offer as we pay the highest prices. Call Don Black toll free 1-866-462-7277. Don Black, 119 Bernhurst Road, New Bern, NC 28560. E-mail don@donblack.com

\$1,000,000 CASH AVAILABLE- For your collection! Brass, Plastic, Memorabilia, we buy it all. Call us 352-292-4116 or mail your list to: BRASSTRAINS.COM, 10151 SE 115th Ave., Ocala, FL 34472. E-mail: dan@brasstrains.com

A FAMILY-OWNED COMPANY, Irek's Toys and Trains, purchases trains of all types from brass to plastic. We also offer a competitive consignment option. No collection too small or large. Estate specialists. A leader in model train sales. Fast, Easy, Professional and Friendly service guaranteed. Willing to travel. Call, write, fax or e-mail. Ask for Chris, 972-675-8697. Fax: 972-767-4785. E-mail: thetrainguy@gmail.com or write to 120 East FM 544, Suite 72 #328, Murphy, TX 75094.

A FATHER & SON TEAM are looking for large high-quality Brass & Plastic Collections. We buy your entire collection, not just the cream. Over \$1,000,000 Available. Many items bought are used for personal layout. Call Dan Toll-free at: 1-877-227-5557 or 352-292-4116 or Mail a List to: Dan Glasure, 10515 SE 115th Ave., Ocala, FL 34472 or E-Mail: Dan@DandTrainDepot.com

BRASS PASSENGER CARS; Craftsman's kits; LIRR brass and plastic. Challenger Broadway Limited and Challenger NP Cars. Please call Bob 212-874-6569 or e-mail grandt@yahoo.com

BUYING HO train collections, large or small. Also brass. Call Tom 630-443-9137.

CANADIAN TRAIN COLLECTIONS AND ESTATES: Buying entire collections anywhere in Canada or the USA. Brass, plastic, engines, cars, buildings, memorabilia - everything! Call Don toll-free 1-877-955-7245. E-mail: trainsandsuch@telus.net

MILWAUKEE ROAD 1939 HIAWATHA; baggage/tap; beaver tail/observ. (together); and 1948/52 baggage/dorm (will buy sep.) Offering \$1,000 + shipping, etc. total, or \$800 for first 2, \$300 for baggage/dorm. lilymariejohnson@yahoo.com

MTH MOHAWK L3b w/wh Elasco feed water heater. Fred Richmond, 3234 Hills St., Chittenango, NY 13037, marichmond2000@aol.com

For Sale-0 Scale

OVER 150 ITEMS all new and boxed featuring N&W Powhatan Arrow with J Class 611. Email: loutkent@verizon.net for complete list.

Wanted-0 Scale

ATLAS CZ CB&Q, PRR, UNDEC No dome coaches, no bag. Des Plaines Hobbies 10/6, 14/4, PSC, NYC Hwyvt. 4 window RPO/Bag. ATSF PS 8-2-2, 8-5, 10-4 Pullmans. Am heavyweight USRA 65' Bag #1603, PSC pass car import list. No calls. Jim Seacrest, PO Box 6397, Lincoln, NE 68506-0397.

ATSF PS PULLMANS: 8 sect-2 DBR-2 Compt, 8 sect-5 DBR and 10 sect-4 Rmts. Sold at various times by Boxcar Ken, Golden Gate, Pecos River Brass and Exakta. Need pass & diesel decals for CB&Q and RL. No calls. Jim Seacrest, PO Box 6397, Lincoln, NE 68506-0397.

CALLING FOR FISCHER sunroom solarium cars PRR Legion Series, PRR Burlington series. No calls. James Seacrest, PO Box 6397, Lincoln, NE 68506-0397.

Wanted-0 Tinline

BUYING O and Standard gauge collections. Lionel, Flyer and all others. Call Tom 630-443-9137

For Sale - Miscellaneous

TREES! Unique Evergreen Trees and Kits. Realistic and Fun. Save Time & Money. Handcrafted in Oregon. www.coastmans.com Mr. Rasmussen 360-820-3553.

Wanted - Miscellaneous

ALL TRAIN COLLECTORS & MODELERS- We need more trains to supply our ever expanding group of interested buyers. We buy HO & N Scale Trains - Brass, Marklin, Rivarossi, Atlas, Kato, MicroTrains, etc. as well as better trains in all scales. We also purchase store inventories. We also can auction your trains with rates starting as low as 15%. We travel extensively all over the US and Canada. Send us your list today or for more information see www.trainz.com/sell Trainz, 2740 Faith Industrial Dr., Buford, GA 30518. 866-285-5840, Scott@trainz.com Fax: 866-935-9504

MODEL AUTOMOBILE AND TRUCK KITS WANT- ED- unbuild or built, any size collection. Fred Sterns, 48 Standish, Buffalo, NY 14216. 716-838-6797. email: fsterns@aol.com

Custom Painting & Building

ABSOLUTELY THE BEST PROFESSIONAL custom model railroad services. www.hobbybuilder01.com E-mail: hobbybuilder01@yahoo.com 978-868-2900, West Palm Beach, Florida

CUSTOM BUILDING & PAINTING, kit building, kit-bashing & scratchbuilding. Locomotives, rolling stock, structures & more. 12 Penny Lane, Newark, DE 19702, 302-229-6010, www.tmbcustommodels.com

CUSTOM LAYOUT BUILDING. Fine scale custom layout building. Specializing in prototype modeling. Layout Design. The Shelf Layouts Company, Inc. www.shelflayouts.com 301-404-8164.

LAYOUT DESIGN SERVICE. Have a case of designers block? I can help. Completed packages include CAD drawings, track quantities, dimensions, specifications, and follow up support during construction. www.shelflayouts.com 301-404-8164

Books and Magazines

MODEL RAILROAD HOW TO BOOKS. TRACK PLAN BOOKS. How To Build A Switching Layout. How To Design A Switching Layout. 8 Realistic Track Plans For Switching Layouts. Details at www.shelflayouts.com

Business Opportunities

HELP WANTED Hiring Experienced or Apprentice Model Railroad Builder. Part Time or Full Time. Position requires the ability to travel out of state 3-4 times per year for 7 to 17 days each trip. No professional experience needed.. personal or club experience acceptable. Must have a passion for building model railroads. Send contact info and skill level to MikeShampine@gmail.com

Subscribe to Model Railroader!

Call 800-533-6644 or visit
ModelRailroader.com today!

LEADING MODEL RETAILERS

Retail Directory spaces are sold on a year's basis at \$654 per year (payable in advance) or at \$60 per month (billed to established accounts for one year minimum); also for six months at \$353 (payable in advance). Ads will be set in standard listing typography. All insertions must be consecutive and may be invoiced if you have credit established with us. No mention of mail order business permitted. CLOSING DATES are listed in the "Schedule of Events" section. For more information call 1-888-558-1544, ext. 815.

ALABAMA • Anniston

Northeast Alabama's Largest!
All Scales - All Major Brands
Tues - Fri 10-6; Sat 9-3
E-mail: modelcitymodels@att.net
www.modelcitymodels.com
MODEL CITY MODELS
2750 Pelham Rd. South #9 256-435-0095

ALABAMA • Enterprise

Southern Alabama's largest train store.
MTH & Lionel authorized dealer. N, HO, HO3, O & G scales. Mon - Sat 10A to 4P
highcountryhobbies@gmail.com
www.highcountryhobbies.com
HIGH COUNTRY HOBBIES
206 South Main St. 334-489-4558

ALASKA • Anchorage

www.anchoragelighthousehobbies.com
Alaska's best hobby supplier since 1964.
Two stories, 6,300sf, 1st floor all R/C,
2nd floor general hobbies, plastics, trains,
slot cars, telescopes & more!
ANCHORAGE HOUSE OF HOBBIES
2803 Spenard Rd. 907-277-7778

ARIZONA • Apache Junction

New Store! Arizona's premier hobby shop.
Full scale, all service hobby shop. Trains,
planes, cars, boats and R/C. Special orders.
Open Mon - Sat
OBIES TRAINS
2114 West Apache Trail #11 480-203-1796

ARIZONA • Avondale

DCC Systems, Decoders, Layout, Supplies
Professional Installations G to Z scales
Mon - Fri 8:00-5:00; Sat 8:00-Noon
Online Store: LitchfieldStation.com
E-mail: Sales@LitchfieldStation.com
LITCHFIELD STATION
1412 N. Central Ave., Ste. D 623-298-7355

ARIZONA • Phoenix

Come and see our NEW store!
Tues - Fri 10-5:30; Sat 9-5, Sun 1-4
Shop online at www.aawtrains.com
AN AFFAIR WITH TRAINS
301 W. Deer Valley Road 623-434-6778

ARIZONA • Phoenix

Narrow gauge almost exclusively.
On3 - Sn3 - HO3n3 - On30.
Kits, parts, brass & books,
Mon-Fri 8-12, 1-5, Sat 8-12.
CORONADO SCALE MODELS
1544 E. Cypress St. 602-254-9656

ARIZONA • Tempe

Family owned, full service. Special orders
welcomed. Athearn, Lionel, Bachmann,
Digitrax & Soundtraxx dealer. Plastic models,
books, magazines, paints, building materials,
scenery, & more. Free classes and clinics.
HOBBY DEPOT
216 W. Southern Ave. 480-968-1880

ARKANSAS • Jacksonville

Headquarters for scale hobbies. Models;
N-HO-O trains; tools; paint, etc.
Discounts & special orders.
Open 10-6, closed Sundays and Wednesdays.
www.railandspurhobbies.com
RAIL & SPUR HOBBIES
1200 John Harden Dr. 501-982-6836

CALIFORNIA • Atascadero

All scales G to Z. Special orders welcome.
Midway LA & SF. US 101-US 41, easy access.
Open Tuesday - Friday 10-6, Saturday 10-5
E-mail Anita at: ccraainsa@hotmail.com
Web site: www.centralcoasttrains.com
CENTRAL COAST TRAINS
7600 El Camino Real #3 805-466-1391

CALIFORNIA • Bellflower

Friendly Hobby Store Now Open!
We carry N, HO, HO3, S, Sn3, RailMaster,
Athearn, Tangent & more. DCC: Digitrax,
Soundtraxx, dealer. Special Orders Welcomed!
www.railmasterhobbies.com
RAILMASTER HOBBIES
9812 Belmont St. 562-867-5627

CALIFORNIA • Burbank

All scales G through N, collectibles old & new.
Authorized LGB, Lionel, MTH & Märklin dealer.
One of the most complete train stores in
So. Calif. UPS worldwide shipper.
Visit our website at www.trainshack.com
THE TRAIN SHACK
1030 N. Hollywood Way 800-572-9929

CALIFORNIA • Concord

Largest selection in the East Bay. 93 foot HO
layout. Buy - sell - trade - consign - repairs -
detail parts in all scales. Lionel.
Discount prices & friendly service.
Website: www.just-trains.com
JUST TRAINS
5650 Imhoff Dr. 925-685-6566

CALIFORNIA • Costa Mesa

Lionel, AF, LGB, HO, N, & Z Gauge.
New, used, & collectibles.
Buy, sell, trade & repair.
Tue - Fri 12-7, Sat 9-5, Sun 11-3.
THE TRAIN CROSSING
1089-C Baker Street 714-549-1596

CALIFORNIA • Hemet

We carry Lionel, MTH, HO, N, Atlas, Walther's,
Ross switches, Garages & Peco.
45' long in-store layout. Open 7 days.
www.dynamichobbies.net
DYNAMIC HOBBIES
811 East Florida Avenue 951-925-9331

CALIFORNIA • Hollister

Model planes, car, ships & figures. Model train
scales: Z, N, HO, O & G. Paints, tools, R/C &
parts, incl. service. Craft & educational kits,
supplies, products. ESU Lok Sound Dealer -
clinics available. Tue - Sat 11-6; Sun 12-4
B.C.T. HOBBY & CRAFTS
201-C McCray St. 831-635-0537

CALIFORNIA • Lodi

Z - N - HO - HO3 - O27 - On30
Locos - Rolling Stock - Digital - Structures
Landscaping Material & more.
www.Rogersrailroadjunction.com
See website for virtual tour.
ROGER'S RAILROAD JUNCTION
105 S. Sacramento St. 209-334-5623

CALIFORNIA • Pasadena

Model rail specialists since 1951.
LGB, Lionel, O, S, On3, HO, HO3n3, N, Z.
Complete stock of brass imports, new & used.
Books, tools, structures, detail parts.
Open 7 days. www.thewhistlestop.com
THE ORIGINAL WHISTLE STOP INC
2490 E. Colorado Blvd. 626-796-7791

CALIFORNIA • Roseville (Sacramento)

Exclusively model trains since 1989.
Athearn, Kato, MDC, Lionel, Atlas, LGB,
Märklin, Brass Imports, books, detail parts.
Everyday low prices. Open 7 days.
www.rhobbies.com
RAILROAD HOBBIES
119 Vernon St. 916-782-6067

CALIFORNIA • San Diego (La Mesa)

Exclusively trains. Craft kits,
detail parts, scratch supplies, books.
Ride the trolley to Reed's.
Open Mon through Sat 10-6; Sun 12-4
www.reeds-hobbies.com
REED'S HOBBY SHOP
8039 La Mesa Blvd. 619-464-1672

CALIFORNIA • San Mateo

Lionel, Märklin, HO scale
Domestic and imported trains
Mon - Sat 9:30-6; Sun 11-5
www.talbotstoyland.com
TALBOT'S HOBBIES
445 South "B" Street 650-931-8110

CALIFORNIA • Santa Clara

100% trains. Discount prices. Super selection.
Monday 9:30am-3:00pm
Tuesday - Saturday 9:30am-6:00pm
Closed Sunday
Dennis Cole E-mail: dcoale4449@att.net
THE TRAIN SHOP
1829 Pruneridge Ave. 408-296-1050

CALIFORNIA • Santa Rosa

HO and N Scale is our specialty. We sell new
and vintage. Factory-trained DCC installation.
Model trains is all we do.
Mon - Fri 10-6, Sat 10-4
POGGIES TRAINS
100 Foley Street 707-545-7643

CALIFORNIA • Tehachapi

Visit us and the Tehachapi Loop
N thru G - Also Trains with History
Mon - Sat 9:30-5 (closed Tues), Sun 11-4
www.trainetc.biz or trainetc@sbccglobal.net
TRAINS, ETC.
114 W. Tehachapi Blvd. 661-822-7777

CALIFORNIA • Westminster (Orange Co.)

World Famous
Model/Toy Trains Only
7,000 sq. ft. Super Center
www.arniesmodeltrains.com
ARNIE'S MODEL TRAINS
6452 Industry Way 714-893-1015

CALIFORNIA • Yuba City

A full service model train store. Large
inventory, HO, N, O & O27 Tinline.
Books, videos, collector & gift items.
Repair service. We buy old toy trains.
www.westerndepot.com
THE WESTERN DEPOT
1650 Sierra Ave. #203 530-673-6776

COLORADO • Colorado Springs

New and used brass. Southern Colorado's
oldest, largest, and most complete train store.
All gauges. Authorized Lionel
& MTH sales and service.
www.CustomRailwaySupply.com
CUSTOM RAILWAY SUPPLY
1015 Garden of the Gods Rd., #150 719-634-4616

COLORADO • Colorado Springs

Our 24th year, full service store!
100% trains. Z, N, HO, O, G scales.
Lionel, Märklin, MTH: Authorized Dealer.
Repair all gauges. www.sunbirdtrainmart.com
Open Mon - Fri 10-6, Sat 10-5:30, Sun 12-5.
DISCOUNT TRAINS
3311 N. Academy Blvd. 719-574-2080

COLORADO • Denver

Since 1938! All scales & gauges. Open daily.
See all this & more in our on-line catalog.
http://www.cabooseshobbies.com
CABOOSE HOBBIES, INC.
500 S. Broadway 303-777-6766

CONNECTICUT • Canaan

Mainly model railroad.
All scales.
www.berkshirehillshobby.com
Tues - Fri 11-6, Sat & Sun 10-5.
BERKSHIRE HILLS HOBBY SUPPLY
93 Main St. (Rt. 44) 860-824-0527

CONNECTICUT • Cos Cob

HO, N, Lionel. Lionel authorized dealer & repair. Plastic, wood kits, rockets, tools, structural & diorama supplies. Special orders welcome.

ANN'S HOBBY CENTER

405 E. Putnam Avenue 203-869-0969

CONNECTICUT • Manchester

All scales Z, N, HO, O, O-27, G, #1, MTH, Lionel, Marklin, LGB, Walther's, Aristio, Trix, etc. Digital Sales-Install. Large operating layouts. Mon-Wed 10-6 Th-Fri 10-9 Sat-Sun 10-6
www.timemachinehobby.com

Time Machine Hobby - New England Hobby Supply
71 Hilliard St. 860-646-0610/Fax-645-0504

CONNECTICUT • Winsted

A hobby shop for modelers by modelers. From hard to find to latest & greatest. Free classes & clinics / multi scales. Large store of quality products at fair prices. Friendly service: www.rhobbysupply.com

RR MODEL & HOBBY SUPPLY

100 Whiting Street 860-379-3383

CONNECTICUT • Wolcott

Exclusively brass models. One of the largest selections in the country. All scales. Buy, consign, trade - entire collections bought. Mon - Fri 8-5
www.thecaboose.com

THE CABOOSE

5 Mohawk Drive 203-879-9797

DELAWARE • Ocean View

No sales tax at the Delaware seashore. Lionel new & used... also Atlas, Bachmann, MTH. We buy used trains. Auth. Lionel repairs. Large inventory of used HO trains. Open Tues - Sat 11-4:30, Closed Sun & Mon

SEASIDE HOBBIES

15 Daisey Ave. 302-539-1601

FLORIDA • Cape Canaveral

Lionel, American Flyer, MTH
Trains bought and sold
www.traincity.com
www.chochoosuctions.com

TRAIN CITY, INC. - CHARLES SIEGEL
387 Imperial Blvd., Ste. 2 321-799-4005

FLORIDA • Ft. Myers

Come visit our new store!
N, HO, O, G scale model railroading.
Paint, tools, scenery, accessories,
& plastic models.
Mon - Sat 10:00am-6:00pm. Closed Sun.

METRO TRAINS & HOBBIES

12951 Metro Parkway 239-332-0422

FLORIDA • Lantana (West Palm area)

Full line Hobby Shop specializing in Trains.
Mon-Fri 10-6, Sat 10-4, Sun 12-4
www.depotohobbyshop.com
1/2 mile east of I-95 exit #61

THE DEPOT HOBBY SHOP

518 W. Lantana Rd. 561-585-1982

FLORIDA • Melbourne

The Space Coast's Model Train Shop. Z thru G scales. N scale our specialty! Digitrax, Kato, Lionel & Walther's Dealer. Atlas, IM, BLW, Piko, LGB & Rokuhan. Mon-Sat 10am-5pm.
Email: trftrains@cfl.rr.com

TRF TRAINS & MNT HOBBIES

2715 N. Harbor City Blvd., #12 321-241-4997

FLORIDA • Miami

Shop "Warehouse Style" for Z to G, MTH, Lionel, Kato, LGB, Broadway Ltd., Atlas, Peco, Walther's at discount prices. Open Tues - Sat 10-4, Closed Sun & Mon

READY TO ROLL

831 N.W. 143rd Street 305-688-8868

FLORIDA • Ocala

HO, N trains & accessories
Visa, MC, AX, Discover
Open Mon - Fri 10-5:30, Sat 9-4
Call for Sunday hours.

ROB'S HOBBY WORLD

8585 SW Hwy. 200 352-854-2799

FLORIDA • Orlando

One of Florida's largest model train & hobby shops. All scales.
Authorized Lionel & MTH service station. Mon-Thu 9-7:30, Fri 9-9, Sat 9-6.
20 min. from Disney.

COLONIAL PHOTO & HOBBY, INC.

634 North Mills 407-841-1485

FLORIDA • Pensacola

Competitive prices, friendly service.
All makes & models, trains & accessories
Z - G, Lionel, Micro-Train, MTH Dealer
www.trainbyjohnson.com
Old Palafox St. at 10 Mile Rd.

TRAINS BY JOHNSON

10412 N. Palafox Hwy. 850-478-8584

FLORIDA • Port Charlotte

Full line hobby shop specializing in trains of all scales new & used. Name brand dealer. Large selection of model kits and diecast also. We buy train collections. Open Mon - Sat
Email: kandktrainsllc@gmail.com

K & K TRAINS

3271-C Tamiami Trail 941-883-6931

FLORIDA • Port Orange (Daytona Beach)

Your Southern Connection for Quality Products! Featuring O, HO, N, Woodland Scenics, MTH, Atlas, and National Service Center, Breyer Horses. Mon - Fri 9:30-5; Sat 9:30-4. www.roundhousesouth.com

ROUNDHOUSE SOUTH

4611 S. Ridgewood Ave. 386-304-7003

FLORIDA • Sarasota

Trains, trains, trains.
Model railroading at its best.
Visit us in the store or
on the Web at www.ccmr.com
Open Mon-Fri 10-6, Sat 10-5.

GULF COAST MODEL RAILROAD, INC.
3222 Clark Rd. 941-923-9303

FLORIDA • Tampa Bay - Pinellas Park

2600 sq. ft. Showroom. Lionel & MTH Dealer
NEW, USED, BUY/SELL * All Gauges Z thru G
Over 6,000 Parts. Repair Services. Trains.
Track, Sets, Scenic Supplies. Tues - Sat 10-6
www.zitniktrains.com

ZITNIK TRAINS
5193 73rd Ave. N. 727-201-9668

FLORIDA • Tampa/St. Pete/Clearwater/PP

The last decent place in Florida not endorsed by Mickey Mouse. Huge inventory in all gauges. Great store, come see!
Daily 10-5, Sat 10-6, Sun 11-5
www.hrrtrains.com

H & R TRAINS

6901 US Hwy. 19 N, Pinellas Park 727-526-4682

GEORGIA • Atlanta (Liburn)

HO, Atlas, Bachmann, MTH
Complete scenery supplies.
Operating HO layout and 400 sq. ft. layout.
HUGE Selection in a 11,000 sq. ft. store.
www.legacystation.com 800-964-8724

LEGACY STATION TRAINS

4153 Lawrenceville Hwy., #12 770-339-7780

GEORGIA • Atlanta (Riverdale)

Atlanta's Finest Shop for serious modelers!
Quality items in all scales at fair prices.
Service - Repairs. Over 34 years of quality service. Close to all Interstate Hwy's.
8-min. from Atlanta Airport. Tue-Sat 10-5:30

RIVERDALE STATION

6632 Hwy. 85, Riverdale Plaza 770-991-6085

GEORGIA • Braselton

Bargains Galore!
Located 1/2 mile off I-85 exit 129.
Featuring HO, O, toys and die cast items from Trainz.com
Hours: Mon - Sat 10-6, Sun 1-5

ANTIQUE MALL TRAINS
5134 Georgia 53 706-654-3693

GEORGIA • Buford (Atlanta)

Quality, Selection & Service.
Discount pricing in all scales.
Mon - Sat 11-6, Sun 1-6
Across from NS Mainline in Downtown Buford
Web store at: www.trainmastermodels.com

TRAINMASTER MODELS

601 East Main St. 678-546-3600

ILLINOIS • Burbank

Specializing in HO.
One of the most complete exclusive model railroad shops in the midwest.

THE GOLDEN SPIKE TRAIN SHOP

6357 W. 79th Street 708-598-3114

ILLINOIS • Des Plaines

N, HO, S, O, G Std. & Narrow gauge too.
Lots of scratchbuilding parts and stuff too.
Brass, books & DVDs. Close to O'Hare,
M, T, W, F 10-6; Th 10-8; Sat 9:30-5; Sun 11-5
Web Store: www.desplaineshobbies.com

DES PLAINES HOBBIES

1524 Lee St. (Mannheim Rd.) 847-297-2118

ILLINOIS • Downers Grove

HO and N Scale Model Trains and Accessories
Two Blocks South of Metra Station
at Maple Ave.
www.timberlinetrainshop.com

TIMBERLINE TRAIN SHOP, LTD.

5228 Main St. 630-324-6136

ILLINOIS • Elgin

HO & N Scale
Scratch building supplies, paints, tools and much more. We special order. Digitrax dealer.
www.bgrtrainworld.com

B & G TRAIN WORLD

829 Walnut Ave. 847-888-2646

ILLINOIS • Geneseo

Scale Trains, Models & Hobby Supplies
Specializing in Midwest Roads
Visit Our Website or Call for
New Location and Hours
GRHOBBIES.COM

GREEN RIVER HOBBIES

119 W. Exchange St. 309-944-2620

ILLINOIS • Marion

Full-Line Hobby Shop.
HO & N scale locomotives, scenery,
plastic models, R/C, tools, paints, and more.
Open Tue - Fri 1:30-6:30pm, Sat 10am-4pm

CHUCK'S DEPOT

1913 W. Rendelman St. P/F 618-993-9179

ILLINOIS • Maryville

Large 60' x 70' customer operated DCC HO layout. Located 17 miles from St. Louis near I-70/I-55 exit 15B. For shop hours/maps pictures, layout construction times, train running see www.k-10modeltrains.com

K-10'S MODEL TRAINS

19 Schiber Court 618-288-9720

ILLINOIS • Mundelein

Specializing in trains, HO, N, O, G, Lionel.
Books and videos. Northern IL railfan headquarters. Closed Monday. Please call for other hours. Fax 847-949-8887.
ronhobby@aol.com

RON'S MUNDELEIN HOBBIES

431 N. Lake St. (Rt. 45) 847-949-8680

ILLINOIS • Springfield

HO / G / N.
Special orders / discount prices.
Display layouts / clinics / assistance.
Call for hours.

CASTLE TRAINS & TREASURES
4782 Old Jacksonville Rd. 217-793-0407

INDIANA • Bremen

Small town. Large shop. O, HO & N scales.
Discounts. Three operating O, HO & N layouts.
Large selection - since 1961
Mon, Tues, Thur, Fri 10-6; Sat 10-4.

BREMEN HOBBIES
308 N. Bowen Ave., SR 331 574-546-3807

INDIANA • Dyer

N, HO & O, DCC & Digitrax Dealer. Atlas, Athearn, BLI & Walther's. Plastics, modeling supplies & detail parts. Special orders.
Competitive prices. Mon - Fri 10-6; Sat 10-5; Sun 11-3. www.parklanehobbiesonline.com

PARK LANE HOBBIES

1080 Joliet St. (US 30) 219-322-1123

INDIANA • Indianapolis

Bachmann-HO-50+ new engines/500+ rolling stock including Thomas- N scale/50+ new engines/300+ rolling stock- On30/70+ engines 100+ rolling stock- 400+ used O27 pieces 1,000+ acc. Open every day but Xmas, 11-6

SANFORD & SON TRAIN YARD

3444 North Shadeland Ave. 317-748-3337

INDIANA • Indianapolis

Trains are our only business! HO, N, O27. Brass, books, magazines, detail parts, paints & accessories. 1 block West of Shadeland Ave. on Washington St.
Mon-Sat 10:30-6. www.waynestrains.biz

TRAIN CENTRAL

6742 E. Washington (U.S. 40) 317-375-0832

INDIANA • Lafayette

New location. You have to see it to believe it. Color photos, rolling stock, structures, detail parts: HO, HO/N3, O, N scales.
Monday - Friday 12-5; Sat 10-5.
Evenings by appointment.

HAWKINS RAIL SERVICES
3501 Union St., Suite 6 765-742-5577

IOWA • Urbandale

N, HO, & O
Lionel, MTH, Atlas
Exit #129 I-80/I-35, 2 miles south
Iowa's premier Model Railroad store
Open 7 days a week.

HOBBY HAVEN

2575 86th Street 515-276-8785

KANSAS • Overland Park (KC Area)

O, S, HO, N, Z & G Scale
Lionel, MTH, A/F, Marklin, LGB & more!
New, Used & Vintage. Extensive scenery line.
Repair, custom work & layouts.
www.fredtrainshop.com

FRED'S TRAIN SHOP

7327 West 80th St. 913-383-3500

MAINE • Yarmouth

Specializing in HO trains. Custom weathering, painting, DCC, scenery, diorama building, structure building. Between Falmouth and Freeport on Route 1. Tues - Sat 10am-6pm
(Call ahead Mon) www.mainemodelworks.com

MAINE MODELWORKS

374 US Route One, Unit 2 207-781-8300

MAINE • York

Model trains & slot cars. Most scales available.
Accessories & services. New, pre-owned & vintage. Working layout! Open 7 days 10-5
www.yorkvillagemarketplace.com

YORK VILLAGE MARKETPLACE

891 U.S. Route 1 207-363-4830

MARYLAND • Annapolis

If we don't have it, we'll get it! LGB, Woodland Scenics, Walther's Dealer, Aristio, Deltion, Pola, Lionel, Bachmann, Spectrum, Proto 2000. Mon - Sat 10-6.
Full line Kalmbach! starhobby1@msn.com

STAR HOBBY

1564 Whitehall Rd. 410-349-4290/4291

MARYLAND • Baltimore/Cockeysville

Model RR headquarters since 1913.
Excellent selection HO & N equipment & accessories: Lionel. All at disc. prices.
Mon - Fri 10-5; Sat 9-5.
www.modeltrainstuff.com

M.B. KLEIN

243 Cockeysville Rd., Ste. A 410-229-9995

MARYLAND • Sykesville

Central Maryland's best kept secret - a family friendly model train shop that specializes in HO & N Scale at very generous discounts.
Please call for hours or visit us at
www.themoosecaboose.com

THE MOOSE CABOOSE

1341 W. Liberty Rd. 410-795-4610

MASSACHUSETTS • Ashburnham

Specializing in New England road names, HO/N Scale, Micro-Train, Walther's, Horizon. Special orders discounted. Tu & Th 10-4. Wed & Fri 11-6. Sat 10-6. www.halfpricehobby.com
service@halfpricehobby.com

SHEPAUG RAILROAD COMPANY

23 Westminster St. 978-537-2277

MASSACHUSETTS • Duxbury

G - 1 - O - S - HO - N - Z
Buy - Sell - Trade - New - Used - Repairs
Marklin Dealer
Wednesday - Sunday 11-6

DUXBURY GREEN, INC.

382 Kingstown Way (Rt. 53) 781-585-2164

MICHIGAN • Bridgeport

Scales Z to G. All at discount prices.
Am. Models, Aristio, Athearn, Atlas, Bachmann, Con-Cor, IHC, USA, Kadee, Kato,
K-Line, Lionel, MTH, Walther's, LGB, HLW.
www.jvrrailroad.com

JUNCTION VALLEY RR HOBBY SHOP
7065 Dixie Hwy. 989-777-3480

MICHIGAN • Flint

G (LGB & 1-20, 3). O (Lionel & MTH), On30, HO, N, & Z. Locos, cars, figures, buildings, track, kits, scenery supplies, details, books & videos.
Digitrax Dealer. Repair service. VISA/MC.
Mon-Fri 10-8, Sat 10-6, Sun 12-5

RIDERS HOBBY SHOP
2061 S Linden Rd 810-720-2500

MICHIGAN • Fraser

Full line hobby shop.
Open Mon - Fri 10-8, Sat 10-6, Sun 12-5
www.pdnhobbyshop.com

P & D HOBBY SHOP

31280 Groesbeck Hwy. 586-296-6116

MICHIGAN • Grand Rapids

LGB, O (Lionel, MTH & Scale), HO, N & Z Locos, cars, figures, buildings, track, tools, kits, scenery supplies, details, books, videos.
Digitrax Dealer. Repair service VISA/MC
Open Mon - Fri 10-8 & Sat 10-7

RIDER'S HOBBY SHOP

2055 28th Street SE 616-247-9933

MICHIGAN • Leslie

Michigan's Largest N Scale Dealer.
Tue - Thur 1-9, Fri & Sat 1-5.
*Closed Saturdays Memorial to Labor Day.
We also carry Z, HO & G Scales.
www.gjtrains.com

G&G TRAINS

1800 Baseline Road 517-589-5977

MICHIGAN • Saginaw

Personalized Customer Service!
Trains & Accessories N to G
Authorized Lionel/K-Line, MTH, DIGITRAX
Sales & Service - over 12,000 parts
www.traindoctor.com

BRASSEUR ELECTRIC TRAINS
410 Court St. 989-793-4753

MICHIGAN • Traverse City

Let your imagination run wild!
Z to G, Lionel, scenery, tools,
structures, scratchbuilding supplies,
special orders, ships, armor, cars, more...

TRAINS & THINGS HOBBIES

210 East Front St. 231-947-1353

MICHIGAN • Troy

FORMERLY MERRI-SEVEN • NEW LOCATION
All scales Z thru G, new and used
Complete selection of RR equipment/supplies
BUY • SELL • REPAIR • PARTS
Tues - Fri 11-7, Sat 11-6

EMPIRE TRAINS & HOBBIES

3278 Rochester Rd. 248-680-6500

MICHIGAN • Wyoming

NEVADA • Las Vegas

Electric trains & accessories
N, HO, S, O
Lionel/American Flyer Dealer

TRAIN EXCHANGE
6008 Boulder Hwy. 702-456-8766

NEVADA • Las Vegas

Big selection of HO, N and Lionel O Gauge trains. Only 7 miles west of the Las Vegas strip. www.westsidetrainstv.com

WESTSIDE TRAINS
2960 S. Durango #117 702-254-9475

NEW HAMPSHIRE • Hampton Falls

HO - N - O & accessories.
Carrying Atlas, Athearn,
MTH-Railking, Lionel, Williams
Open 7 days a week 10-5.

BRENTWOOD ANTIQUES
106 Lafayette Rd. (Rt. 1) 603-929-1441

NEW JERSEY • Cedar Grove

Celebrating our 33rd Anniversary 1979-2013.
Authorized Marklin Digital Dealer, Lionel
Station & V.A.D. LGB Train Stop.
O, O-27, HO, N & Z scale.
We sell the best & service the rest.

TONY'S TRAIN TOWN
575 Pompton Ave. 973-857-2337

NEW JERSEY • Kenil

Full service hobbies, a full line of
HO, N, 3-Rail, military, cars, boats,
planes, dollhouses, scratchbuilding
supplies, plus details-details-details!

KENVIL HOBBIES
590 Rt. 46 973-584-1188

NEW JERSEY • Mountain Lakes

One of northern NJ's largest train stores. Auth.
Lionel sales, service, and parts. Old
Lionel trains bought and sold. LGB, Atlas, Life-
Like, MDK. Walter's dealer.

THE TRAIN STATION
Romaine Road 973-263-1979

NEW JERSEY • Piscataway

Serving hobbyists since 1933.
Large selection of HO, N, S & O scale
Railroad books - complete repair service
Mon., Tues. & Thurs. 10am-6pm,
Sat. 10am-5pm, Wed. & Fri. 10am-9pm.
THE MODEL RAILROAD SHOP, INC.
Vail Ave. & New Market Rd. 732-968-5696

NEW JERSEY • Point Pleasant Beach
A Complete Model Railroad Store with over 600
Engines in Stock. N, HO, O, DCC/DCS/TMCC
Authorized MTH & LIONEL Dealer. Walther's
Atlas • Atlas O, Sun - Thur 10-6, Fri - Sat 10-8
www.thetrainroomnj.com
THE TRAIN ROOM
715 Arnold Ave. 732-892-5145

NEW JERSEY • Somerville

Full line all scales N thru G.
Specializing in service
Tues to Fri 11 am - 7 pm;
Sat 11 am - 5 pm; Sun 12 pm - 4 pm
www.biglittle.com Fax # 908-685-8894
THE BIG LITTLE RAILROAD SHOP
63 W. Main St. 908-685-8892

NEW JERSEY • Westmont

Athearn, Atlas, Bowser, Walthers.
Structures, books.
Exclusively trains since 1955.
HO and N.
SATTLER'S HOBBY SHOP
14 Haddon Ave. 856-854-7136

NEW YORK • Hurley

Trains - Z, N, HO, S, O, G scale, models,
rockets, hobby supplies. Lionel & MTH
authorized dealer. 4 working layouts. Repairs,
buy/sell. Open 7 days. An old fashioned
general store. www.hurleycountrystore.biz
HURLEY COUNTRY STORE INC
2 Wamsley Pl. (Old Hurley) 845-638-4843

NEW YORK • Mineola L.I.

Since 1949. Long Island's largest full-line
hobby superstore. 10,000 sq. ft. Featuring
MTH, Lionel, Marklin HO and Z, HO and N
scales. Books, detail parts and much more.
www.willishobbies.com

WILLIS HOBBIES INC
300 Willis Ave. 516-746-3944

NEW YORK • Smithtown

O, HO, & N gauges.
All major lines carried.
We are model railroaders.

3 GUY'S HOBBIES
10 Lawrence Ave. 631-265-8303

NEW YORK • Syracuse (East)

100% scale model railroading. HO, S, O, N.
Northeastern, New England, Canadian
specialists. Exclusive; Northeast Modeler.
West Shore Line kits. Closing Mon. Call for free
map & hours. www.centralhobby.com

CENTRAL HOBBY SUPPLY
102 Walter Dr. 315-437-6630

NEW YORK • Wellsville

O, HO & N. Weaver, Atlas, Athearn, MDC &
Walthers. Start-to-finish railroad supplies.
Magazines, Craftsman kits & Kadee.
Old local lines like A.G., Erie & E.L.
Tues - Fri 12-5, Sat 10-3.

EAST DYKE DEPOT
332 E. Dyke St. (Rt. 417E) 585-593-0005

NORTH CAROLINA • Arden

HO, N, Model Trains and accessories.
Broadway Limited, Kato, Walthers,
Digitrax, Atlas, Athearn, and more.
Mon - Fri 9:00am-5:00pm Order by phone 24
hours. www.factorydirecttrains.com
FACTORY DIRECT TRAINS
7 Glenn Bridge Rd., Ste. B 800-990-3381

NORTH CAROLINA • Raleigh/Wake Forest

Authorized Digitrax, Soundtraxx, Walthers,
Bowser dealer. DCC experts. Installation &
Service. Computerized customer order
tracking. "Sharing the joy of model railroading"
www.trainbuddy.com

TRAIN BUDDY™ PRODUCTS
1200 Jenkins Rd. 919-562-4378

NORTH CAROLINA • Spencer

Across from NC Trans Museum. Big selection
of trains in all scales. Digitrax Dealer, RR
videos/books & children's toys Tue-Sat: 10
-5:30. www.littlechoochoooshop.com
or info@littlechoochoooshop.com

LITTLE CHOO CHOO SHOP, INC.
500 S. Salisbury Ave. 704-637-8717/800-334-2466

NORTH CAROLINA • Wilson

Complete stock HO, N, O, G. Discounts.
HO layout display. I-95 Exit 119, east on US
264, 4 miles to exit 42, right on Downing Street
and go to first light.
Tues. - Sat. 10 a.m. - 6 p.m.

THE ANTIQUE BARN TRAIN SHOP
2810 Forest Hills Rd. SW 252-237-6778

OHIO • Alliance

New and used trains of all scales. Custom
painting, full service repair department.
Tue, Thu, Fri 12-8pm, Sat 10-3pm.
www.alliancelink.com/vrostrains

ROB'S TRAINS
333 E. Main St. 330-823-7222

OHIO • Columbus

All scales; N, HO, LGB
www.hobbylandstores.com

HOBBYLAND
206 Graceland Blvd. 614-888-7500

OHIO • Columbus

Exclusively trains.
LGB, Lionel, O, HO, N scales.
Books, Thomas, videos.
Mon - Thur 10-6, Fri 10-8, Sat 10-6, Sun 12-5
www.trainstationohio.com

THE TRAIN STATION
4430 Indianola Ave. 614-262-9056

OHIO • Mansfield

Full line hobby shop since 1977.
Exclusively through G scales.
Authorized Lionel service station.
Thomas the Tank and Brio.
Open Mon-Sat 10-5, Fri 'til 6:30.

JOHN'S HOBBY SHOP
15 N. Main St. (on the Square) 419-526-4426

OREGON • Beaverton

Complete full line service hobby shop.
Z, N, HO, O, Lionel, and LGB.
Open Mon - Fri 10-8, Sat 10-5, Sun 12-5.

TAMMIE'S HOBBIES
12024 SW Canyon Rd. 503-644-4535

OREGON • Eugene

Complete HO & N for beginners, experts. O-27
and G too. We carry all major brands.
Scratchbuilding supplies, books, tools. Big RC
selection, planes, boats, cars.
Open Mon - Sat 9-6, Friday to 7.

EUGENE TOY & HOBBY
32 East 11th Ave. 541-344-2117

OREGON • Portland

HO, N, Z, Lionel, DCC, brass
Reservation discounts, new, used,
Consignments, 16 minutes from Airport
www.hobbysmith.com

THE HOBBY SMITH
1809 NE Cesar Chavez Blvd. 503-284-1912

OREGON • Portland

Your complete model railroad store.
Gauges Z through G.
Mon - Fri 10-6, Sat 10-5, Closed Sunday
www.wsor.com

WHISTLE STOP TRAINS

11724 SE Division St. 503-761-1822

PENNSYLVANIA • Blue Ridge Summit

The Exclusive model railroad store.
From N to G, we stock it all.
OPEN 7 days a week,
Only minutes from Frederick, MD.
www.mainlinehobby.net

MAINLINE HOBBY SUPPLY
15066 Buchanan Trail E. 717-794-2860

PENNSYLVANIA • Bristol

We carry most major brands and accessories
for N, G gauge. SELL - B/S - REPAIR
March - Sept. W - F 11-8; Sat 11-7; Sun 11-6
www.trainpops.com trainpopsattic@gmail.com

TRAINPOPS ATTIC
400 Mill St. 215-788-2014

PENNSYLVANIA • Broomall

Lionel, American Flyer, LGB-Aristo.
HO, N, ON30, RMT. Standard O & S gauges
bought, sold & traded. Auth. service center.
Mon, Wed, Fri 10-9, Tue & Thur 10-7, Sat 10-5
www.nstrs.com

NICHOLAS SMITH TRAINS
2343 West Chester Pike 610-353-8585

PENNSYLVANIA • Duncansville (Altoona)

Everything in the store is discounted. Trains,
models, R/C, rockets, and pinewood derby.
Email: littlejuniariver@aol.com
Hours: Tues - Fri 10-6; Sat 10-5; Sun 12-4
Visit www.holidayhobbies.com

HOLIDAY HOBBIES
1205 Plank Road 814-696-3533

PENNSYLVANIA • Jeannette

Trains exclusively. Lionel, MTH, HO & N.
Supplies and accessories at discount prices.
Open daily 9:30-5, Mon & Fri 9:30-7, Sat 9-4.
Closed Tue. Expanded hours Nov. and Dec.
www.needztrains.com

NIEDZALKOSKI'S TRAIN SHOP
214 South 4th Street 724-523-8035

PENNSYLVANIA • Landisville (Lancaster)

Model Trains New & Used
Supplies, Paint, Tools
Rockets, Slot Cars, Lionel/MTH Trains
Tue - Thur 10-6, Fri 10-7, Sat 10-4
We buy train collections large & small

COOLTRAINS HOBBIES
106 W. Main Street 717-898-7119

PENNSYLVANIA • Lansdale

Exclusively Trains
Specializing in DCC
NCE • Digitrax • Tsunami • ESU
www.linsjunction.com
linsjunction@comcast.net

LIN'S JUNCTION
128 S. Line St. 215-412-7711

PENNSYLVANIA • Montoursville

Mon - Fri 9-5:30, Sat 9-5
Extended weekday & Sun hours in Nov. & Dec.
E-mail: emrrs@chilitech.net
www.englishmodelrailroad.com

ENGLISH'S MODEL RAILROAD SUPPLY
201 Streibigh Lane 570-368-2516

PENNSYLVANIA • Philadelphia (Feasterville)

Lionel, American Flyer, LGB, MTH, Marklin,
Bachmann, Williams. HO, N & Z. We buy, sell
& repair. Mon-Fri 12-8; Sat 10-5
www.JoesTrainStation.com

JOE'S TRAIN STATION
21 East Street Rd. 215-322-5182

PENNSYLVANIA • Strasburg

From trains to diacast to scenery, everything
for the layout builder. Open 7 days a week.
N, HO, O, Lionel, LGB.
Buy, sell, trade used trains.
Located adjacent to the Choo Choo Barn.

STRASBURG TRAIN SHOP
Route 741 East 717-687-0464

RHODE ISLAND • Warwick

HO trains & acces., detail parts, plastic &
craftersupplies, hobby supplies, toys.
Tue - Fri 12-8, Sat 10-6 (Sun Nov - Dec 12-4)
Closed Mon. 1/2mi.W. of airport.
E-mail: aahobbies@gmail.com

A. A. HOBBIES, INC.
655 Jefferson Blvd. 401-737-7111

SOUTH CAROLINA • Greenville

Model Trains Only - ALL AT DISCOUNT
PRICES!! 140,000+ items in stock available
online 24/7 at www.BlueRidgeHobbies.com
Retail Store features HO and O
Open Tue, Wed & Fri 9:00am-1:00pm
BLUE RIDGE HOBBIES
2327 N. Pleasantburg Dr., Ste. H 800-988-2125

SOUTH CAROLINA • West Columbia

All scales, all major brands of
model railroad equipment.
We buy & sell used Lionel trains.
Open daily 10-6. Closed Sun.

NEW BROOKLAND RR & HOBBY SHOP
405 State Street 803-791-3958

TENNESSEE • Knoxville

Located in Knoxville's premier shopping
destination. We are the area's most diverse
hobby store with a large selection of HO, N,
and O. Open 7 days a week.
Turkey Creek Area.

HOBBYTOWN USA
11145 Turkey Dr. 865-675-1975

TENNESSEE • Nashville

HO, O, N, & G scale. Special orders plus
plastic kits, rockets, R/C more. I-65 Exit 74 E
or I-24, Exit 59 W. Near Old Hickory Blvd.
& Nolensville Rd. Mon-Tues-Wed 11-6; Thur
11-9; Fri-Sat 10-6. www.hudsonhobbies.com

HUDSON CLASSIC HOBBIES

15119 Old Hickory Blvd. 615-833-8337

TENNESSEE • Wartrace

Located next to CSX Nashville-Chattanooga
mainline 10 min. off I-24 exit #97. Model
railroad supplies, operating HO, O & N scale
trains, railroads, collectibles. Wed-Sat 10-5;
Sun 1-5 www.dixieflyertrains.com

THE DIXIE FLYER
98 Main St. 1-800-465-0448

TEXAS • Athens

Specializing in HO, HOOn3 & Brass
Blackstone • Tsunami • InterMountain • Kadee
Digitrax Dealer • Walthers • Coach Yard
Decoder installs & custom painting.
jack@harnishobbies.com www.harnishobbies.com

HARRIS HOBBIES
9323 CR 1127 903-489-2646

TEXAS • Corpus Christi/Portland

HO, N, O and G scale. New and used trains.
Radio control planes, boats and cars.
Plastic kits, rockets - all at discount prices.
Thur & Fri 5pm-8pm, Sat noon-6pm,
Sun 2-5pm and also by appointment.

JIM'S HOBBIES
207 7th St. (Portland) 361-229-0229

TEXAS • Dallas

Official Lionel Layout Builder Since 2001
Traininger shop/showroom includes;
Custom Layouts, Modulars, Model Stations,
Bridge Kits...come see...there's always
something new!!! www.TrainWorxStore.com

TW TRAINWORX
2808 McGowan St. 877-881-4997

TEXAS • Dallas (Addison)

Great discounts on thousands of G to Z scale
items. NCE & Digitrax dealer.
Monday - Saturday 10-6.

DISCOUNT MODEL TRAINS
4641 Ratliff Lane 972-931-8135

TEXAS • Ft. Worth (N. Richland Hills)

Craftsman kits, Details/Tools.
DCC sales and installation.
Tues - Fri 11:30-6:00; Sat 10:00-6:00;
Closed Sun & Mon
www.angelohobbies.com

ANGELO HOBBIES
5600 Rufe Snow, Suite 106 817-428-0190

TEXAS • Houston

HO & N, Lionel trains.
Complete line of plastic kits, military and
architecture supplies.
Open Mon - Fri 11am-6pm, Sat 10am-5pm
www.gandgmodelshop.com

G & G MODEL SHOP
2522 Times Blvd. 713-529-7752

TEXAS • Houston

All trains, all scales. Magazines, Books, Vid-
eos, Repairs, Brass, Consignments, Discount
program, will ship. papabestrains@gmail.com
M, Tu, Th & F 10-6; W 10-7; Sat 10-5; Sun 12-5
Major Credit Cards. www.papabens.com

PAPA BEN'S TRAIN PLACE
4007-E Bellaire Blvd. 713-523-5600

TEXAS • Irving (Dallas Area)

U/C and R/C planes, HO, N trains.
RR & aviation magazines and books.
Scale plastic kits, balsa wood.
Mon 1-6, Tue-Wed 12-6, Thur-Fri 10:30-7,
Sat 10:30-6. www.malhoobby.com

M-A-L HOBBY SHOP
108 S. Lee Street 972-438-9233

TEXAS • San Antonio

Model railroading, our specialty.
Marklin, G, HO, N, O, Z.
Superdetailing parts galore.
Books, structures, figures and tools.
Tuesday - Saturday 10am-6pm

DIBBLE'S HOBBIES
1029 Donaldson Ave. 210-735-7721

VERMONT • Rutland

Exclusively Model Railroading. Most major
lines. Brass, custom painted models.
Competitive prices. Personal service.
Open by appt. Eves 6-10, Sat 10-10.

THE STEAM SHACK
14 Engram Avenue 802-775-2736

VIRGINIA • Ashland (Richmond)

OPEN 7 DAYS MON-SAT: 10-7; SUN: 11-4
Authorized Dealer Most Brands G, O, HO, N
New & Vintage, Repairs, Spec. Order, Layaway
RAILFANS!!! 60 trains pass our store daily.
I-95 Exit 92B West 1.2 mi to Tracks

TINY TIM'S TOYS & TRAINS
104 S. Railroad Ave. 804-368-0063

VIRGINIA • Midlothian (Richmond)

HO, N, Lionel & MTH Trains
Brass, DCC, Repairs & Installations
Digitrax Dealer
Located in the Village Market Place
Open Mon - Thur 10-6; Fri 10-8, Sat 10-4

TODD'S HOBBIES
13140 Midlothian Turnpike 804-464-4900

VIRGINIA • Roanoke

Lionel, LGB, G, AF, HO, N & MTH
Buy, sell, trade, repair.
Mon-Fri 10-6; Sat 10-5
Two minutes off Exit 146 on I-81.

RAIL YARD HOBBY SHOP
7547 Williamson Rd. 540-362-1714

VIRGINIA/MARYLAND • Chantilly, VA

Full service storefront & online store. All makes
& scales. New/used trains sales, service, repair
& upgrades. Retail Store - www.traindepot.biz
Authorized Lionel Service Station & Digitrax
dealer. Online Sales Visit www.JTTTrains.com

</

WASHINGTON • Tacoma
Lionel, LGB, HO, N, G
Athearn, Bachmann, Walther's, Micro-Trains
Books, paints, supplies, Thomas
See our website: www.tacomatrain.com
Mon - Sat 10-6 (Sun 11-4 Nov-Jan)

TACOMA TRAINS
3813 North 26th St. 253-756-7517

WISCONSIN • Bay View (Milwaukee)
Specializing in HO, N, Books, DVD's, DCC.
Special Orders Welcome! Discount Prices.
Tue-Wed 11-5, Thur 11-6, Fri 11-5, Sat 9:30-3
www.southsidetrains.com

SOUTH SIDE TRAINS
3979 S. Howell Ave. 414-482-1566

WISCONSIN • Green Bay
Exclusively trains, specializing in DCC, N,
G, & HO. DCC installation and award winning
custom painting and building available.
WWW.ENGINEHOUSESERVICES.COM
ENGINEHOUSE SERVICES, LLC
2737 N. Packerland Dr. 2H 920-490-4839

WISCONSIN • Milwaukee
Exclusively Model Railroad since 1932.
One-stop shopping from Z to G.
800-487-2467 walthers.com

WALTERS SHOWROOM
5619 W. Florist Avenue 414-461-1050

WISCONSIN • Monroe
N & HO scale trains & accessories,
plastic kits, Books, videos & tools.
Summer hours: Tues - Sat 10-5
Winters: Add Sun 12-4

THE HOBBY DEPOT
835 17th St. 608-325-5107

WISCONSIN • Waukesha (Pewaukee)
Märklin • Lionel • MTH • AF • LGB • Z to G
• buildings • scenery • detail parts • books •
scratchbuilding supplies • special orders •
NMRA discounts • Mon - Fri 11-8 • Sat 10-5
Sun 12-5. www.hiawathahobbies.com

JETCO'S HIAWATHA HOBBIES
2026 Silvermail Rd. 262-544-4131

CANADA-AB • Calgary

All Scales, New & Used, Brass,
Lionel, Collectibles, Books and more!
www.trainsandsuch.com

TRAINS AND SUCH
6043 Centre Street SW 403-277-7226

CANADA-BC • Kamloops
Model trains in G, O, S, HO, N, Z
Old toy trains, railway antiques, art, books,
DVDs, souvenirs and Thomas too.
Canadian road names a specialty.
www.kellyskaboos.ca

KELLY'S KABOOSE, THE RAILWAY STORE
634 Victoria Street 250-377-8510

CANADA-BC • Langley (VAN)
Specializing in European Model Trains, Märklin,
Roco, LGB, Carrera, Brawa, Fleischmann &
more. Huge selection of trains, kits, & access.
HO-N-Z-1-G Scales. Mon-Fri 9-4:30 Sat 10-2.
www.EuroRailHobbies.com

EURO RAIL HOBBIES & MORE INC
1526 232nd St. 866-799-6098

CANADA-BC • Vancouver
Large selection of model RR supplies including
Min. by Eric, Athearn/MDC, Atlas, Peco,
Shinohara, Rapido, SoundTraxx, brass, etc.
Special orders. www.central-hobbies.com
Open 11-6, Friday till 9. Closed Sundays.

CENTRAL HOBBIES
2825 Grandview Hwy. 604-431-0771

CANADA-ON • Dundas
Your full line hobby shop. Open 7 days a
week. N, HO, AF, Lionel, LGB. Scenery and
scratchbuilding supplies. Walther's dealer. Ⓜ
Kato products. Special orders welcome!
E-mail us at: sales@dundasvalleyhobby.ca

DUNDAS VALLEY HOBBY
15 Coates Dr. 905-628-9156

CANADA-ON • Fergus
Model Trains for Beginners to the Experts.
Buy, Sell, Trade, Repair.
HO, N, O/O27, S, G.
Come See Our Trains.
www.2bintrains.on.ca

2B IN TRAINS
6168 Road 29 519-787-3280

CANADA-ON • London

Complete Canadian trains & more N, HO, G,
Athearn, Hornby, Peco, Walther's. Special
orders, plastics, parts, supplies, books, DVD's.
Mon - Fri 10-6, Sat 9-5. sales@rrhobby.ca
www.rrhobby.ca

BROUGHDALE HOBBY
1444 Glenora Drive 519-434-0600

CANADA-ON • Mississauga
6,000 sq. ft. All Trains!
Premier Selection & Service!
In store clinics and layouts!
Railfan Headquarters! Quick special orders!
www.cvrco.com

CREDIT VALLEY RAILWAY COMPANY, LTD
2900 Argentea Rd. Unit #24 1-800-464-1730

CANADA-ON • Mount Forest
45 Min North of Guelph. Fax# 519-323-3809.
Authorized Lionel value added dealer.
One of Canada's largest Lionel retailers
MTH, K-Line & more. Full line HO dealer.
www.tctrainscanada.com Closed Monday.

THE TRAIN CELLAR
130 Main Street North 519-323-3935

CANADA-ON • Ottawa (Vanier)
One of Canada's leading model shops.
Complete selection of HO & N gauge.
Friendly knowledgeable staff.
Free Parking. On parle Français.

HOBBY HOUSE, LTD.
80 Montreal Road 613-749-5245

CANADA-ON • Paris
Full line hobby shop. Large stock N, HO.
Special orders weekly, all scales.
All accessories, scenery and supplies.
www.parisjunctionhobbies.com

PARIS JUNCTION HOBBIES
300 Grand River St. N. 519-442-5800

CANADA-ON • Toronto (Markham)
North American Train Specialists since 1962
HO, N, O, G and DCC
Railfanning beside CNR Mainline
Closed Mondays www.georgetrains.com
GEORGE'S TRAINS LTD.
550 Alden Rd., Unit 101 905-470-6200

CANADA-ON • Windsor

Model Railroad since 1970.
Operational in-store layout.
HO & N trains, bits & pieces.
"Simplified Wiring & Trackwork"
by Fred Stainer.

WINDSOR HOBBIES LTD.
3895 Tecumseh Rd. East 519-945-5471

GERMANY • Kaarst
Europe's best known address for US
Railroads. We carry N, HO & G scale for all
road names, Atlas to Walther's.
Mon-Fri 10-6:30, Sat 10-2.
Overseas orders with VS & MC
ALL AMERICAN TRAINS
www.aat-net.de E-mail: info@aat-net.de

SWITZERLAND • Kilchberg, Zurich
Specializing in American models since 1977.
Huge selection of consignment brass models.
Open Sat 13.00-17.00. Fax: 044-715-3660.
Web: www.trainmaster.ch

TRAINMASTER BY WERNER MEER
3 Hochweidstrasse 011-41-44-715-3666

Run your Retail Directory
ad in the next issue of
Model Railroader!

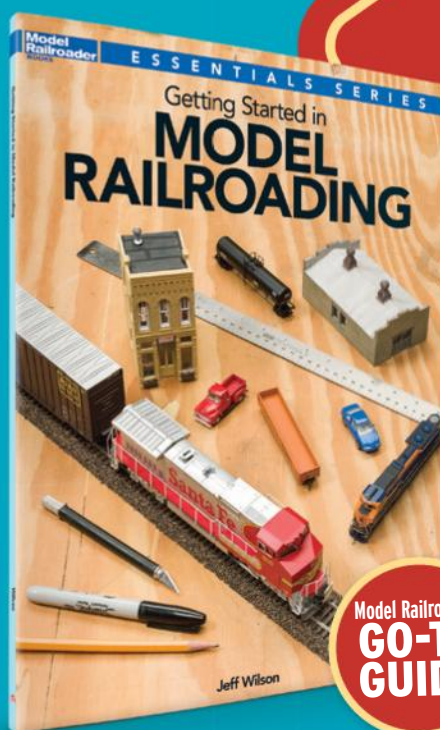
Call 888-558-1544,
ext. 815 for more information.

**Model
Railroader**
MAGAZINE



Start your next layout on the right track!

Subscribe to *Model Railroader* today! Go to <http://subscribe.trains.com/help>



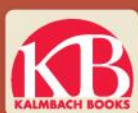
#12495 • \$21.99

Model Railroading
**GO-TO
GUIDE**

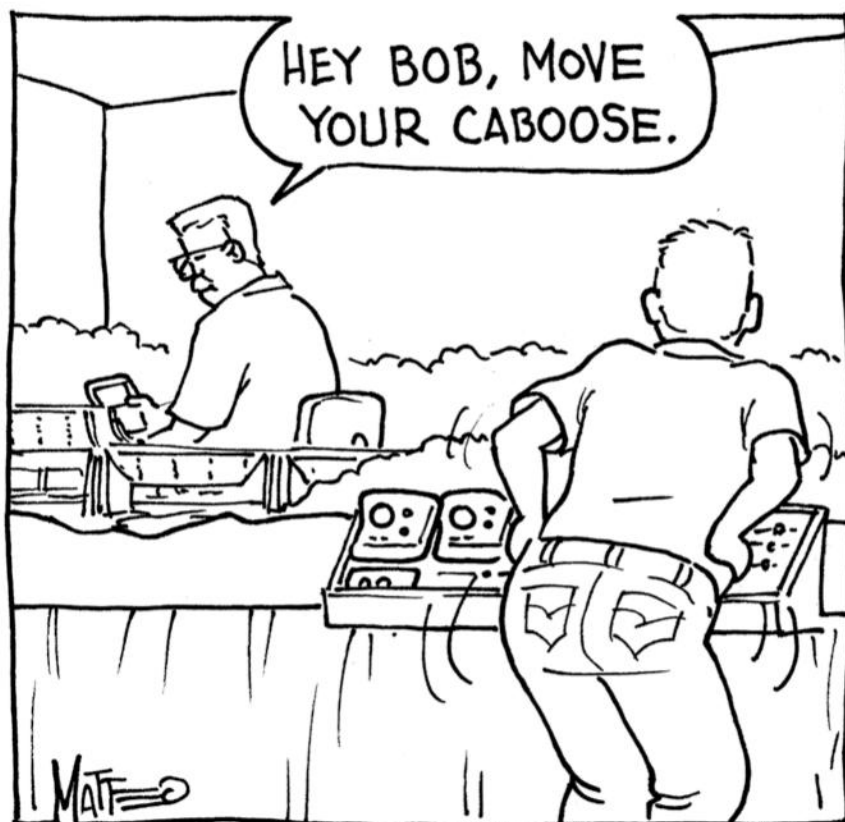
**NEW
BOOK
FOR
NEW
MODELERS**

The model railroading hobby is easier to join than ever before. This new book by Jeff Wilson helps modelers get started with the basics. It provides enough information for beginners to confidently build a model and layout and it equips them with the knowledge to understand next steps. It includes:

- Essential chapters on modeling in HO and N scales.
- Extensive insight on buying models, building models, and starting a layout.
- Information about recent trends and technology like ready-to-run models and high-tech equipment like DCC.



Buy now from your local hobby shop!
Shop at KalmbachHobbyStore.com



Model Railroader MAGAZINE



NEXT ISSUE

New York Central in the Midwest

See steam and lightning-stripe diesels on a visit to an HO scale layout that depicts the NYC's southern Illinois line from 1950 to the mid-1960s.

How to build floating shelf benchwork

Lance Mindheim shows how to use floating benchwork for a shelf layout. The shelves don't require legs or brackets, providing a neat and clean appearance.

And more ...

- Chicago & North Western visit
- Model an abandoned siding
- Weather a Kato AC4400
- 'Americanizing' structure kits
- How to use LED lighting strings

Subscribe today!

1-800-533-6644

www.ModelRailroader.com

DISPLAYADINDEX

We believe that our readers are as important as our advertisers. If you do not receive your merchandise or a reply from an advertiser within a reasonable period, please contact us. Provide details about what you ordered and the amount you paid. If no action is obtained after we forward your complaint to the advertiser, we will not accept further advertising from them. *Model Railroader* magazine, 21027 Crossroads Circle, Waukesha, WI 53186

ANE Model Co., Ltd.....	7	Model Railroader Video Plus	73
Atlas Model Railroad Co., Inc.	5	Modelers Marketplace.....	74-75
Axian Technology.....	9	N Scale Railroading Magazine.....	24
Bachmann Industries, Inc.....	3	NCE Corp.....	51
Broadway Limited Imports	15	Nicholas Smith Trains.....	63
Caboose Hobbies.....	9	PECO Products	7
Cadrail / Sandia Software	19	Rapido Trains.....	9
Circuitron	7	Ready To Roll, Inc.	9
CTI Electronics	7	ScaleTrains.com.....	24
Custom Model Railroads	14	Showcase Express	14
CVP Products	19	Sievers Benchwork.....	9
Digitrax	56	Signature Press	9
Evergreen Scale Models	63	SoundTraxx	7
Great Midwest Train Show	65	Timberline Train Shop.....	24
Great Model Railroads 2017	84	Train Collectors Association.....	65
Great Train Expo	65	Train Control Systems.....	9
Greenberg Shows	65	Train World.....	7
Halfpricehobby.com	9	Trains Books.....	65
Hawkins Rail Services	19	Wm. K. Walther, Inc.....	2, 25
Kato USA, Inc.....	83	Woodland Scenics.....	57
Menard, Inc.....	19	Z Stuff for Trains.....	14
Micro-Mark	15		
Model Railroader All-Time Digital Archive ..	72		
Model Railroader Books.....	80		
Model Railroader Newsletter.....	51		

The Display Advertiser Index is provided as a service to *Model Railroader* magazine readers. The magazine is not responsible for omissions or for typographical errors in names or page numbers.

Raising expectations for structure kits



Following this barn's example by using a higher foundation under a stock structure kit adds more visual impact to the structure and may allow using a smaller structure in a larger scale. Mitch Mitchell photo

When the weather cooperates, Mitch Mitchell often grabs his camera and heads out across rural Michigan to take barn photos. He captures images of barns large and small, richer and poorer, in fresh paint or not. Most of them would make ideal modeling projects, but on this occasion we'll look at them in a slightly different light.

I remember visiting Sam Powell's model railroad many decades ago. He modeled in S scale. Unlike HO and N, those modeling in S could not drop in to the local hobby shop expecting to find shelves lined with kits and even ready-built models made to 1:64, or $\frac{3}{16}$ " to the foot. Innovation was, and is, one of the joys of working in a less popular scale.

One thing that immediately caught my eye was Sam's use of familiar HO structure kits. He didn't put them in the background to force the perspective of greater distance. Rather, he elevated them on raised foundations, which allowed him to extend the entry doors

downward sufficiently to accommodate the taller S-scale figures.

As Mitch's accompanying barn photo attests, this ploy is not limited to scale changes. Almost any structure can instantly acquire mass and "presence" simply by mounting it atop a high foundation. I did this to an HO scale Walthers barn kit that looked a bit too small for the farm scene it was supposed to dominate. Mounting it on a raised concrete foundation gave it a considerably enhanced visual impact.

If you were "raising" a structure kit similar to the barn in the photo, the only problem you're likely to face is plugging the door openings, which would be too high when the "wood" part of the structure is added to the foundation. Two of the three visible doors would require no extra work, but the center door would, most likely, have originally been mounted higher. For a farm scene I created, I plugged the resulting hole by stealing part of the hard-to-see rear wall, then

plugging that gap with Evergreen siding that was a good, but not perfect, match for the kit wall.

As long as we're discussing raising the roof, along with everything underneath it, let's consider the opposite: lowering the roof a story or two. When I'm flipping through the pages of the latest Walthers HO catalog looking for kits with specific architectural details for a structure kitbashing project, I've learned to look at multi-story structures in terms of what the top or bottom story standing alone may offer. Using only the top two floors of a three-story building may allow me to get rid of the big street-level display windows, thus converting a retail store into an office building.

Turning the structure around so the back becomes a front may offer other possibilities, especially if the former front won't be seen anyway.

Downtown buildings are typically taxed according to their frontage, which often results in stores that are narrow, tall, and long, rather than wide. Since commercial buildings are typically side-by-side, you can easily double the length or height of a kit by stealing an unseen side wall and mounting it atop or behind a visible side wall. I usually find that two identical kits make this job easier and more convincing, however.

"Kits are parts," some wise and experienced modeler once accurately proclaimed. That's especially true for structure kits. Assembling a kit exactly as the instructions direct will result in a structure that reminds viewers more of the kit than of a full-size building. But swapping walls between kits, adding or deleting a story, lengthening the structure, adding awnings and fire escapes, and/or updating or backdating it with appropriate signage and architectural details will help to disguise its heritage.

This applies equally to the most inexpensive plastic kit or one of the high-end "craftsman" kits. If your goal is to show you can do a good job following instructions, no imagination is required. But if you're trying to depict a specific time and place, the last thing you want viewers to be thinking is that you did a nice job assembling a popular kit, no matter how pricey or challenging that may be. **MR**

N
Scale

KATO
PRECISION RAILROAD MODELS



VINTAGE AMTRAK®

RELEASED JUNE 27

Bring the early days of Amtrak to your home layout! The Amfleet I, like the EMD SDP40F, was one of Amtrak's first purchases of new equipment built especially for the new and growing passenger service. Now for the first time, the N Scale Amfleet I is available from Kato in Amtrak's Phase I paint - a perfect pairing with the new SDP40F or the Amtrak or Penn Central GG1 Locomotives!

The new Amfleet I Phase I release comes packaged in a book style case as well as in two-packs; modelers who wish to bundle their sets as a complete train can remove the foam inserts from the bookcase to add space for a locomotive and two additional Amfleet cars!



AMFLEET I COACH



AMFLEET I CAFE



Item #	Description	MSRP
Cars		
#106-8011	N Amfleet I Amtrak Phase I Paint 4-Car Set	125
#106-8012	N Amfleet I Coach Phase I Paint 2-Car Set	55
#106-8013	N Amfleet I Coach, Cafe Phase I Paint 2-Car Set	55
Locomotives		
#176-9201	N EMD SDP40F Amtrak Phase I #504	125
#176-9202	N EMD SDP40F Amtrak Phase I #505	125
#137-2021	N GG1 Amtrak Black #913	139
#137-2023	N GG1 Penn Central Black #4885	139
#137-2024	N GG1 Penn Central Black #4923	139

Amtrak Licensed Products.

Amtrak and Amfleet are registered service marks of the National Railroad Passenger Corporation.

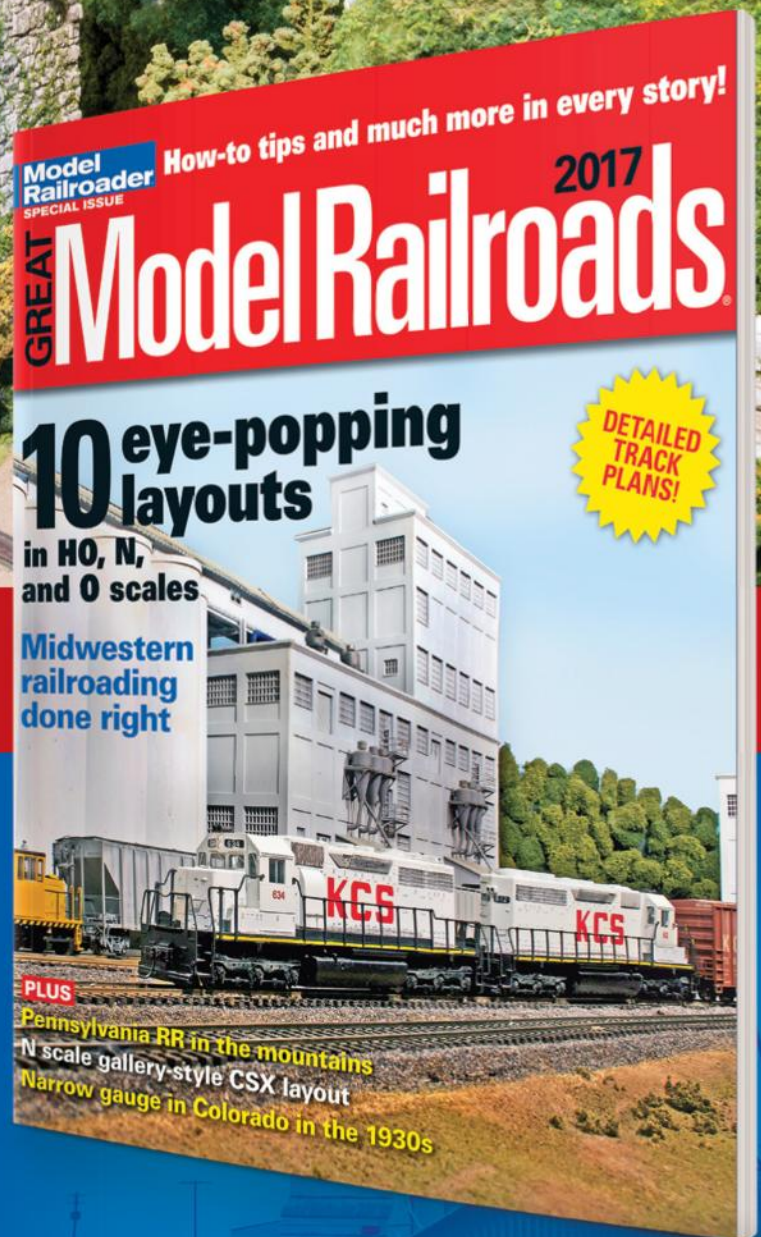
**Save \$1
+ FREE
SHIPPING!***

You've Been Waiting.

***GREAT MODEL RAILROADS* IS BACK FOR 2017**

Each year *Great Model Railroads* brings you some of the best layouts you'll ever see — and this year is no exception. The 2017 issue brings you inspiration with layouts depicting:

- ▶ A quiet secondary line of the Chicago, Rock Island & Pacific RR in Kansas during Fall 1969.
- ▶ A detailed O scale narrow gauge layout modeling the rustic Dolly Varden mining railroad on the coast of British Columbia as it looked in the early years of the 20th century.
- ▶ A small, gallery-style N scale layout depicting the CSX RR's operations in the "Bone Valley" phosphate-mining region east of Tampa, Fla., in the 1980s.
- ▶ And much more!



Order Now! KalmbachHobbyStore.com/GMR2017

*Free standard shipping to U.S. addresses only. Offer expires 10/6/16 at 11:59 p.m. CT.
Great Model Railroads 2017 will arrive in late October 2016.

P28622