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Model Railroad Hobbyist magazine™

July 2014

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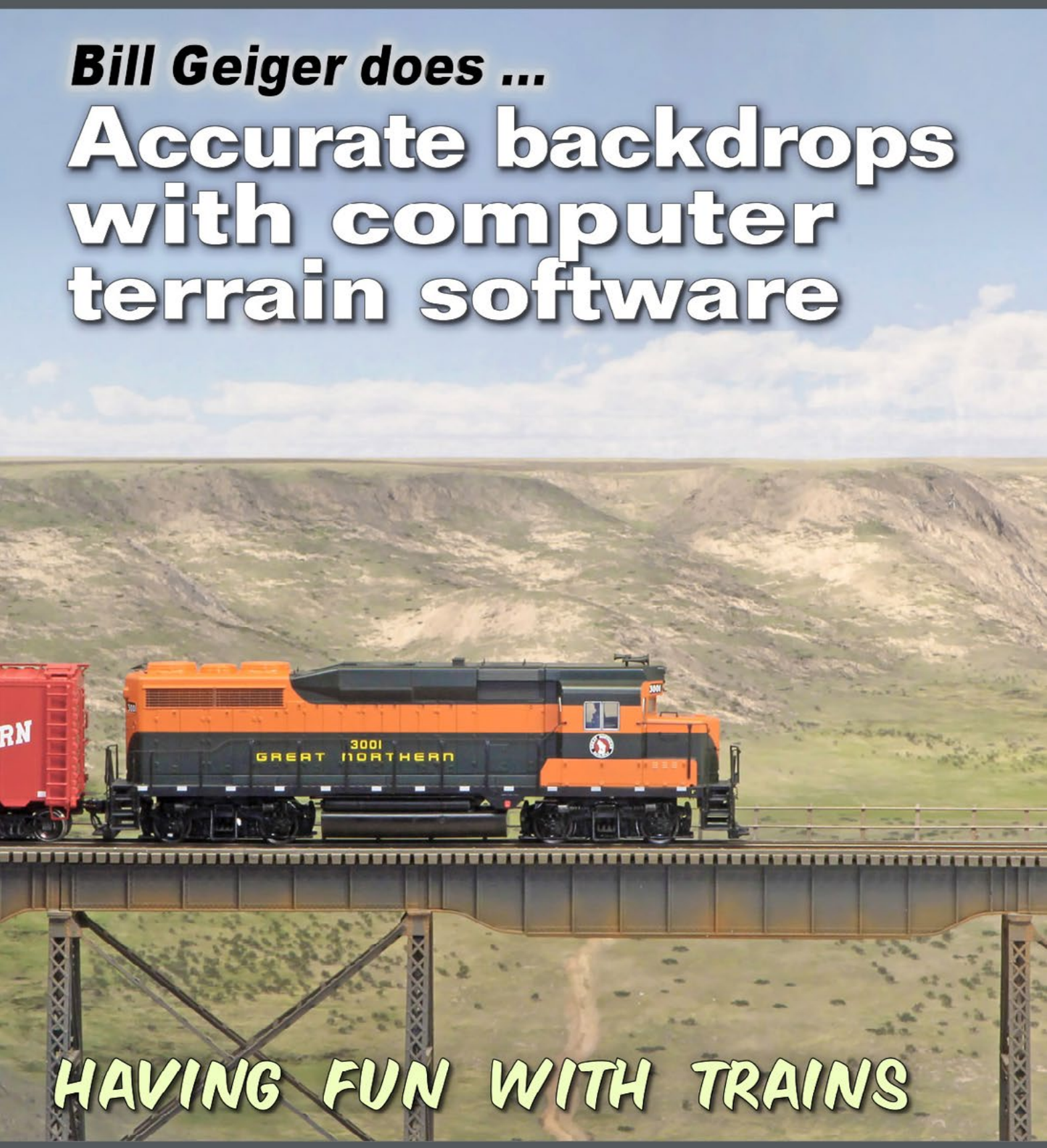

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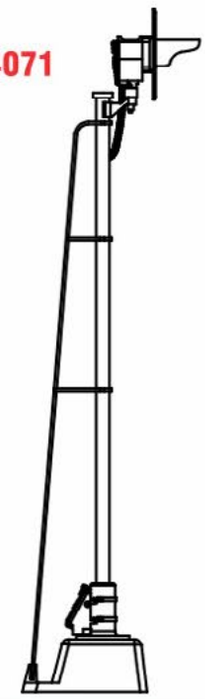

Finally - new Searchlight signals! Santa Fe/Southern Pacific design - featuring a straight ladder and no lower electrical cabinet.

HO/4002	Dwarf Heads(2)	$24.95
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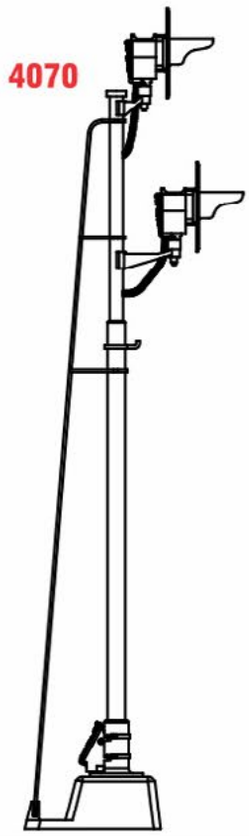

CLICK HERE TO SEE MORE

BLMA BLOG

You Tube

Model Railroad Hobbyist magazine™

Issue 53

Front Cover: A Great Northern GP30 leads a freight across Coal Banks Coulee in central Montana. That backdrop was built using actual geo data and terrain software – see how you can do the same in this issue's cover story.

ISSN 2152-7423

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Published for the glory of God. What's this?

Issue password: Jul2014

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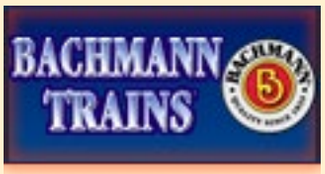

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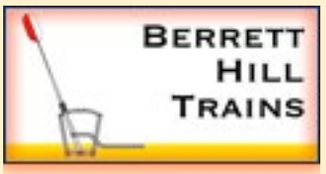

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Main Features

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Computer-generated backdrops

Accurate site-specific backdrops for your layout

by Bill Geiger

Building a two-stall engine house

Adding improvements to a craftsman kit

by Brian Messenger

Track cleaning experiments

One modeler's findings

by Brent Ciccone

Rebuilding an ExactRail boxcar

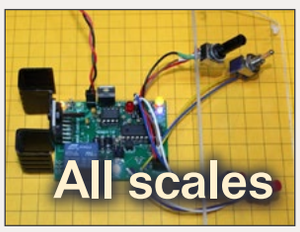
Correcting a mistaken purchase

By Bob Rivard

Tupper Lake & South Junction

A lot of layout in a room that's 10 x 12

by John Diamond



PICAXE circuits for model railroaders -2

Record and replay your train's movements

by Dave Bodnar

New Zealand

Trip report

Lance Mindheim

July News

Richard Bale & Jeff Shultz

Other Features

Click title to view

New life for your layout — Publisher's musings
Joe Fugate

MRH Staff Notes — Caring about small things
The MRH staff

MRH Q - A - T — Questions, Answers, and Tips
Compiled by Joe Brugger

Yes, it's a model — Great modeling photo feature
Compiled by the MRH Staff

Hobby Marketplace — Vendor ads

Derailments — Humor, fun and bizarre facts

Columns

Laminated backdrop — Up the Creek
by Charlie Comstock

More getting the sound out — DCC Impulses
by Bruce Petrarca

An electronic fly swatter? — What's neat this week
by Ken Patterson

Next gen DCC system? — Reverse Running
by Joe Fugate

Subscriber-only extras *(subscribers click here to access)*

What do Canada and the USA have in common?

A great time for a great sale.

Pacific Western Rail Systems

New life for your layout

Bring your layout alive by adding lighting to equipment and structures

Reader Feedback
(click here)

Publisher's Musings

by Joe Fugate

One of the easiest ways to make your layout feel like there's life on it and that it's not just a static display is to install lighting in your models.

This goes well beyond just loco headlights – there's adding lights to structures and signs, installing signaling, and there's streetlights, traffic signals, even lights in places like under bridges or in traffic tunnels.

Take a look at this photo by Michael Cawdrey (see link below). Michael posted this photo (and others like it) in one of the June Weekly Photo Fun threads on the MRH website.

http://mrhmag.com/node/18216?page=1#comment-151028

Notice what the addition of a few lights to Michael's scene has done to really bring it alive and make it a lot more interesting than what you'd get from an unlit scene.

When you see a lighted scene like this, your mind immediately starts building a story of what's going on to make this scene come about. You sense life and activity and you start envisioning the people even if you don't see them directly.

On30 SCALE

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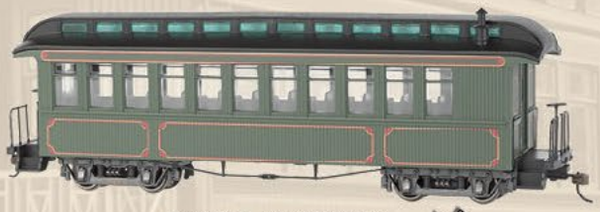

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Yes, it doesn't hurt there's a figure in the scene too, but even without the figure, the lights in the tower tell you there's somebody in there working. You almost want to bend down and peek in to see what they're doing!

The street lights and background lights also tell you there's life all around, even if you can't see it directly. By adding a figure to the scene, Michael takes it over the top, making your layout scene far more interesting. You want to know the story behind this scene and notice - this all came from just adding a few lights and a figure.

Lighting is easy to add to your layout today, especially with LEDs. Animation expert Geoff Bunza demonstrated how to add micro LEDs to a scene in the February 2012 issue of MRH. Make sure and check out this article to see how easy it can be

Advertisement

Email Phone contents index

to add micro LEDs to a scene, and to get some especially clever tricks from Geoff's out-of-the-box thinking.

LEDs have a number of advantages over incandescent bulbs. LEDs use less amperage, they're often less expensive, and these days you can get some extremely tiny micro LEDs. They also have a life measured in tens of thousands of hours and they run cool – you won't melt any plastic with an LED.

Being able to get LEDs in very tiny sizes can be a real advantage for modeling, especially in rolling stock and signaling applications or putting them inside signs. You can also use these micro LEDs to put headlights into your automobiles, or to put flashing lights onto a police car.

LEDs can be had in many different colors, including many different tones of white from an intense bluish-white to a warm golden-white. Because LEDs run cool, you can also use a thin paint wash to tint the white LEDs different shades.

Bipolar LEDs make modeling single-head searchlight signals quite practical and relatively easy. These red-green LEDs can also be made to simulate a yellow aspect by using a circuit that alternates rapidly between red and green. You just can't do this with incandescent bulbs!

You can get special circuits that allow you to use LEDs to simulate a campfire, a welder, traffic signals, railroad crossing lights, or as aircraft warning beacons on tall smokestacks or things like radio towers.

You can also get special LED lighting strips for interior car lighting such as the Easy Peasey Passenger Car lighting sets from Rapido Trains or the passenger car lighting kits from

New Product Announcement

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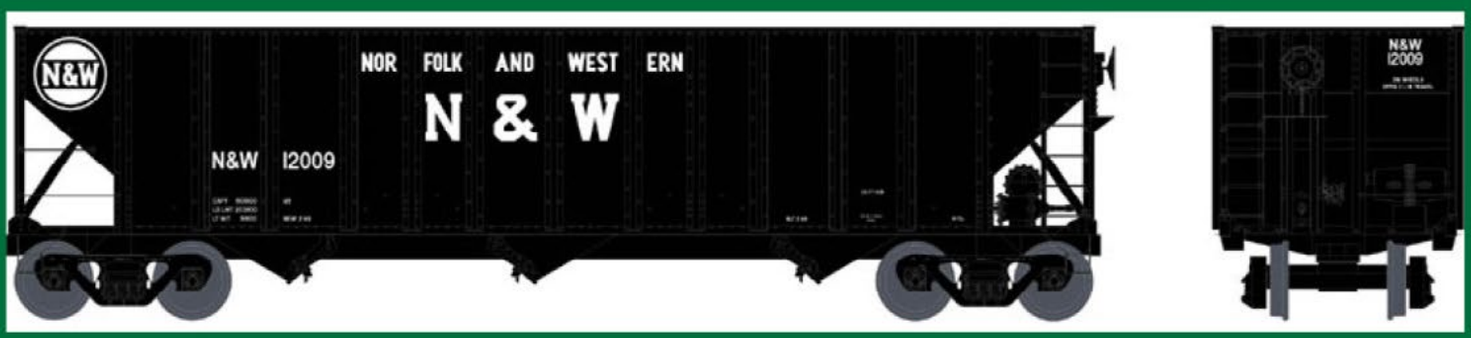
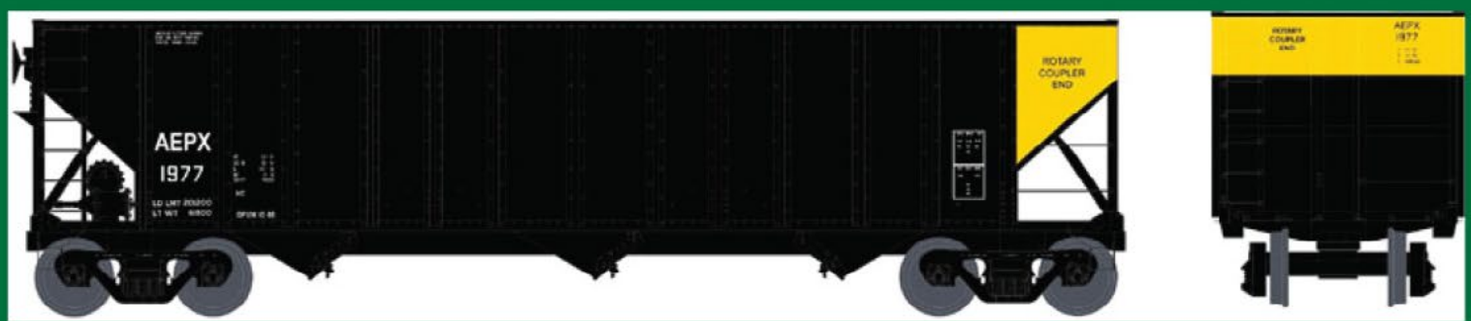


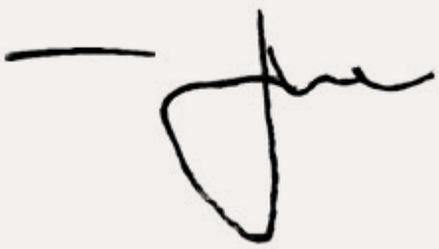
Click here to check out the details for these and other great Bowser products!



www.bowser-trains.com

Kato. For more, just Google “passenger car lighting” to get lots of links to chose from.

So spice up your layout and imply there’s a lot of life around by adding some lighting. It’s inexpensive, easy, and it gives your layout and equipment that extra “pop” to really draw you in and bring it alive! ☑



Reader Feedback
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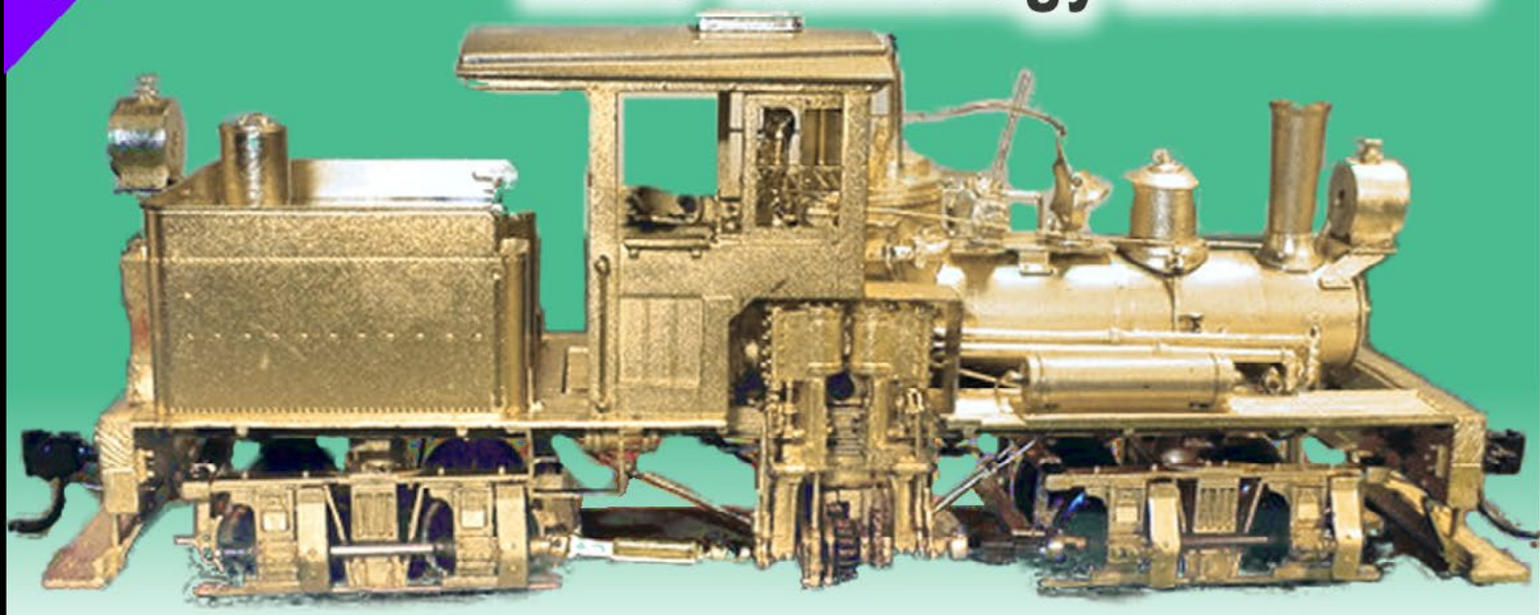

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Notes from the MRH Staff

Caring about small things, exciting new things coming to TMTV, best MRH online iPad reading experience, and more ...

Caring about small things

If you look at the smaller scales like N and Z, notice that those scales each have their own magazine, and in fact, N scale has *two* (count them, two) magazines.

We believe it's pretty clear that the scales who now have their own magazines, namely N and Z scale, have largely siphoned off most of the small scale modeling readers from *Model Railroader* magazine. Then there's the narrow gauge guys who have their own magazine in the *Narrow Gauge and Shortline Gazette*.

If you take all the readers who now have their own magazine and add it back into MR's circulation numbers, we bet you will get a much larger number.

Finally, if you add back in all the non-subscribers who now rely on the internet, we think it's possible the total number of modelers could approach or even exceed the top circulation numbers of *Model Railroader* when it peaked in the late 1980s and early 1990s.

MRH has an advantage because we're free: the only cost for checking us out each month is a little time.

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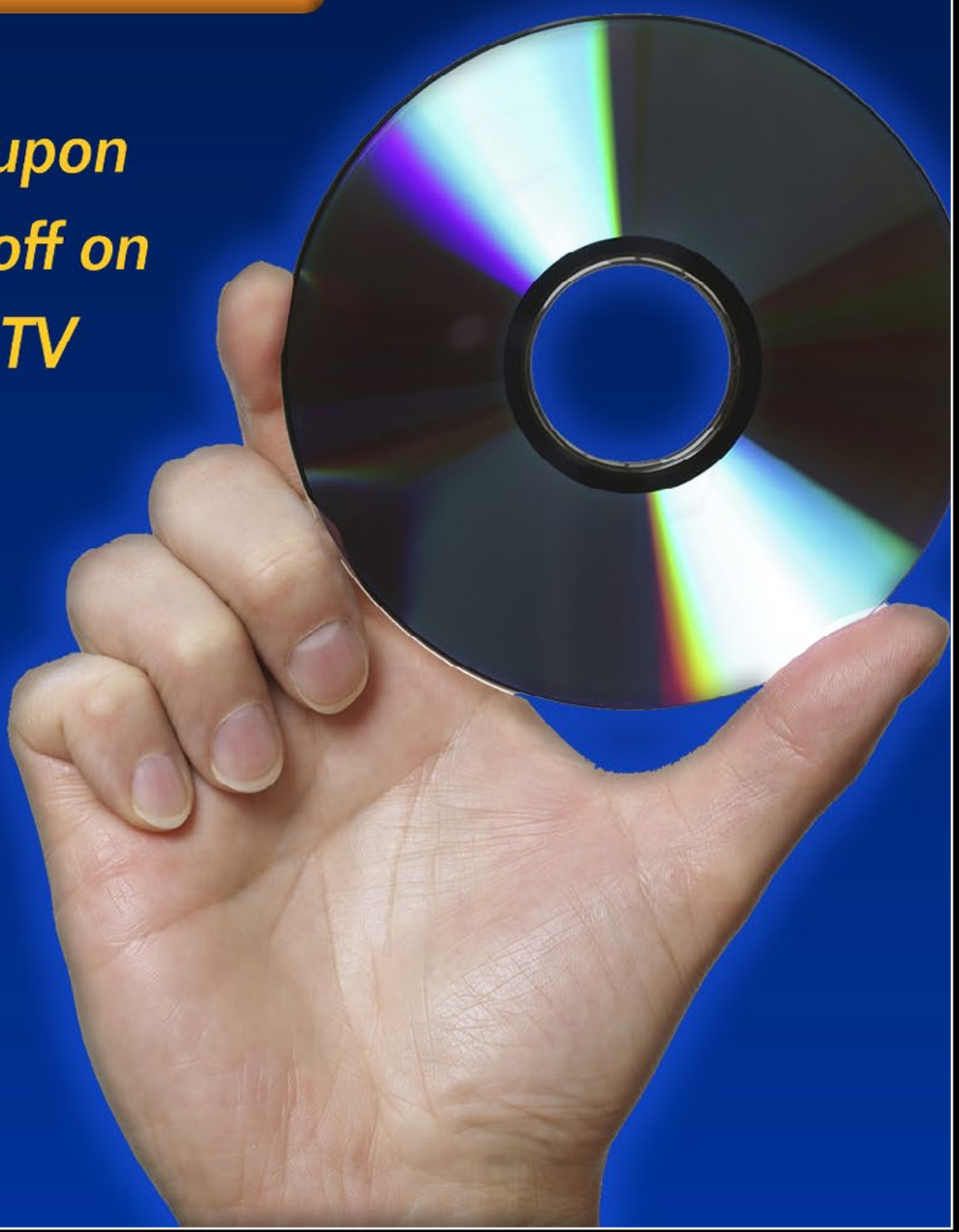

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June 2014 MRH Ratings

The five top-rated articles in the June 2014 issue of MRH are:

- **4.5** What's Neat: Joe Steimann's weathering decals
- **4.5** Fast and easy trees
- **4.5** Weathering steam-era freight cars
- **4.5** Modeling Seaboard B-8 and B-9 box cars
- **4.3** Getting Real: Relocating Williams Creek bridge

- Issue overall: **4.6**

Please rate the articles!
Click the reader feedback button on each article and select the star rating you think each article deserves. ***Thank you!***

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New On Line Magazine

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There's a philosophy that we like to keep in mind: *Caring about small things is not a small thing.* All too many businesses (especially larger businesses) today try to do things by the numbers: they focus on the masses and ignore so called "small markets". In our opinion, this philosophy can be deadly for niche hobby publishers.

In reality, we're all part of some minority interest and it's just a matter of how you chose to slice and dice your readership that can include or exclude certain people. If you guess wrong as to how you pick those categories, you can lose significant readership by excluding certain "minority interests".

The problem with this nickel-and-dime approach is those nickels and dimes add up to some real numbers when taken as a whole. To make matters worse, by losing the N scale and Z scale modelers to their own magazines, we're losing contributions from some of the best and brightest talent in the hobby today.

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WHAT'S NEW?

HO & N since 1993

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When talking to hobby vendors, please remember to mention MRH.

Just pick up a few copies of the N scale and Z scale magazines to see what we mean. Shades of the glory publishing days in the hobby two or three decades ago – there's that difficult-to-define spark of passion and cleverness in what these guys are doing.

One of our missions with MRH is to wake the HO guys up to what they've been missing (and yes we're preaching to ourselves as well). Many of the techniques the N and Z guys are doing can be used also in HO – and if they can't be used, the sheer creativity of these techniques are sure to trigger some HO inspired adaptations of their ideas.

We want MRH to push the envelope, but we need your help. Modelers, especially those not in HO, are you listening? We need more N scale and Z scale articles. Keep in mind that if you publish with us, your ideas will be getting exposed to over 7 times as many modelers as compared to the scale-specific magazines.

In any event, we hope each and every issue of MRH gives you fresh ideas for how to get the most from your model railroading efforts!

Exciting things coming to TrainMasters TV

Several exciting new things are coming to TrainMasters TV.

Coming to TMTV: eBooks ...

First, we're expanding the scope of what TMTV members will be getting as part of their membership to include eBooks. Yes, that's right, about 6 months after we release select eBook titles, they will become available to TMTV members for free online viewing.

TMTV members will already be getting streaming HD versions of the DVD titles we release about 6 months after release, so here's one more great benefit of being a TMTV member!

TMTV members: 50% discount on DVDs and downloadable videos ...

Next, we will start offering TMTV members a 50% discount on DVD and downloadable video titles available through Model Trains Video this fall. If you prefer to own a copy of a video instead of just accessing it online, then we will make it much more affordable for you if you're a TMTV member.

New TMTV membership pricing options ...

- 6.99 - Single month trial (auto expires in 30 days)
- 5.99 - Monthly (pay per month)
- 4.99 - 12 month sub: one-time payment $59.77
- 3.99 - 24 month sub: one-time payment $95.77
- 2.99 - 36 month sub: one-time payment $107.77

However, we're running a July special on the annual subscriptions, so you can chose one of these money-saving options:

- **4.00 - 12 month sub: $48.00**
- **3.50 - 24 month sub: $84.00**
- **2.50 - 36 month sub: $90.00**

New videos coming to TMTV in the next 12 months ...

As for new videos we've got planned for the next 12 months:

- Utah Belt layout visit
- La Mesa club Tehachapi layout visit
- Paul Scoles Pelican Bay memorial special
- Two (count them, *two*) layout construction video series
- New weekly MRH Help Desk segment
- Special "Streamliners at Spencer" coverage (exclusive footage of 26 classic prototype locomotives)

... and that's just *some* of the great new things coming to TrainMasters TV in the next year. With all this new content and now with eBooks in the mix, we're hoping to make TMTV into the most content-rich hobby information portal on the internet.

What to do if we're not responding

We make a best effort attempt to respond to modelers who email us. However, sometimes we get very frustrated when one of our emails gets rejected by your spam filters.

We've had several cases now where some modelers have emailed us repeatedly, and we've tried many times to respond, only to have our responses rejected by the person's ISP's spam filters. To make matter worse, we've also gotten eventual disgusted responses from those people complaining that we "never answer my emails".

So here's what you need to do: if you really want us to contact you back: please include a phone number in the email. That way if our responses are getting eaten by your spam filters, at least we have *some way* to get ahold of you and let you know we're trying to get back to you!

July 2014
Bonus Extras!

Available to subscribers!

DVD and HD quality versions:

- **July What's neat this week video**
- **Computer-generated backdrops video**
- **PICAXE record and play back demo video**

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MRH mag Subscribe

Best online reading experience on an iPad

Unfortunately, in iOS7, the Safari and Chrome browsers on an iPad have a browser navigation bar taking up space, which makes reading the online version of MRH less satisfying than it used to be under iOS6.

Fortunately, there's an answer: the Savy Soda full-screen browser.

The Savvy Soda browser allows you to go full screen and enjoy the online edition as it was meant to be experienced. Just go to the Apple App Store and search for "Savvy Soda". There's a free version of the broswer available, and it works just fine for displaying the online edition of MRH, either in the landscape or portrait format.

Once you navigate to the online edition of MRH you want to view, just do a quick flick of the top nav bar to make it disappear. Whenever you want the browser nav bar back,

just double-tap the top edge of the screen. That's all there is to it! You should find the Savvy Soda browser is the idea browser for reading the online edition of MRH on an iOS device – both the iPad and the iPhone.

See us in Cleveland

If you're going to the NMRA National in Cleveland this July, then make sure and say hello! The MRH and TrainMasters staff will be there in force.

Jeff Shultz, Jim Duncan, Don Hanley, Joe Fugate, Les Halmos, Jean-François Delisle, Barry Silverthorn, Clark Kooning, Miles Hale, and Lionel Strang will be there.

We're doing a couple clinics, one called "Introducing TrainMasters TV" where we will let you meet the TMTV staff and dialog with them. We'll also be giving sneak peeks at some cool stuff coming to TMTV.

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The Department of Corrections

Oops! Sometimes mistakes do slip through ...

In the June Staff Notes, we incorrectly said Trevor Marshall was associated with *Model Rail Radio*, when in actual fact, he's associated with ***the Model Railway Show***. Learn more at: **themodelrailwayshow.com** ...

Sorry, Trevor!

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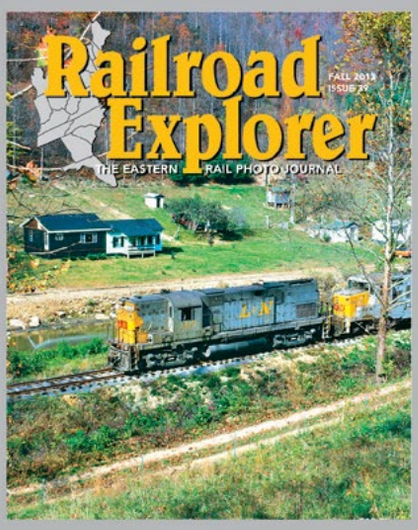
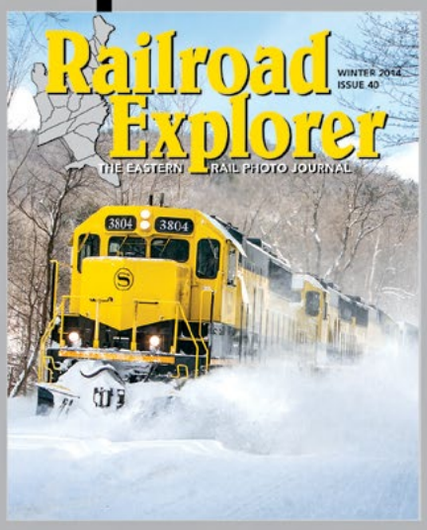
Railroad Explorer Magazine





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We'll also be doing a clinic called "Model Railroad Hobbyist magazine, the next 5 years." We'll reflect a bit on the first 4 years of MRH, then we'll talk about where we'd like to go in the next 5 years as to MRH and the model railroading hobby developments.

This issue

Bill Geiger shows us how he's using computer terrain software and actual map geo information to generate a realistic backdrop for his layout from whatever vantage point he chooses. It's a pretty clever technique, and it gives you a lot of freedom for getting just the backdrop you need as long as your scene doesn't have structures in it. Make sure and watch the video, it does a great job of outlining the process.

Brian Messenger takes a well known Fine Scale Miniatures kit of a two stall enginehouse and shows how he modified it for his layout. You will find a number of Brian's techniques can be used for other structure projects you may undertake.

Who hasn't ever had problems with dirty track? Brent Ciccone shows us several track cleaning / conduction improvement methods he's been experimenting with and how they have turned out for him. Brent's experiments should give you a leg up on your own track cleaning challenges and give you some things you can do to keep your layout in tip-top performance.

Bob Rivard is back with another rolling stock build article, in this case, he's correcting a mistaken purchase, turning something he didn't think he could use into a very nice box car model. Make sure and check out Bob's techniques. We find there's always something we can use for our own rolling stock projects.

We've postponed the second place winner of our $500 Layout Design Contest to the August issue, to make room for John Diamond's Tupper Lake & South Junction layout. John's got a lot

Tell us what you think ... and win a free 7" Kindle Fire HD Tablet*

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* Great for reading MRH on the go!

of layout in his 10x12 space, yet he's not made the layout look crammed full of track. We think you'll find John's freelanced layout to illustrate what's possible in space that's on the smaller end of the scale.

Then we have Dave Bodnar continuing to show us what's possible in the world of layout animation remote control using the simple PICAXE kits he introduced us to last month.

And finally, Lance Mindheim went to a model railroading event in New Zealand, so he gives us a quick report on modeling down under.

This leaves our regular columns in this issue. Charlie Comstock is back with an update on installing the backdrop on his peninsula. Bruce Petrarca has returned from vacation with still more insights on how to get some awesome DCC sound out of your locos.

Ken Patterson, of all things, shows how he built a cool static grass applicator from a electric flyswatter that cost less than $2. That's got to be the least expensive static grass applicator we've ever seen, Ken!

Finally, Publisher Joe Fugate points out how effective adding some lighting to your layout can be at bringing it to life and making it feel populated even if you don't have a lot of figures visible. Joe also brings up the rear with a Reverse Running commentary about updating our DCC technology.

Enjoy the July MRH. Those of you going to Cleveland, make sure and say hi either in the convention halls or at the train show! ☑

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QUESTIONS AND ANSWERS

Details West truck screws

Q. **I have a couple of HO Details West kits I'm putting together and the screws supplied to mount the trucks to the frame are too short. The screws are fatter than the 2-56 screws in Accurail and Athearn kits. What do people do with these kits?**

– Steve

A. Inexpensive cars with snap-in trucks have the same problem. Later Details West kits have a raised collar on the underframe that looks pretty Athearn-like and takes a #2 self-tapping screw. But there are plenty of the early cars around to be fixed.

Joe Fugate says: "Drill out the hole to the size of available styrene rod, put a couple drops of MEK in the hole, poke a length of styrene rod or tubing in the hole and let it set up overnight. Then, trim the rod flush with the bolster on the frame and drill

and tap it for 2-56. Works very well and I've not had a problem since. On one car I tried to make do with the existing screws, but the car didn't last an op session before a truck came off."

If you build plastic kits, you don't need to buy styrene. Use a piece of leftover plastic sprue (the runner that holds all the parts) to fill the hole. If it's too fat, warm the sprue over an open flame (don't set anything on fire) and gently stretch it as it warms. You can then cut it off, stuff it in the hole until the taper fills it, then follow Joe F's instructions.

Details West kit screws: mrhmag.com/node/775.

– MRH

Spline techniques

Q. Does anyone know of articles on making splined sub-roadbed? If you have done it, how did you do it? I was thinking about using Masonite. What did you use for spacer blocks? How many splines? How do you make grade transitions? How well has the roadbed held up? I will be modeling narrow gauge in SN3. I am planning to use Homabed in HOn3 thickness and width.

– Bob Helm

A. Spline roadbed is a thrifty way to get a model railroad up and going because it wastes little or no material. It's also an easy route to flowing [1] curves. The technique is periodically reborn as people discover and try out new materials.

A quick Google search for "MRH spline" will get you going. Go to google.ca/search?q=MRH+spline.

Charlie Comstock has a free how-to on the Bear Creek & South Jackson's spline: s145079212.onlinehome.us/rr/howto/splines/index.shtml.

If you like to work from DVDs, Dave Husman suggests checking out Model Trains Videos (one of MRH's commercial partners) at model-trains-video.com/page.php?12 and scroll down

1. Spline roadbed comes in many forms. These Masonite strips are laminated with carpenters glue, and can be built up as needed to locate switches. As long as attention is paid to maintaining a desired radius, splines can be formed into flowing transitions.

to the bottom of the page. It's sold separately or as part of a set. Here's the direct link to the DVD with spline construction: model-trains-video.com/volume2.php#.

Masonite, Homasote, expanded polystyrene foam, white pine and other materials can be used. Some people have had luck alternating splines and spacer blocks. If you are handlaying track, consider Homasote spline in 2" tall strips. Use drywall screws to laminate three or four splines together, enough to make a roadbed a little wider than your track. Fast, easy, and you can spike directly into the Homasote. Some people like to cut the edges at an angle to create the proper ballast slope.

Frank Musick used foam without the hardboard splines: keltic-sylk.blogspot.com/2013/05/a-minor-revision.html.

“I don’t know if I care for the foam-no-hardboard idea so much but I do like the foam,” says Alan. “This is where I got the idea. I haven’t reached the point yet where I need to install the spline (but I am close). When I do I am sandwiching foam between hardboard.”

Brian Clogg built his roadbed with ¾” MDF (medium density fiberboard), which he finds to be very stable. Spacer blocks are ¾” plywood ½” wide and the splines are ¼” wide. “I found that I needed to support it at least every 16 inches,” Brian said. “I had a section over a sink that was 30 inches long and it started to sag so I glued a 2x4 underneath. This system has proven stable over the years.”

Steve, at klamathline.blogspot.com has used Homasote splines for more than 10 years and says he has “never had a single regret … other than that I didn’t use more of them! I had already started my former layout when I learned about Homasote splines, and already had the benchwork in the more track-dense areas done with Homabed on plywood. If I was starting over, I’d either go with sheet Homasote over plywood in those areas or splines throughout, depending on the number of tracks.”

Spline user Joe Atkinson says “I’ve had no problems with seasonal humidity swings, and I’m in Iowa, so those swings are significant. I found splines to be extremely easy, even enjoyable, to work with, and when I switched from modeling the UP to the IAIS and needed to rebuild my track arrangements in 2000, I was able to reuse virtually all of the spline material.”

John recommends clear pine lath strips, about 3/16” to ¼” thick, 1-1/8” wide and 16’ long, from the wood trim aisle at Home Depot.

“I lay out the roadbed using one spline strip,” John said, “and adjust the risers holding up the roadbed from joists fastened to L-girders to give me the curve or tangent line of roadbed that I want. Once the spline strip is lined up to the planned straights and curve, I fasten the risers permanently to the joists.”

“Using the 16’ lengths of lath can be difficult at times but it makes the smoothest curves and a lot of sub-roadbed fairly quickly. Just be sure to acquire or borrow at least 20 clamps. I use that many to construct eight feet of sub-roadbed at a time,” John said. “I also pre-cut many spacer strips from ½” B/C plywood from Home Depot also. I take a 2 x 4 sheet of plywood and cut a bunch of 1” wide strips and then cut those into spacer blocks.”

“I tried the Masonite spline method using seven 8’ long strips with no spacer blocks as Joe Fugate shows in several of his videos, but I found that method much messier than lath strips and spacers,” John said.

Full details of John’s construction methods are posted in the MRH forum discussion linked below.

Andy H. is partial to home-cut spline. “As a member of a club in northwest Indiana we used a spline sub-roadbed that was ripped out of #2 grade 1” x 6” boards that were either 8 or 10 feet long. They were ripped to ¼” wide and the spacer blocks were cut from the same material to either 3/8” to ½” thick by 1-1/4” long. Longer ones were used under turnouts to mount the switch machines.”

“For a single track we would use three or four splines, depending on the thickness of the spacer blocks we used. For areas we planned on installing a turnout we would start to sister extra sections of spline to widen out the sub-base.”

“On top of this we mounted Homasote ripped to the size we need for a given area,” Andy said.

A professional cabinet maker will have the tools to cut splines for people not blessed with a shop full of power saws. If you don't have a tool to do a job, see if you have a makerspace near you. Many of them allow you sign up for just a day or a week, instead of a full year.

makerspace.com/makerspace-directory.

Spline roadbed: mrhmag.com/node/14710.

– MRH

Wiring for N scale

Q. I am running DCC in N scale. I plan to have a bus cable that is connected to a terminal strip which then serves a number of feeder wires in a block. What gauge should the bus be? What gauge should the wire be that connects the bus to a terminal strip? What gauge should the track feeders be?

– Dustin

A. For DCC wiring, resistance and voltage drop for the signal are important. Charlie Comstock and Joe Fugate recommend a 12-gauge two-wire main bus, and don't forget to buy two colors of wire so you can color-code them. You will need enough of each color to cover the length of your main lines, at a minimum. For droppers from the rail to the bus, 24-gauge feeders are sufficient if they are shorter than about two feet.

"For purposes of debugging, I recommend you connect the feeders to the bus using terminal strips," Fugate said. "I much prefer using a screwdriver to debug a short to using wire cutters. I've seen modelers who use bare copper wire feeders on both sides of the risers and solder the feeders to the bare copper. While this is certainly simple, you can debug a mystery short only by clipping feeders with wire cutters."

"I prefer to use 12 gauge bus wires (stranded with insulation) and connect a drop off each feeder every five feet or so to a screw terminal barrier terminal strip. Then I connect the rail

feeders to the terminal strip. If I accidentally connect a feeder to the wrong terminal strip, it's easy to fix with only a screwdriver, he said. "I don't know how many times I've had a mystery short, and the ability to get out the screwdriver and disconnect some feeders has made solving the problem quite easy. Once I have located the problem, a few minutes with the screwdriver and it's all put back – no soldering iron or rewiring needed."

– MRH

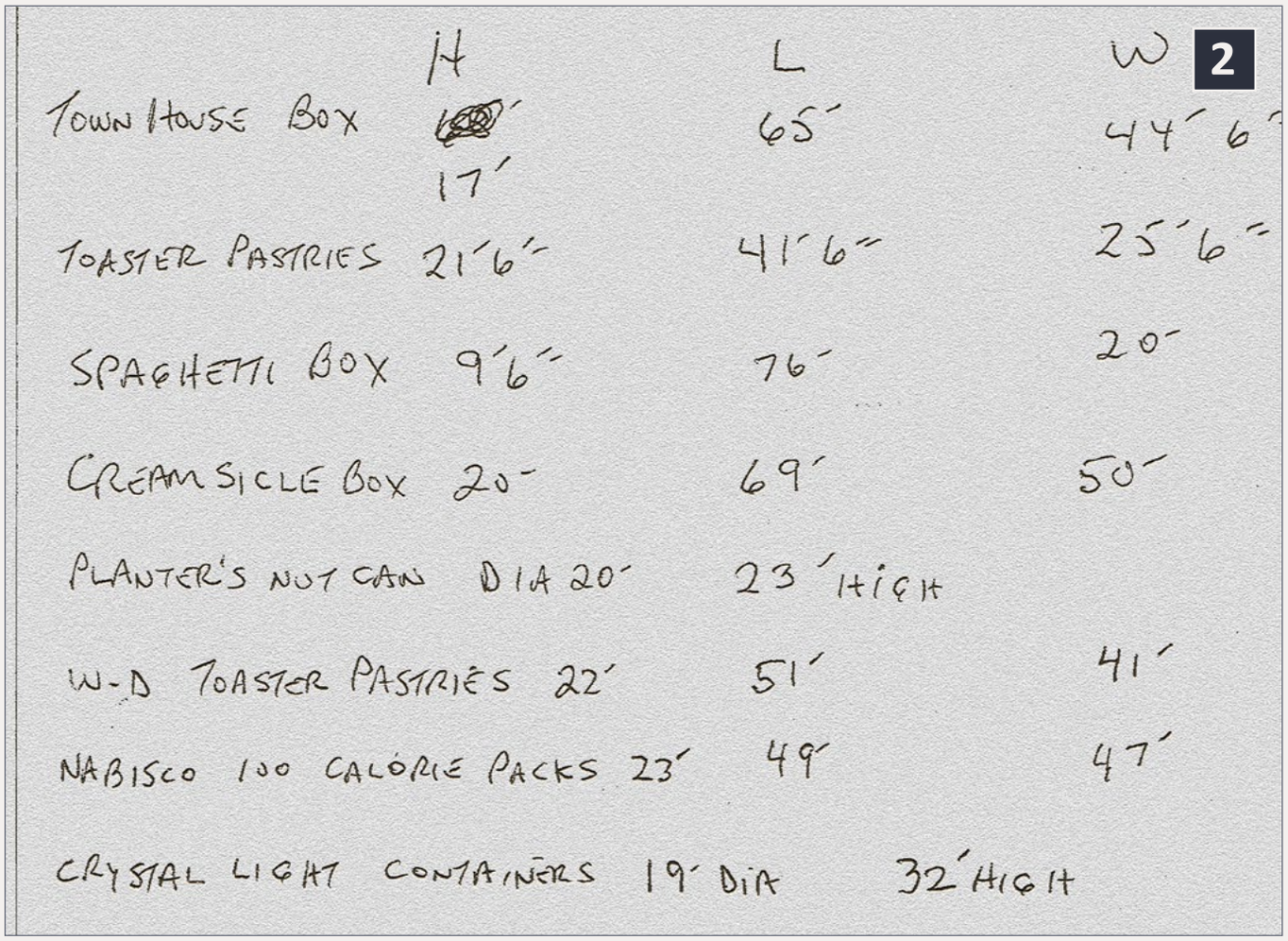
TIPS

Canned stand-ins

I ran across a paper that I made [2] with a list of HO measurements using common canned goods.
Many people like to make mock-ups of buildings for their layout. Sometimes they will spend a lot of time doing this, while I have found an easier way. Use canned goods and other items that you have in your pantry. It is easy.

– Joseph Oates

Reader Feedback (click here)



	H	L	W
TOWN HOUSE BOX	17"	65"	44" 6"
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SPAGHETTI BOX	9" 6"	76"	20"
CREAMSICLE BOX	20"	69"	50"
PLANTER'S NUT CAN	DIA 20"	23" HIGH	
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NABISCO 100 CALORIE PACKS	23"	49"	47"
CRYSTAL LIGHT CONTAINERS	19" DIA	32" HIGH	

2: Joseph Oates converted the contents of his food pantry to HO scale dimensions for planning purposes.

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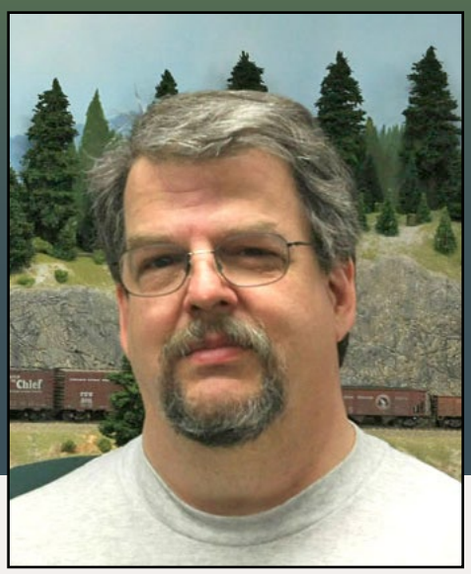


A skinny laminated backdrop for the BC&SJ peninsula

A regular report on the construction of a 1950s-something layout

Up the Creek column
by Charlie Comstock

Reader Feedback
(click here)

Optimizing layout space and minimizing backdrop real estate...

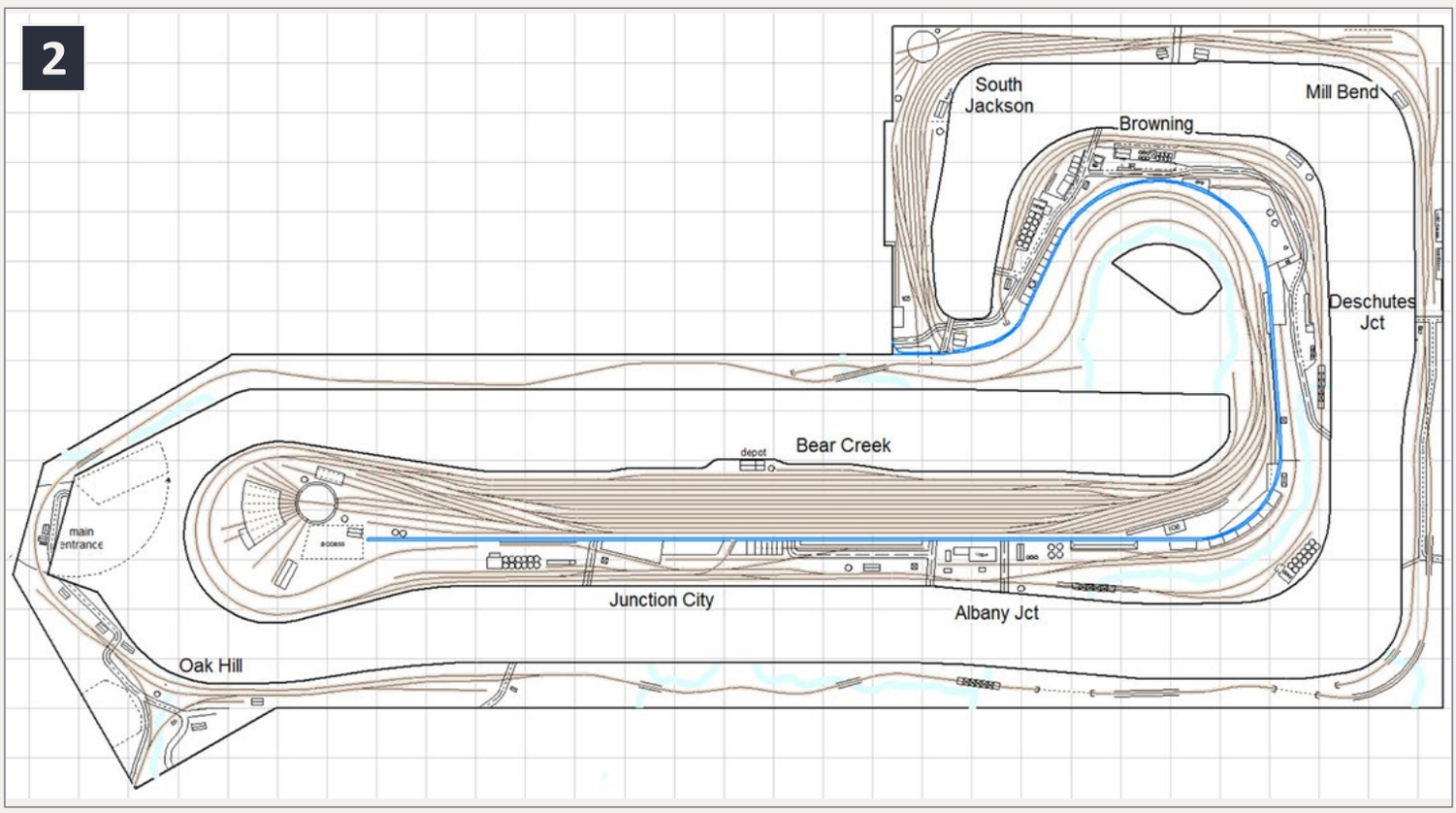
1. Peninsula backdrops began to appear on the BC&SJ in May, 2014. I made the backdrop from two sheets of 5 mm RevolutionPly laminated together for a thickness of only 10 mm – less than half an inch. Mill Bend and South Jackson are on the far side of the backdrop from the helix.

For a bit over 10 years I've been working on my HO scale Bear Creek & South Jackson layout (see the 10th anniversary story in the April 2014 MRH). It's come a long way in that time but only recently has it taken on the look and feel I planned back in 2003.

The peninsula backdrop

Even though it's still incomplete, the new backdrop down the center of the peninsula has made an enormous difference in the character of the BC&SJ. About 24' (out of about 70') of backdrop was in place for the May 2014 op session, and the crew liked it. In particular they noted how the aisles felt longer, they felt more isolated from each other, and how much quieter it seemed.

Since then I've added another 24' and the layout's character is definitely changing.



2. Simplified BC&SJ track plan (2' grid) - the peninsula backdrop is in blue.

- The aisles feel much longer
- The isolation factor is greatly enhanced when the entire layout isn't visible at once
- Crews in one station can't see the next stations east or west; no more cheating and heading for the next station when you don't see an opposing train coming
- The ceiling-high backdrops provide acoustic isolation – even with 15 people running trains at once, the May op session seemed quieter than the April session

However, there are some drawbacks:

- Crews running up the helix from main staging can't see what is on the far side of the backdrop before penetrating it. Not good, but we handled this issue during the May op session.
- I find myself missing the whole-room view a bit
- Lighting for photography will be more difficult
- Under-the-benchwork fans are needed for air circulation

Skinny backdrops

I'm greedy when it comes to available layout space. When I was planning the BC&SJ back in 2003 I optimistically allowed just an inch for the peninsula's backdrop thickness.

Had I been willing to build a stud wall down the peninsula, layout construction would have been much easier. Two things kept me from this:

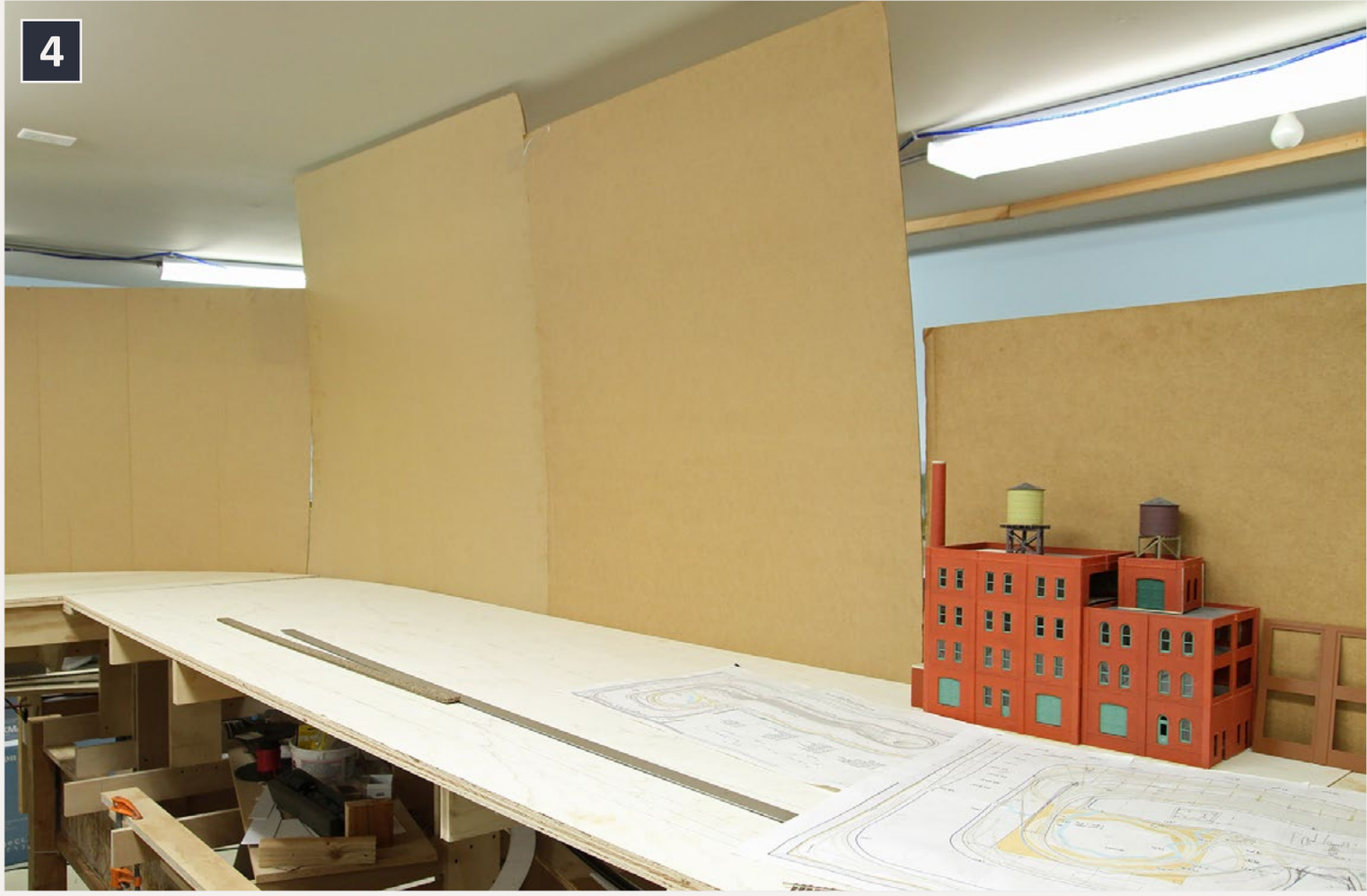
- I was building in the basement of a new home and I didn't know how much the cement floor would heave. I've seen some floors with major and abrupt elevation changes. Using a pair of 24' long engineered floor joists lessened the effects of the floor heaving.

- I didn't want to give up the 6" wide stripe of real estate that a stud wall would eat up. I had plans for that space!

It turned out that the modeled area on one side of the peninsula would be about 3" (or more) higher than the other. I figured I could use that 3" to support a laminated backdrop. Or, if that proved unworkable, I could build a micro-stud wall out of 1"x 1" lumber attached to that 3" difference.

The backdrop has a number of curves followed by a 40' straight run [2]. I decided to attempt a backdrop made of two layers of styrene or Masonite laminated together. I figured the curves should

3. The 3" difference in benchwork heights on the peninsula. With some extra cleats, it should be good for backdrop attachment. See also [6].



4. Mocking up different backdrop heights with cardboard. Note the ceiling lights visible over the 2’ tall segment on the right.

help the backdrop stand up straight. That word “should” left me nervous while the rest of the layout was under construction.

Determining backdrop height

I wanted a to-the-ceiling backdrop, feeling it would give the best sense of isolation, but I tested some other heights. The height of the peninsula benchwork meant a full height backdrop would be from 47” to 48” tall. I mocked up 24”, 36”, and 48” tall backdrops using cardboard.

A 2’ height would get me twice as much backdrop length from each 4’x8’ sheet of material, but the mockup showed the ceiling lights visible on the far side of the backdrop were horribly distracting. The low height also would be a problem for layout

photography. Although I couldn't see over the top of the backdrop, it didn't provide the feeling isolation of isolation I wanted. On the positive side, air circulation wouldn't be a problem and the low height should let me shine photo lights over the backdrop for better-illuminated layout photography. Finally, crews could see the existing fast clocks in the sky over the backdrop.

A 3' height provided a better feeling of isolation and air circulation would probably be adequate. But ceiling lights on the far side were still visible and shining photo lights through the 12" space between backdrop and ceiling probably wouldn't work well.

The 4' high backdrops provided a terrific feeling of isolation from the rest of the railroad. There were no distractions from lights on the far side of the backdrop. Air circulation wouldn't be great, but fans under the layout would help. I'd also need two additional fast clocks so crews can always see the time -- extremely important for TT&TO operation.

In the end, the feeling of isolation provided by the full-height backdrops won out.

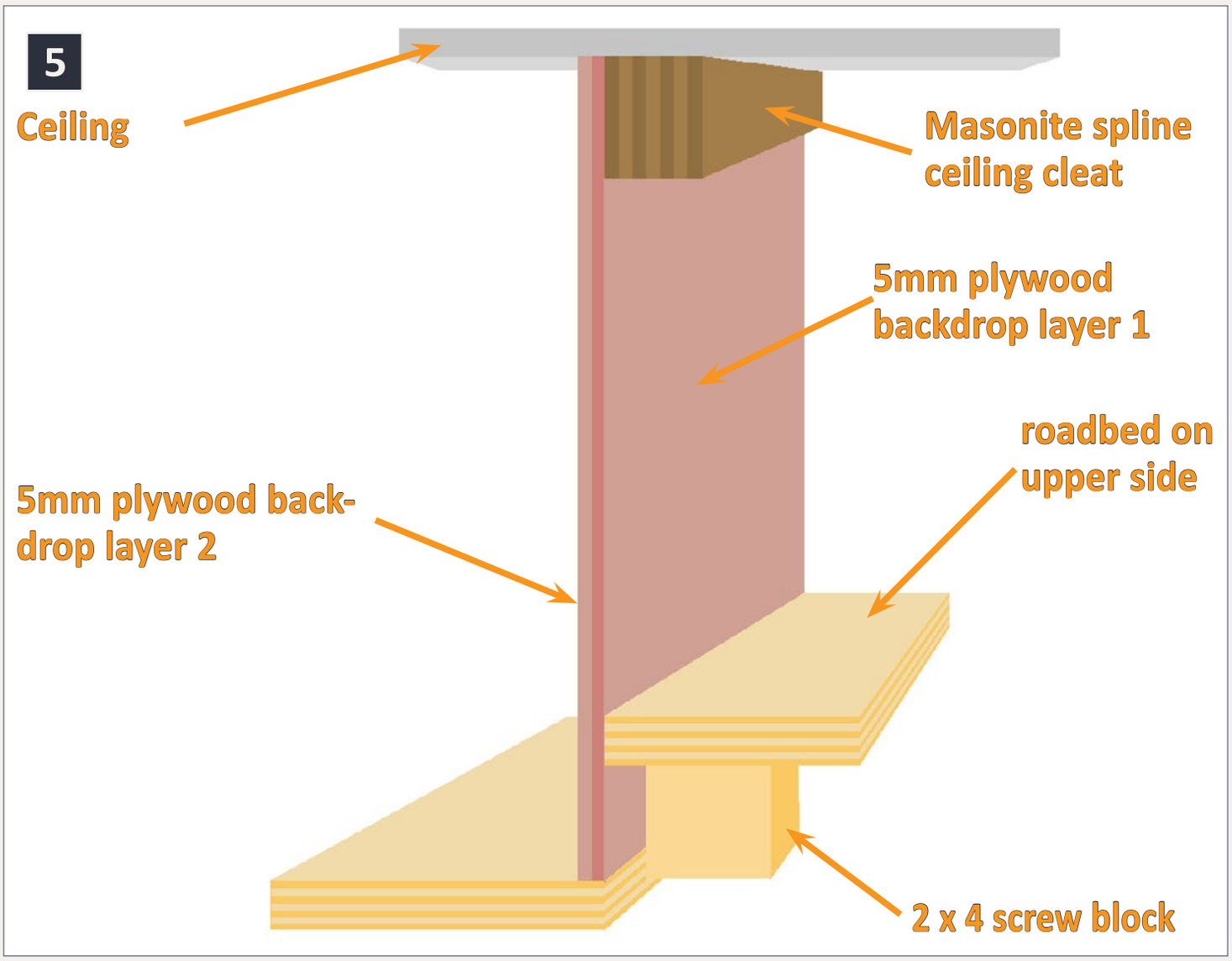
Backdrop mounting

By March 2014 I was finally ready to start peninsula backdrop construction. I'd decided on its height and an ultra-skinny laminated backdrop, but what would I use to build it?

Masonite spline on the ceiling

I asked myself, could I build Masonite splines on the edge of the peninsular roadbed, then screw them to the ceiling. If I clamped the splines to cleats on the edge of the benchwork they should match the curvature perfectly [6]. If this worked I'd be able to attach the backdrop top and bottom.

I ordered a 4x8 sheet's worth of 1-3/4" tall 3/16" Masonite splines from a local cabinet shop that used a panel saw to cut them more accurately than I could. A few days later a serpent of Masonite appeared on top of the roadbed. Good train buddy and construction super-hero Paul helped me cut the serpent to length and screw it to the ceiling – definitely a two-man job.



5: Laminated backdrop cross section diagram. Two layers of 5 mm plywood are laminated and attached to a Masonite spline cleat on the ceiling and the height difference between the two sides of the peninsula's benchwork surface.

6. I screwed cleats to the edge of the sub-roadbed. By clamping the splines to them, the resultant Masonite serpent matches the curvature of the subroadbed edge.

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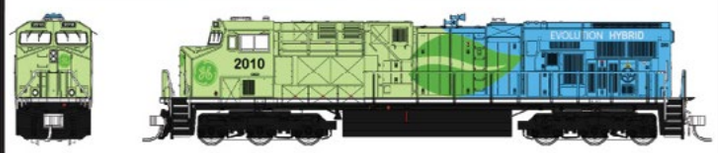

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7. At the end of the curves I clamp the splines to a straight piece of scrap wood. If splines are not clamped to something straight while the glue cures, they won't end up straight.

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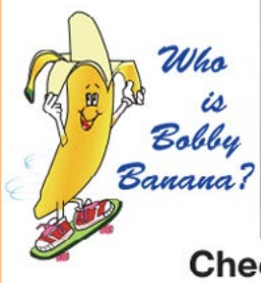

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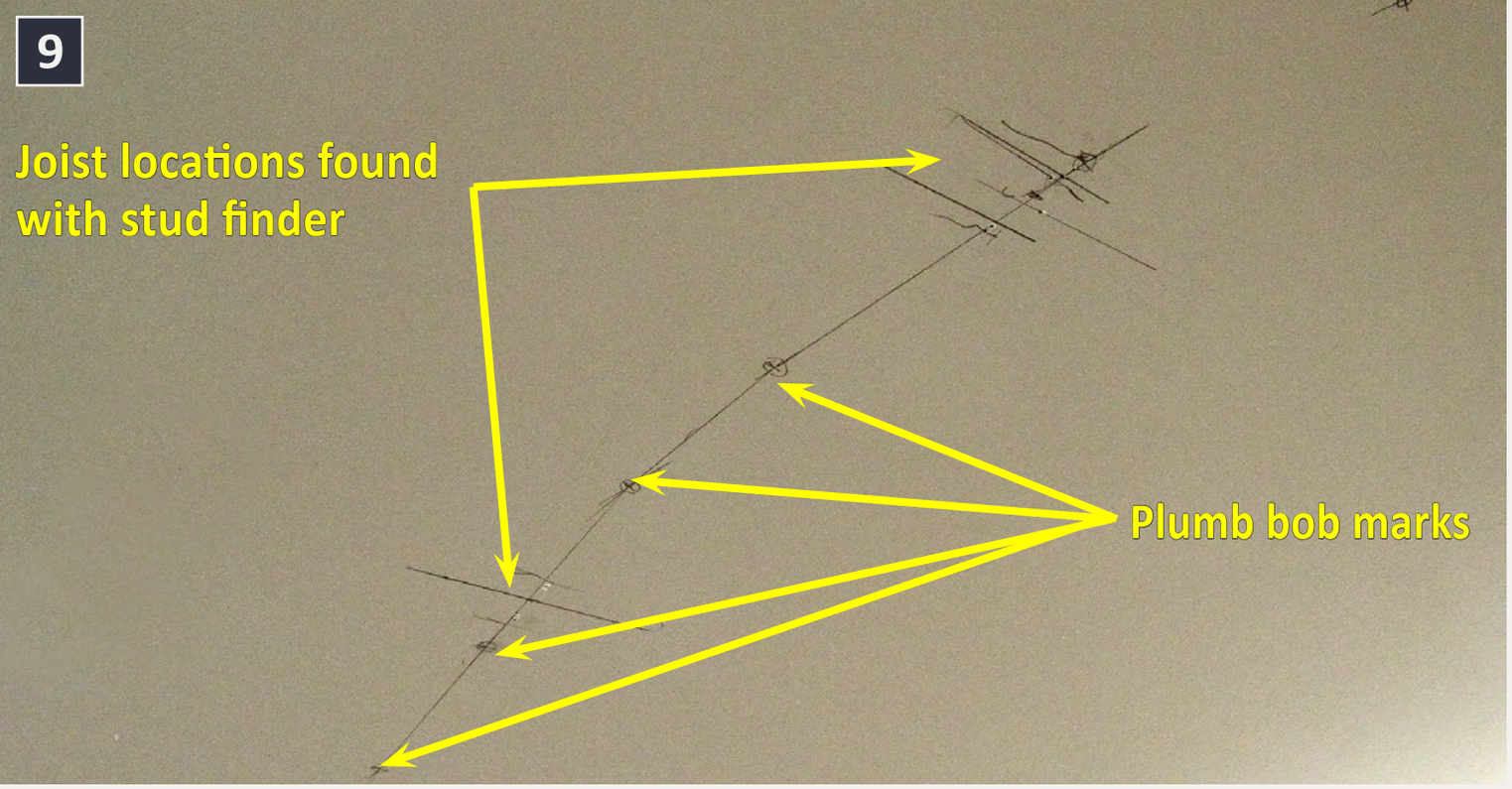
For the straight parts of the ceiling cleat we used 2x2 Douglas fir – lighter and much easier than laying up splines. However, where the 2x2 met the splines we ensured the 2x2 was exactly the same thickness as the splines. This let us glue splice plates to the rear of the joints while the front surfaces (where the backdrop sheets would be attached) remained flush [13].

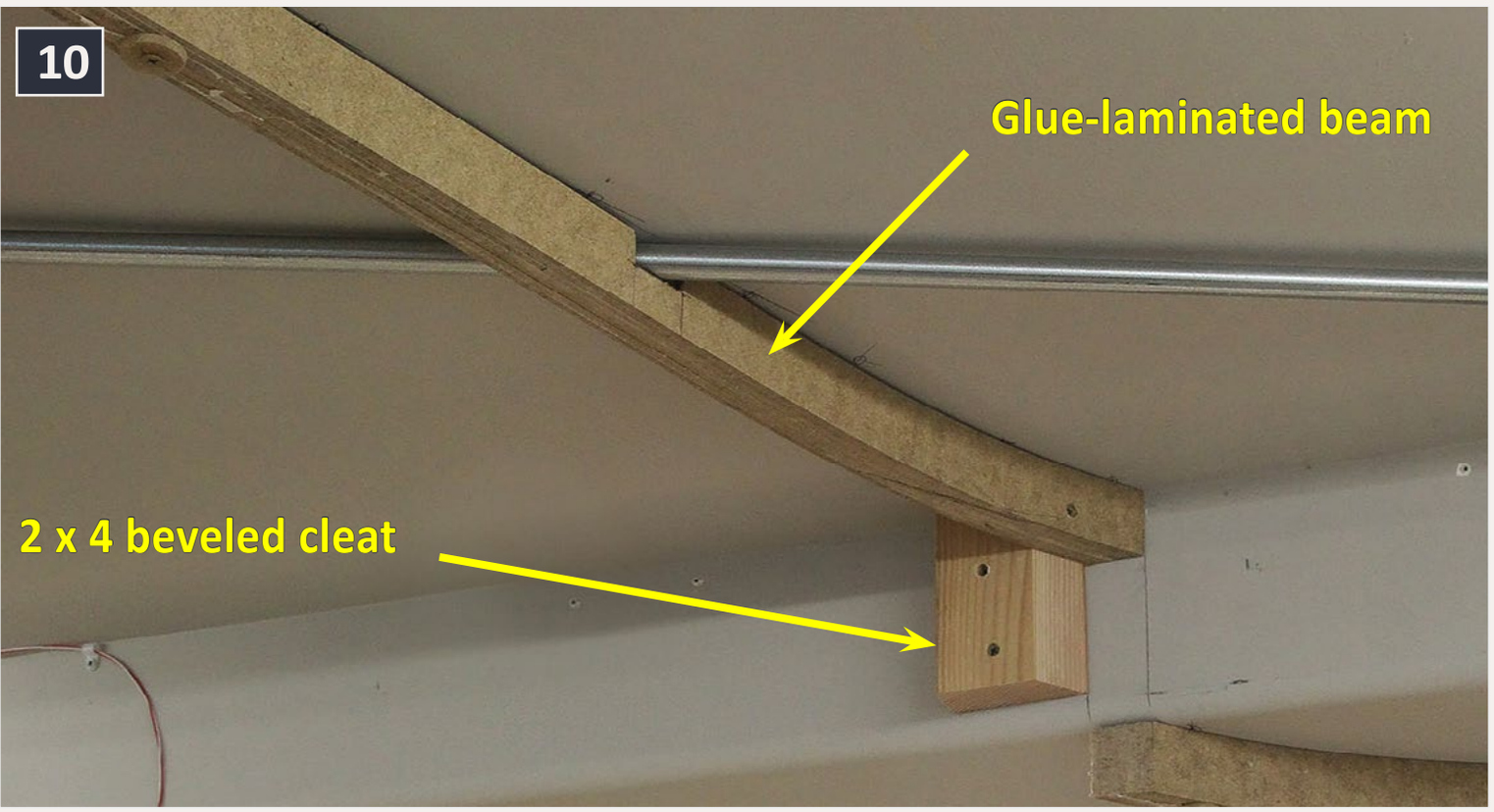
8. Copious amounts of yellow glue are a good idea when laminating splines.

A styrene backdrop?

I used .060" styrene for backdrops on the previous version of the BC&SJ and thought I could do that again. Two layers of .060" styrene laminated with staggered joints would be required. I figured I could easily bend this stuff into the 24" radius curve.

However, I wasn't keen on filling the basement with MEK fumes. Then I called the plastics distributor where I'd paid about $10 per 4x8 sheet of .060" styrene in 1999.





9. We used a plumb bob to mark the ceiling above the sub-roadbed edge and used an ultrasonic stud finder to locate the ceiling joists.

10. We notched the spline to accommodate some conduit and installed a beveled 2x4 cleat to secure a loose end of the spline. Murphy law was in action; there was no ceiling joist close by.

11. Mounting the Masonite spline on the ceiling with 3-1/2” deck screws is work! Note the washers used to prevent the screw heads from splitting the splines. I made my own washers from Masonite with a 1” hole cutter, but metal washers would also work. We needed to coax the spline just a tad to keep it lined up with the ceiling marks.

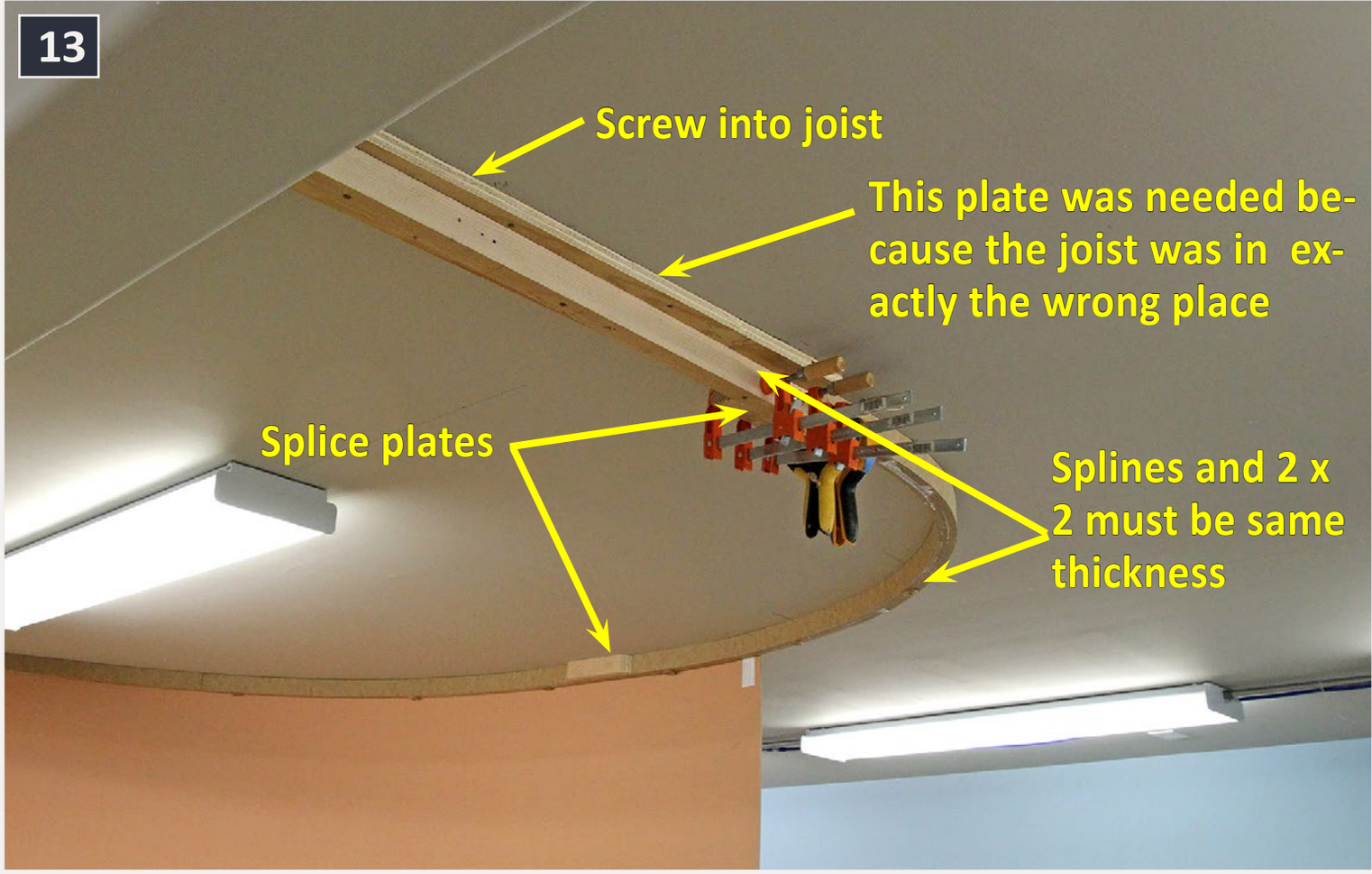
Ouch! Now it was $30 per sheet and I’d need 17 sheets! No way, Jose!

A Masonite backdrop?

On my previous layout, I laminated two layers of 1/8” Masonite to make very curvy fascias. When I unscrewed them from the layout for access below the roadbed, they held their shapes very nicely. So, would two layers of 1/8” Masonite work for my new backdrop? At $9 per 4x8 sheet the price was attractive. However, all the 1/8” Masonite sheets at the local lumber yards had serious ripples in them and were warped enough I doubted a two-layer lamination would make them flat.

The 3/16” Masonite was a lot flatter but I had doubts whether I could force it into the 24” radius next to South Jackson. It also cost more and was heavy. An earlier experiment with a 2’x8’ piece of

12. We double-checked the ceiling cleat’s alignment with the benchwork below. To our relief, it was spot on!



13. When joining Masonite spline to 2x2 fir cleats, the 2x2 needs to be the same thickness as the splines. It turned out the joist in the ceiling was in the wrong position for mounting this part of the spline. I solved the problem by screwing a piece of plywood to the ceiling and the 2x2 cleat to the plywood. Note also the splice plate in the background. We cut the spline in into two pieces, making it lighter (and easier to handle) and rejoined the pieces with a splice plate yellow-glued in place.

leftover 1/8" Masonite required serious shoving to force it into the 24" radius curve. A 48" tall piece would require twice as much effort and the 3/16" would be even stiffer. Not recommended.

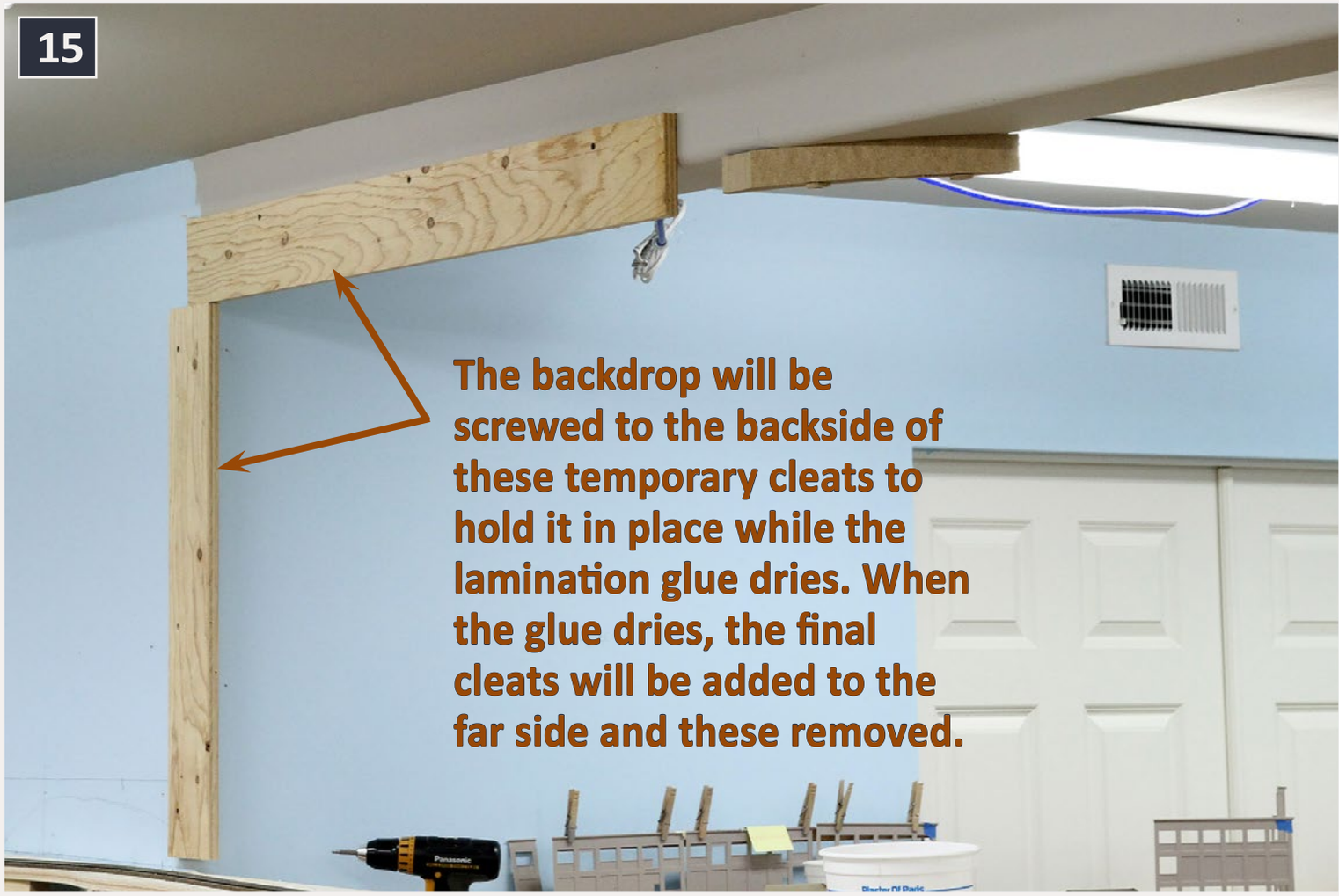
Patriot Lumber RevolutionPly

I was looking dolefully at the Masonite pile in Lowes, beginning to doubt I could build a laminated, ultra-skinny, monocoque

backdrop for a reasonable price, when one of the sales guys asked if I'd been helped. I had a layout photo on my phone [3] that showed the peninsula and where I wanted to attach the backdrop. I showed him the photo and told him about model railroading and backdrops. Did he have anything that would work?

He called the lumber area manager. I showed the photo and gave the spiel again. He marched me over to a pile of Patriot Lumber's 5mm RevolutionPly™ and asked if that might work. It looked too stiff to bend into my 24" radius corner, but we pulled a sheet off the pile and, using another person as a fulcrum, tried bending it. It was a lot more flexible than I expected; I figured I'd buy one sheet to test. The manager said he'd take it back if it didn't work for me. I went for it.

14. Experimenting with a 2x8 sheet of 1/8" Masonite.



15. The first piece of backdrop has to be flush with the wall on this side. I temporarily screwed a couple of ¾" plywood guides to the wall. The backdrop will be on the far side of these and screwed to them. Once the glue set, I removed the screws holding the backdrop to the temporary mounts, screwed cleats in place on the South Jackson (far) side [25], and then removed the temporary 3/4" plywood guides. Once spackled, the resultant joint is almost perfectly flush.

The first piece of backdrop

The first piece of backdrop had that 24" curve in it, and needed cutting to clear a low hanging beam and some conduit. With the help of my train buddy Rodger, I cut the test sheet and with considerable difficulty we maneuvered it into place [16]. Amazing! The plywood bent into the 24" radius curve without cracking! It looked like I had a solution to my backdrop problem.

16. The first backdrop sheet wedged and clamped in place. The need to clear the conduit and beam made this piece a huge pain to install. Plus, we had to shove hard to get it to flex into the 24” radius curve.

A day after getting the first piece of backdrop in place, I returned to Lowes and picked up another 16 sheets – enough to finish the backdrop. At $15.50 a sheet it was spendier than I wanted, but I was happy to have a backdrop solution at hand. This stuff came with one side primed and the other with a nice natural wood grain. The scraps will work great for building control panels, car card boxes and other things like that.

Laminating the layers

With the supply of 5mm plywood I also bought four tubes of Liquid Nails (water cleanup and no toxic outgassing). It was time to start spreading glue and laminating the second layer.

17. Liquid Nails for projects cleans up with water, has no nasty solvent vapor outgassing, and gives me up to 15 minutes to get the layers clamped. I was amazed at how much adhesive it took for each 4x8 sheet – at least two tubes. The trowel has 3/32" notched edges.

I used flat head deck screws to attach the first layer to the ceiling cleats and the roadbed edge below [18]. The plan was to laminate the second layer right over the screw heads – a risky proposition because once it was glued together, there was no way to get it apart again without a lot of destruction.

Another train buddy, Jim, helped cut a 3' piece of plywood to start the second layer, ensuring the end-of-sheet joints in the layers wouldn't line up with each other. I squeezed out what I thought was a generous amount of construction adhesive on the first layer

A clipping from the

South Jackson Gazette

Space is curved say leading scientists!

Leading scientists at the South Jackson Research Institute have concluded that space, which for 10 years was believed to be linear, has changed and is now curved!

A team member, declining to be named as he was not authorized to comment on ongoing research said, "It appears that the sight lines of our universe have gone catywhumpus and it's no longer possible to see any place from any other place. This proves that the fabric of space has been curved. However, rather than straightforward curvature, the universe now appears to meander.

Patrons at the South Jackson Tavern seemed phlegmatic about this discovery. Commented Horace Fithers, unofficial spokesperson, "Straight, curved, or meandering, we're still able to go for our Sunday afternoon walks, trains are still running, and it looks like the universal is still expandin' a mite. If anythin's really changed fer us, it's that the trains feel like to be traveling further to git someplace. And that's fine with me."

Other tavern patrons were quick to agree with this analysis and quicker to return to their brewskies.

Mr. Comstock, superintendent of nearly everything of the BC&SJ railroad commented, "I don't know about curvature of space, but it feels a lot as though trains are traveling farther. However, our fuel bills have remained the same suggesting that this curvature helped our locomotive fuel economy letting us hold down ticket costs."

This reporter hopes the universe won't turn into a pretzel anytime soon

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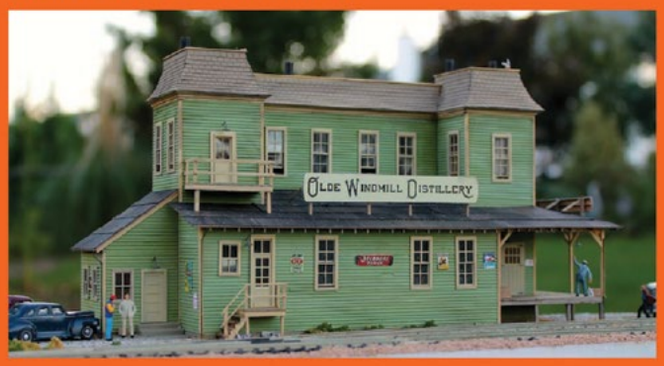

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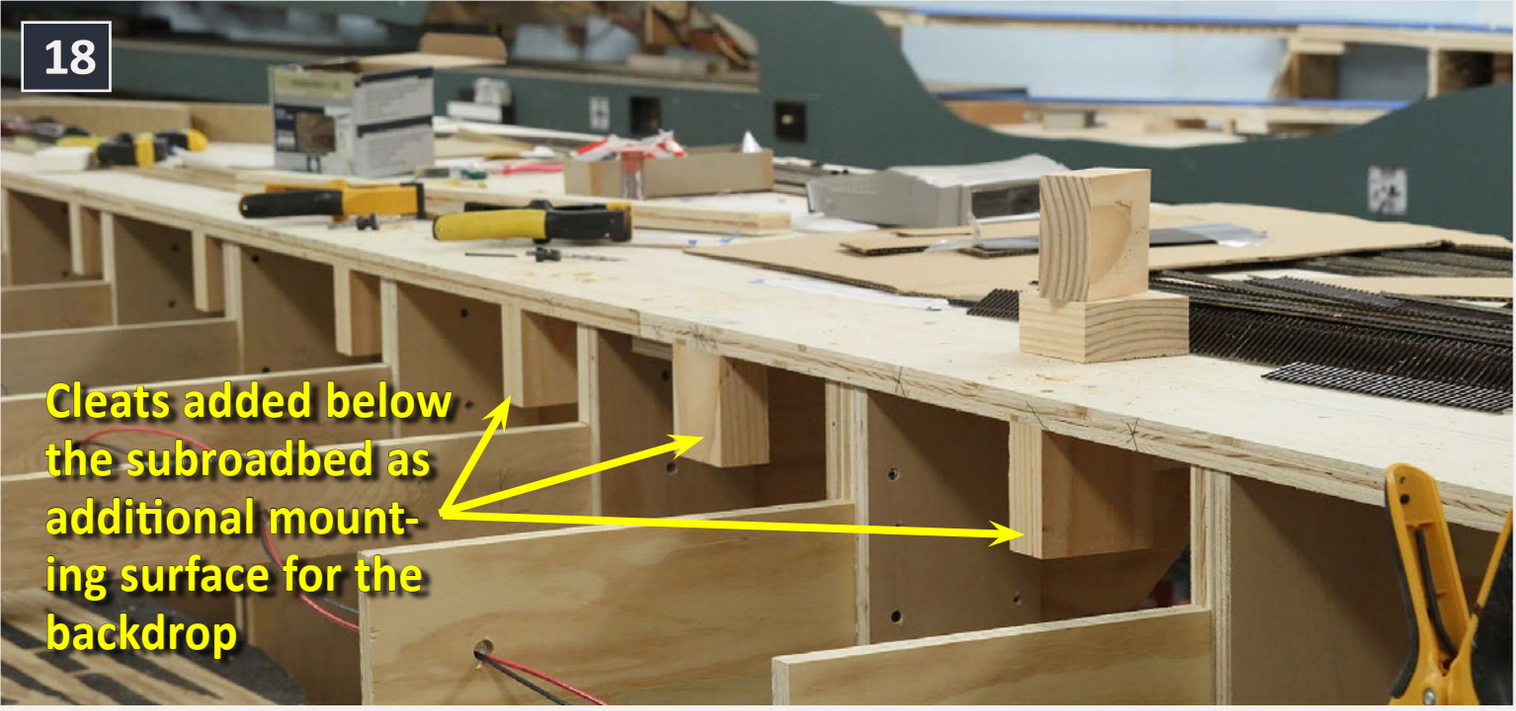
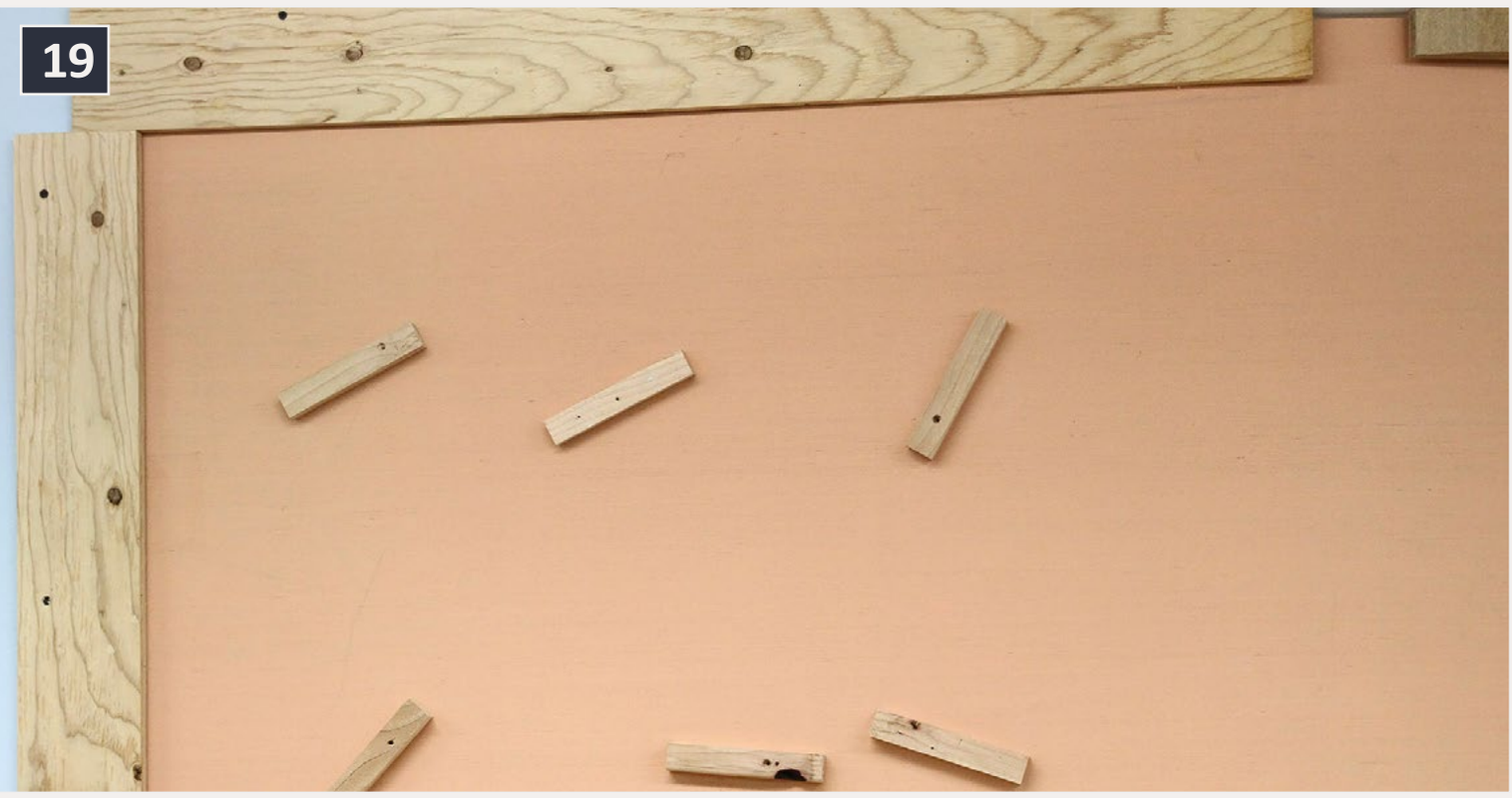


18. Screw blocks added below the roadbed edge provide a good anchor for the bottom of the backdrop sheets.



19. The temporary cleats (left and above) with the first piece of backdrop installed. The first 3' of the second layer has been glued in place behind this. I drove screws from the other side into the six scraps of wood to pinch the two layers of backdrop together for a stronger lamination.

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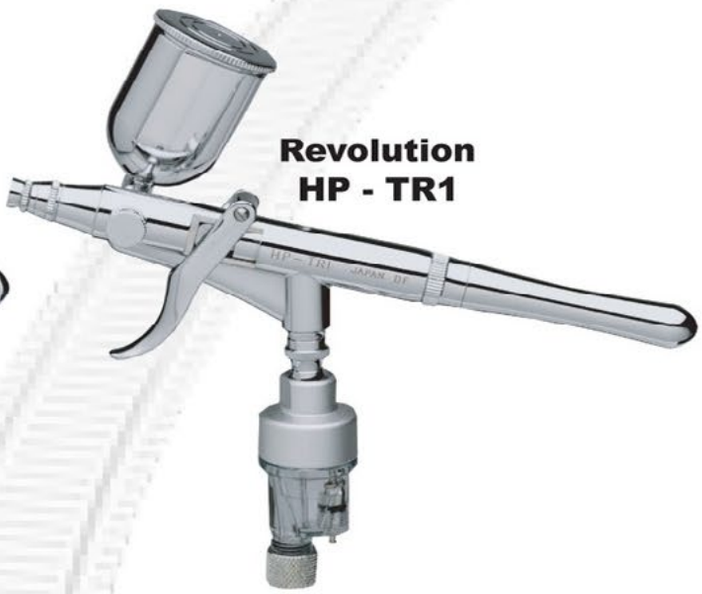

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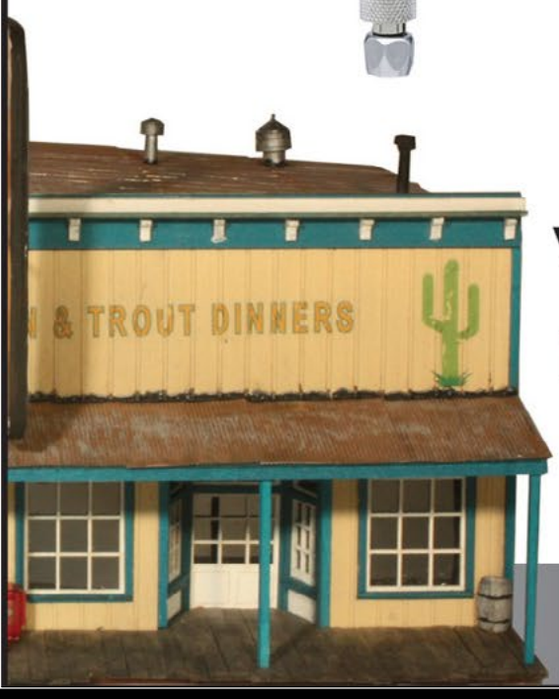

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Models By... Alan Houtz, North American Prototype Modelers

20. I ran a lot of construction adhesive beads onto the backdrop, then spread it around with a notched trowel.

21. Ready to attach the second layer of backdrop.

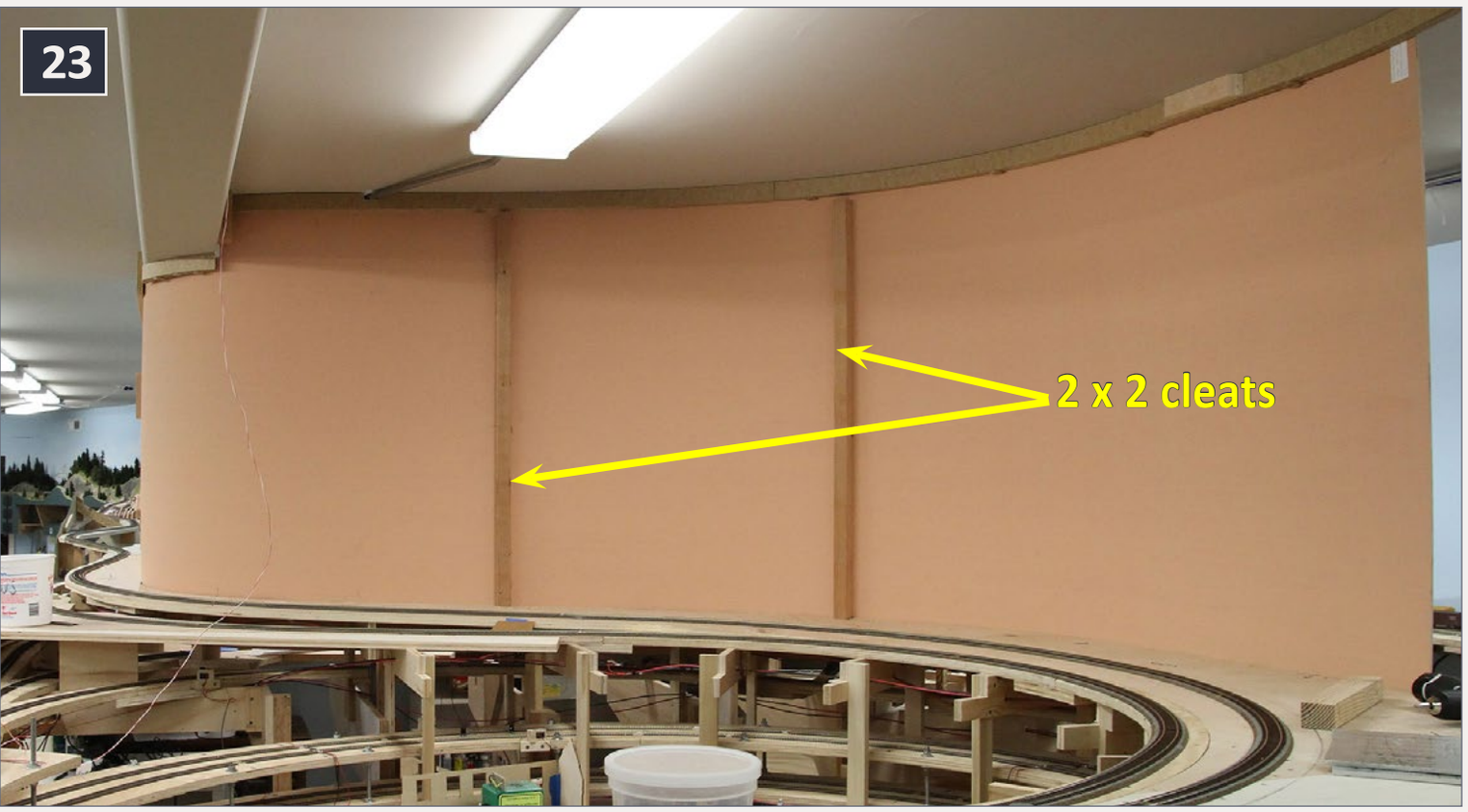
22. There is a 2x2 temporary cleat on the far side of the backdrop. The row of screws I'm installing act like clamps (note the excess glue squeezing out) resulting in a strong joint. Once the glue sets, I'll remove the 2x2 and screws. The seam and the holes left by the screws will be filled with spackle. Clean up excess glue BEFORE it sets!

and used a 3/32" notched trowel to spread it around. Man, that didn't cover worth a rat! I squeezed out a more generous amount and spread that around. In the store I'd guessed a tube would handle two sheets of plywood. In reality it was more like two tubes for one sheet!

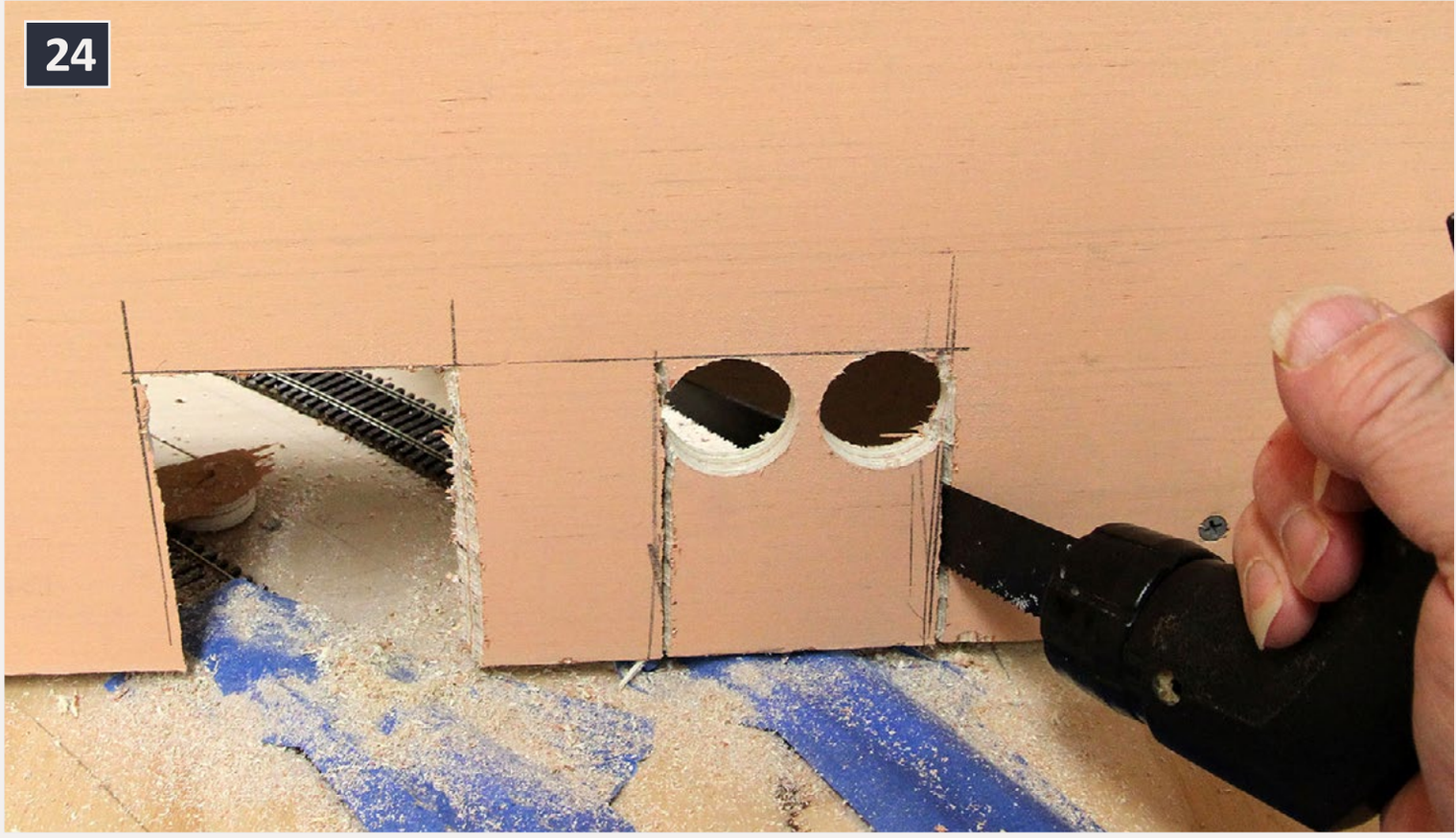
We put the 3' piece of the second layer in place and screwed top, bottom, and right edge (left edge in photo 19). There's no way to clamp the sheets together so I drilled holes through them.

Jim held a scrap of wood on the far side and I drove in ¾" #8 screws in lieu of clamps. Yeah, extra holes, but that's what spackle is for, isn't it? A day later when the glue set and I pulled out the extra screws, it was solid! Yay team!

I used straight pieces of 2x2 lumber for extra clamping behind the vertical edges of each plywood sheet. They also eliminated any bowing. I hoped the backdrop would remain flat and true once the glue set and the bracing was removed, and that proved to be the case.



23. I temporarily screwed the backdrop to 2x2 stiffening cleats at the joints between plywood edges. This securely clamped the two layers, kept the edges flush, and prevented the plywood from bowing. When the clamps come out after the glue sets, the plywood remains flat. Make sure those 2x2s are straight!



24. Once the glue sets, I mark the places track will penetrate the South Jackson backdrop and use a key-hole saw to cut the openings. I angle the saw to be parallel to the track while cutting.

25. The first bit of laminated backdrop, installed in South Jackson.

26. A close-up view of the PVC conduit in the corner. This will be hidden behind coving and allows me to run future low voltage wiring from below the benchwork to the ceiling. The existing wiring is for the 4x fast clock.

Jim and I put up two more first layer sheets and then glued another second layer sheet in place. Putting up the second layer sheets is tricky – you need to finish before the glue starts to set. When working with a sheet that has to fit around obstacles and bend into corners, it's a race. So far I haven't lost the race – good news because it would be nearly impossible to remove a partially glued second layer and try it again.

Filling the holes in the backdrop

The next day I removed the temporary screws holding the layers together. It was solid! Yay!

I made another trip to Lowes, to pick up a lot more glue and a gallon bucket of lightweight spackle. I used a sanding block to

smooth the holes in the backdrop and anywhere else that needed filling, then worked the spackle into the holes and gaps with a 3” putty knife.

Conclusions

As I’m writing this column, the first layer of backdrop extends to the end of the Bear Creek yard sub-roadbed with the second layer hot on its heels. That’s as far as the backdrop will go for now. Sanding, spackling, and a couple of coats of sky blue paint (if I was modeling LA perhaps I could keep the brown color to represent smog) are next.

I’ve been waiting until after the backdrop went in before installing the benchwork and track at Browning, the Toledo branch, and Junction City. It was hard enough doing the backdrop without having to reach across 24” to 30” of benchwork! With the backdrop done, I’ll be able to start work on those areas in pursuit of the completed mainline.

I’m hoping for a mainline gold spike ceremony in September. After that, I’ll be able to

27. They aren’t kidding when the say this stuff is light weight! The gallon jug feels like it might be empty. So far the claimed non-shrinking property has proved true.

28. A track-level view of the spackled backdrop in South Jackson. I still need to sand the first layer of spackle and add a second before painting it sky blue.

relax a bit, using most of a year to add scenery and structures and finish the sea of track in Bear Creek yard prior to the 2015 NMRA National Convention nmra2015portland.org.

Building my skinny backdrop was a lot of work, but the hardest parts are done now. Thank God the layout was strong enough for me to stand on the main staging area (with suitable protection for the track) while screwing cleats to the ceiling above the peninsula.

I really like the sense of isolation and how much longer the layout seems to have gotten with the backdrop, and can't wait to see what the crews think during the June op session. Exciting times for sure on the Bear Creek. ☑

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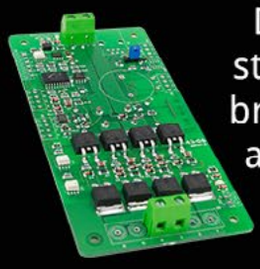

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DCC Impulses column

by Bruce Petrarca

Photos and illustrations by author

More about getting the sound OUT!

In late May and early June another model railroader and I (and our wives) traveled in Europe and just had to ride some trains: a regional from Paris to Giverny, the Metro around Paris, the Thello from Paris to Venice overnight, a regional form Civitavecchia to Pisa, a regional from Barcelona to Montserrat and a few funiculars. We had fun, but it is good to be back home.

One of the most common areas of discussion when retrofitting sound into a loco is how to achieve the sonic portion of the installation design. In this column, I'm going to hit on how I did it in some representative HO scale diesel locos.

Why HO? Okay, it's the most popular scale. But also, it is the smallest scale where, in my opinion, reasonable sound can be installed. Smaller scales can make some noise, but the physics of size just limit their capabilities. Not to say that I haven't seen nice sound installations in N scale. But, and this is the big

but, most of them were done by extremely skilled folks with decades of N scale experience. Not something that I have or can teach. And even those folks score a home run on only a few of the many installations they do.

In a prior column, August 2012 mrhmag.com/dcc_impulses, I discussed the theory of getting the sound out. I suggest reviewing that column and the accompanying video before you go on. This column will show some practical ways to make that happen. I'm not going to belabor the actual sound pathways. I leave that as an exercise for the reader: figure out the sonic path from the speaker to your ear.

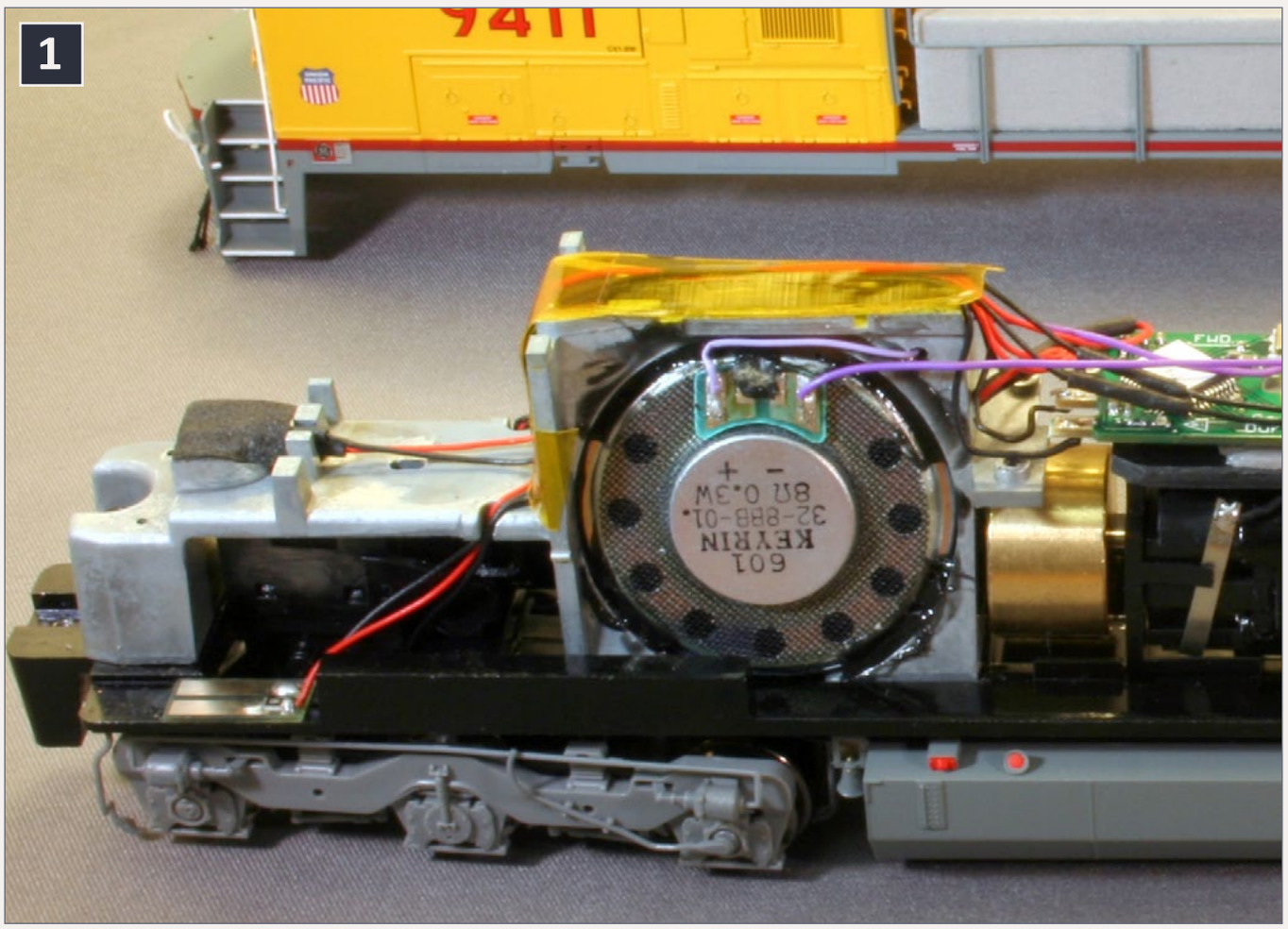
Most of my installations here use a single speaker. However, if you have the room to install a pair (or more), things only get better. I explain how to wire multiple speakers in my January 2014 column mrhmag.com/dcc-multiple-speakers. Check that out if you have an installation that can accommodate multiple speakers.

"Many modern locos have frames designed for speaker installation..."

I'm only going to comment on the audio aspect of these installations. The remainder of the installation is the same as a similar non-sound installation: power pickup, motor and lights. Nothing changes there. Nothing about these installations depends on the decoder selected, except for the fact that different decoders want different speaker impedances. Know what your decoder likes and can tolerate and select your speakers accordingly.

Many modern locos have frames designed for speaker installation, whether they are fitted with sound at the factory or not. While these designs may not be the very best sonic design, they are usually much better than what can be easily fabricated after the fact. So, if your loco is set up this way, I recommend that you utilize the manufacturer's design at least as a starting point.

Beyond that there are many techniques to get the best sound. I'll show you what I've done that I think resulted in good sound. They are arranged roughly in the order of increasing difficulty. There are many other locos that are set up similarly to those shown, so don't despair if your specific loco isn't shown. Look for something similar and get creative.



1. Utilizing the Atlas frame design to install 31 mm speakers in a Dash 8-40CW.

Use the manufacturer's design

The installation shown in [1] was fairly straightforward, because the frame had cast-in places for the speakers. Sometimes these come with small weights clamped where the speakers go, sometimes not. Either way it is a matter of locating the speaker(s) that fit the outline and thickness. Then install them. Frequently these speakers are comparatively large (over 30 mm in diameter).

The specific speakers that were available in the proper size at the time I did this installation were 8 ohms and rated at 0.3 watts. Since they share the applied power, they can handle 0.6 watts together. This is marginal for a 1 watt output decoder, but acceptable if you keep the volume down. Check out my January 2014 column mrhmag.com/magazine/mrh-2014-01-jan/di_dcc-multiple-speakers for wiring methods.

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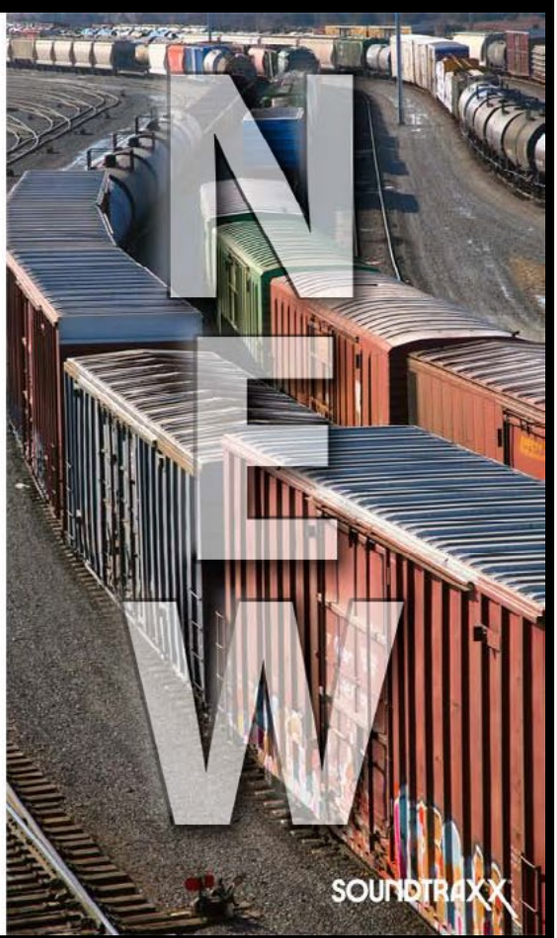
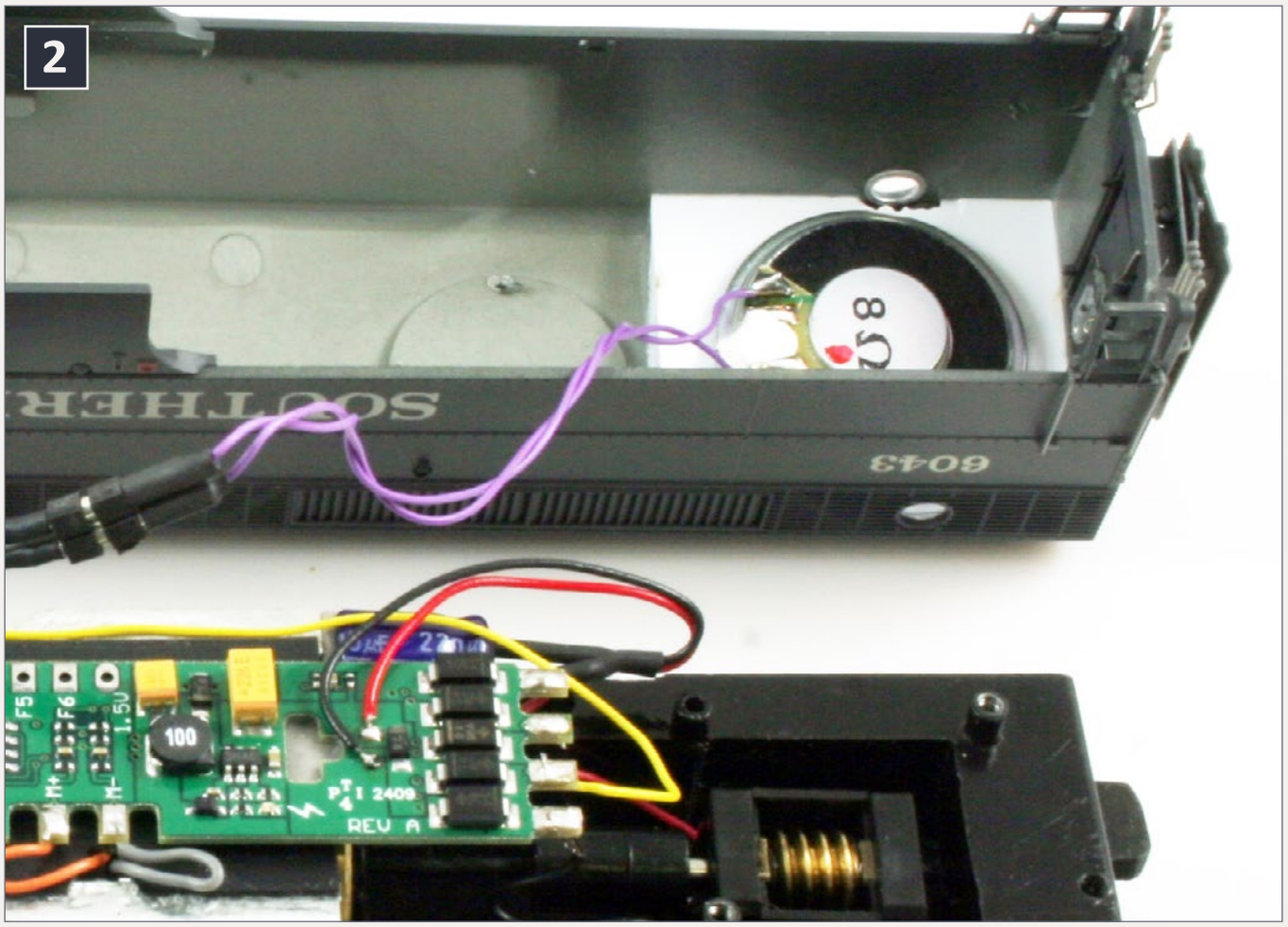




2. A SoundTraxx enclosure with a 28 mm speaker in a Proto 2000 Alco PA.

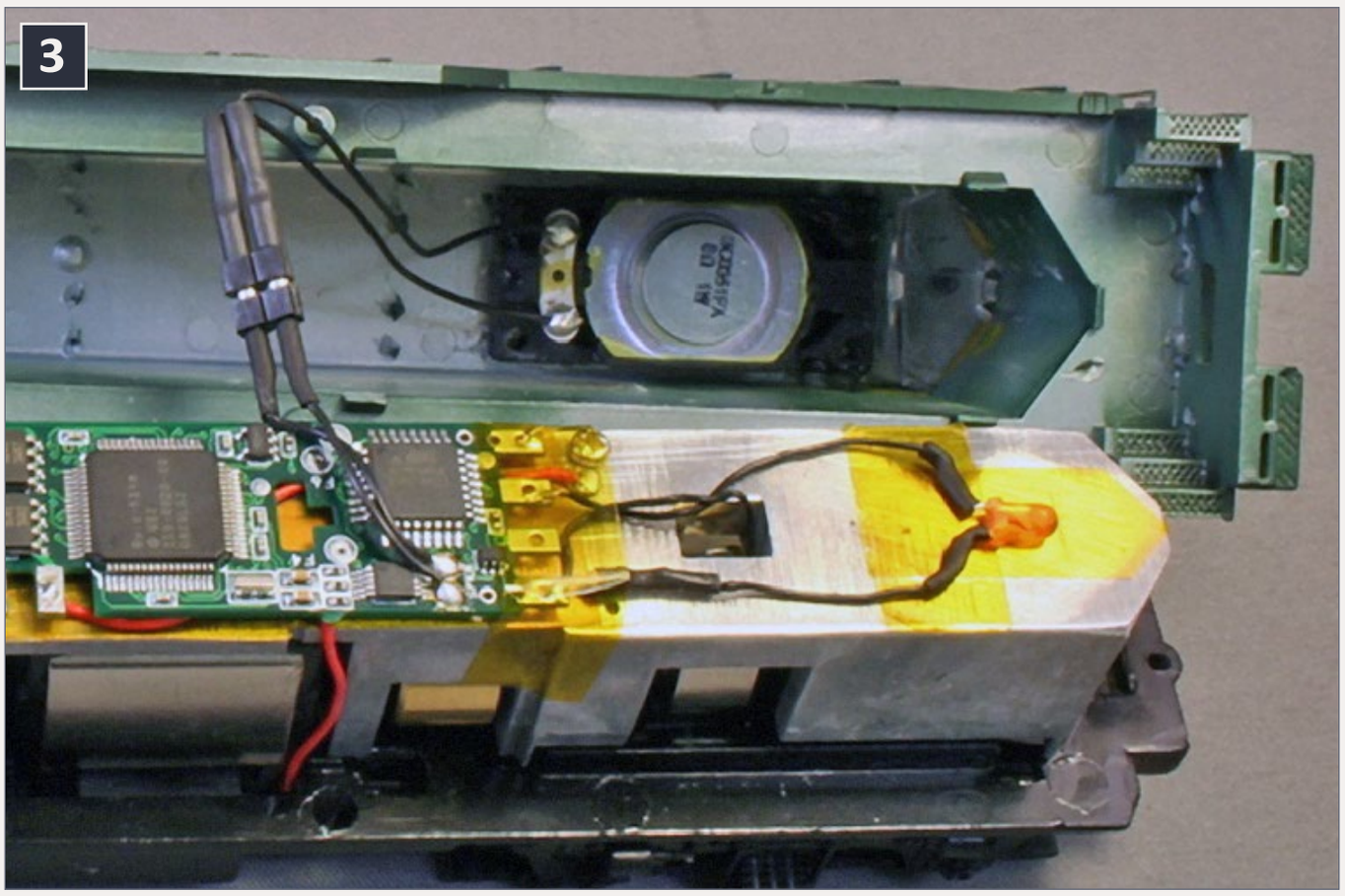
Use a re-designed baffle or enclosure

If you are lucky enough to be working on a model that has a pre-designed baffle or enclosure available for it, I recommend you try that method first. Look at [2] shows an enclosure designed by SoundTraxx for the Life-Like Alco PA using the venerable 28 mm speaker. SoundTraxx has designed these for many of the Life-Like cab diesels. The design places the speaker inside the enclosure and leaves room for the circuit board mounted on the frame above the truck. Removing the board allows the speaker to be outside the enclosure, resulting in a marginal improvement in the sound; as a result of more enclosed air volume. Use caulk to seal the holes that were designed to bring the wires into the enclosure.

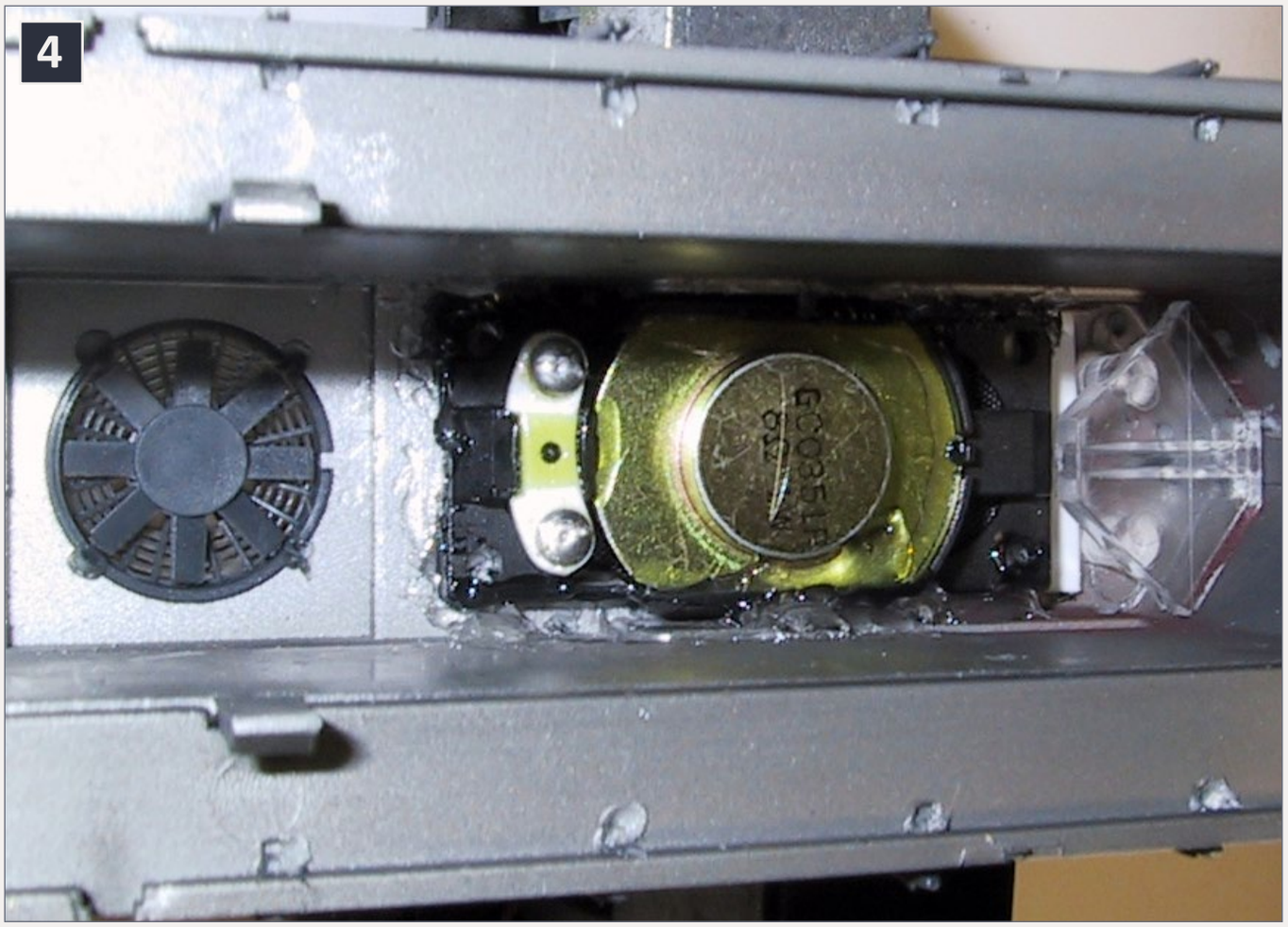
Note the 2-pin connector in the speaker leads. This allows the shell to be completely removed for maintenance or storage. With a bit of carving on the Styrofoam insert to provide room for the speaker, enclosure, and the connector, the shell can even be put back into the original box.

Behind the fan grilles

One of the best-sounding installations I do has the speaker(s) behind upward-facing fan grilles. The GP9 shown in [3] is a prime example. There is room in front of the rear light lens and the 16 x 35 mm speaker covers the only opening in the top of the shell. The trick is making sure that the speaker cone doesn't contact any plastic nubs hanging down from the shell. Some installations require a shim to move the speaker down and away from the shell to accomplish this.



3.16 x 35 mm speaker installed behind the fan grilles in a Proto 2000 GP9.



4. Proto 2000 loco with several open grilles.

In order to have room for the speaker, height needs to be removed from the weight. The loco in [3] had the weight removed and milled down until the motor almost protruded above the weight. In my column “17 DCC Tips” from June 2013 mrhmag.com/17-dcc-tips, I showed how to use a belt sander for this task. So no special tools are necessary for this installation.

Figure 4 shows a similar shell where there are more grille openings. You can see the speaker held in with clear caulk. Check out the small plastic nubs protruding near the grille. Similar ones above the speaker are what you need the cone to clear. To finish this installation, I put a piece of black plastic over the open grille to seal it. I held it in place with a bead of caulk. The rear LED will rest on top of the weight and needs to be adjusted so it shines on the flat portion of the lens assembly in the shell.

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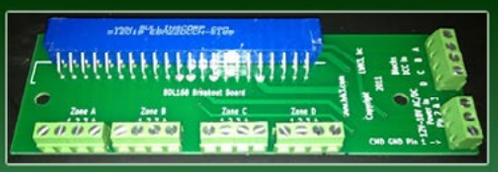

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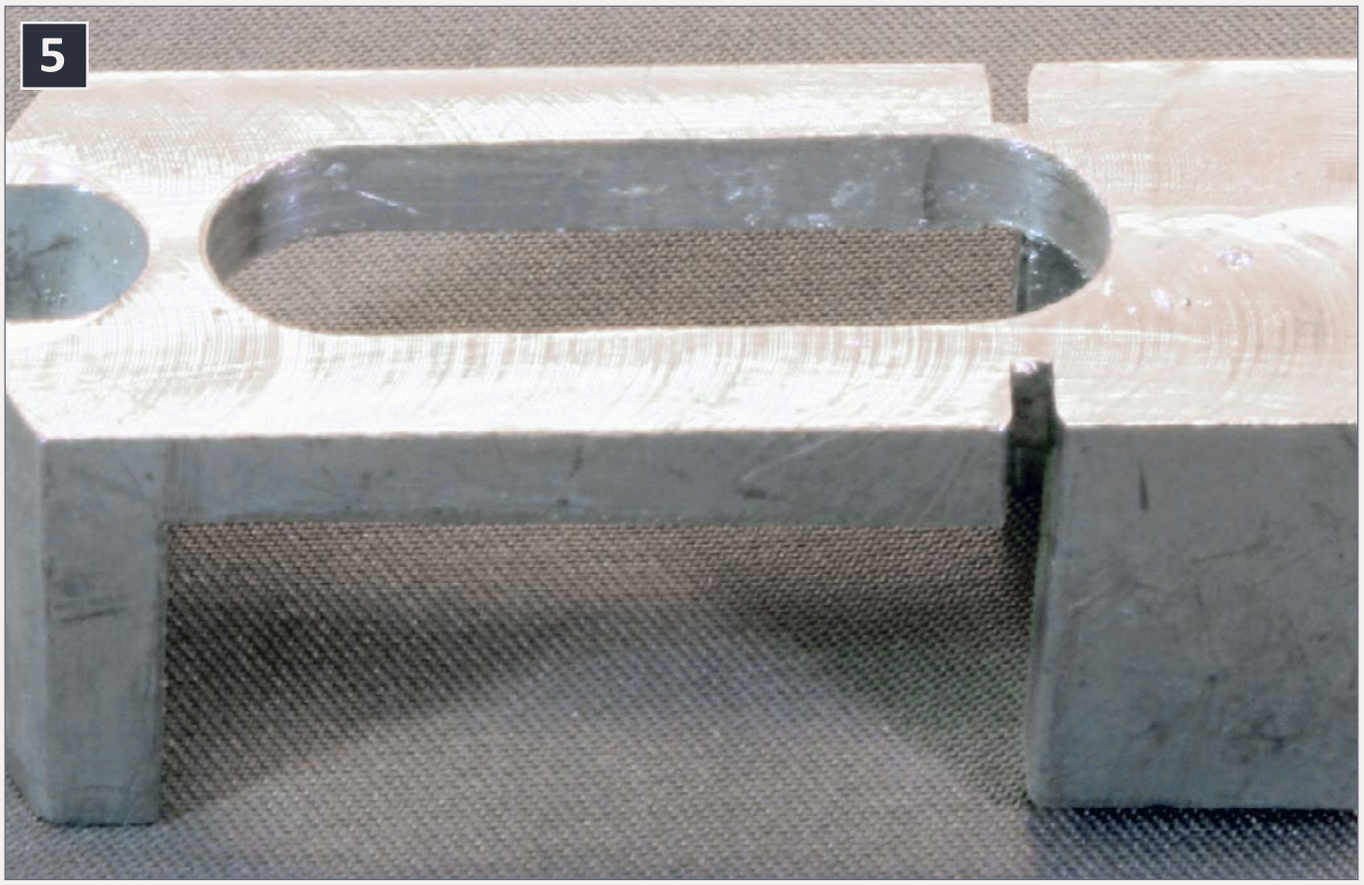


5. Machined Atlas weight.

Atlas locos with two removable weights

There are a few different versions of the earlier Atlas design with two weights one screwed into each end. These locos are fun to install sound into. A 16 x 35 mm speaker will fit on top of the rear weight once a bit over ¼ inch is removed from it.

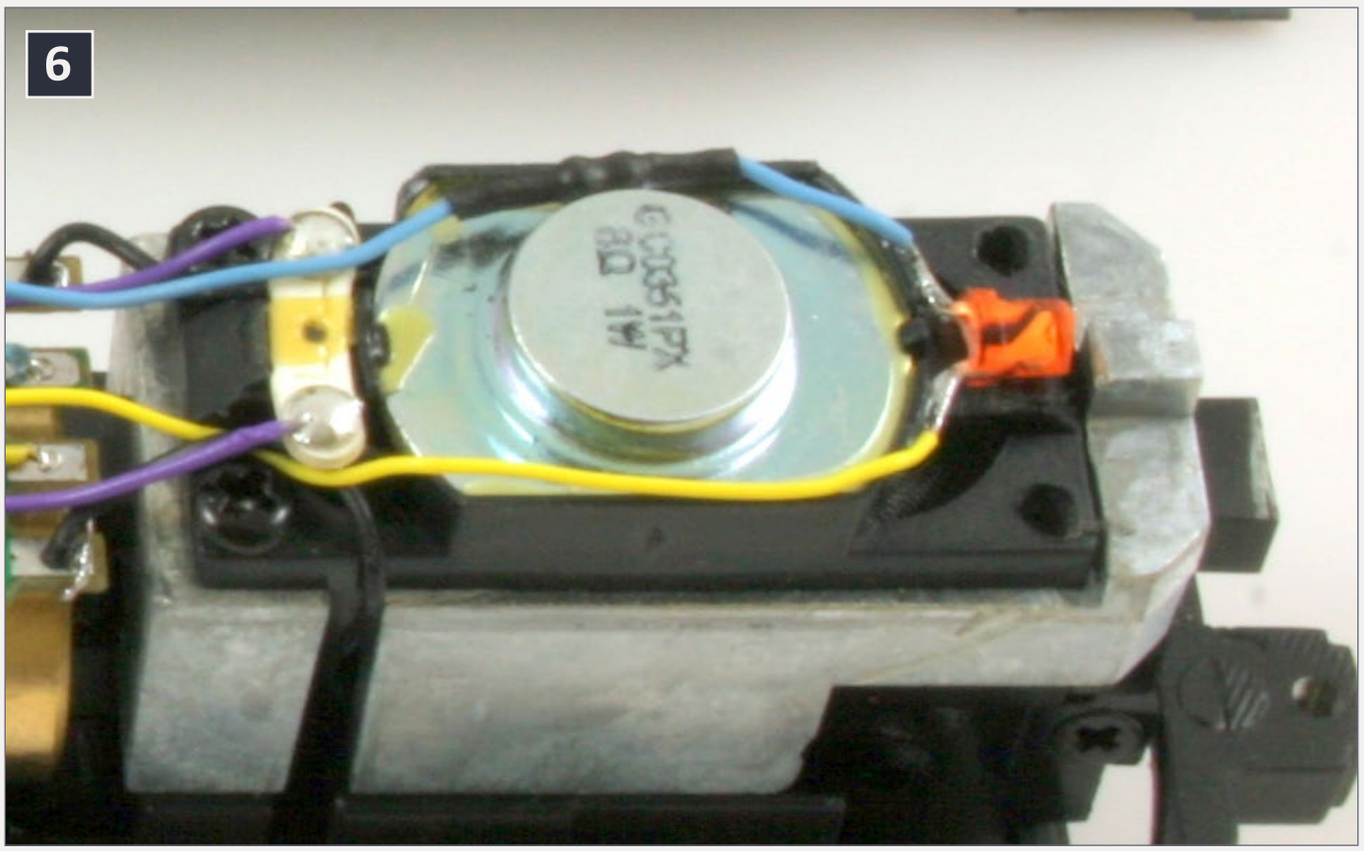
Figure 5 shows the one-screw version of this weight after it was milled down and a slot cut to allow the sound from the front of the speaker to go out through the truck area. The speaker will be attached to the top of the weight with caulk. Hint: be careful that no caulk gets onto the speaker cone. A similar result can be obtained with a belt sander and by drilling 2 holes ¼-inch in diameter instead of milling the slot.

Figure 6 shows an Alco RS32 with the two-screw version of this weight. No caulk is necessary to hold the speaker here. I

seal the junction with a small bit of caulk around the exterior perimeter of the speaker.

A drill is used to slightly enlarge the mounting holes in the speaker so that the weight mounting screws hold the speaker tightly to the weight. In this installation [6], I milled the weight down, leaving the original top shape on the rear. This fancy stuff is not needed. The weight can be milled or sanded flat. Don't forget to mill the slot [5] or drill a couple of ¼-inch holes. You can see slots in the side of the weight as cast to provide room for the truck wires in both photos 5 and 6.

Also, there is one goof in [6]. I didn't put shrink tubing on the connections to the golden white LED. I got away with it, as there is no way that they will ever contact any metal, other than possibly the speaker magnet housing. In that case, the speaker will short the LED. The resistor will limit the current and the rear light won't illuminate. But no damage will result. I make mistakes, too.



6. Atlas Alco RS32 with a 2-screw rear weight.

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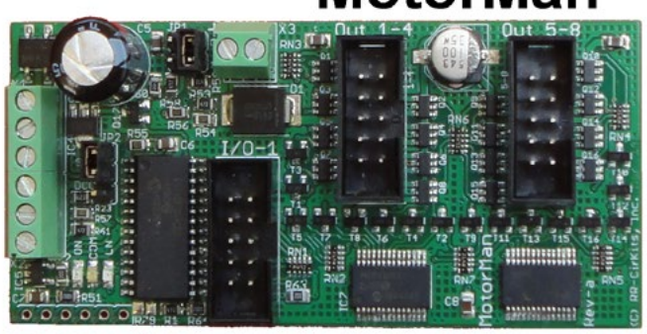

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The sound from either of these styles will be almost inaudible until the shell is in place, as the shell is the baffle that directs the sound out the rear truck opening.

If you want to test this loco before you install the shell, just wrap your finger around the end of the weight. The sound should come up significantly. It won't achieve the ultimate timbre or volume until the shell is installed.

Over the truck with a baffle

Similar to the Atlas version [5] and [6] is a method that works on a lot of locos. I fit the speaker over the rear truck of the Kato SD45, shown in [7]. Once I had a good dry fit, I used styrene to build a baffle to keep the sound coming off the front of the speaker directed downward to the truck opening.

This was done because the weight is not a close fit, like the Atlas version. I've tried this style of installation with

and without the bits of plastic baffle. I find the baffle helps. Only takes a few minutes, so why not?

The speaker is held down with caulk. Remember to keep caulk away from the cone. I glue the styrene to the sides of the speaker with solvent (MEK or a commercial product). A future column will cover some methods to make quick work of this fabrication.

Using the shell as part of an enclosure

Folks who have followed my columns know that I prefer to baffle the sound, rather than to enclose the speaker. However, there are times that an enclosure is about the only possible game. The pre-designed enclosure [2] discussed previously is one case.

Another kind of installation is where there is no place to put the speaker except to build an enclosure using the bottom of

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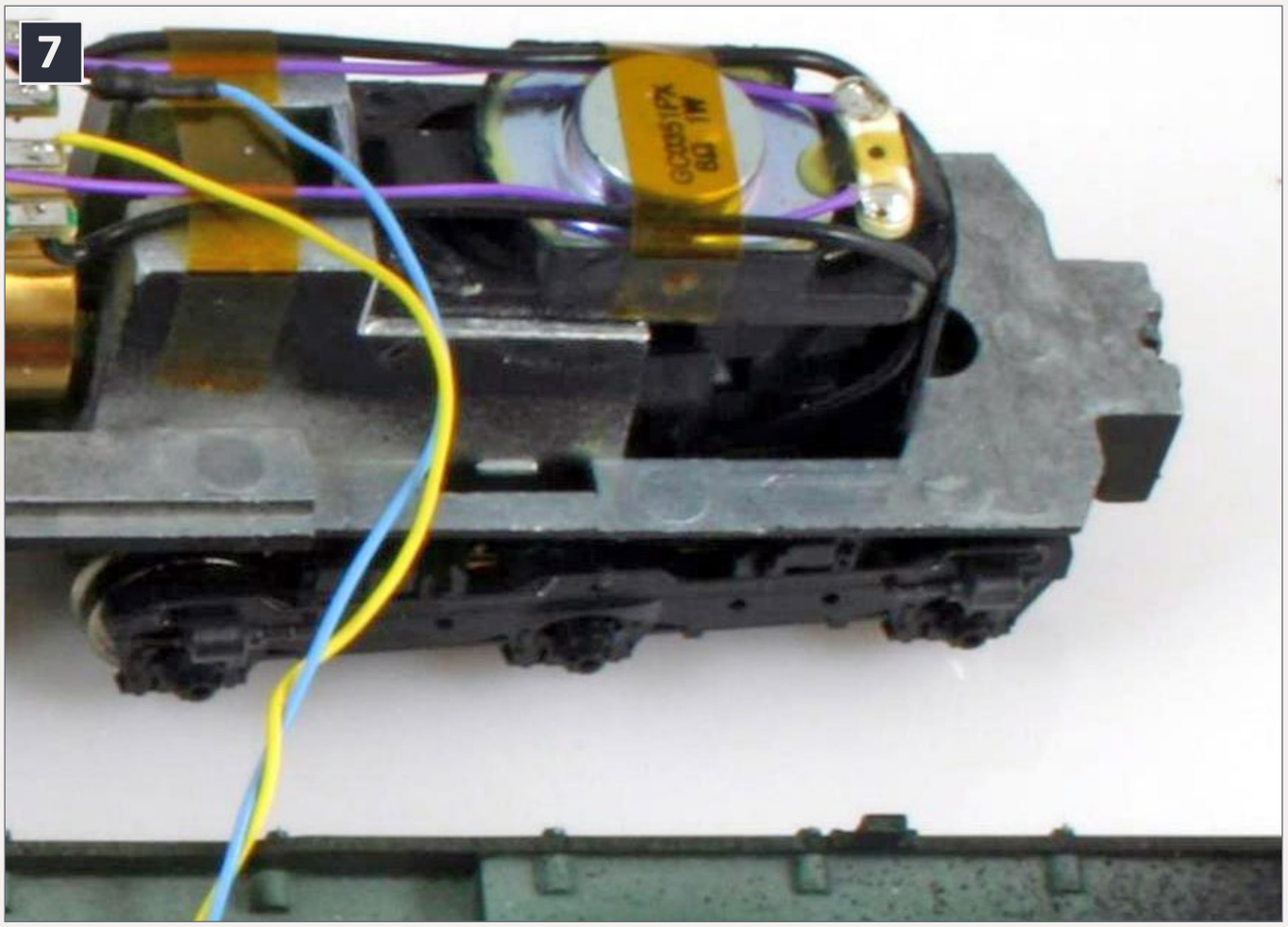


7. Kato SD45 with a 16 x 35 mm speaker and baffle over the truck.

the cab or part of the shell [8]). Of course, the cab needs to be fully glassed and sealed for the enclosure to be effective.

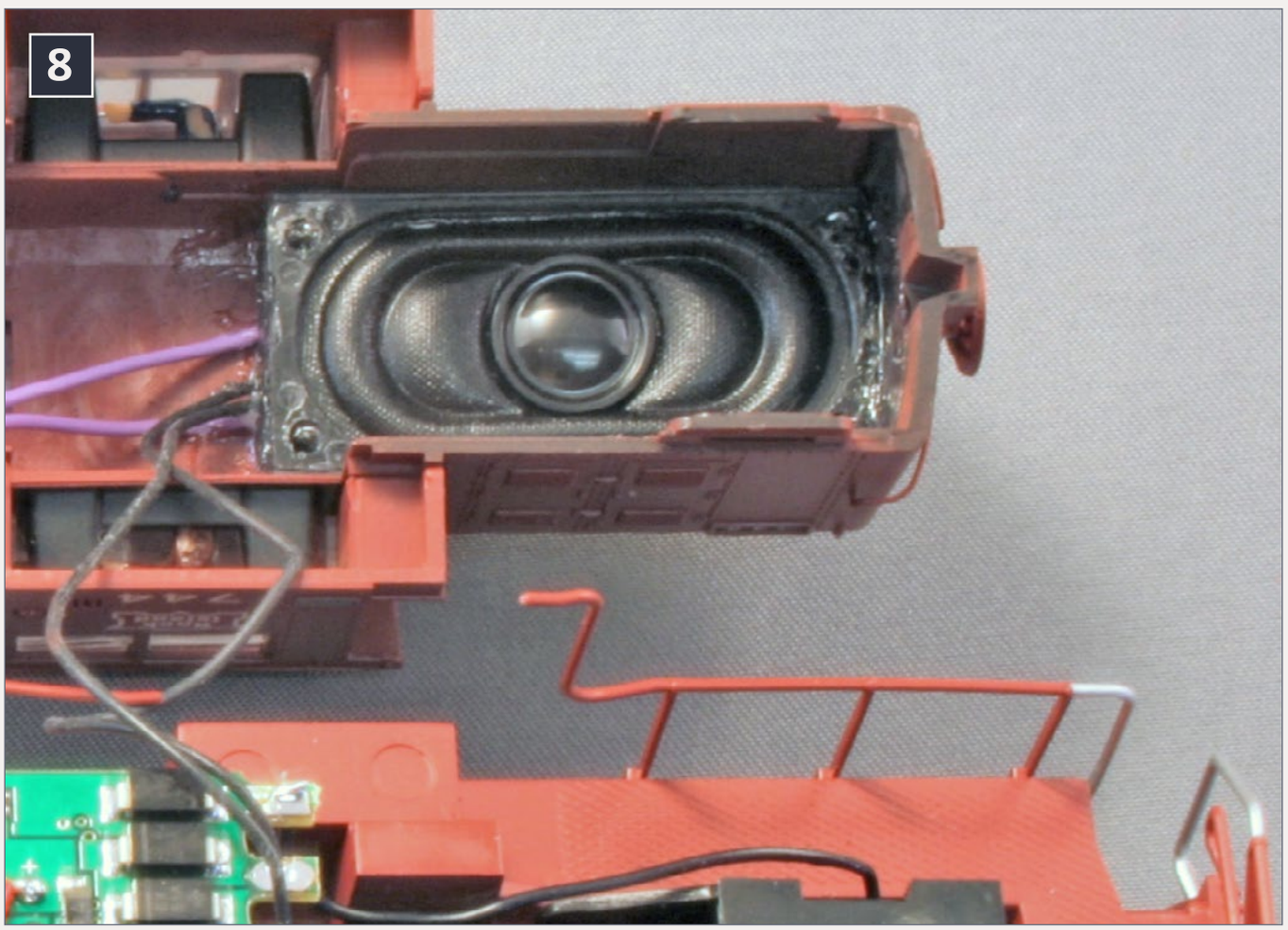
Figure 8 shows one such installation in an Atlas Alco RS-1. Here the shell was most of the enclosure. The speaker is caulked into the shell and has a bit of styrene, not visible in [8], between the top of the shell and the front of the speaker to complete the enclosure. The speaker wires (purple) and rear LED (black) pass through notches in the styrene wall and are caulked in place. Glue the speaker and the styrene with caulk. That way, they can be removed if necessary, unlike what happens with styrene cement.

I don't recommend this design without a LED light. My luck would be that an incandescent bulb would burn out as soon as

I had the loco back together and I'd have to take the loco apart and rip the speaker out to replace it.

One thing to be very careful about. Make sure that the rear truck can twist and turn and articulate up and down. If the speaker constrains the motion of the truck, two things will happen. The truck will dampen the sound and the loco will be prone to derailing. I'd explain how I know this, but that would be an entire column by itself.

One switcher that I did with the speaker mounted in the bottom of the cab had terrible sound when I tested it. A bit of judicious pressure on the cab showed that there were lots of openings in the cab that would let the sound escape. It took a bunch of caulking and gluing to make the sound work. Whew.



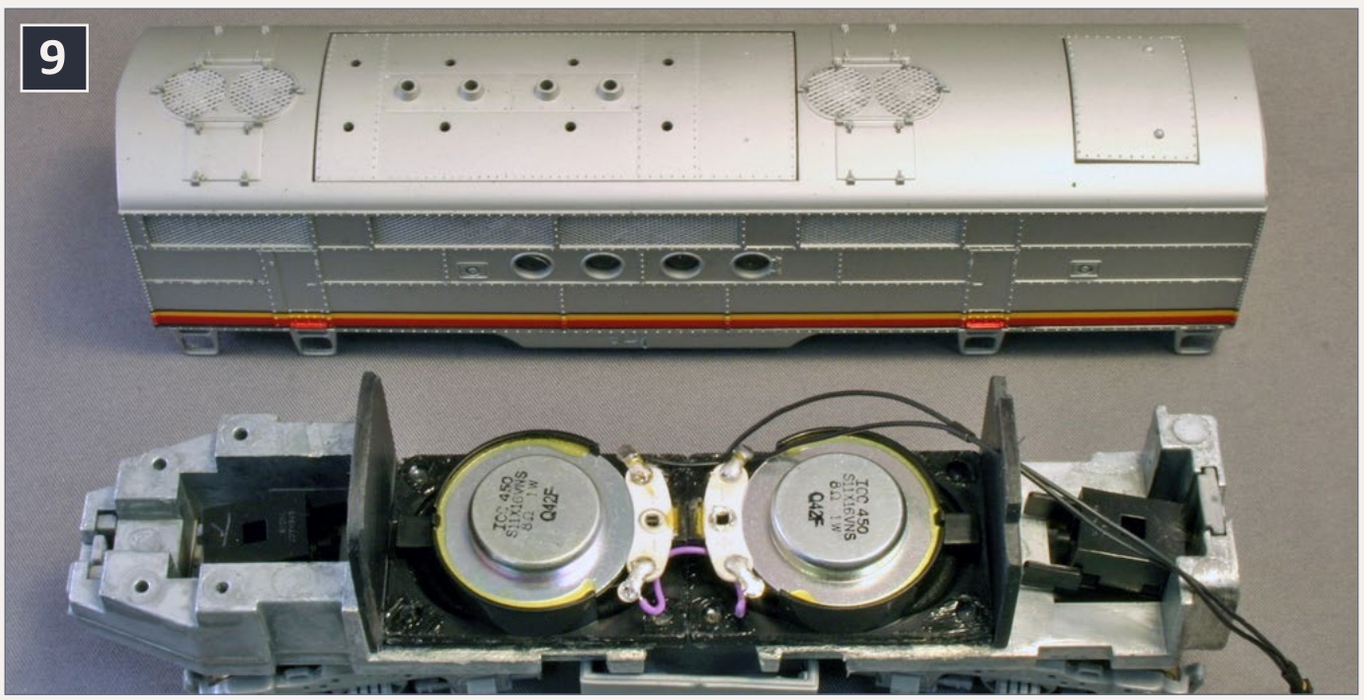
8. Atlas Alco RS-1 with a 16 x 35 mm speaker mounted in the cab and short hood.

Large speaker systems in diesel B-units

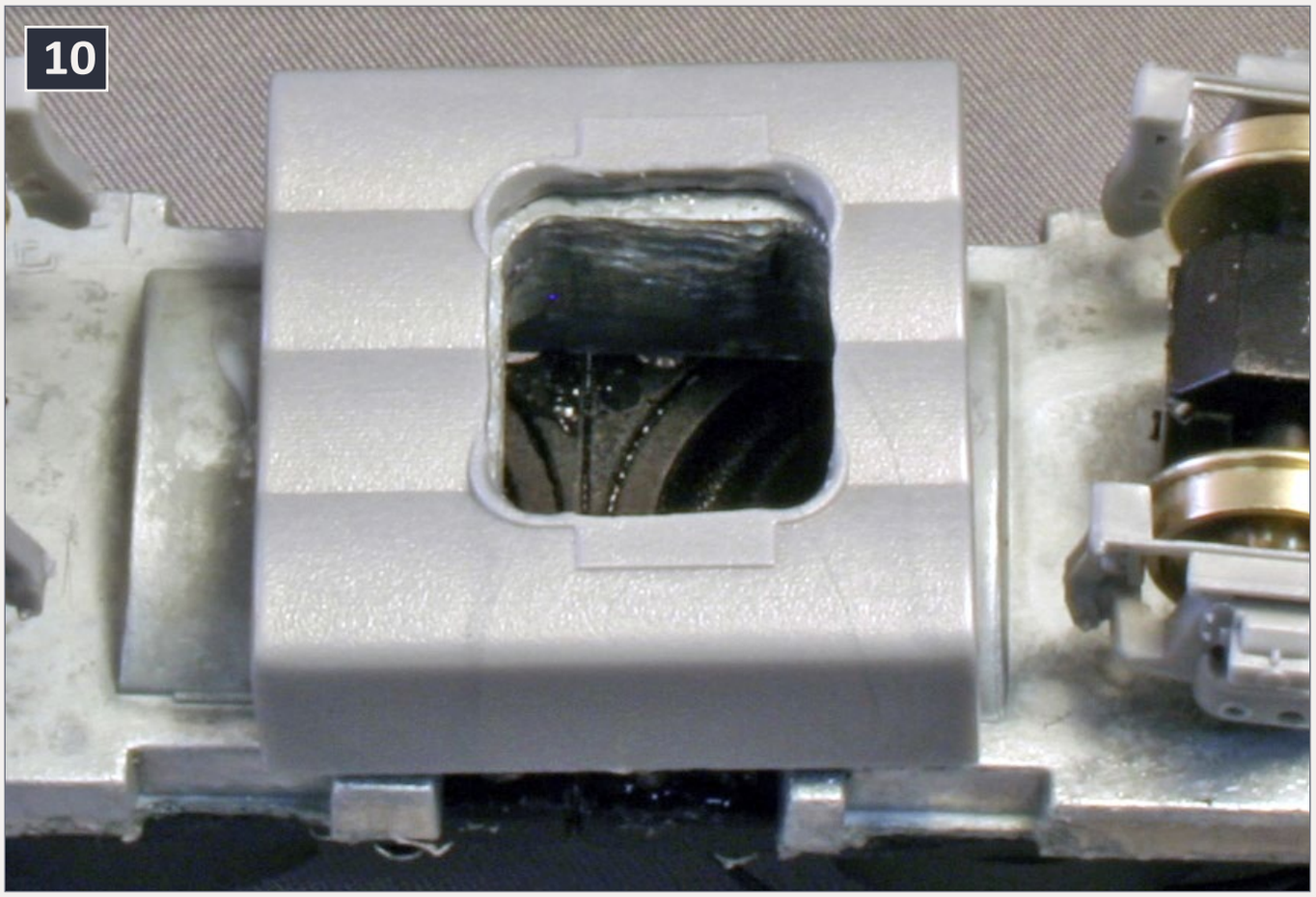
One of the best-sounding installation designs involves putting speakers in a B-unit. Here are two versions: one baffled and one using an enclosure. Both have amazing sound. In both cases, dual speakers were used. Check out my January 2014 column mrhmag.com/magazine/mrh-2014-01-jan/di_dcc-multiple-speakers for wiring methods. The connection to the decoder in the A-unit is through a 2-pin connector.

First, let's look at a design for a Stewart FT A-B pair, shown in [9] and [10]. The FT is a fine loco pair to do this with, as most of them were drawbar-connected A-B units.

The weight was milled or sanded flat between the trucks. The weight and fuel tank plastic between the motor mount holes was cut away [10]. If one had a mill, even more material could be removed, but just cutting between the motor mounting holes is enough. The fuel tank decoration was attached with caulk. Two speakers were stuck down to a piece of styrene. Two vertical baffle boards were fashioned out of thick (0.06 inch or thicker) styrene.



9. Stewart FT B with two baffled 28 x 35 mm speakers.



10. Stewart FT B fuel tank opening to allow the sound out.

The baffle boards run wall-to-wall inside the shell and to the ceiling on the sides. The gap created between the top of the (straight) plastic and the (curved) ceiling allows back pressure to find its way out through the truck openings.

A Westside Alco PB unit was similar. However, the design didn't lend itself to baffling, so I created an enclosure with styrene vertical bulkheads attached with caulk. I made sure that the area between the bulkheads [11] was sealed on both the shell and the floor.

There you have my most frequent methods of installing speakers in HO-scale diesels. For more food for thought, including examples in other scales, check out my website, mrdccu.com/install/.

In my August column I'll show you some quick methods for cutting and fitting these baffles and enclosures.

There will be no workshop sidebar this month, I am still playing catch-up from my vacation.

If you found this column helpful, please click on the Reader Feedback link and rate it awesome. Please join in the conversation that invariably develops there. I wish you green boards. ☑

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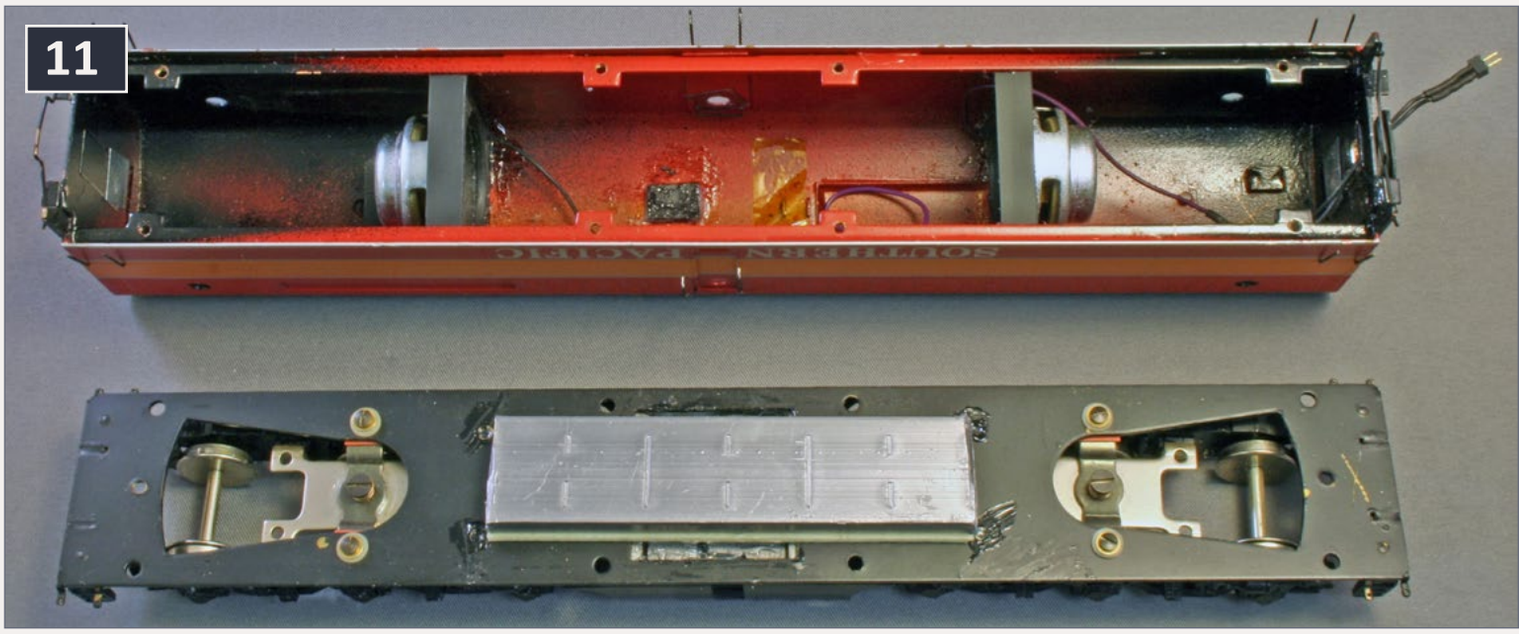

11. Westside Alco PB with an enclosure set up with 28 mm high bass speakers.

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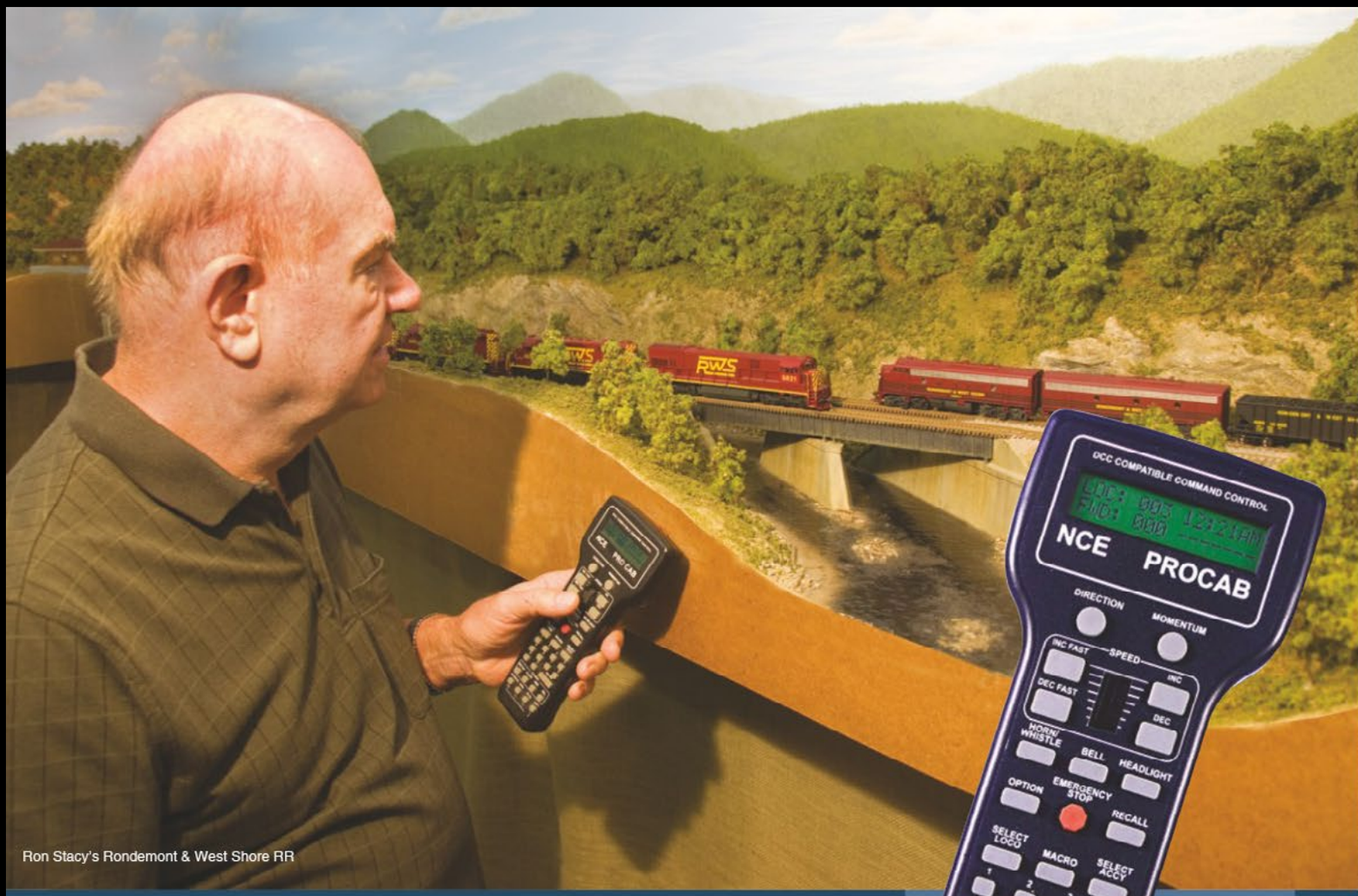

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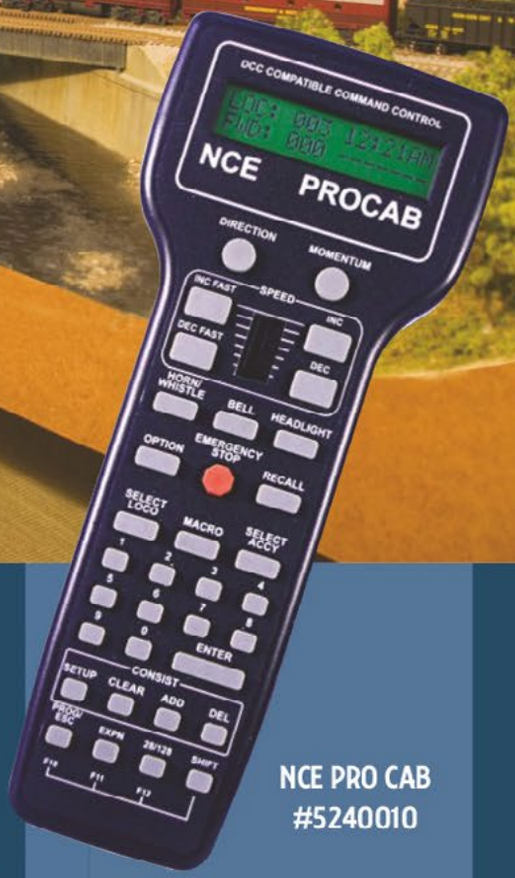

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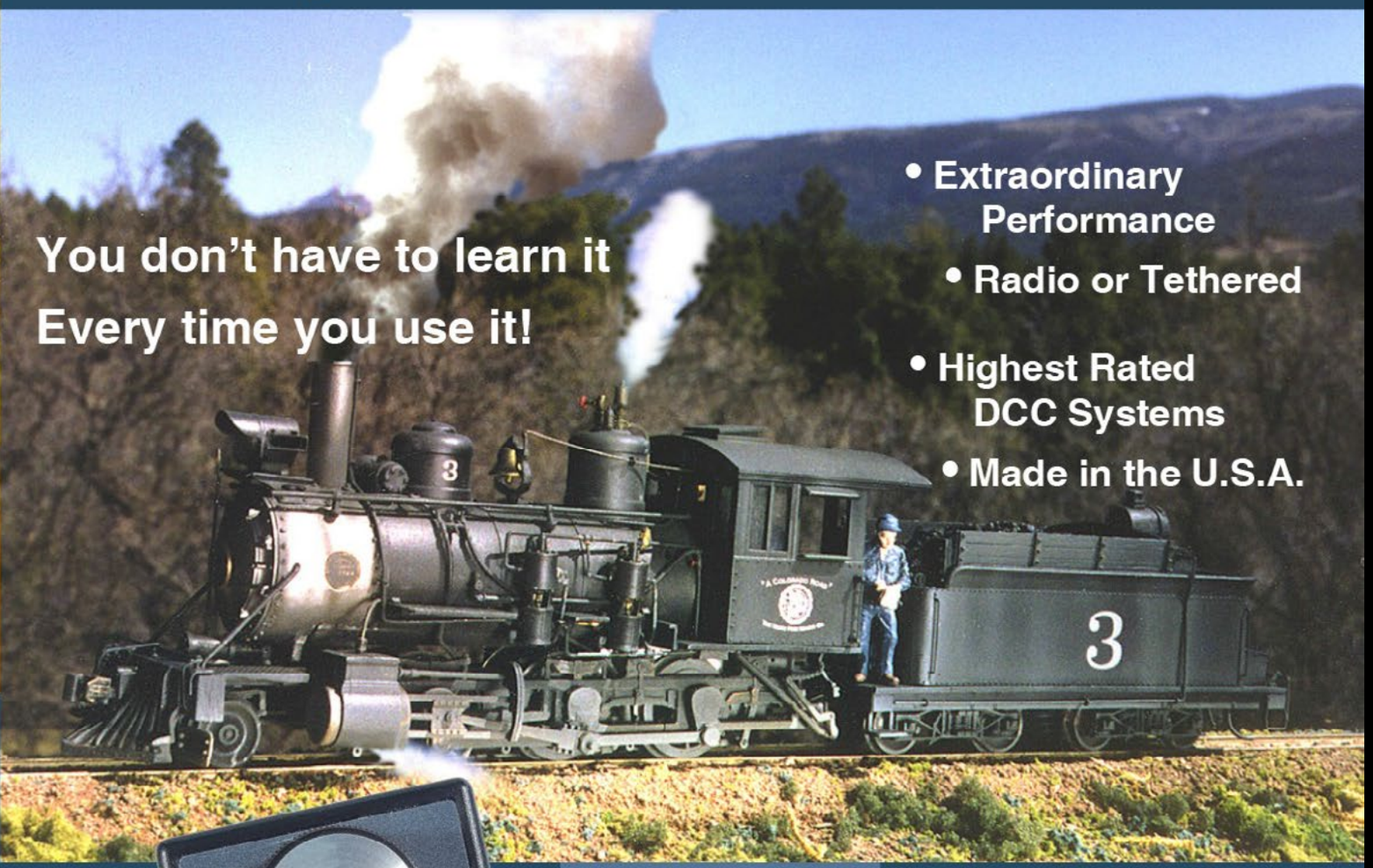

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What's neat this week column

by Ken Patterson

1. Ken Patterson's exact-scale model is a show piece for his model building clients. He set the dimensions with laser meters and GPS, and it includes five of his neighbors' homes, 1200 feet of mainline, and the 150-foot high bluff.

July opens up with fireworks. Joe Steimann put on a heck of a display up on the bluff in 2010. I was able to save some of my Hi 8 video of the event and transfer it into a format that would play in this month's video. The fireworks were lighting up the yard as the garden railroad ran without a hitch. Everything went fine that night. Lots of good food, and good people.

To keep up July's outdoor theme, we turn a bargain Harbor Freight bug zapper/fly swatter into a static grass applicator that really works great. Watch the video before you try this at home. Some parts are covered better in the video than the still photos here can show.

Enjoy this month's video. Give your thoughts in YouTube comments and in the readers' feedback icon.

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(Be patient, this large video can take a while to load into memory)

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3. I captured a time exposure of one of Joe's shell blasts. His fireworks show went on for about 35 minutes, but it's shortened down to just a few minutes in this month's video.

4: Here's the electronic fly swatter in its unchanged state, in the bag and out. It puts out a charge of 14,000 volts with no amps, so it's not going to kill you. Just flies. You will note the screens vary between the units. Both types work for this project.

5: This is the unit cut apart. Save the screens for sifting rock and dirt. The outside edge was cut with a jewelers saw.

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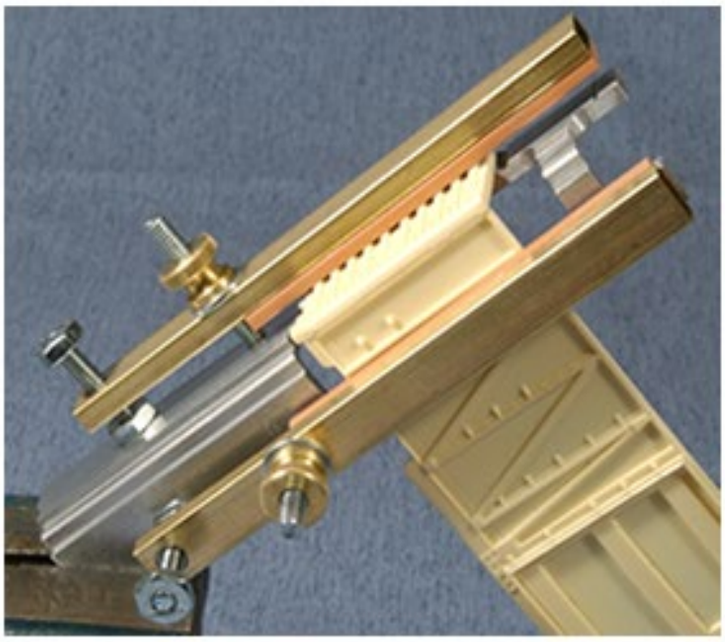

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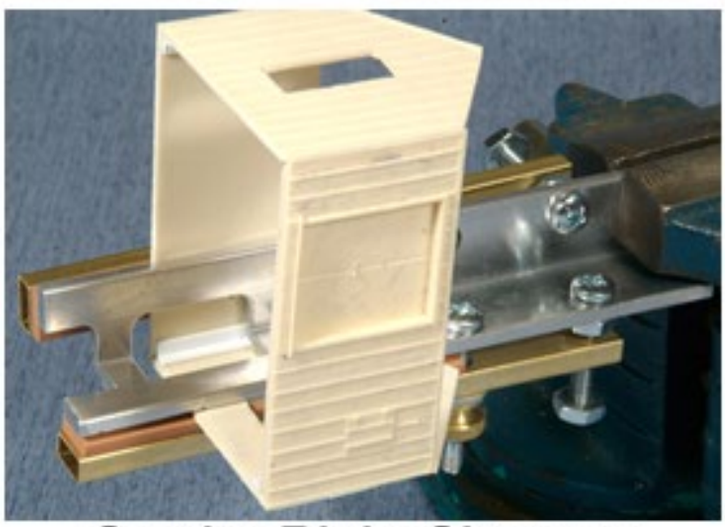

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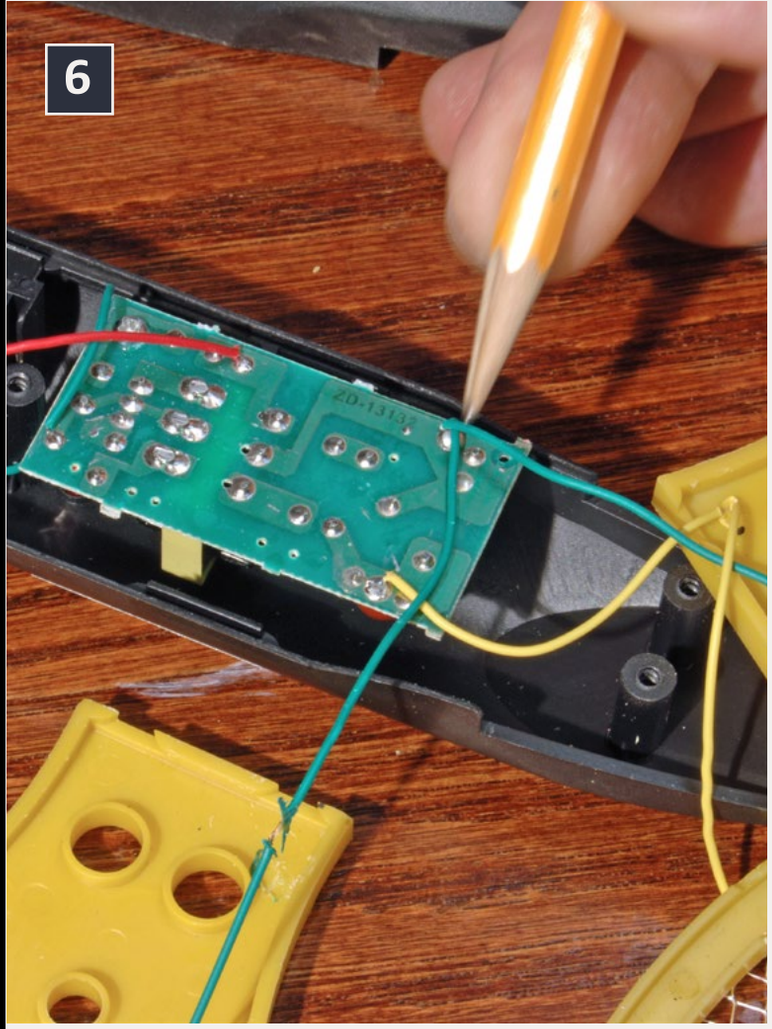

6. The green and yellow wires are replaced, with the colander head handle in place of the yellow wire, and a black wire with an alligator clip replacing the green wire on the circuit board.

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7. Here's what I ended up with as a finished project. The screen is held in by screws, a spacer, and epoxy glue. It's all smoothed and painted to match the finish of the fly swatter handle. In the video I walk you through the project in real time as I think-tank the project out loud. You can hear the wheels turning.

8. Filling the open-top hopper with War World Scenic's (war-world.co.uk) 4 mm static grass for the first time.

9. Here's how the gun looks while shaking the grass out of the hopper screen. It drops into the glue and stands straight up as it dries. The black wire is grounded in the foam scene on a nail. The whole scene is wet with glue. This circuit between the nail and the wet surface creates the static charge that makes the grass stand up. It works really well and costs less than $10.00. The fly swatter was on sale for $1.79. ☑

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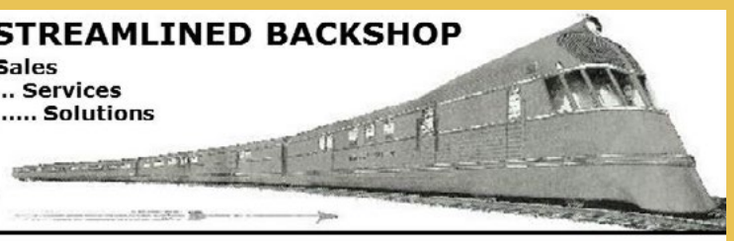

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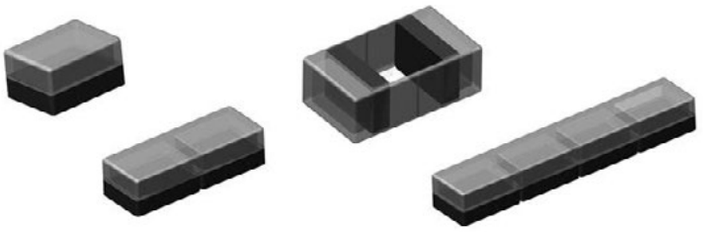

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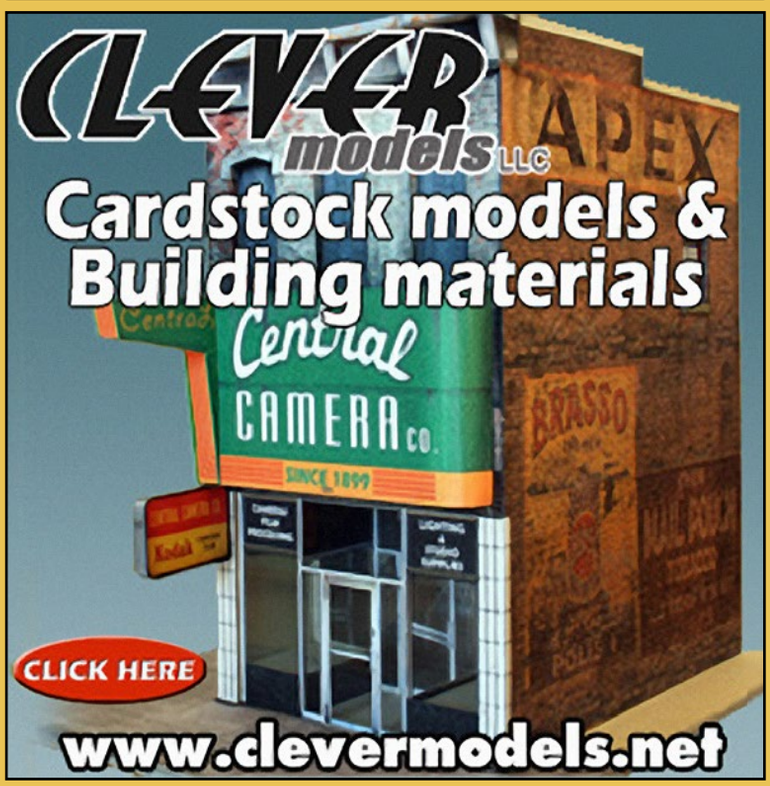

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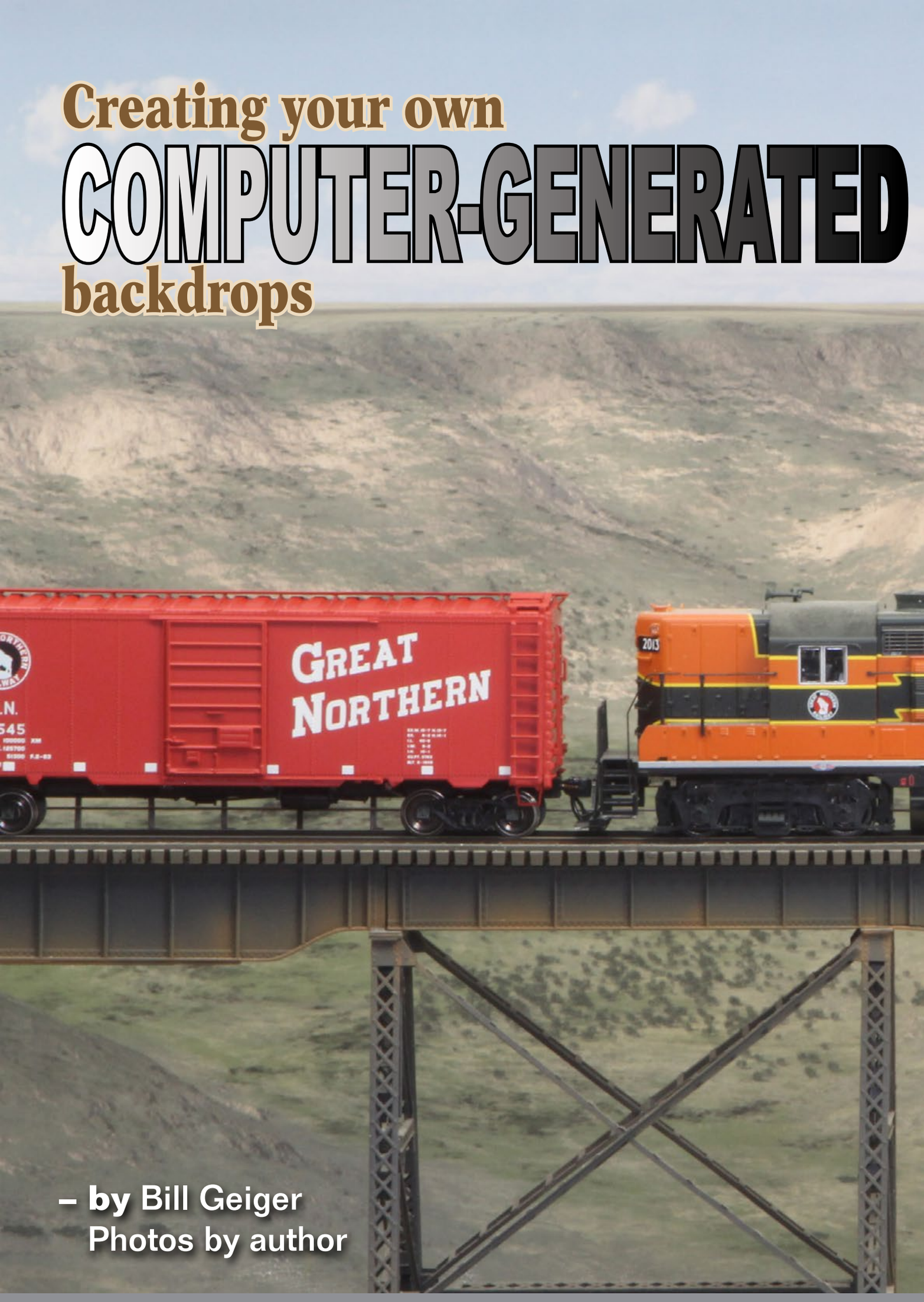

– by Bill Geiger
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Generating your own site specific backdrops ...

1. A Great Northern GP 203 crosses over the trestle over Coal Banks Coulee in central Montana. The backdrop is generated from computer simulation using US Geological Survey elevation data of the actual location.

Backdrops can be a difficult aspect of model railroading for the artistically challenged. An otherwise great railroad can be ruined with a poor backdrop. It is such a crucial element of the hobby that entire books have been written on the subject, and a numerous articles have been published over the years advocating various methods. Presented here, perhaps for the first time, an overview of using terrain simulation software to create virtual model

Reader Feedback (click here)

railroad background scenes that are printed in large format for installation on the layout. The technique can yield amazingly realistic results and even create scenes of specific prototype locations, adding a further dimension of realism to your layout.

Terrain simulation software tools

Terrain simulation software is a tool used by movie and game artists to generate realistic or even imaginary scenes. I got the idea to use it for model railroad backdrops from a colleague at work. He used an application called Terragen to build custom maps for game scenes.

Terragen is created by Planetside Software in the U.K. (the latest version is Terragen 3) planetside.co.uk Terragen 3 has some improvements for the new formats the USGS has moved to for Digital elevation models (DEM) data which makes that process easier. You do not need the animated version for backdrops. That version of Terragen is for movie makers.

The examples presented on their website and on the fan community sites demonstrate the amazing realism possible. The application has been used in several films including The Golden Compass and Sucker Punch. The product has a fully functioning demo version available (only limited by output resolution) to try out as long as you like. The cost of the base version of Terragen is $199, which may be a little high for some budgets, but considering the importance of the backdrop and my overall hobby "investment," I made it fit. I have listed several products from other vendors in the resource section.

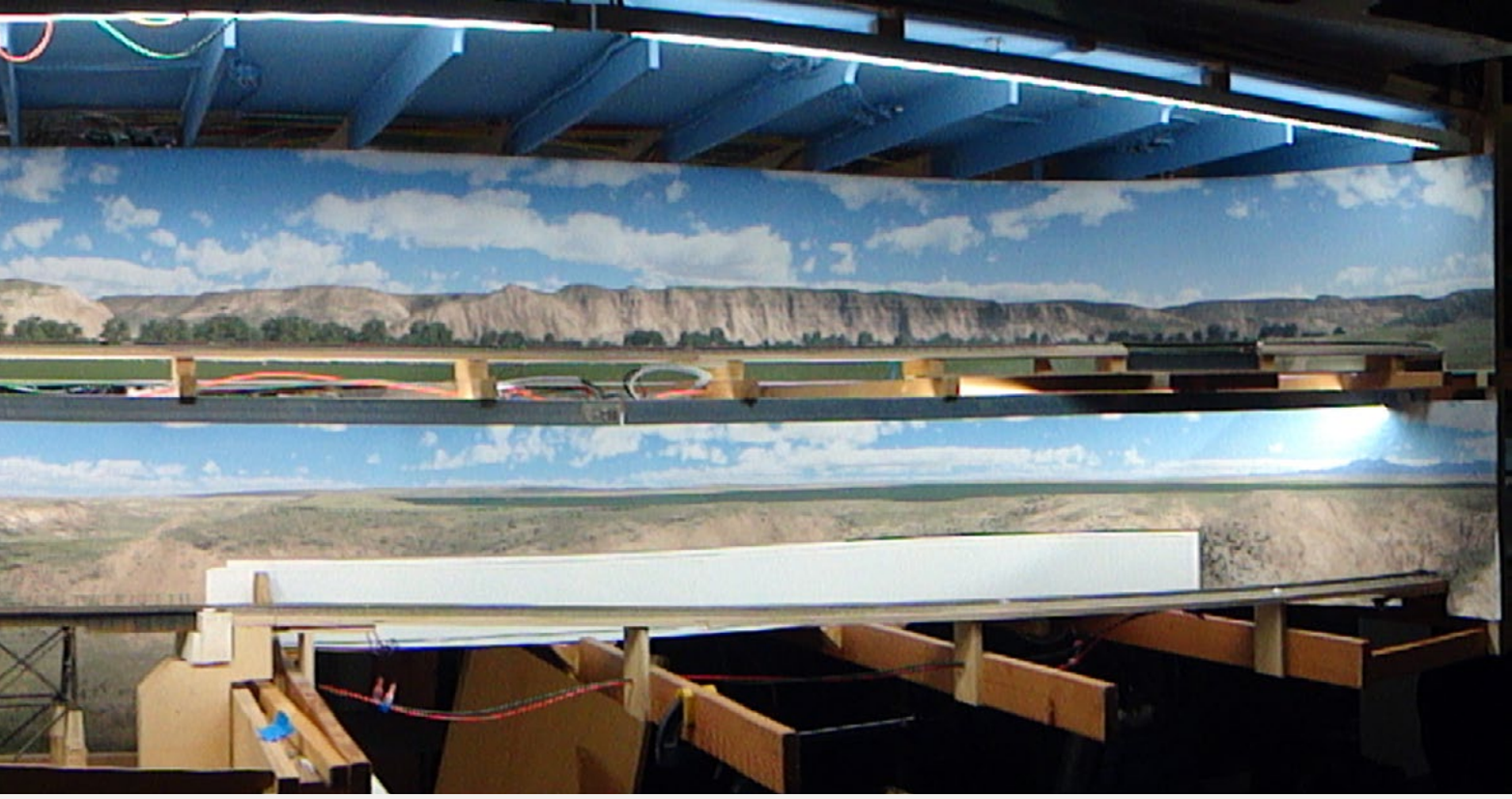
Overall I am very pleased with the results I got from Terragen. The chief challenges I found are the lack of full documentation and a fairly steep learning curve. This technique takes a great deal of perseverance, experimentation, and ample use of the community support forums. One of the best ways to learn

3. Image stitching software is used to combine computer-simulated images to create the 17'- long backdrops for my double-deck shelf layout. Images were printed on special commercial wallpaper stock that I hung as a single image with no seams, using wallpaper paste.

Terragen is to reverse-engineer examples provided by the user community. A number of websites, including Planetside's, provide examples you can download to help you learn the craft. Despite the challenges, the quality of the simulations is quite striking and well worth the effort.

All the world's a... fractal

The core of all terrain generation software is a class of mathematical functions called fractals. In very loose terms, fractals recursively generate data that is self-similar but at a different scale. We see examples of self-similarity in nature. A hill is a smaller version of a mountain, a rock has similarities to a hill, a grain of sand has similar characteristics as a rock, and so on.



It turns out that through this characteristic of self-similarity and the insertion of specialized randomization functions, one can very realistically simulate patterns found in nature including the terrain of a mountain, vegetation on a hillside, and even clouds in the sky. Virtually every element of Terragen is layering the effects of multiple fractal functions to create a virtual model of a 3D scene.

While it may be helpful to understand fractals, luckily that is not required. When someone asks how a computer can create such realistic images, simply answer, “fractals, of course.”

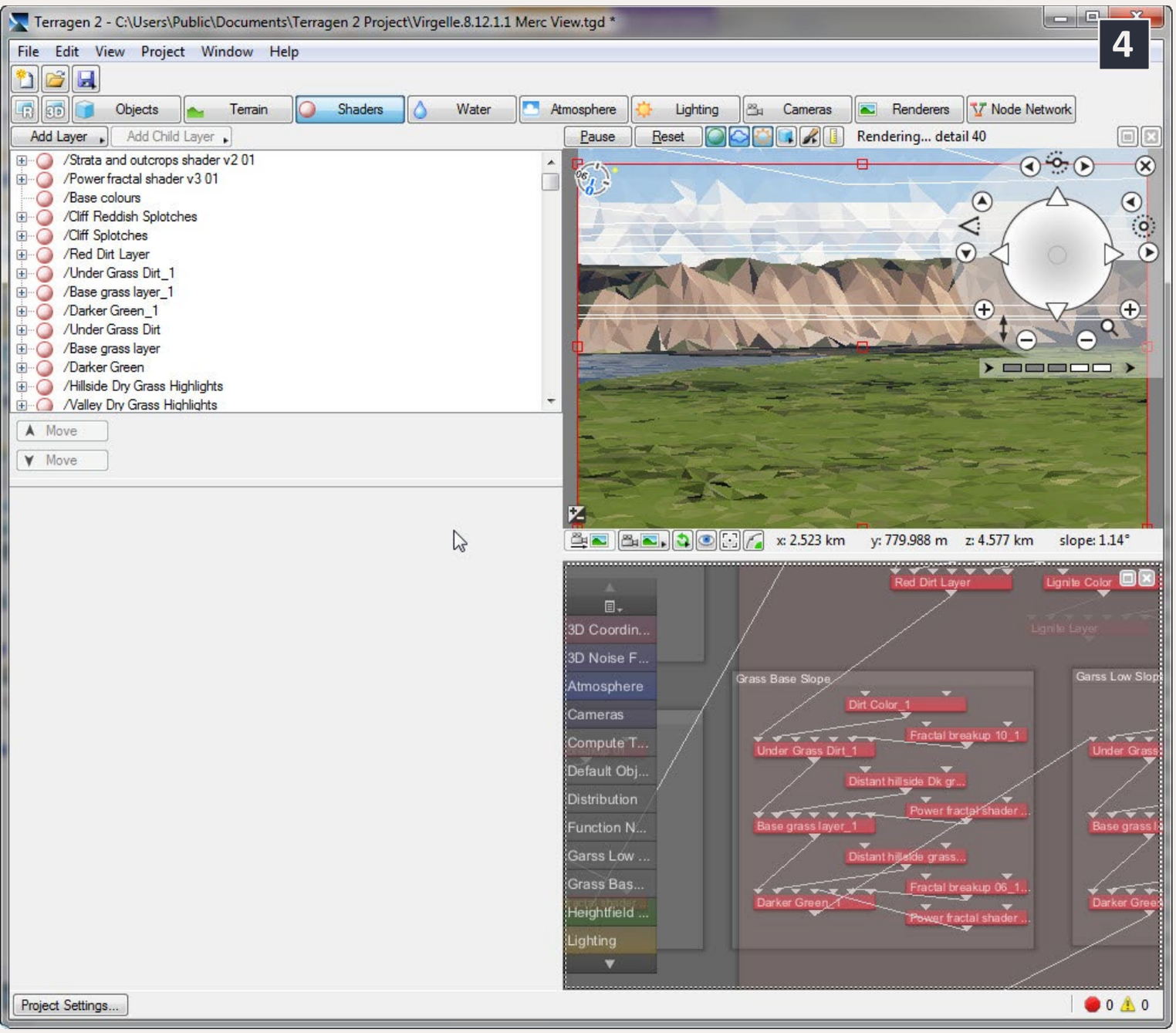
Scene development

There is no way to convey all of the details required to become proficient with Terragen in this article. My objective is to convey the basic process and demonstrate the possibilities.

The overall process of building scenes in Terragen is as follows:

- Establish the bare terrain
- Position camera
- Shade terrain

- Add trees, detailed shrub objects
- Add clouds
- Adjust lighting (Sun)
- Render full resolution views, rotating camera.
- Stitch views into single image
- Finalize image in image editing software.
- Large-format printing



4. This screen capture of Terragen shows the outline view, the network view, and the low-resolution preview view of the simulated image.

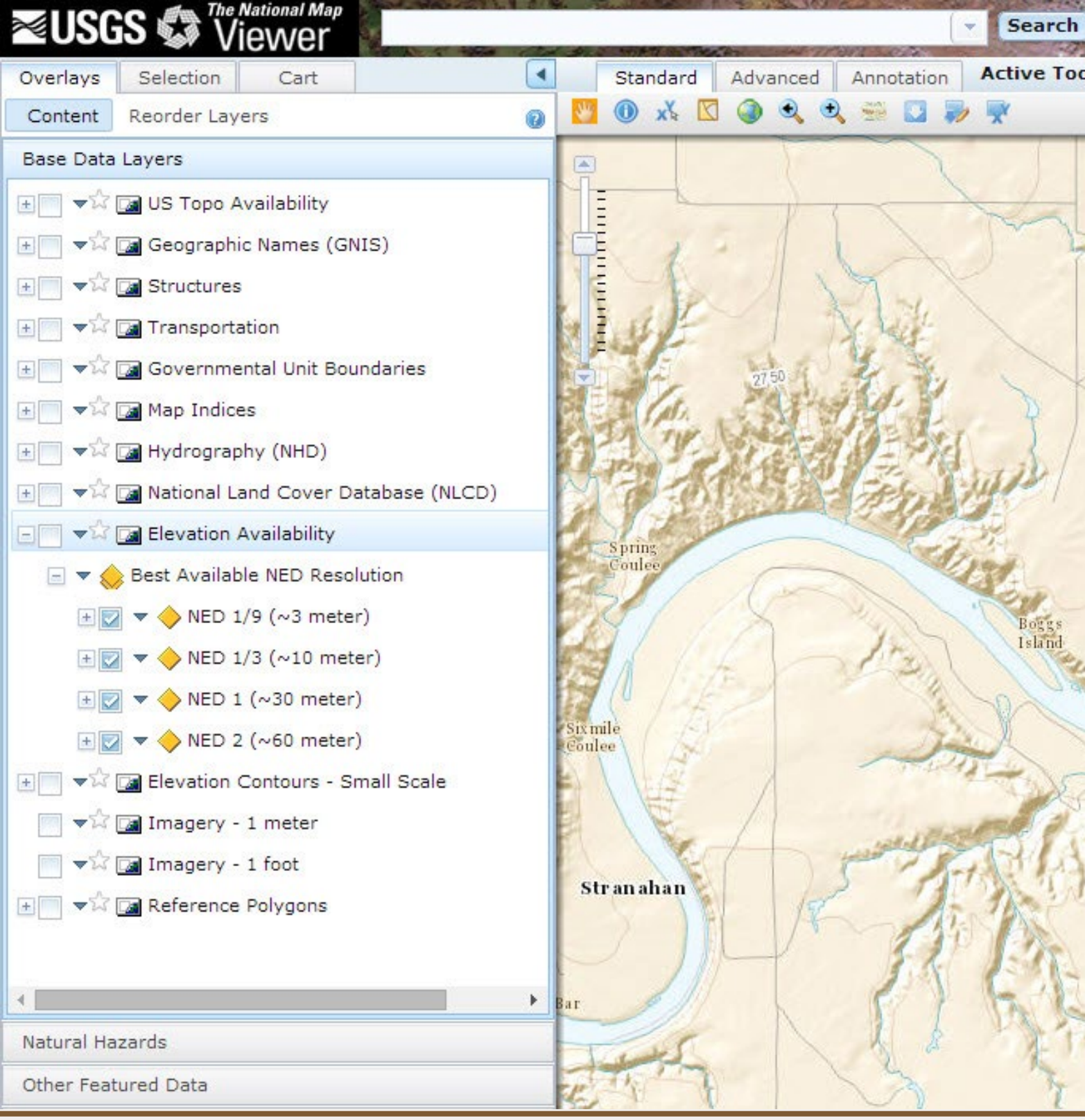
The starting point of a scene is the bare terrain, which is a virtual location bound by length and width with topography. Terragen can generate a terrain for your scene using fractals that may be adjusted to create virtual geographies from rolling prairie to steep mountains. An alternative approach I used is to download digital elevation model (DEM) data provided by the USGS. (See resources- USGS Seamless Server)

This allows you to create a scene using the actual elevation data from satellite measurements. If you are modeling a prototype location as I am, you can build a scene with nearly the exact terrain of the actual location.

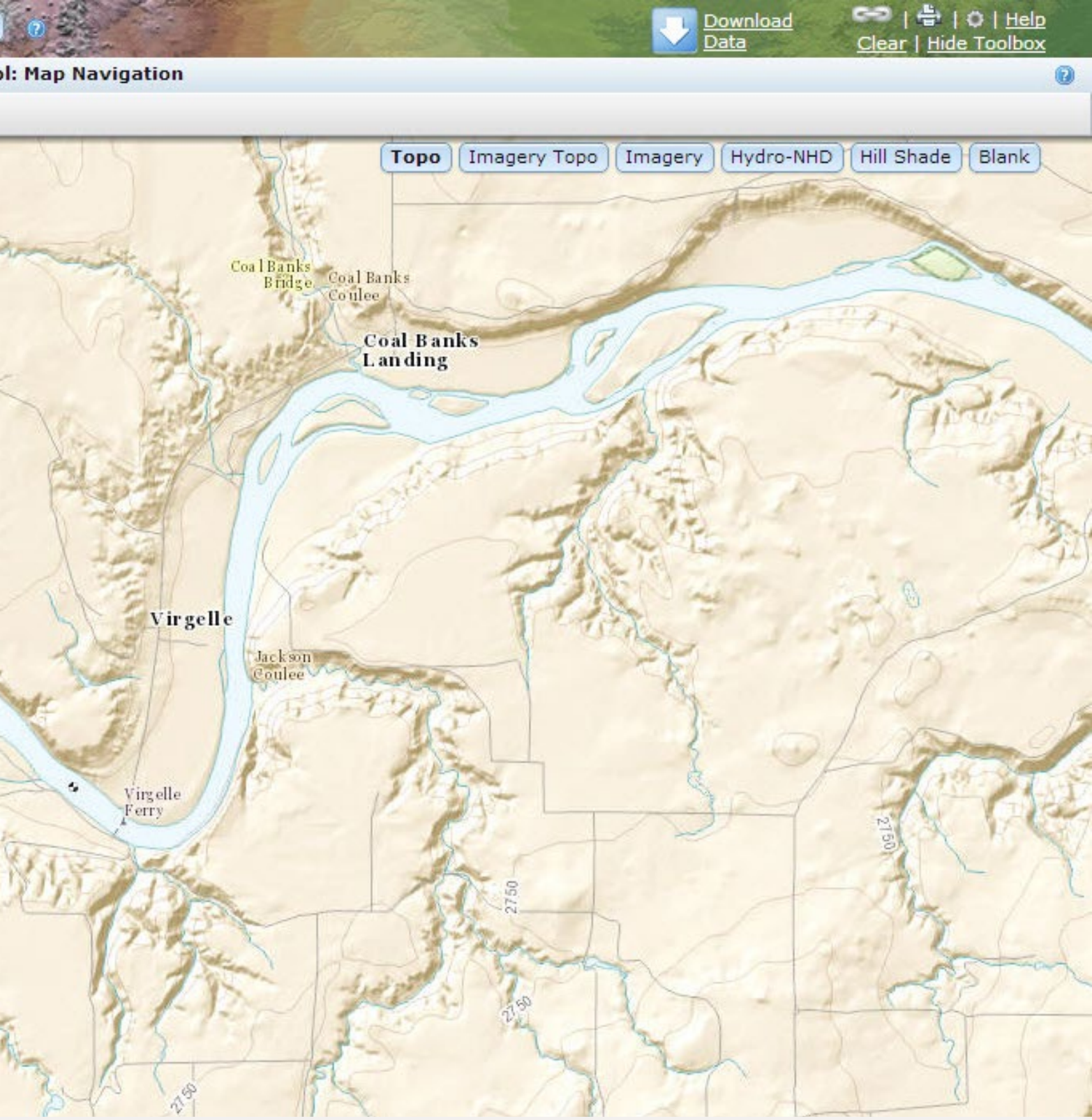
The scenes I am modeling include sprawling Montana vistas with mountains over 25 miles away on the horizon. The UGGS data I sampled included an area of over 1000 square miles with an elevation data point at least every 30 feet. Terragen easily handled these vast scenes.

The next element to set up is positioning a camera in your virtual world. If you are using fractal-generated terrain, you will want to wander around your scene seeking out a view that is pleasing and will fit your layout location. If you cannot find a suitable location, you can enter a new random number into the fractal and Terragen will generate a new world for you.

If you are using USGS DEM data, you will likely have a better idea where to position your camera. As you consider your camera position, think about how a person is viewing your railroad foreground relative to the background scene. My layout is a double-deck shelf layout, so the viewing perspective of the top scenes is nearly eye level. In this case I positioned the camera height at 20 feet inside the Terragen model. This correlates to how high my eye level is above the layout. For



5. The National map Viewer website provides a graphical interface to select specific areas of the United States for download of Digital Elevation Maps (DEM). There are a few tricks to get the correct file format from the site, and conversion process to produce a file that can be used by Terragen.

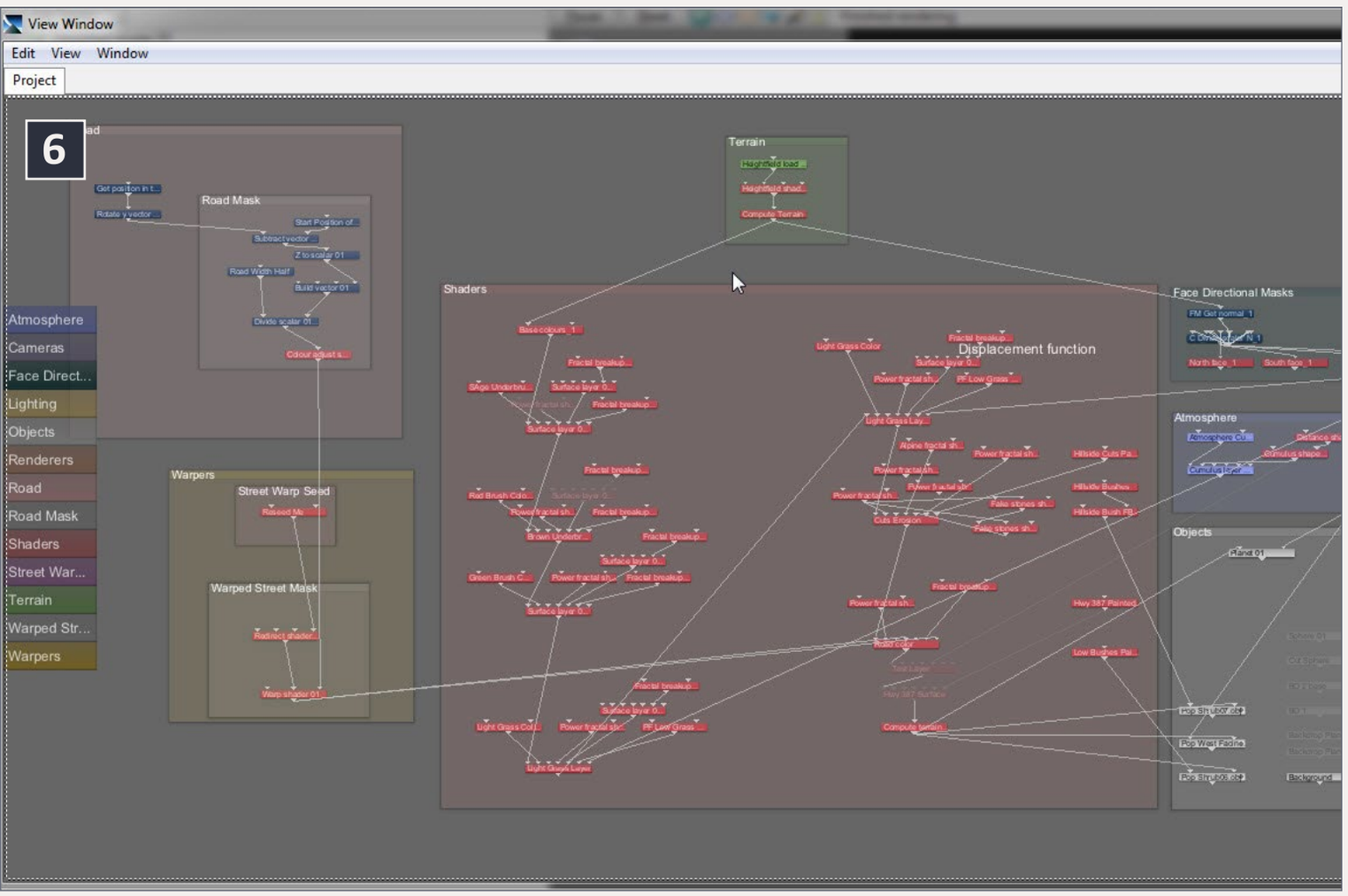


my lower scene, I raised the camera to reflect the different viewing position. All dimensions in Terragen reflect full-scale measurements in meters.

The Terragen user interface presents the model elements in two ways: an outline view and a network view. When starting out with the tool, the outline view is simpler and keeps everything properly connected. As the model gets more complex,

the network view is easier to work with, but you have to keep track of managing your own connections between the terrain, shaders, atmosphere, objects, and other elements. [6] is a screen shot of the network view for my Fort Benton scene. Working in the network view, one can experiment adding in or disconnecting different elements to try different options.

Having established terrain and at least a starting camera position, you are ready to make your first rendering. Terragen constantly displays a low-resolution view that refreshes every

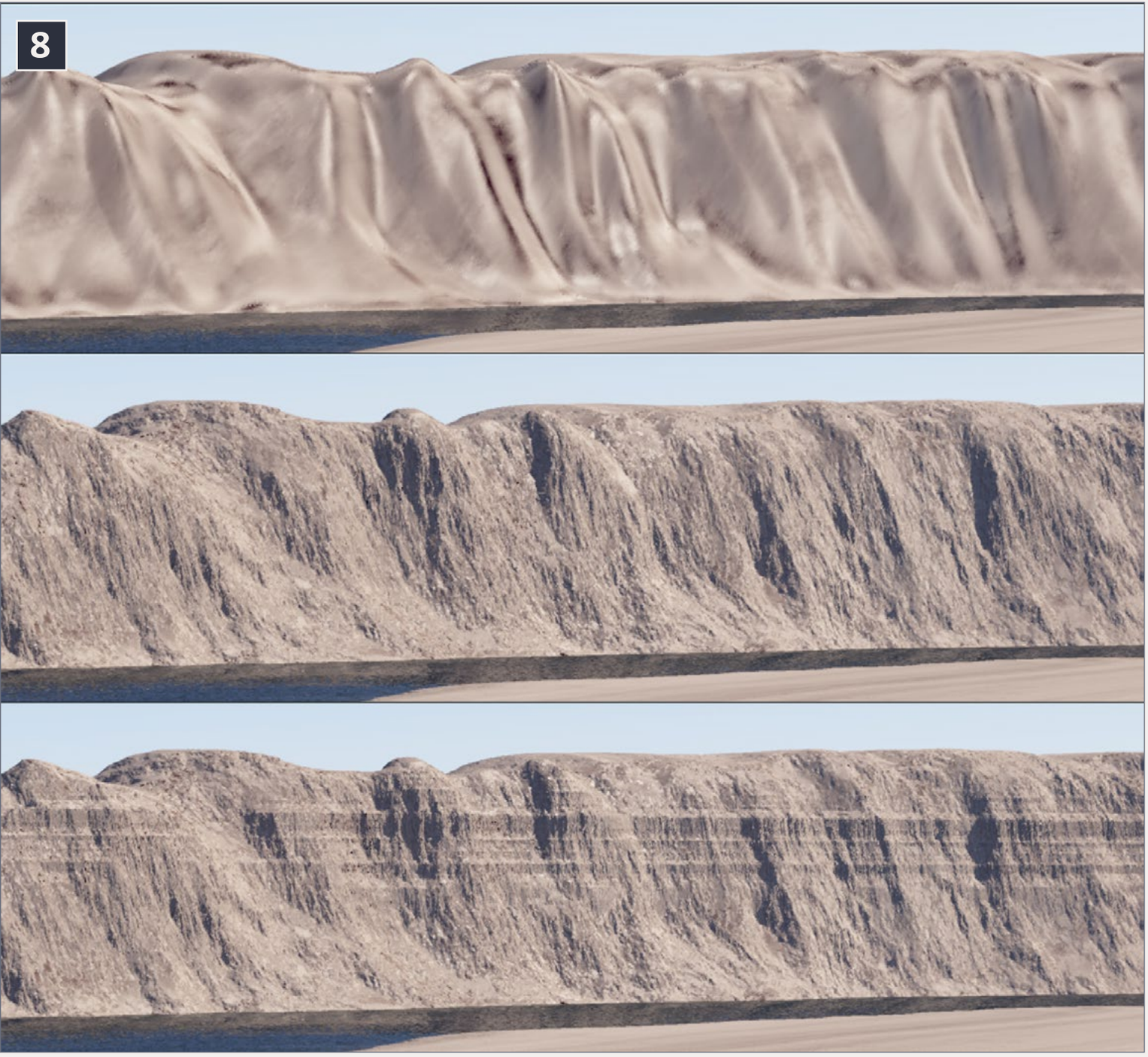


6. This is a screen capture of my Fort Benton, MT model network view. While it appears complex at first, the visualization actually helps clarify how the bare terrain is modified by subsequent layers of shaders, and eventually these operations are combined

7. Rendering with just the bare terrain in place produces a grayscale image showing the terrain detail. Impressive as this is, the fun starts when dirt, grass and trees are added.

time any element changes. To create an image with a desired resolution, save it as an image that is a separate action-explicit rendering action. Again there are myriad options available but the most important for now is resolution. The higher the resolution, the more detailed the scene, but the longer the rendering time.

Rendering at this point yields just a grayscale view of the terrain with a picture-perfect blue sky. [7] It is actually more efficient to work on determining camera position and planning



8. The top photo shows a rendering of the raw DEM file. The second image includes addition of fractal displacements to fill in the surface with more realistic texture. Finally sedimentary striations are simulated with special fractal layers, creating additional details.

your panoramic views, as the rendering in this colorless world is quite fast.

Whether working with the fractal-based terrain or USGS DEM data, we can improve on the terrain data with enhancements that include creation of striations for sedimentary rock or adding boulders or extreme rock outcroppings. Displacement is the terrain simulator's term for creating variances in the terrain. In my scene of Virgelle Montana, the DEM data did not have sufficient resolution to show the sedimentary striations on the sheer cliffs along the Missouri river. I was able to add these features with the Terragen using a strata and outcrops shader. [8]

As inspiring as even just the grayscale terrain images can be, the real fun starts when shading is added to the scene. Shading is the term for applying multiple layers of color to the terrain to simulate vegetation and soils. Again Terragen employs fractals to generate areas where color is placed, the color itself, and the addition of displacements to provide a 3D simulation of vegetation. The shading process is accomplished by layering. Just like the real thing, we layer-in dirt and then layers of variant vegetation, depending upon the scene.

Shaders have a number of controls for how shading is applied to your terrain surface. Slope and elevation provide key controls that affect where the shading layer appears. For example, you can filter a shader so a steep slope will not have grass and the underlying rock color will show through.

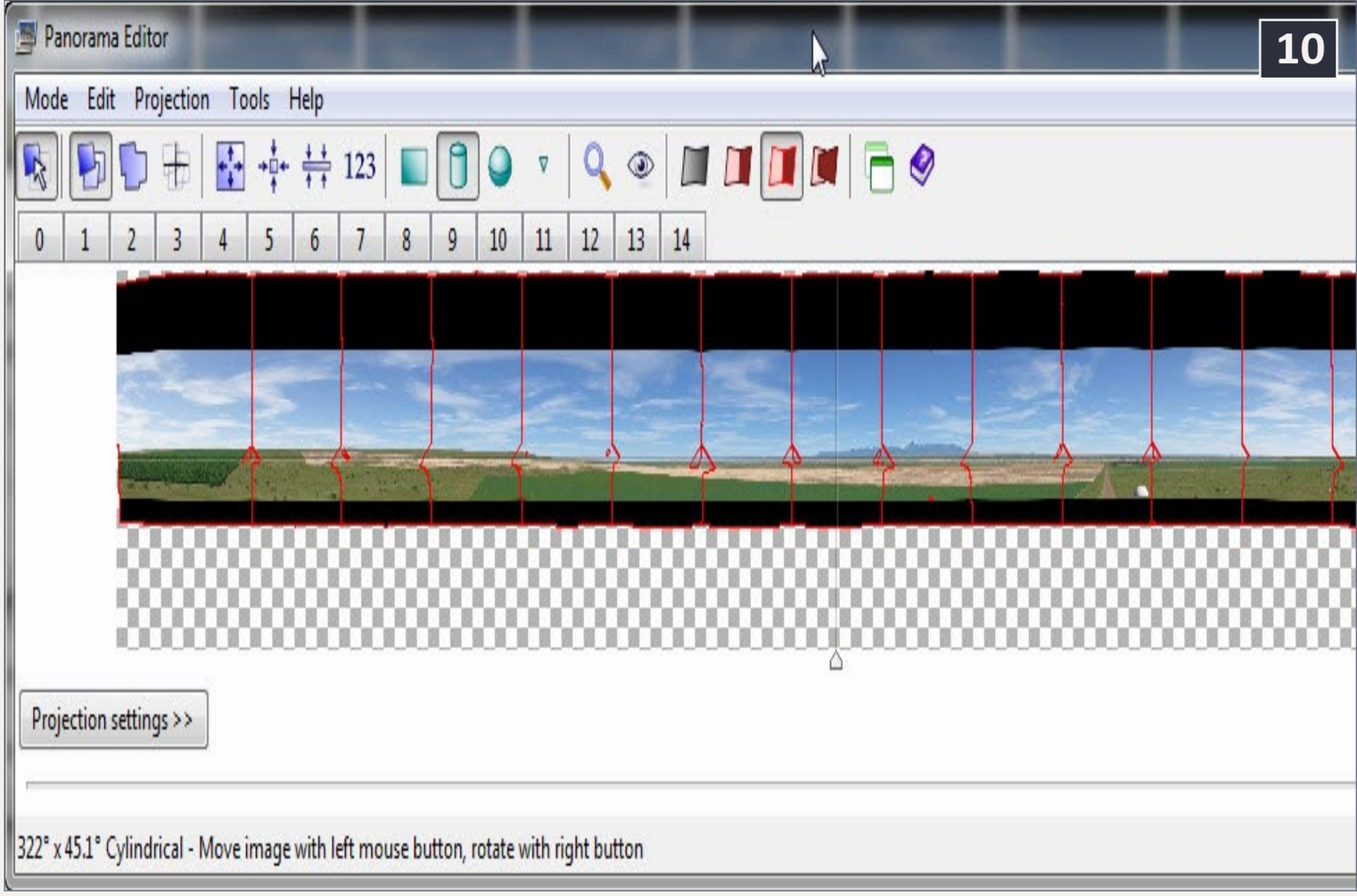
A painted shader node provides ultimate control by allowing you to literally draw areas on the terrain where shader layers should be applied. Control here is rather crude, but I used

it successfully to create crop fields and place trees around a farmstead on the prairie.

Terragen has a specialized shader to simulate water. Adjustments are available to affect surface waves, color reflectivity, and other adjustments to create a glassy lake, a river or even an ocean surface. The most important adjustment on a water layer is the level which will bring it into your scene, and keep it confined to a lake or river bed.

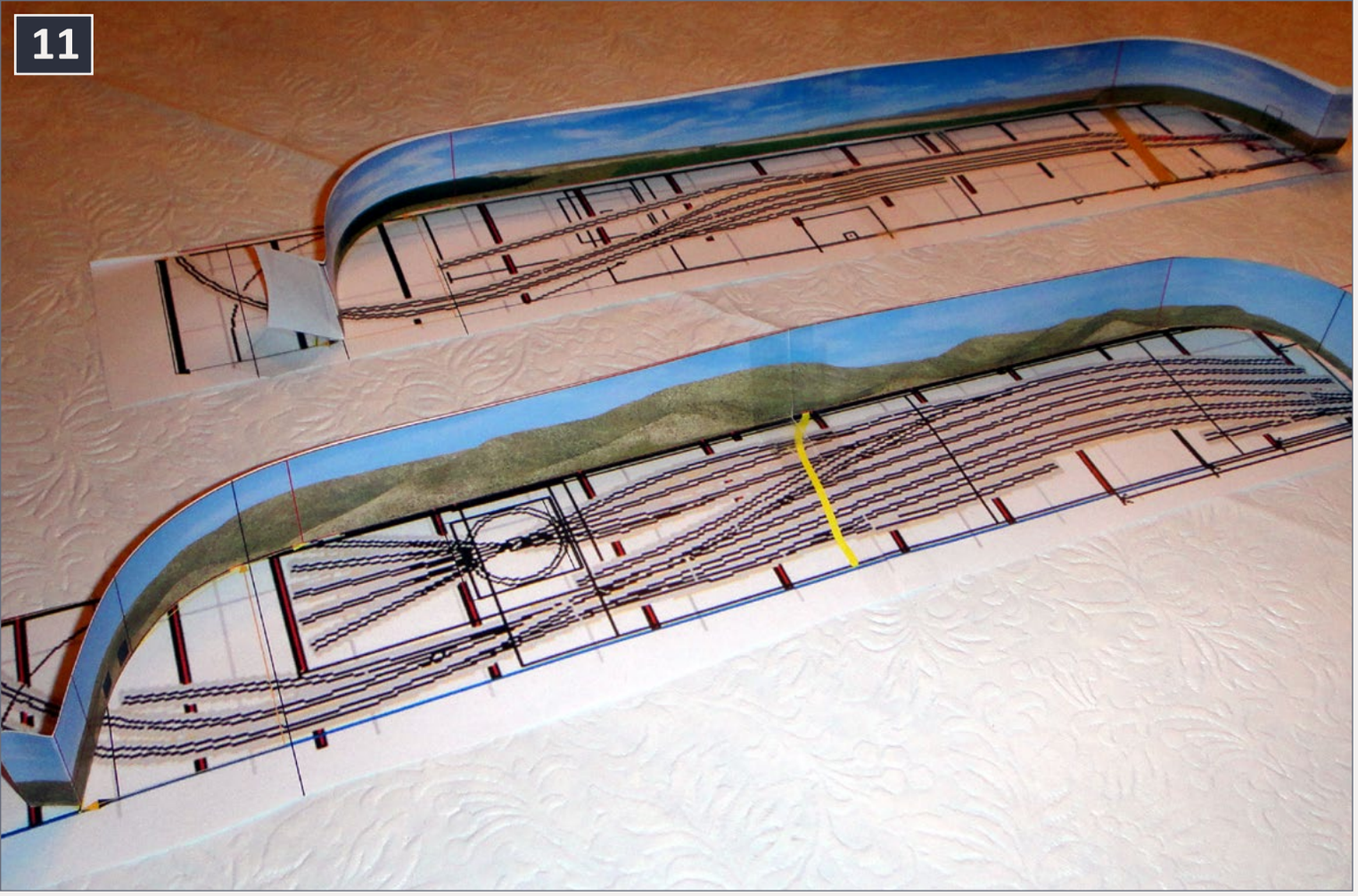
Fractal shader layers do a pretty good job of simulating distant grass and bushes, but eventually your scene will need more detailed objects such as trees, weeds, and grass nearer

9. Several examples of rendered plant models from Xfrog and Mr Lampost. Using populations of object models, entire forests can be created.



10. This is a screen capture of PTGui at it stitches the 14 images that made up my Carter, MT panoramic view.

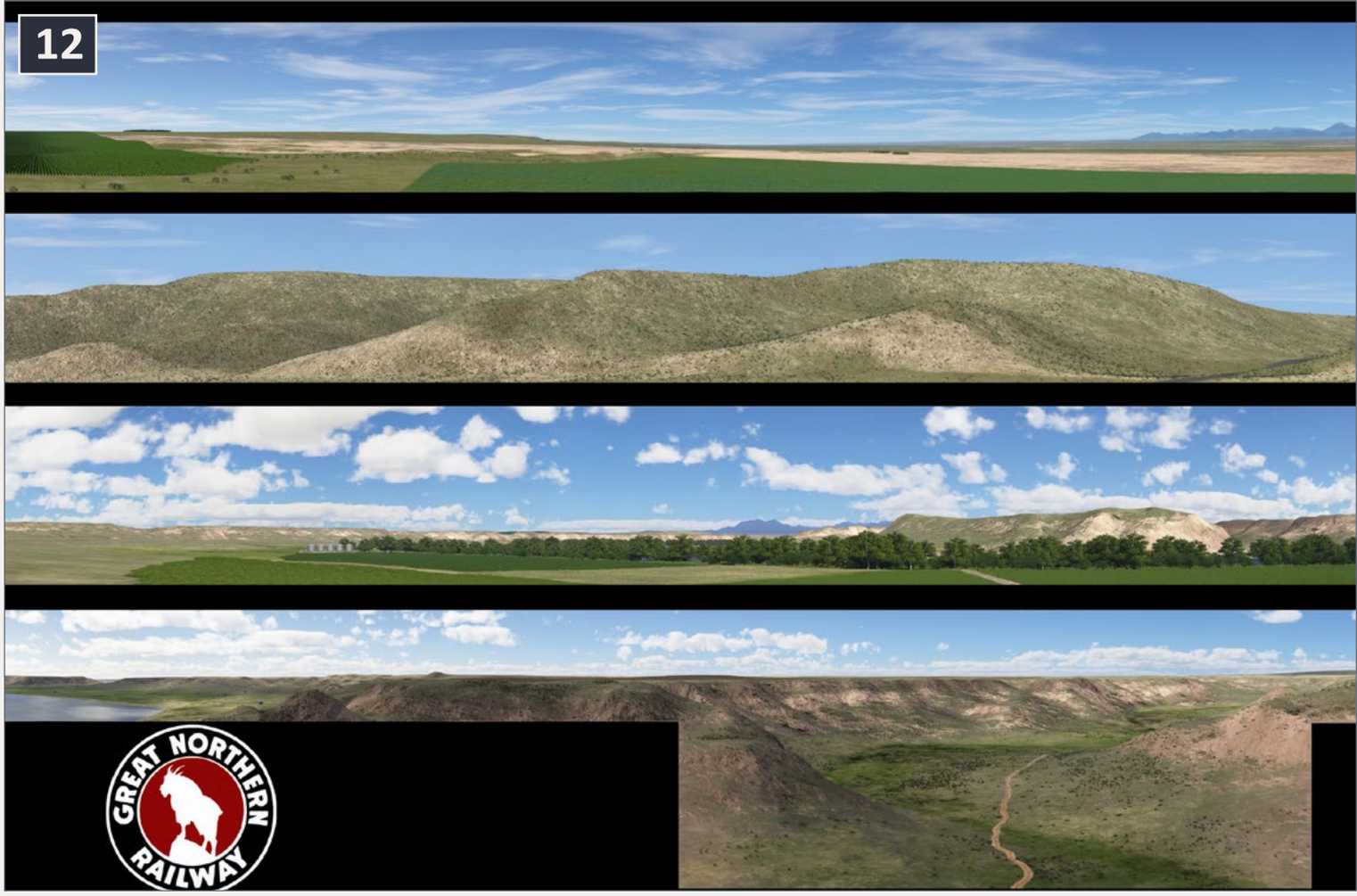
the camera. Inclusion of externally modeled plants and trees is supported by Terragen. Commercial and free plant models can be added to your scene with population nodes that can create a field of weeds or entire forests. The placement of objects is controlled by distribution settings in the population node, which randomly places replicated objects into an area, rotating and varying the size of a basic object model. [9] This variation can take a single tree model and create a convincing forest from that one model. Using the painted shader as a filter ("blended shader" in Terragen terms) can provide fairly precise control over where objects are placed. In [2], tree placement along the Missouri river as well as the crop fields were controlled with a painted shader applied to the tree population.



11. One-inch scale models of my layout scenes were used to perfect the placement of objects and adjustments to the panoramic stitching process.

Terragen automatically places the objects on the surface of the terrain so you do not have to worry about that.

No worldly scene is complete without light, sky and clouds. All are completely controllable in Terragen, from the exact position of the sun to how much haze is in the sky. The direction and angle of the sun, haze levels in the atmosphere, and more are all adjustable. Clouds, of course, can be a very important part of a backdrop. Built-in shaders for three main types of clouds found in the real world, cumulus, alto cumulus, and cirrus are available. Combining these elements, many different types of cloud formations are possible. Cloud generation is an art all its own, and is a great place to borrow work from samples provided by the Terragen community.



12. This is a montage of the four backdrops created for may layout. From top to bottom: Carter, Fort Benton, Virgelle, and Coal Banks Montana

Final resolution

During scene development, we are continuously rendering to get a higher-resolution view of how the scene is developing, but hopefully at a level that renders in few minutes. When preparing for the final rendering, you will to want to crank up the resolution and quality for the final output. This will dramatically increase rendering times, and should be reserved for your final work. How long rendering takes will depend on your scene, but in my experience it can range from eight to 36 hours.

After some research, I decided a resolution of 150 dots per inch (dpi) is sufficient. More pixels means more rendering time, and based on my results, is not worth it.

The rendering resolution ultimately is determined by how large your physical backdrop is going to be when printed. My backdrops are 12” tall, so the vertical resolution of my renders was 1800 pixels high, corresponding to the 150 dpi target.

Panoramic backdrops

If you think of a typical model railroad scene, the backdrop usually is a wide view. If you placed yourself in the scene, you would have to rotate your head to see the broad view we are statically creating on the backdrop. In order to achieve this wide an image, we need to rotate the virtual camera in the

13. Fresh from the printer, two full-size backdrops are spread out on the dining room table for trimming. My selected medium came in 36” widths, so even larger scale is possible.

scene and create multiple views of the scene. This is where we bring in another tool, panoramic photo stitching software. This software blends overlapping individual images together to create a blended wide image suitable for backdrops.

I required backdrop images for my railroad 12” tall and 17’ long, which required blending as many as 14 separate images to create a single continuous image.

Several commercial and open-source (free) stitching packages are available. I chose a professional-grade package, PTGui ptgui.com, for ease of use, because I would be making hundreds of blends as I developed my backgrounds. Other products are listed in the resources section.

“Some of my scenes resulted in camera rotation of nearly 260°.”

As you create your rendered images, you need to consider the overlap needed by the stitching process. 35% horizontal overlap is considered minimum, but I opted for 50%, which was a bit of overkill but assured minimal distortion. It also was easy to calculate and keep track of. The camera rotation to achieve this overlap is defined by the horizontal field of view of the focal length setting on your Terragen camera. I stuck with a focal length of 50mm which, on old-fashioned 35mm film cameras, is the focal length that best matches human perspective. The horizontal field of view on a 50mm lens is 39°, so rotating the camera 20° each frame created an approximate 50% overlap. [10]

Extremely wide images like mine created some interesting results that never quite made sense to me. Some of my scenes

14. Here is a photo of the real Lizard's Head peak. (Photo: Michael McCaffery)

15. This is a photo of the Terragen simulation of Lizard's Head peak. Not exactly the same, but close enough that those familiar with it will know what it is.

resulted in camera rotation of nearly 260°. As we know, if I were in the real location, 180° would cover the complete range of view. The lesson is, the panorama creation process has experimentation involved as well. I used 1” scale models of my scenes to confirm how the background would fit into my lay-out. [11]. The panorama creation process may send you back to adjusting your camera setting and position in Terragen. You can practice the stitching process at lower-resolution to save significant time between iterations.

When the panoramic image is complete, additional details may be added to the scene using typical image editing tools such as Photoshop. I added buildings and telephone poles I cut out of digital photographs. Be careful to select images that have the same lighting angle you chose in your scene. I rendered and stitched my final images in TIFF format, which doesn’t lose data through compression during subsequent image editing. The JPEG format will cause image degradation each time you edit and save, and should be avoided until you save the final print image. [12]

Computer to backdrop

Now that we have our beautiful image, sized appropriately to match the real-world size at a resolution of at least 150 dpi, we need to bring it into the physical world. This is the stage where professional help from a large-format printer is needed. There are many printing services and options in today’s market.

“Professional help from a large-format printer is needed.”

16. Here is another example of a how realistic Terragen can reproduce a prototype scene. In this case we are looking Virgelle cliffs

17. The simulated Virgelle view of the cliffs.

After interviewing several printers and attempting a few proof samples, I came to the conclusion that a printer that specializes in art reproduction or glicée is the ticket. This type of printer tends to be much more oriented toward accurate color reproduction, ink permanency and media options suited to the fine arts. This is a different skill set from the local banner-printing shop, and I really did not find it to be any more expensive. If you are unable to find this kind of shop in your area, this step can be done completely through the internet and mail.

Beyond ink permanency that would last until I am 80 years old, I was concerned with achieving a single image with no seams, and a matte surface. My printer guided me to a media that is used for printing custom wallpaper. The surface is completely dull, and the media came in 36” rolls by 75’.

My printer also recommended a clear low-gloss lamination to protect the image. Since no lamination is completely non-reflective, I declined. Compromise may have been advised here, as I will be faced with protecting a fairly sensitive surface during scenery construction. [13]

Backdrop installation

My layout is suspended by cables from a hoist in my garage, and as such, weight is an important factor. I used Coroplast, a lightweight plastic sign material for my backdrop substrate. I prepped this adhesion-averse polypropylene material with latex primer. I then hung wallpaper backing paper to smooth out the slight ribs in Coroplast. My backdrop is hung as a single really big piece of wallpaper, using standard vinyl paste and wallpapering tools. (See the installation video)

Lessons learned

One of the best things I did on my terrain modeling quest was to invest in a fast computer. If you are serious about using this technique, you want to get the fastest computer you can afford. I started with a four-year-old laptop and moved to a computer with a fast i7 CPU and 9GB of RAM. Rending sped up by more than a factor of 10 with the faster hardware. Terragen has since been released in a 64-bit version which helps performance as well, and this is the version you want if your operating system is 64-bit. Plan on dedicating this computer to the effort while you are rendering. An alternative to rendering on your own computer has recently become available. There are now rendering farm services available for Terragen from Ranch Computing **ranchcomputing.com**. This may be cheaper or at least faster than rendering on your PC.

"... invest in a fast computer"

The key barrier to using this technique is the significant amount of effort and time consumed by setting up the model, and by the rendering process itself. I spent at least 100 hours setting up the model for my first scene, Virgelle, MT. The rendering process took 36 hours per scene, and contained 10 frames to create the panorama (yes, over two weeks of rendering.) My later image of Fort Benton, MT had similar details, but a much simpler approach to the shader network. It took about four hours per frame to render. The conclusion is that a more shaders do not necessarily yield an appreciably better image, but do add a lot of time and complexity. This realization started to make me wonder – how simple could I set up a scene and still get results that would still put my artistic abilities to shame?

To test the wisdom of my hindsight, I configured a DEM-based terrain of southwest Colorado which included the famous RGS scene of Lizard Head pass. Using just three shader layers and a single model of a conifer tree, I was able to generate the scenes [16,17] with just a few hours of work. I contend that even these results far exceed what a person with my artistic skills could achieve with paint and brush. The lesson here is to keep the models as simple as possible and remember that these images are backgrounds.

Conclusion

In the end, my experience with terrain modeling was another challenging yet satisfying chapter in this great hobby. The realism of the backdrops is way beyond anything I could have achieved by hand-painting. Being able to use the actual topography of scenes added a new dimension to the realism. I am very pleased with the results, and hope it will inspire you to use this technique to create a masterpiece background. ☑

Playback problems? Click to try a different version.

Bill Geiger grew up in Fridley, MN within eyeshot of the Northern Pacific and Great Northern Railway mainlines north of Minneapolis. He was introduced to model railroading by his grandfather and dad when he was six years old, and continued to build layouts during his teens. Bill and his girlfriend Kim – now wife of thirty years – spent weekends driving around Minnesota photographing equipment and structures in the post-BN merger era.

Moving to San Diego, CA, Bill took a long hiatus from model railroading, until he ran across an old Linn Westcott article about suspending a model railroad from the garage ceiling on cables, hoisting it to make room for autos. In 2002 Bill started building his suspended, double-sided, triple deck layout in the garage. The shelf design features four 15'-long scenes of the Great Northern between Havre and Great Falls Montana.

Bill and Kim have raised two boys, and continue to live in San Diego. He occasionally blogs about his railroading project at greatnorthernfan.com.

Reader Feedback
(click here)

Resources Mentioned in Article

Terragen Terrain simulation
planetside.co.uk

PTGuiPhoto stitching
ptgui.com

USGS Digital Elevation Map data
viewer.nationalmap.gov/viewer

Other Resources

Vue by eOn Software Terrain simulation
e-onsoftware.com

Bryce DAZ 3D Terrain simulation
daz3d.com/products/bryce

Geomorph Open source Linux Terrain simulation
geomorph.sourceforge.net

GeoControl2 Terrain simulation
geocontrol2.com/e_index.htm

3DVIA Studio Terrain simulation
3dvia.com/studio

World Machine Terrain simulation
world-machine.com

PnP TerrainCreator Terrain simulation
pnp-terraincreator.com

Earth Sculptor Terrain simulation
reallusion.com/iclone/icnb_es.asp

Visual Nature Studio Terrain simulation
3dnature.com/vnsinfo.html

WorldBuilder Terrain simulation
digi-element.com/wb/index.htm

Leveller DEM editing
daylongraphics.com

Hugin Photo stitching
hugin.sourceforge.net

Panoweaver Photo stitching
easypano.com ■

Yes, it's a model

Model Railroad Hobbyist's monthly photo album

1. It's a pleasant spring morning in 1983, as the Nelson Turn heads out of the Kettle Falls yard led by GP38-2 #2092. The turn passes the Kettle Falls depot. This train's crew is prepared for its three-day, 208 mile trip up the branch line from Kettle Falls, WA to Nelson, British Columbia, on the route known as the Nelson Line.

The scratchbuilt depot is a replica of the one that was in Kettle Falls until the late 80's. This structure earned first place at the junior category contest at the 2012 National Narrow Gauge Convention. The model and photo are the work of David Stringfellow.

Reader Feedback
(click here)

2. Our photographer got lucky. He was able to park his car next to the water tower at Cresco and set up in time to catch a Ruphe & Tumbelle local as it stopped for water. After taking shots of the locomotive, he decided to take a photograph of the caboose as it passed by. Fortunately for us, he was using the newfangled color film.

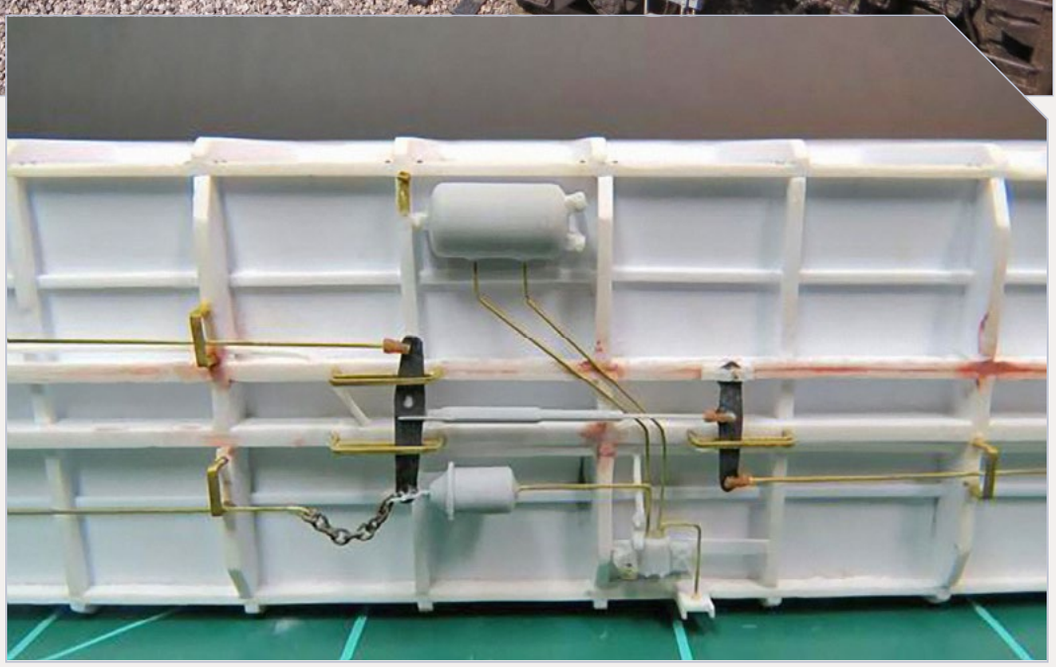
Dale Olson took the photo on his layout and as captured that back-woods look of a more relaxed era.

3. (next spread): Iowa Interstate 708 “The Tramp” pulls an empty box-car towards Fleur Drive yard. There it will be set out for pickup by the east road freight for delivery to Chicago. James McNab took the photo on his Iowa Interstate Railroad, Grimes Industrial Track. See more of his work at mrhmag.com/node/18242

708

4. It is 1975 and our intrepid photographer hiked out to Hetchel Interlocking and caught eastbound Apollo 2 with GE U23B's in charge as they pass a heavy Westbound JB-3 on the head end. In less than a year, everything will change as Conrail will take over operations on April 1, 1976 The photo was taken on Ralph DeBlasi's layout. The

U-boat is owned by Joe Hueber. The flat car is a $2.00 Athearn car that was purchased at a local show. Ralph detailed and weathered the equipment shown.



5. James Thompson scratchbuilt this beautiful Apache Railway wood chip gondola. He has added many prototypical details, taking model building to an art form. To see more information on the build, go to mrhmag.com/node/17664

6. Steven Sanvito posted this photo along with a description of his experiment building this street trackage scene. We think he hit a home run with his experiment! Even if you don't model street running, his work is inspiring and begs to be copied. To learn more, go to: mrhmag.com/node/17438

7. Hey Vern, where is the track? How are we supposed to go anywhere without tracks? This photo was posted by MRH forum member ctxmf74. Typical of anyone building a layout, sometimes you just can't resist placing a few cars to get an idea of how things will look.

Reader Feedback
(click here)

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Building a two stall

Engine House

The fun of building a craftsman kit ...

– by Brian Messenger

Photos by the author

This two-stall engine house kit is a real classic, with the original design by the late John Allen. It appeared on his original Gorre & Daphetid 8’ x 4’ layout and later was incorporated into his basement layout.

I built this kit previously, in the seventies, for a very good friend. As payment, I was given my very first HOn3 narrow gauge brass, a K27

1. The Fine Scale Miniatures kit comes with an abundance of details. Taking time to paint and place the details in the engine house brings the structure to life.

Reader Feedback (click here)

Denver & Rio Grande locomotive made by Westside Model Company. This is what got me hooked on narrow gauge, and I have never looked back. As with any kit I intend to build, I made a full-size cardstock mock-up of it to be sure that was what I wanted on the layout. If it needs kitbashing (modifying), it is easy to add or cut cardstock, and it is cheaper than messing up an excellent kit. Most of the time, I paint the mock-up a color I think would best suit the location. Again, it is easy to re-color the mock-up without having to repaint and lose detail on the kit.

The instructions suggest that you build this kit on a mini diorama for later installation on a layout. I did not do this, as my track is already laid on the layout. I built the kit on my workbench until it was ready to install.

"... read the instructions ..."

Inspecting the engine house

When opening the box, I noticed that this is not your normal run-of-the-mill kit. It is a CRAFTSMAN kit. This is where I realized that this kit is really old, and there is a lot more work to be done than many of today's newer kits. The instructions have black-and-white photos, with step-by-step constructions and drawings. There are bundles of wood, a bag of small stones, four walls, roof card material, a box of many white metal castings, posters, newspaper cuttings, clear plastic for windows, and sheets of shingles.

This might sound like a broken record BUT it is advisable to read the instructions in any kit thoroughly and then read them again to make sure that you understand them. No one wants to mess up an expensive kit.

Before beginning the kit, decisions must be made on the final color of it. Is it going to be stained or painted? What color are the metal castings going to be painted? I deviated from the instructions on color, as I prefer a wash of yellow on the outside walls and maybe an earth color or white on the inside. All the trim will be done in a light green. I use a small syringe filled with white Alcolin wood glue (alcolin.com) of the fast setting

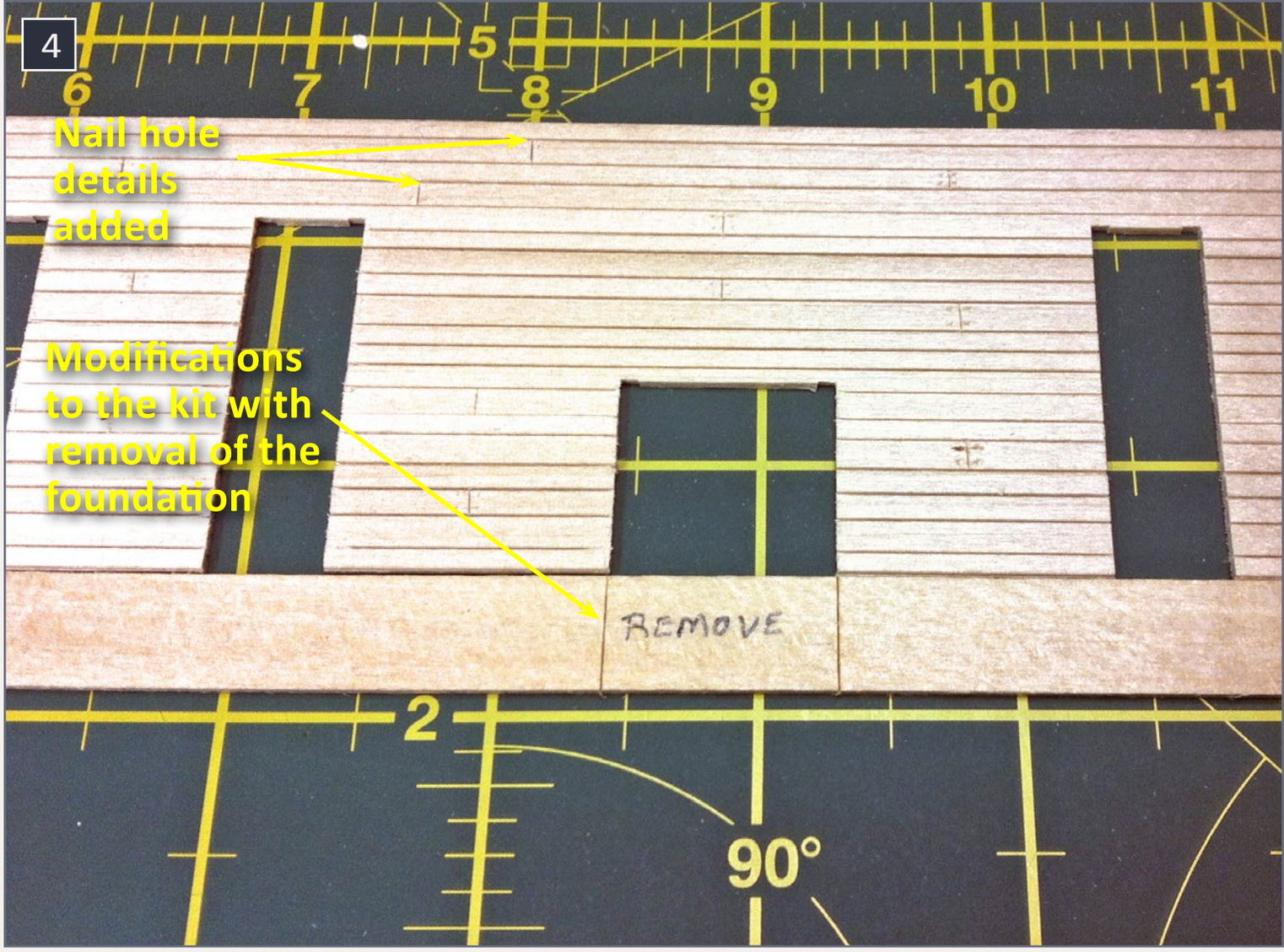
2. This is a craftsman kit, so take your time and study the pieces and read the instructions. It saves a lot of grief later when you realize you made a mistake because you were in a hurry.

type. You can control placement of the glue using a syringe, and not smear any glue where you want to stain. I stained (washed) all my wood parts first, so I didn't have to worry about excess glue preventing stain penetration.

Tools used in the assembly of this kit (not necessary all of them):

A modeler's knife and spare blades. steel ruler, engineer's square, syringe, tweezers, various weights, clamps, pin for nail holes, sanding block, flush-cutters, paint brushes, double-sided tape, wood glue, CA (super glue). I prefer acrylic (water-base paint and thinners. The reason I use acrylic paint is twofold: it is easy to clean brushes and airbrush using water, and you can thin them with acrylic thinners to use as washes (stains) without affecting the base paint. I kept a shot glass filled with water to clean my paint brushes.

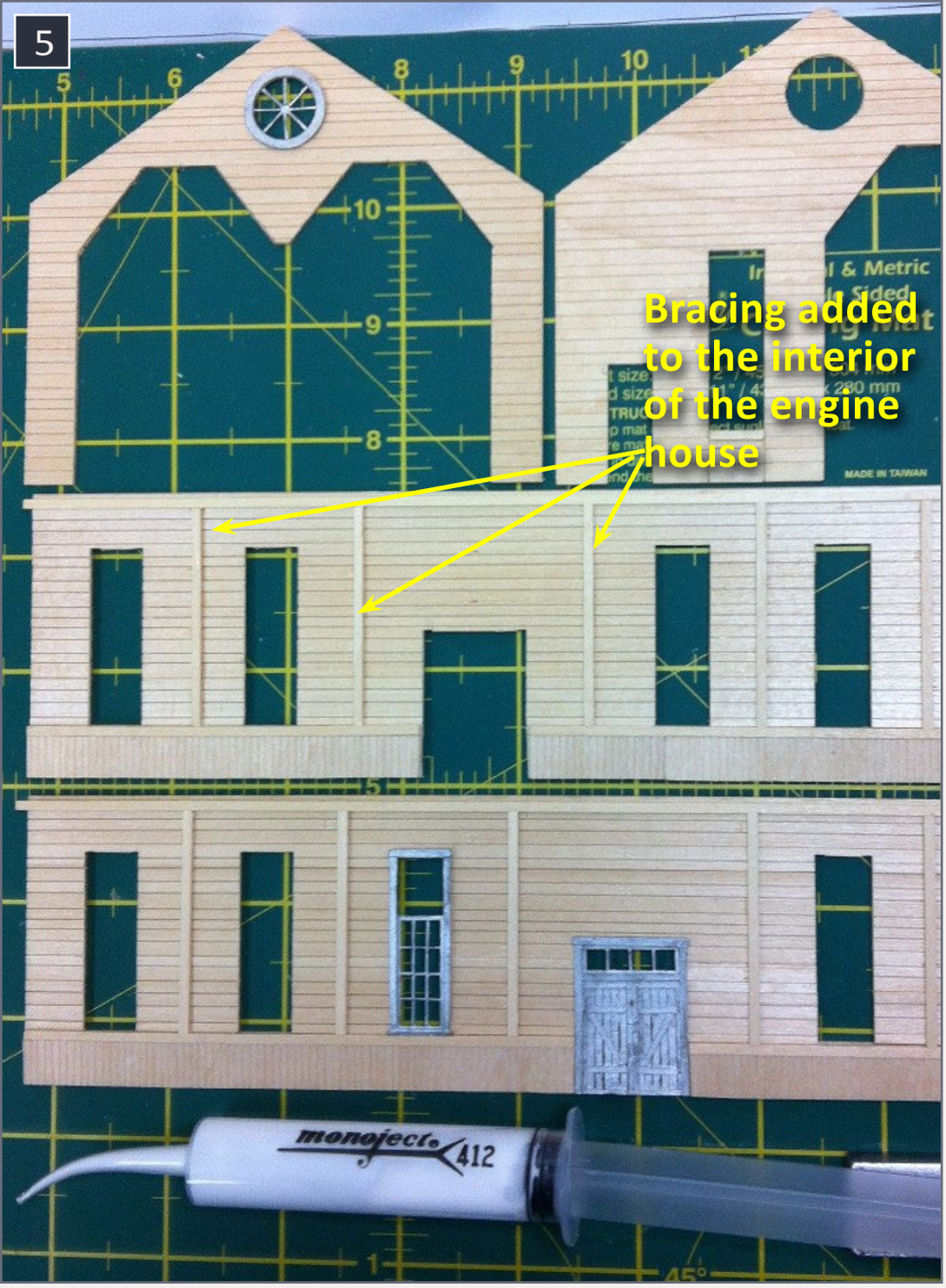
3. This is a sample of the tools that I keep handy for a project like this.



4. I add nail holes to the siding. This detail is much easier with the side lying flat on the work pad.

Getting started

Let's start the kit by trimming all the excess wood from doorways and windows. I used the hobby knife to cut odd lengths of boards on the siding (both sides) and added nail holes at these cuts. I then mixed the yellow wash, making sure that I had enough for the whole building. It is difficult to mix the same consistency as the previous mix if you don't have enough. I used an empty airbrush bottle for my washes. I began with the washes on the exterior of the kit. Once this was done and let dry for 30 minutes, I stained the interior with either white or an earth color and again let dry for about 30 minutes. Remember to place parts on a flat surface,



5. Bracing adds both interior detail and strengthens the structure.

and weight them minimize warping. If warping occurs, bracing on both interior and exterior will correct it.

I laid all the metal door and window castings on masking tape, sticky side up, for spraying with an airbrush (quicker than painting with a brush. I use my airbrush only if there are a lot of parts to be sprayed). Once thoroughly dry, turned them over and sprayed the unpainted side. Airbrushing speeds up the drying time to minutes, and a smoother finish is obtained. I then started with the exterior and interior bracing.

Modifications to the kit

The instructions call for a stone foundation along the bottom of the engine house. I deviated from this, and added scribed

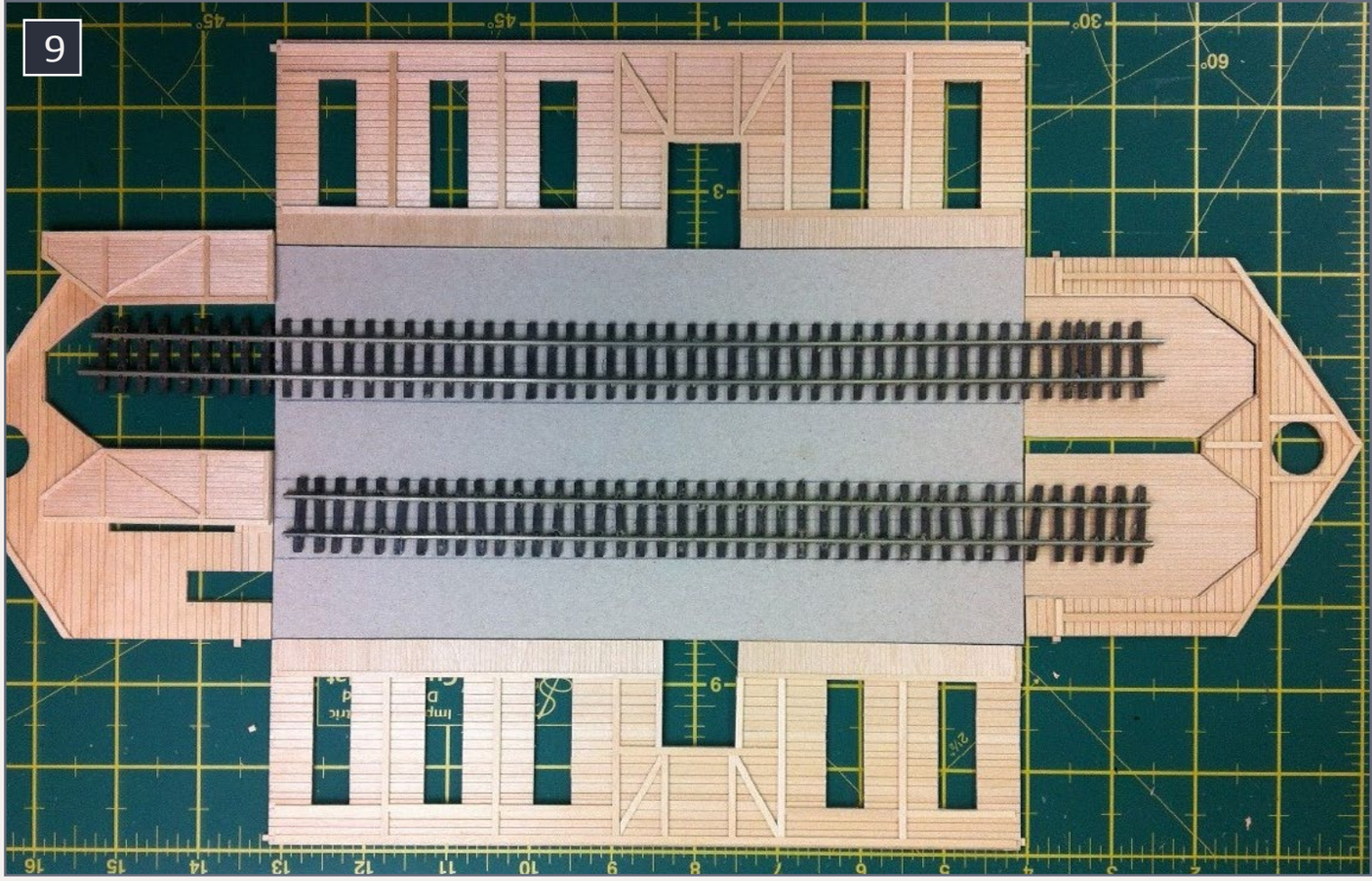
6. This picture shows the details of the interior bracing of the front doors of the engine house.

siding vertically to keep the whole structure wood. This is a personal preference, but makes it easier to add the work-benches and details flush with the walls on both the exterior and the interior.

After bracing the track doorways, I tackled the main doors. Here the instructions say to use the cut individual stripwood supplied to make up the doors. Instead I used thin scribed siding affixed back-to-back with double-sided tape to give the inside and outside the individual-board look. It worked very well. I marked the scribed siding, using the side walls with the

7

8



7. The exterior of the back wall.

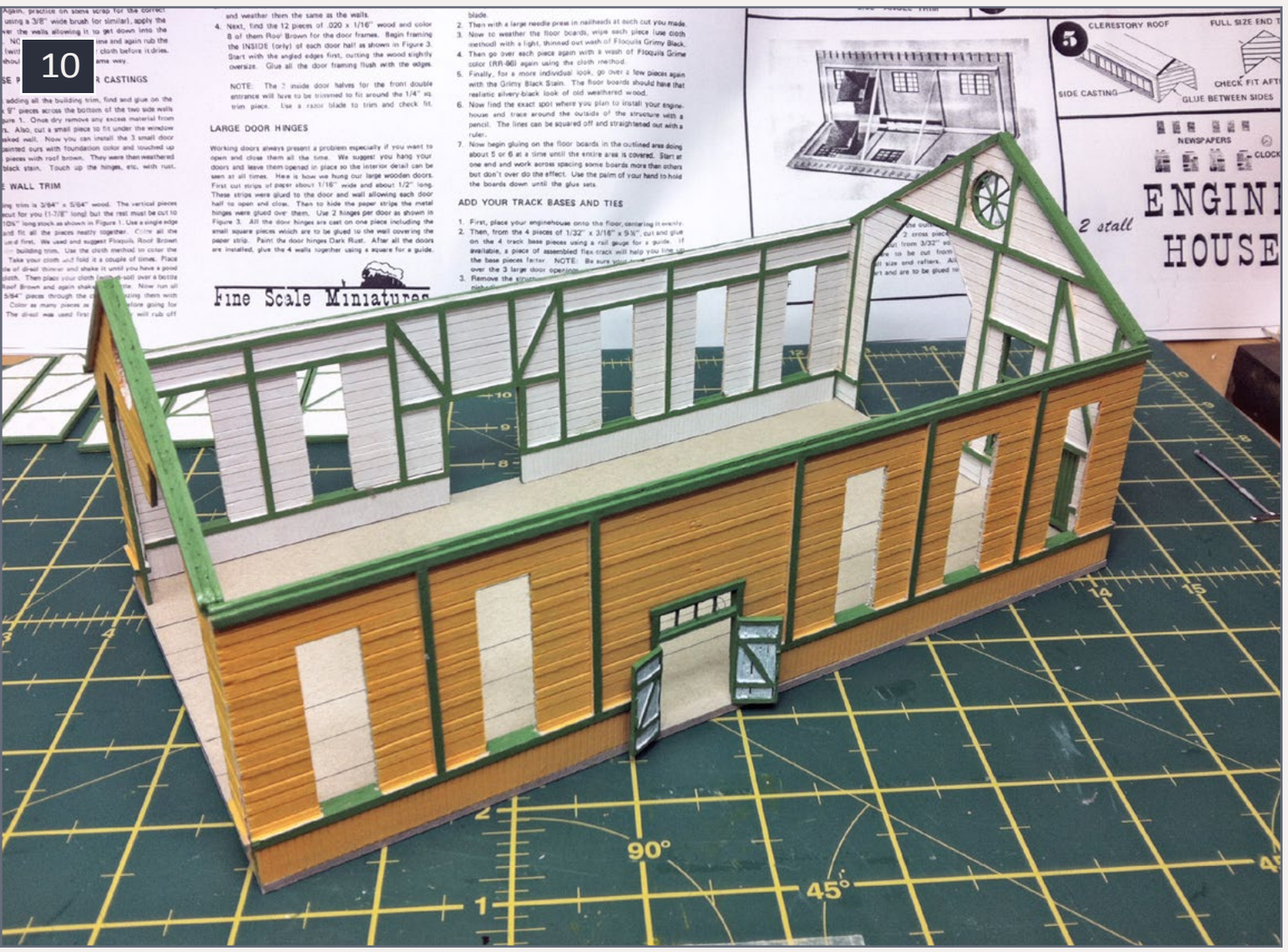
8. The interior of the back wall.

9. The four walls of the engine house are laid out against the base. It is critical to have everything match to ensure that the structure is square and will fit on the base.

doorways as a template, where the actual doors would be. I assembled each doors as a double door and added the bracing. Once complete, I cut the doors down the middle, giving me two doors that can be built in the open position. This method was much faster and easier, and speeded up assembly.

I again deviated from the instructions when building the floor of the engine house. I cut a piece of cardstock the same

thickness as track ties to use as a base. I assembled the four walls onto this base temporarily to get the building square. Once this was done, I marked the track locations on the base, and cut slots the width of track ties The cardstock serves as a riser to bring the floor of the building up to rail level so, when the floorboards are installed, the flooring is flush throughout the engine house.



10. I painted the interior and exterior of the walls and then temporarily assembled the structure to make sure that everything lined up.

11. The roof card has been cut and temporarily put in place for test fit. The corner trim pieces have been added. Now it's beginning to look like an engine house.

Adding shingles to the roof

Next I added the shingles to the roof, a long and tedious job. In [12] you see only half the panel has been shingled. My eyes needed a break after laying so many courses of shingles.

I glued the roof halves together and laid the roof on a flat surface. I covered the whole top side with strips of double-sided tape. The tape is clear, so when I removed the backing on the top side, I could see the shingle lines, as well as the smoke stack cut-outs. I used a sharp hobby knife to cut out where needed.

From here, it was a simple but time-consuming job to lay the individual strips of shingle paper onto the double-sided tape.

Photo[13] shows the completed roof and shingles after staining, and prior to lifting individual shingles for a more realistic look. Using double-sided tape made the process much faster and easier than the glue method I used in the past. The tape also helped to stop the warping during staining, a very big plus. It also helped when lifting the odd shingles in the weathering process, as there is no glue to contend with.

12. Half of the shingles have been added. This is a long tedious job, but once completed the results are worth it.

13. This is the almost completed roof. A little more weathering and the chimney needs to be added. I have also added the upper windows and tilted them out so the smoke dissipates for the shop crew.

The clerestory roof has been completed, and the pigeons have taken up home already [13]. The bottom row of shingles shows the start of the individual shingle lifting. Again , this is a long and tedious job, but the end result is worth the effort. As I have always said, what you put into building a model will always show in the final product.

Adding the floorboards

Next I started on the floor, using the individual boards ([14] and [15]) per the kit instructions. After much debate, I opted

14. The scribed floor is mounted to the card base to bring it up to the height of the railhead.

15. The base with the rails is set in place to confirm the alignment of the approach rails and to check the clearances of the tracks on both side of the structure.

16. I placed the workbenches in the structure and made sure that I had proper clearance for the locomotives.

15

16

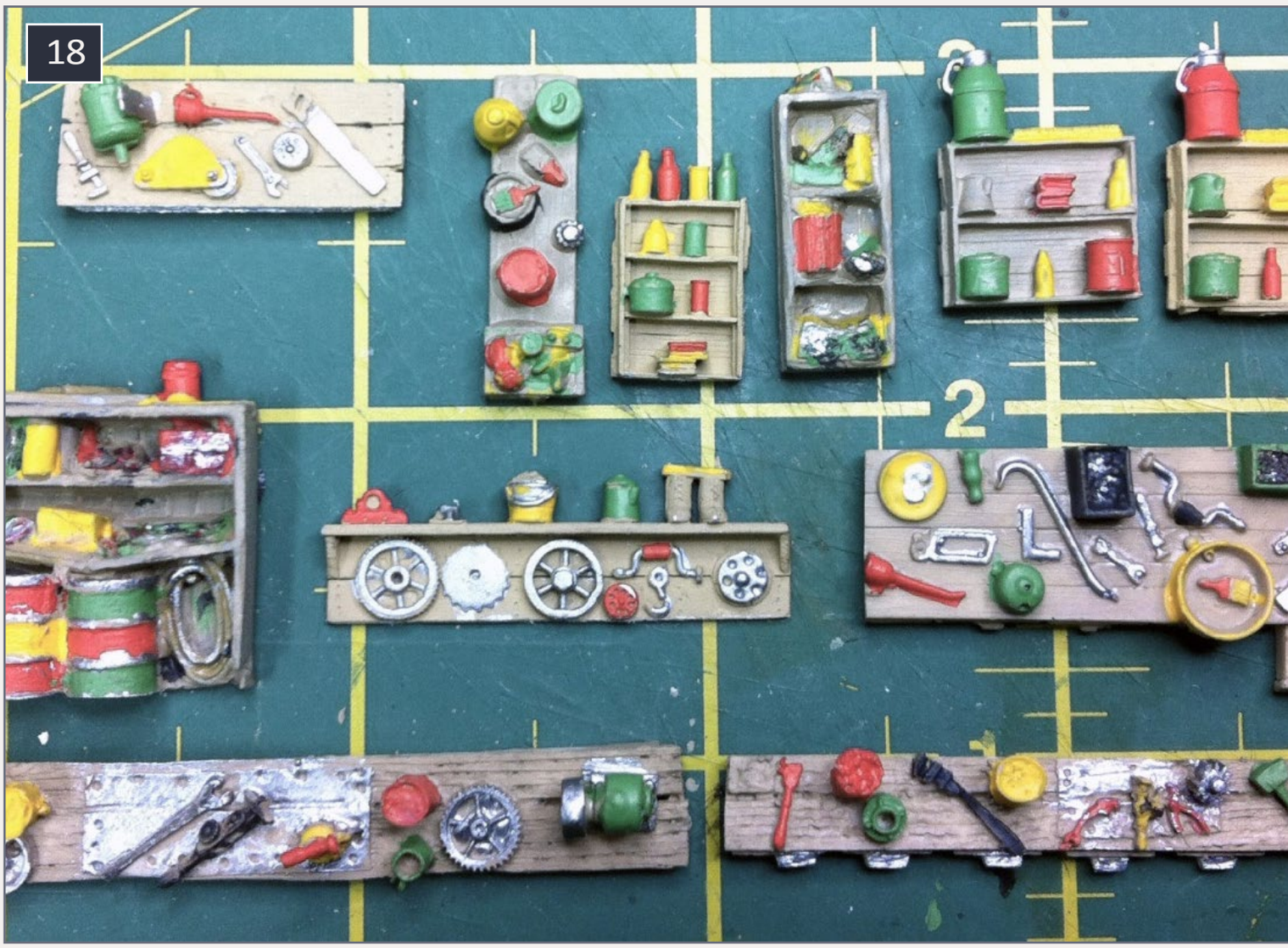
for a scribed-sheet floor, since I was not building a diorama base, and had to figure out how to do the interior without one. I mounted the scribed siding onto a cardstock base to bring the floor up to the height of the railhead.

Checking clearances

The next step was to test-fit the workbenches in the building, to make sure there was enough clearance for the locomotives.

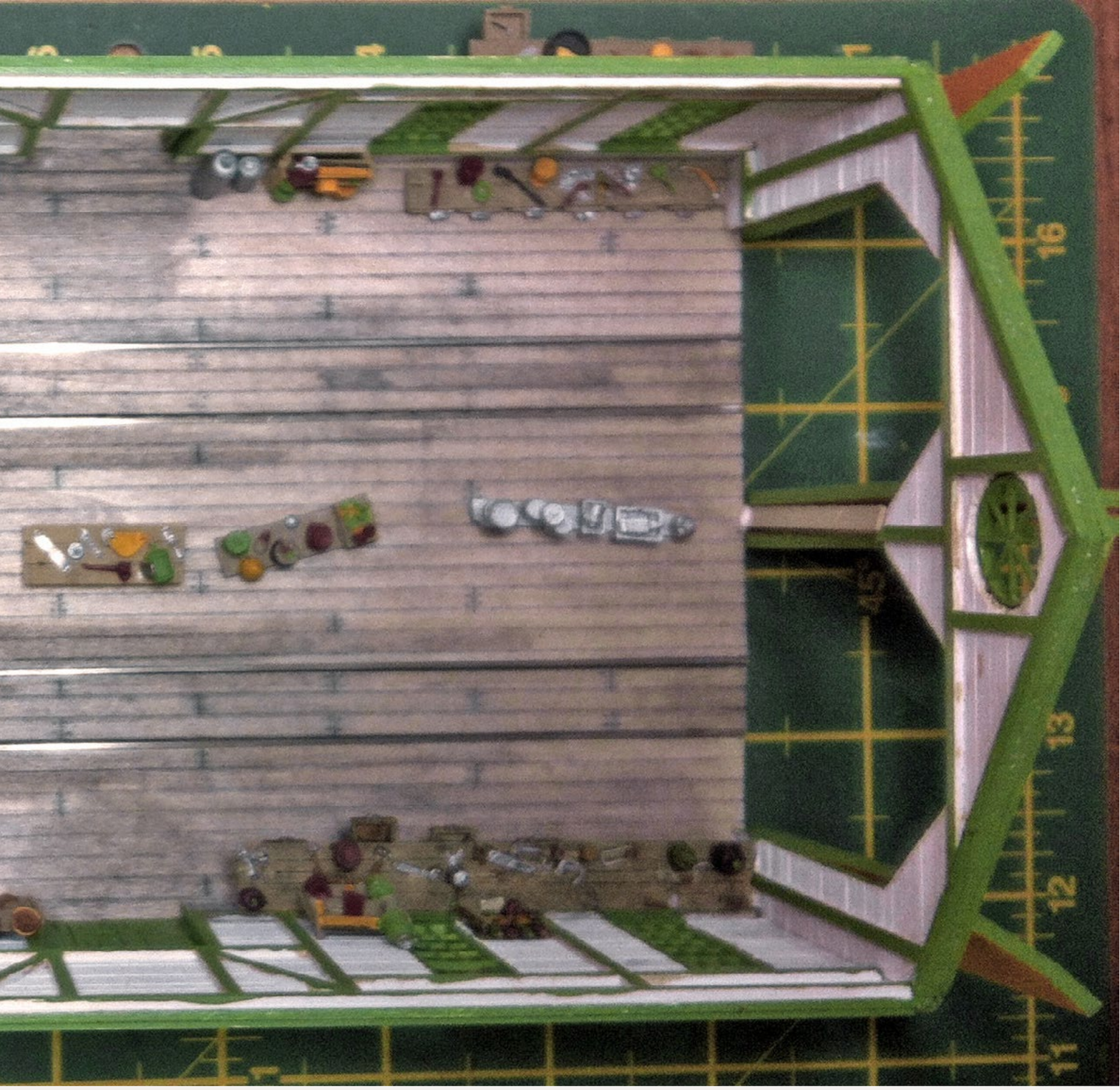
17. I laid out the individual boards and punched nail heads into them. Now to stain the floor and give it that well used look.

After making sure that all engines fit, and clearances were OK, I moved some workbenches to a different location and re-tested the clearances. Then I removed everything to begin marking the individual board lengths on the flooring, and punching nail heads into it (a time-consuming job, but worth it to get the end result). Next I stained the entire floor to give it an aged and well-worn look. When doing this, I made sure to weight the



18. Painting all of the details on the castings is a real time-consuming job. Don't plan on doing it all in one sitting. Once the details were glued in place, I gave them a black wash to get that used, dirty railroad look.

19. Here is an overhead shot of the details in the engine house. Many have been painted, but there are still a lot more to go. The floor has been weathered and the structure is taking on a finished look.



floor to reduce warping. If it does warp, the building will help keep it straight and flat.

I use the black wash from the Citadel range of washes produced by Games Workshop.

Painting the details

A real time-consuming job was next painting the castings. First I sprayed the castings with acrylic earth color paint as a base coat. I then set up the various colors I needed to paint the objects on the workbenches, shelving, wall cabinets, and carts.

Once this was done, I placed the objects in position inside the engine house and made sure that the locomotives cleared them all before gluing them in place. Once glued in place, I gave them a black wash for a used look. This wash hides any "small" mistakes that were made in the painting process. Note: a good paint job can hide minor flaws, but a poor paint job can destroy an excellent model.

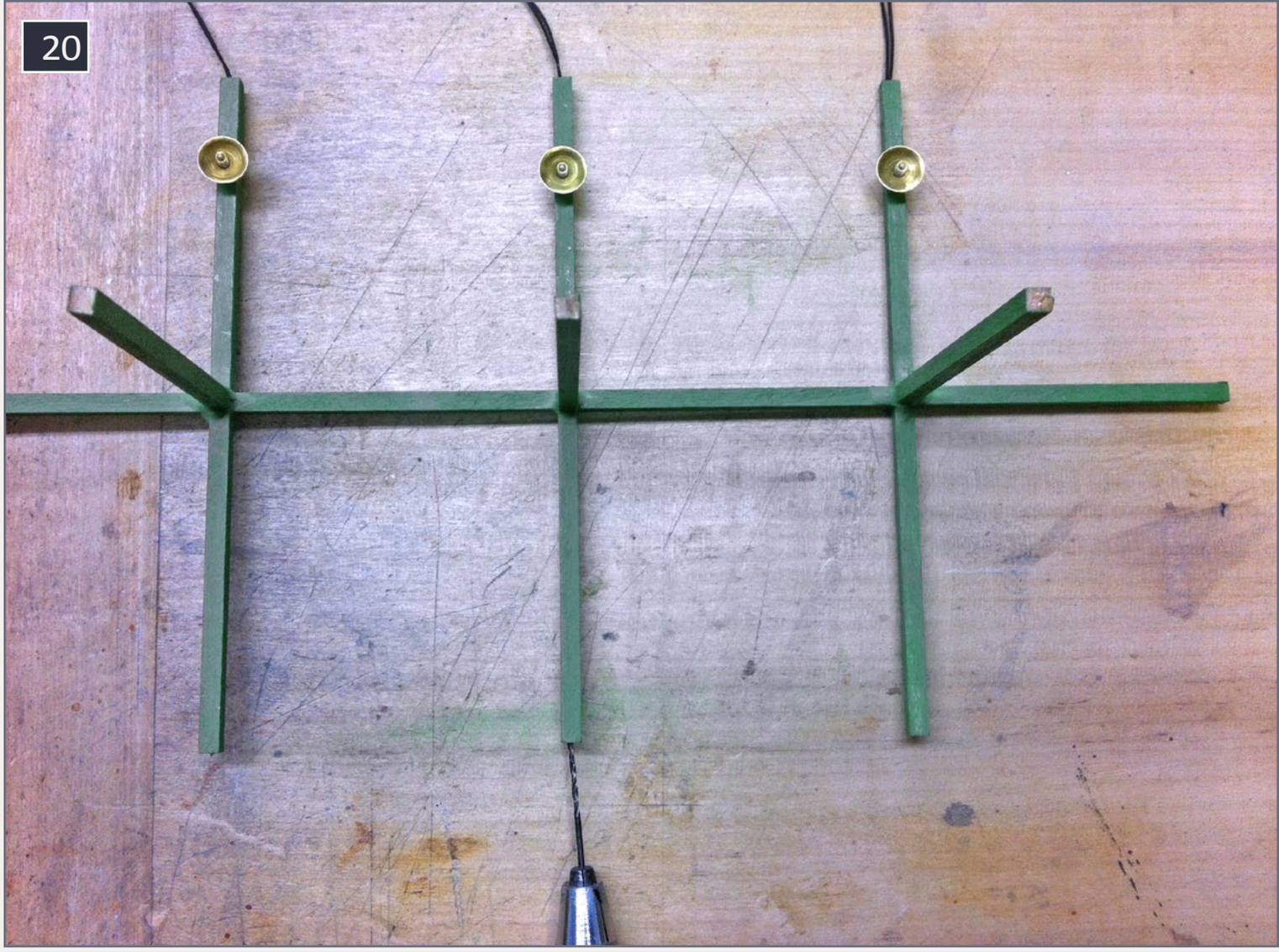
I will place all leftover items plus some extra details around the outside of the engine house once it is in place on the layout. All the doors will be glued in the open position, as this will be a building in use 24 hours a day, seven days a week. Because of this, I elected not to make working doors with hinges.

Interior lighting

At this point, a decision must be made to light the interior or not. I mounted a ridge pole down the center, to which I mounted lampshades with grain-of-wheat bulbs. Per the instructions, there will be support posts underneath this longitudinal pole when the model is complete.

"... a decision must be made to light the interior..."

The photos below show how the lights were fitted. For each, I drilled a 1.5mm hole in the ends of the left and right bracing and then pulled the wires through . I made sure the lampshades were in the correct positions, then collected the wires



20. I decided to add lighting to the engine house. Lights are centered over the tracks on the overhead cross braces.

and fed them down as conduit through the floor, to run under the layout to switches for the power.

The enginehouse needed black wash all over it, again to give it that well-used look. For the rust look on the metal objects, I use Gryphonne Sepia as well as Ogryn Flesh washes from the Citadel range of washes.

Once I was happy with everything in place and the lighting was done, I transferred the flooring to the layout and glued it in place. It was a simple step to glue the building in place and add details around the exterior.

21. The lights create a nice warm glow for the night crew as they ready one of the locomotives for the next day's work.

I placed the castings in what I thought should be their correct positions, then checked to see that the locomotives – Heislers and Shays, cleared the castings. The wedge plow just makes it past.

Once I fixed the floor in place and temporarily placed the engine house in position to make sure everything fit correctly, I drilled holes through the layout for the lighting wires.

Adding windows, doors, details, and animation

With the positioning finalized, I removed the building and weathered it inside and out. This is where I glued the final pieces of the building – the center post between the two front doors,

two outside front doors, center doors, and the two doors at the back of the building. The last pieces glued were the seven windows in the open position.

This is where the final and fun part of the process began. I added ballast and scenery material around the area, plus the castings, junk piles, and everything else found around such a facility.

I added an arc welding module to the interior under a workbench, with a figure kneeling as if welding. This was connected to the lighting circuit with a separate switch to be able to turn on the welding module independently while the lights are on.

With the ground cover hiding the wiring, and the final detail added to the interior, the Engine House was complete. I still must add the open window frames to the outside of the building... ☑

Reader Feedback
(click here)

Brain Messenger has been a model railroader since age 6 (he is now 63), and got serious about the hobby again 40 years ago.

Brian switched to HOn3 after a visit to ride the D&RGW in Colorado. His current layout is 22' x 10'.

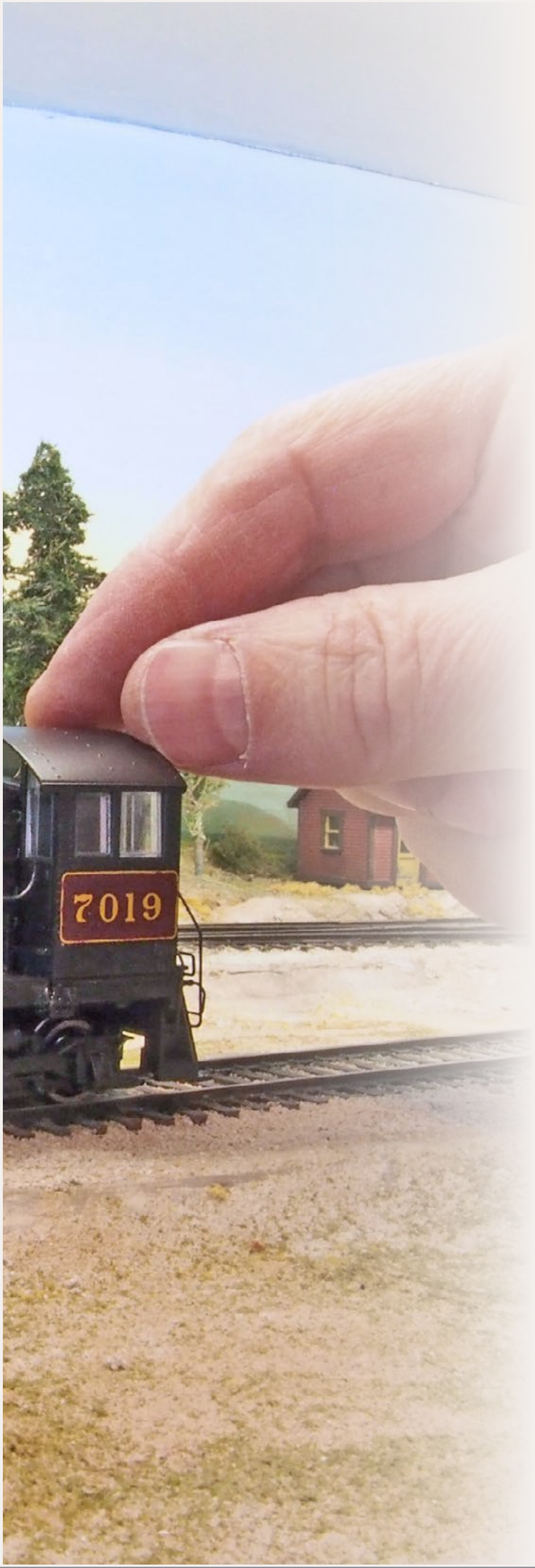
He also enjoys motorcycle touring, windsurfing, and travel. He owned a hobby shop for 25 years, then sold it at age 60, and retired.

Brian has been married to his wife Roz for 25 years.

– by Brent Ciccone

Photos by the author

Reader Feedback (click here)



MY EXPERIMENTS *with* TRACK CLEANING

One modeler's findings..

Few things get model railroaders going like a discussion of track cleaning methods! The topic pops up regularly generates lengthy discussions on Internet forums of how to deal with dirty track. Proponents of various methods claim theirs is the best and only way to do it and that doom and gloom will befall those using different methods. It can be quite entertaining!

I did some Googling to see what methods people were using, and looked for

Is this you? Have to give your trains a little push to keep them going?

evidence that one method works better than others. Despite lots of posts extolling the virtues of different methods, I found precious little actual experimental evidence supporting one method over another. I set out to discover what method would be effective for me.

Problem #1: My track is dirty and I have an open house tomorrow!

I compared cleaning track using a track eraser versus a liquid cleaner and cloth. The quickest way, in terms of elapsed time,

2. A number of abrasive cleaners: PECO track eraser, rubber sanding block, Scenic Express eraser, fine mesh drywall sandpaper, and a cork.

from dirty track to clean, is the track eraser. Liquid cleaners required multiple passes before the track was clean. A quick back and forth scrubbing with the track eraser and the track is shiny clean. For those concerned about scratching the rail, see the “Myth Busting” sidebar.

“...back and forth scrubbing works best”.

The abrasive eraser takes a bit more physical effort than liquids and cloth. You can even work up a sweat but a bit of exercise is probably a good thing for most of us. Simply sliding a track eraser along the track is not particularly effective; a quick back and forth scrubbing works best. Even when you add the time to vacuum bits of abrasive and dust off the track, it still takes less time to get nice clean track. The abrasive cleaner is also the only thing that will fully remove glue and paint after ballasting and other scenery work. Liquids never really completely remove this material, even after multiple applications. Every layout needs a good scrubbing at least once in its lifetime!

Problem #2: The track needs a regular cleaning.

Liquid track cleaners are useful for regular track maintenance and for cleaning track in inaccessible areas. These act by dissolving the dirt and transferring it a cloth. They take more time to act, as the solvent has to slowly dissolve the “black gunk.” It typically takes multiple passes with a solvent- soaked cloth to get all the dirt off.

I decided to compare various products used as solvents for track cleaning. My testing method was to rub a short section of dirty track with a solvent soaked rag. I settled on a test of 10

3. The easy way to use a liquid cleaner, the CMX clean machine.

swipes with moderate pressure with each product. As a control, I used a dry rag with no solvent, and then used each of the different products on separate sections of the mainline on my layout. I couldn't come up with a quantitative way to measure the dirt removed other than visual observations.

Liquid Solvent Track Cleaners, worst to best:

- Dry cloth – not very effective (as expected)
- Water – better than dry but the track is still pretty dirty after 10 swipes
- Windex – not very effective, but better than water
- Windshield washer fluid - not the best but will do in a pinch. For those of us who live in the Northern parts of the world, there is always a jug of this stuff in the garage!

- Rubbing alcohol – moderately effective. The track was still dirty after 10 swipes. It took a few more before it was to tally clean.
- Paint thinner\mineral spirits – lots of black gunk comes off with this stuff
- Acetone – lots of black stuff comes off and the track is clean
- Goo Gone – works well, but leaves a residue behind that has to be cleaned off.
- Lacquer thinner – track is pretty clean even with fewer than 10 swipes
- Varsol – the most effective cleaner. Track was clean before the 10 swipes were completed.

(Varsol is very similar to white spirit, mineral spirits, mineral turpentine, turpentine substitute, petroleum spirits, solvent naphtha and Stoddard solvent. It is a petroleum-derived clear, transparent liquid which is a common organic solvent used in painting and decorating. Varsol is either difficult or impossible to acquire for non-industrial use in the US and particularly in California.)

4

Looking at this list, we can see that the strong liquid

4. I installed curtains around the layout in a futile attempt to keep the dust off. It still gets in somehow.

solvents are very effective but we need to consider the toxicity and flammability of these products before we use them.

While Varsol works the best it, along with lacquer thinner and regular paint thinner are all highly flammable. These products should only be used outside, which isn't too practical with most of our layouts inside. Acetone is almost as effective and is much less toxic. It is highly flammable because it evaporates quickly but if used in small quantities should be safe enough to use.

"... lacquer thinner and regular paint thinner are all highly flammable".

Based on the experimental results, my product of choice is acetone. It is readily available at the paint store or places like Home Depot, and is inexpensive. Avoid nail polish remover as it contains oils and perfumes.

There is some risk of damage to paint and plastic with acetone, but if used in moderation, like a small amount on a cloth applied to the rails, there shouldn't be a problem. Goo Gone was effective but left a residue that I then had to clean off with acetone. And it costs more! Some people have reported removing Goo Gone residue with a clean dry cloth, but it is still an extra step.

Problem #3: Application How to apply track cleaner.

The simplest answer is a clean, lint free cloth. Why is lint-free important? Lint (and hair from the dogs, cats and people in the house) gets into the mechanisms and accumulates on the wheel contacts. That is why a regular vacuuming of the tracks is advisable.

Of course, rubbing a cloth along the tracks is not the most exciting activity, and it is difficult to do in tunnels and bridges. Why not attach the cloth to the train and run trains instead? That is why track cleaning cars were invented.

I use a CMX Clean Machine. This is a brass tank car that drips cleaning fluid onto a cloth pad while it is dragged around the layout. The trade-off is that you have to change the cloth pad frequently, and clean or replace the cloth pads afterward. The key here is to change the cloth as soon as it gets dirty, which might happen even before half a lap around the layout.

Myth Busting – Scratching the Rails?

The often-reported problem with abrasive track cleaners is that they will scratch the rail surface and dirt will accumulate in those scratches. Sounds plausible. Let's test it!

I abused a section of track with some medium grit sandpaper. If anything was going to cause scratches, this should be it. I then left it alone, cleaning the track with acetone whenever the layout needed it. Admittedly, I only did the sandpaper abuse once, but I couldn't detect any difference between that section of track and the rest. Locomotives have never stalled on the abused section, but they have stalled on nearby sections that weren't abused. The section that was abused didn't seem to be any dirtier than the rest of my track.

While the scratch theory sounds plausible, I can see no evidence to support it. I don't recommend coarse sandpaper, but I would have no concerns about using any of the track cleaning blocks on my track, or on the wheels of locomotives. Until someone comes forward with evidence to the contrary, I would say that this myth is busted! ■

Cleaning the cloth pads can be accomplished in the sink with a toothbrush and bar of soap. I have a long section of track that is difficult to access and this is the only way to clean it.

Problem #4: Maintenance. My track is clean. How do I keep it that way?

The first steps start before you even start laying the track! Finish the layout room so that dust doesn't come from the ceiling or from the cement floor.

A simple method of track maintenance is to run Masonite sled track cleaning cars **mrhmag.com/dec2012** every time you run trains. You will need several of them and change them out frequently as the pad gets dirty fast. The pad can be cleaned with sandpaper or a toothbrush and bar of soap in the sink.

A number of treatments that can be applied to the rails; I have tried some of these methods, but there are others such as CRC 2-26, Flitz polish and even "gleaming" that I haven't tried.

I did try some metal polish used for polishing chrome bits on cars. It was messy to apply and worked for a couple of months, but was not particularly effective.

The next treatment I tested is to apply a small amount of a conductive oil on the rails. This can be Wahl clipper oil or a product by AeroCar (Act-6006). These products do seem to improve performance, in my experiences, especially with sound equipped locomotives. However, the improvement does not seem to last. I found that after five or six weeks there would be a rather sudden and drastic failure where locomotives would start stalling in multiple places on the layout, and I couldn't keep trains running without going through another

5. The Masonite cleaning sled can be cleaned with a toothbrush and bar of soap under the sink.

round of track cleaning. My conjecture is that the oil degrades after a while and has to be cleaned off and re-applied regularly.

A very simple rail treatment is graphite. Yes, a good old pencil, or better yet, a graphite stick from an art store (cost about $1.50, I use a 2B Hardness). Clean the rails and rub the graphite stick along to give a thin coating of graphite over the surface. Graphite is also an excellent lubricant, so you might have problems with wheel slippage. If you have steep grades, this might not be for you!

One year ago, I treated a section of my mainline with graphite. Just recently, locomotives started stalling on that section and it required cleaning. I had to clean the rest of the track at least 5 times over that same year, so I would say that the graphite was pretty successful! For cost and simplicity this is pretty hard to

beat. Test it first on a small section to be sure that wheel slippage isn't going to be a problem for you.

Another treatment option that has been around for years is a product called No-Ox. It is a grease that claims anti-oxidation properties. A very small amount is spread on the rails, allowed to sit for a day and then the excess is wiped off.

I treated another section of my mainline with No-Ox at the same time I applied the graphite. I had even better success with No-Ox. It is still going strong after a year, without ever cleaning that section of track. It was so successful that I have decided to treat my entire layout with the No-Ox. I won't be able to tell you how effective this is until it fails, which might take another couple of years. I noted that I am getting a lot of wheel slip right after application, but that should diminish over time. See the No-Ox thread mrhmag.com/node/7169 in the MRH forums for instructions on how to apply it.

Apply graphite from a stick by rubbing it on the rails.

5. I used half a wine cork to spread a very small amount of the No-Ox on the rails. There amount on my finger is enough for 20 feet of track.

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Summary

Some sort of track eraser of some sort should be in every-one's arsenal, for cleaning after scenery work has been done, or if a problem spot develops. Treating the rails with graphite or No-Ox can be very effective at keeping the rails clean. When you do need to do some cleaning maintenance on the track, acetone used in a track clean-ing car or simply on a cloth is an effective. ☑

Black Gunk – What is it?

What is that black gunk and where does it come from? I did some Google searches looking for answers, but did not find many. In a couple of cases, people have taken track to a laboratory to see what this stuff is. One analysis reports mrhmag.com/node/3229 a lot of oxides of nickel are present. A different forum post, which I can no longer find, found evidence of bits of dead skin cells. Dead skin cells might sound surprising until you realize that household dust consists of a large proportion of dead skin cells from the occupants of the house and their associated cats, dogs and other pets. My testing found that strong organic solvents are the most effective against "Black Gunk", so this does fit with the origins of the "black gunk" being organic material.

Wanting to see where the black gunk was coming from, I grabbed a length of unused flex track, which was surprisingly dirty considering it had never been used! I gave it a good cleaning so that I knew we were starting out clean. I then wrapped one end of it in paper towels, to keep stuff off of it but still allow air to get to the rails. Then I put it up on the shelf and left it there for a year! I did peek at it occasionally, and what I found after one year is that the covered portion remained perfectly clean, the uncovered portion had a good layer of easily removed white dust on it, but there was no black gunk and no apparent oxidation from being exposed to air.

I have some spur tracks on my layout where cars are pushed, but locomotives seldom venture on to them. I have noted that these sidings develop much less black gunk than the active tracks. These findings support the idea that it is the combination of the electrical current and the rail/wheel interface that creates the black gunk. In the absence of either, it will not form.

I am going to make some wild speculation: electrical arcing occurs between the wheels and the rail, and the arcing oxidizes the rail and degrades the dust into black gunk. (As an aside, nickel silver rail does contain nickel but there is no silver in it! It is a type of

brass with added nickel originally called German Silver developed for making cutlery that wouldn't tarnish). The rail is formed by rolling and forming wire stock progressively until the correct profile is achieved. This leaves some oil residue on the rail from the rolling process, which explains why new rail is a little dirty.

Calgary Alberta, Canada, where I live, is very dry with almost desert-like conditions during the winter months. This results in the house occupants (myself, my wife and three cats) having dry, flaky skin during the winter, and consequently there is a lot of dust in the house. We fight this dust in the house constantly and I fight dirty track on my layout in the basement all the time. If you live in a more humid environment, your dust may have a different composition. It would be interesting to hear from others to see if they have similar results with cleaning track. ■

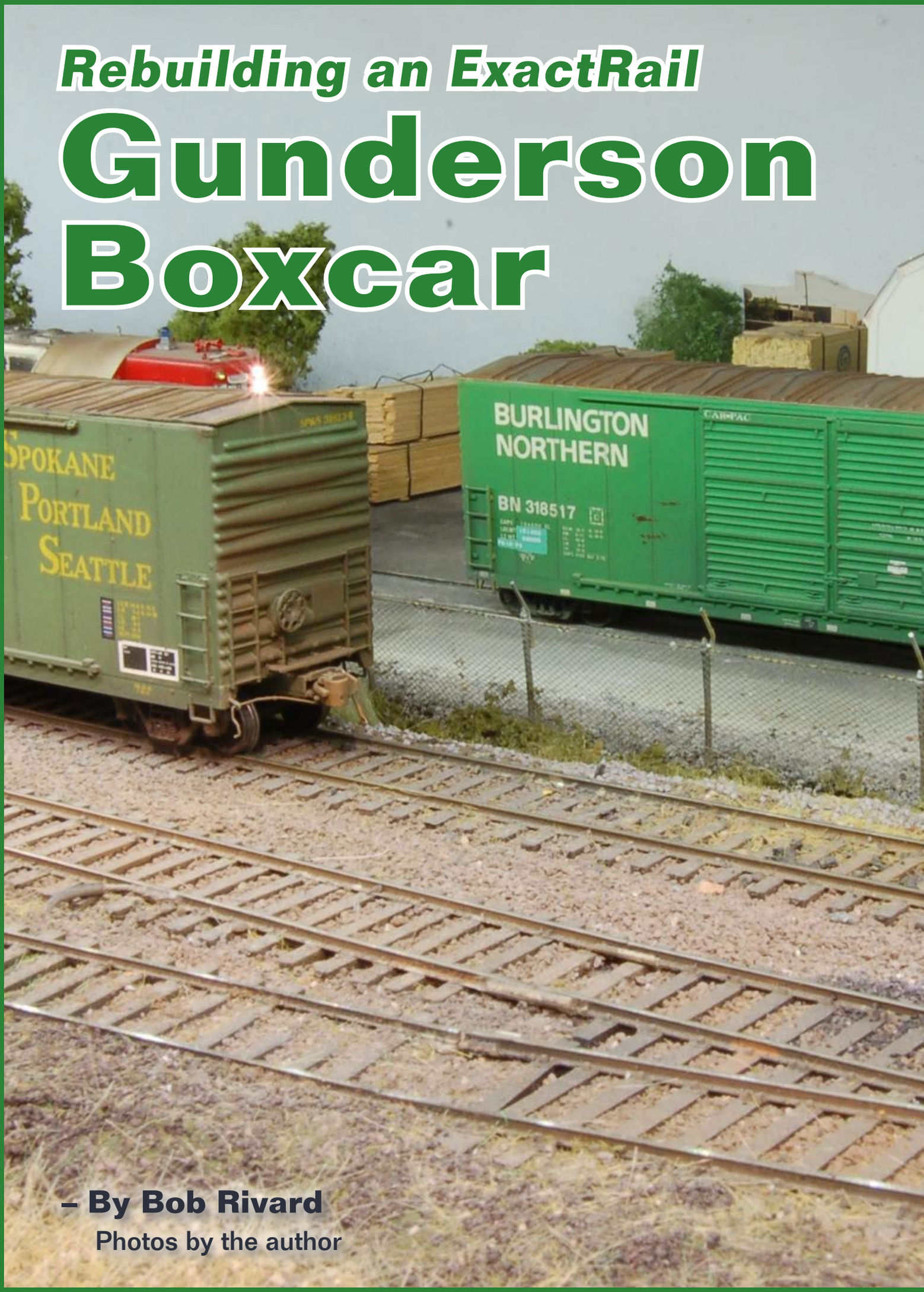
Reader Feedback
(click here)

Brent recently retired from working as a production analyst with Shell Canada. Since retiring, he has taken on the role of editor for the Calgary Model Railway Society's publication "The Order Board." He also belongs to the Bow Valley Model Railroad club.

Brent's other hobby interests including oil painting, and he runs an art school in Calgary. He enjoys hiking and cross-country skiing in the mountains outside Calgary with his wife of 33 years.

Rebuilding an ExactRail

Gunderson Boxcar



– By Bob Rivard

Photos by the author

Making a disappointing car into an accurate model ...

I recently purchased an ExactRail 50-foot Gunderson boxcar at a local flea market. The car was lettered GM&O and looked accurate. As I researched the car, however, I ran across the GM&O Historical Society web site and discovered that the Gulf, Mobile & Ohio never had these Gunderson-built center-door cars. This was very disappointing to me because I model my freight car fleet using prototype photos. I would have to repaint the car.

Turning to my Morning Sun color guides, I discovered the perfect candidate. In the Burlington Northern Freight

1. BN 318517 has just been spotted at Shaw Lumber. A similar SP&S boxcar sits on the main waiting to continue on to its assigned destination.

Reader Feedback (click here)

Car and Passenger equipment guide, there it was on page 29, BN 318517. The BN had acquired these Gunderson cars (series 318400-318599) in 1970. The Spokane, Portland & Seattle also acquired a series of these cars at that time. This was interesting to me because I just finished modeling a SP&S Gunderson car using the same ExactRail model. The Paul C. Winters photo of BN 318517 was taken in the late seventies, just after my 1977 modeling era. This was important because I could use the photo as a guide to paint and weather my car.

Planning the project

I knew that modeling these cars would involve basic repainting and decaling, except for an SP&S car. For this project I would need to cut out the stock Youngstown-style doors and kitbash correct Superior doors.

Another minor detail I would have to address would be the number of side panels. The ExactRail model has six panels on each side of the doors. Both the SP&S and BN prototype photos indicate only five panels. This would be an easy fix. I could easily create new weld seams using the technique I used to model my DT&I cars in the November MRH issue mrhpub.com/2013-11-nov. I use a no. 2 pencil and draw the weld seams onto clear decal paper. I can then sand off the old seams, cut out my seams, and apply them just like any other decal.

As I studied the photo of the BN car I decided that I would need multiple Microscale sets in order to correctly letter my model, set 251 BN 40 & 50 ft. Box Cars, and 1377 BN Box Car Markings. My SP&S model would require Champion set HB-399. Fortunately I had one set in my decal drawer. I also found it easy to obtain an extra set on eBay.

One detail issue I needed to address would be the roofs. The BN and SP&S series of these cars should have X-panel roofs.

The ExactRail models come with diagonal panel roofs, but ExactRail roof easily pops out! I found replacement X panel roofs in my scrap box. My new X-panel roofs were an exact fit! I'm not sure, but I think they are from Branchline.

How to build them

Follow along as I describe how I modeled BN 318517 and SP&S 318134 using the ExactRail Gunderson models. ☑

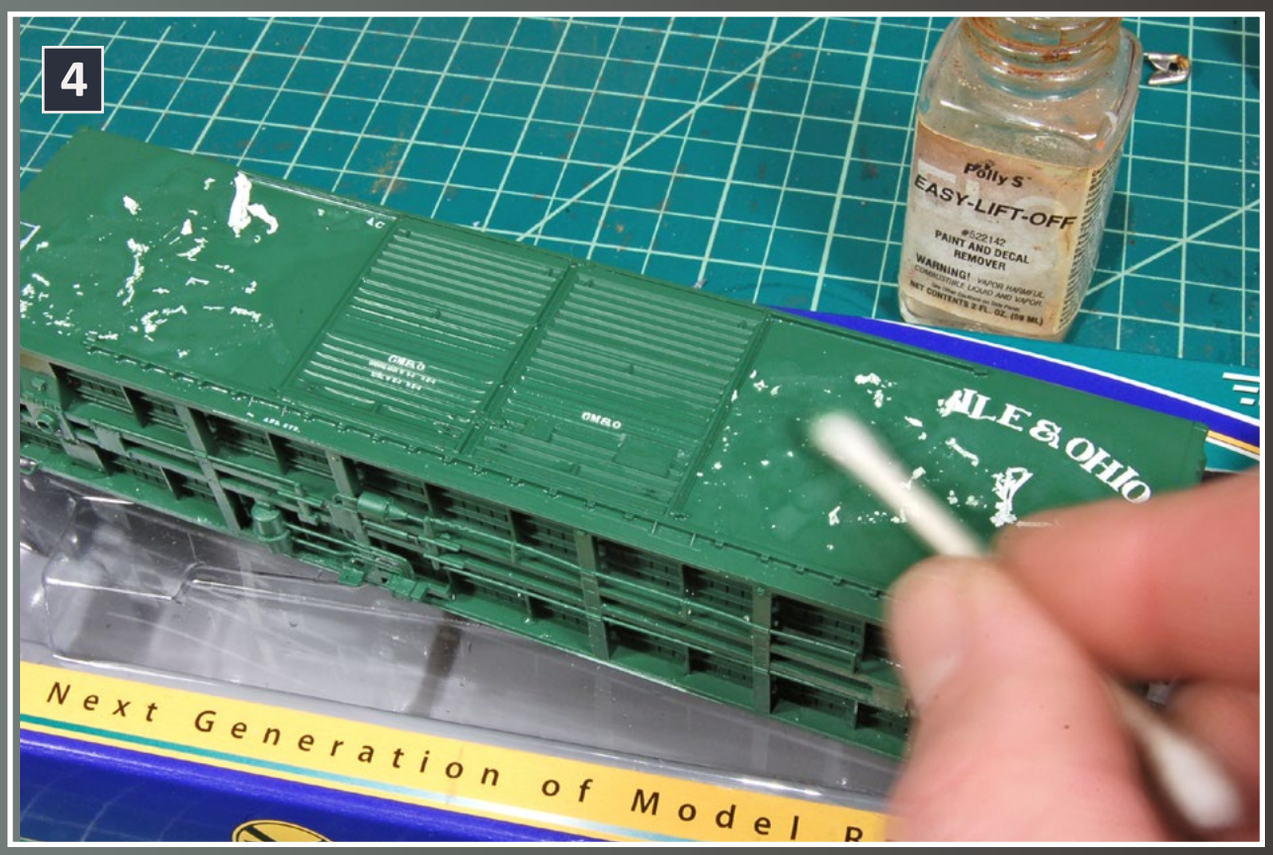
Continue reading for the step-by-step ...

2. SP&S 318184 is the other car that I modified.

STEP 1: Preparing the car

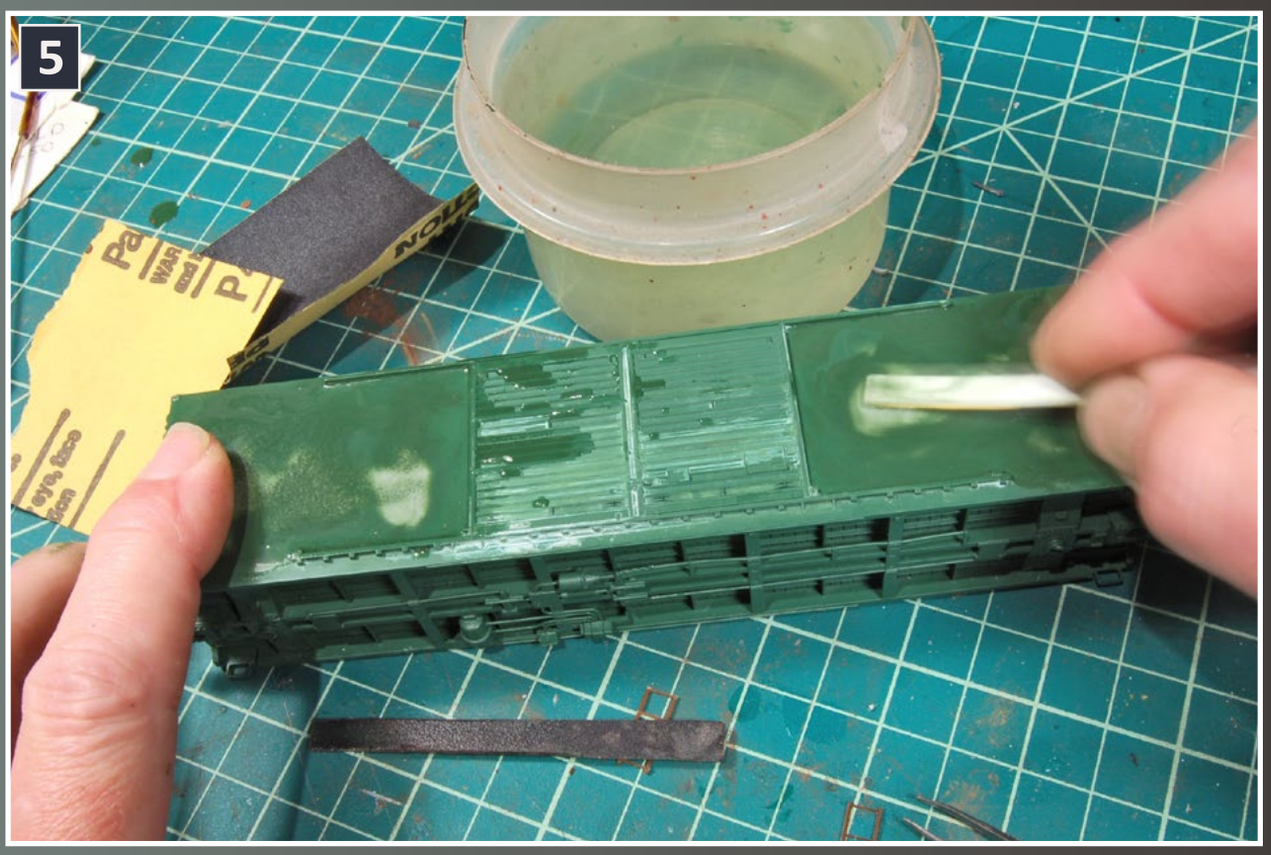
3. The factory GM&O ExactRail model will be repainted and decaled as BN 318517. I start by removing the cast-on side ladders and will install new ones from Detail Associates.

STEP 1: Preparing the car *Continued ...*

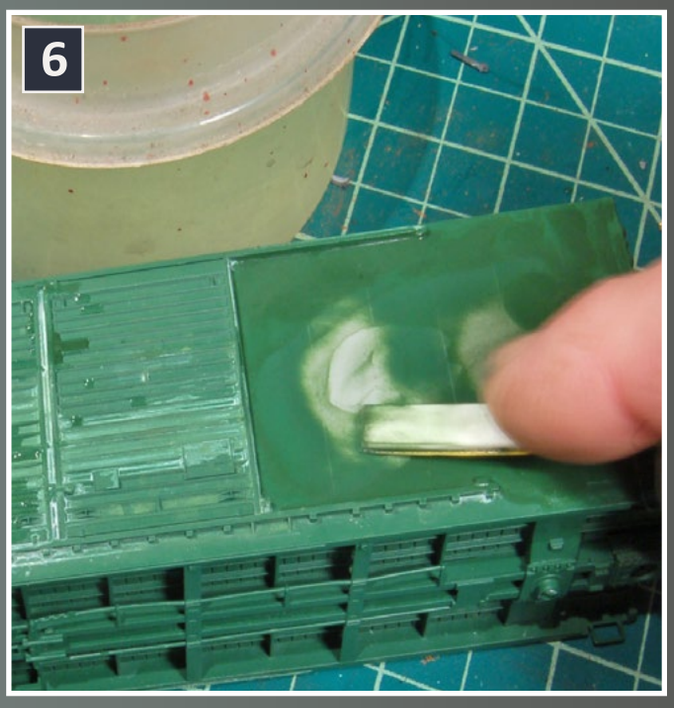


4. Polly S Easy Lift Off decal and paint remover takes away the factory lettering. Since Polly S Easy Lift Off may be hard to find, another option is to soften the lettering with a piece of paper towel that is soaked with 91% rubbing alcohol place on the car side for about 10 minutes.

STEP 1: Preparing the car *Continued ...*



5. The prototype shot indicates these cars have not six, but five panels on each side of the doors. As long as I had to remove the lettering, I decided to wet sand off the weld seams.

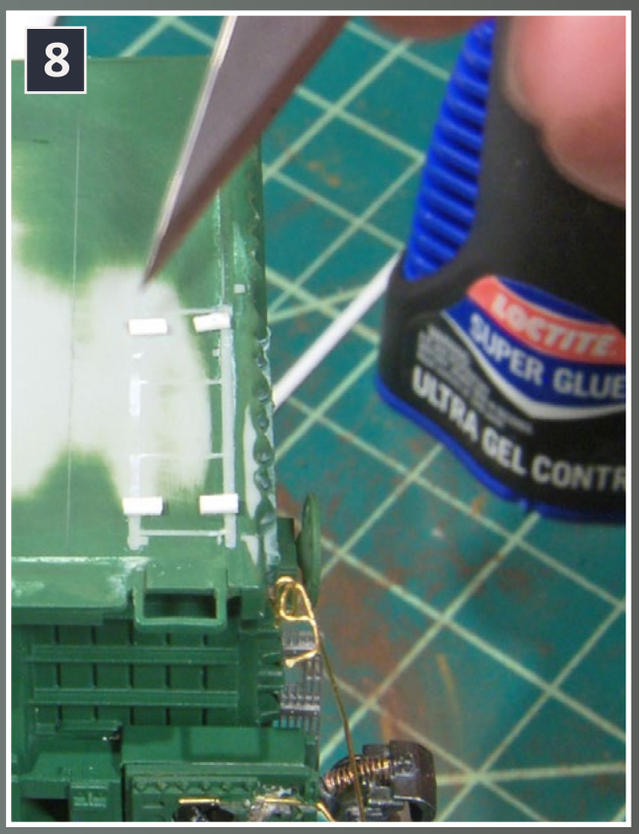


6. Remove the cast-on weld seams using 400 and 600 grit wet-dry paper.

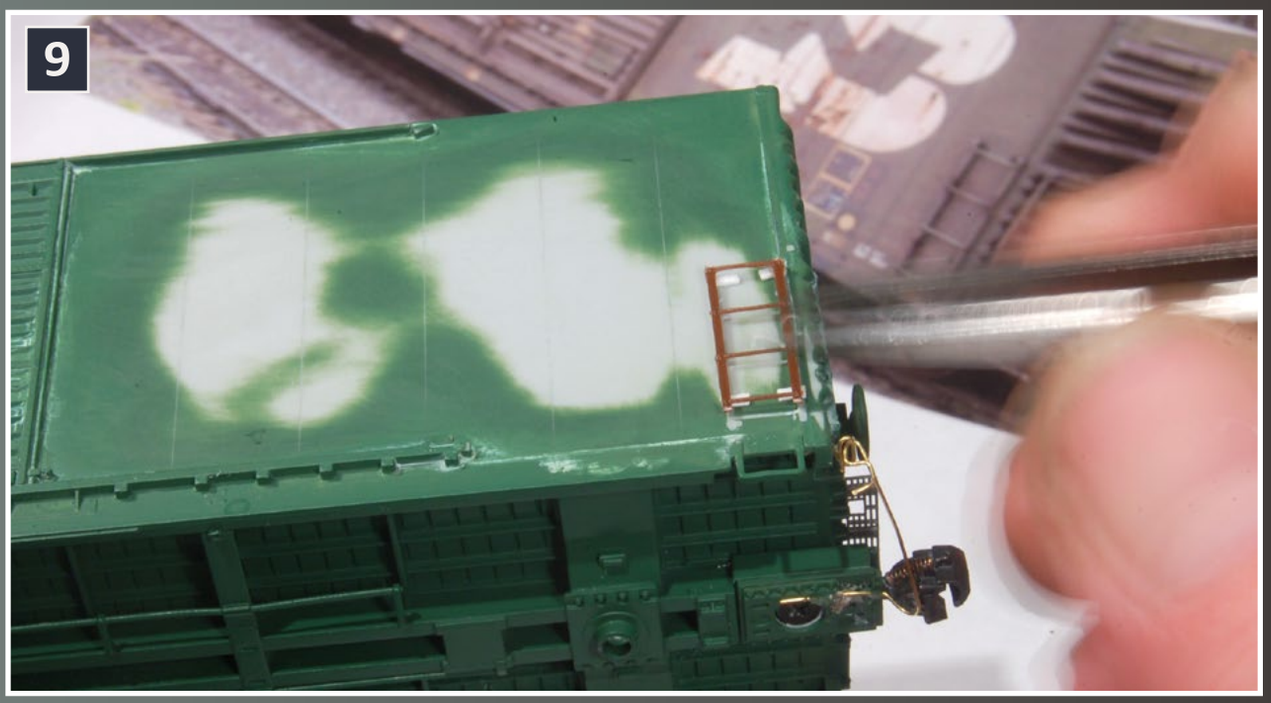
STEP 2: Adding details

7. Using the prototype photo as a guide, bend coupler cut bars from .012” brass wire.

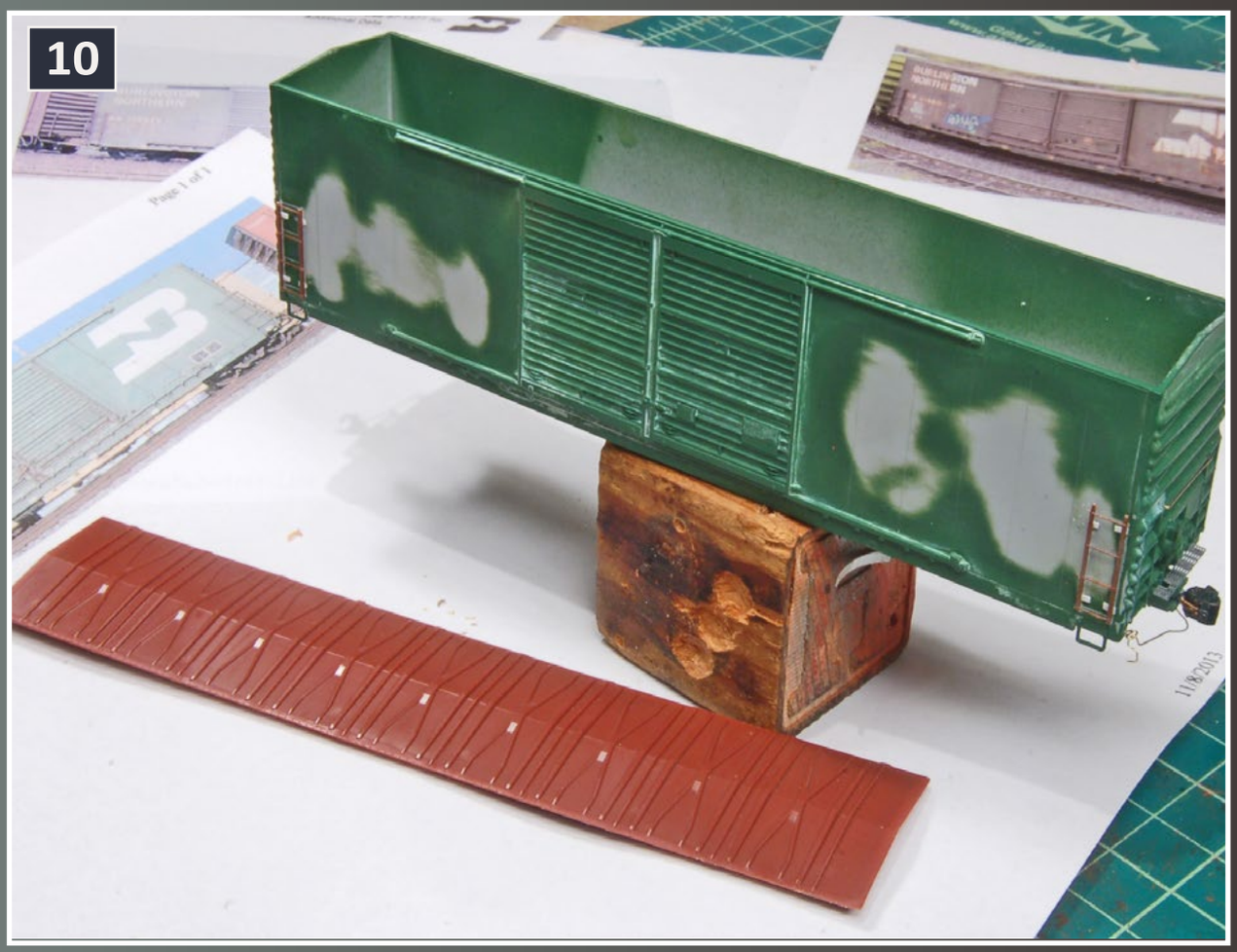
STEP 2: Adding details *Continued ...*



8. Before installing new Detail Associates side ladders, glue small mounting pads cut from scraps of .010” styrene.



9. Use super glue to install the new ladders.



10. Next, I need to address the roof. Both my BN and SP&S models require X panel roofs. My scrap box provided the correct parts.

STEP 3: Painting and decals

11. I painted the BN car by first airbrushing a coat of Scalecoat II 2011 Reefer White. This is an excellent primer for BN green.

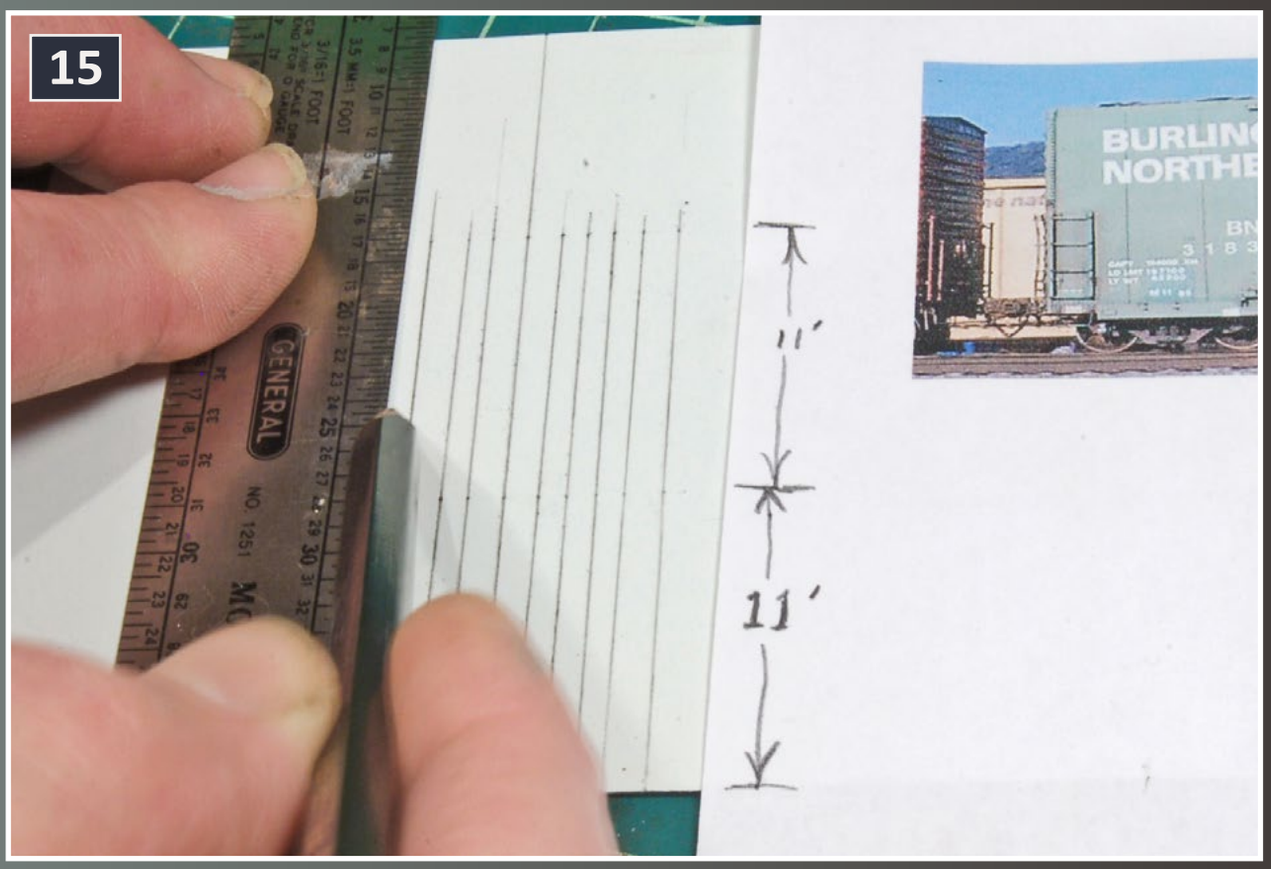
STEP 3: Painting and decals *Continued ...*

12. Next, airbrush Scalecoat II 2038 BN Green. Note that the roof is not yet installed. This will make it much easier to paint and weather the roof.

STEP 3: Painting and decals *Continued ...*

13. I decided the best way to capture the look of the galvanized aluminum roof was to first airbrush Testors Silver.

14. Next, overspray a light mist of Floquil SP Grey.



15. To model new weld seams, draw the seams on clear decal paper with a No. 2 pencil. This is a convincing and fast way to model the seams.

STEP 3: Painting and decals *Continued ...*

16. Before applying the weld seam decals, I letter the car using various Microscale sets. The BN logo and BN lettering came from set 87-251.

The small CAR-PAC lettering is from a Microscale Railroad Roman lettering set. The numbers and reporting marks are from set 251. Set 87-1377 supplies the capacity data.

18. I use the prototype photo to correctly space the weld seams, which work out to be 3 feet apart. The ACI labels are from Highball Graphics.

STEP 3: Painting and decals *Continued ...*

19. Fine-tune and adjust the seams before applying decal solution.

20. When I am satisfied with the placement of the new seams I apply decal solution.

STEP 4: Weathering the car

21. Now that my car is properly decaled, I'm ready to weather the roof. I add a wash of Burnt Sienna artist's oil paint and turpenoid thinner.

22. Kato 601 roller-bearing trucks, airbrushed with Floquil Grimy Black and finished with AIM Dark Earth weathering powder.

23. The last detail part is my favorite air hose, from Detail Associates. These have the nicest detail and are very durable.

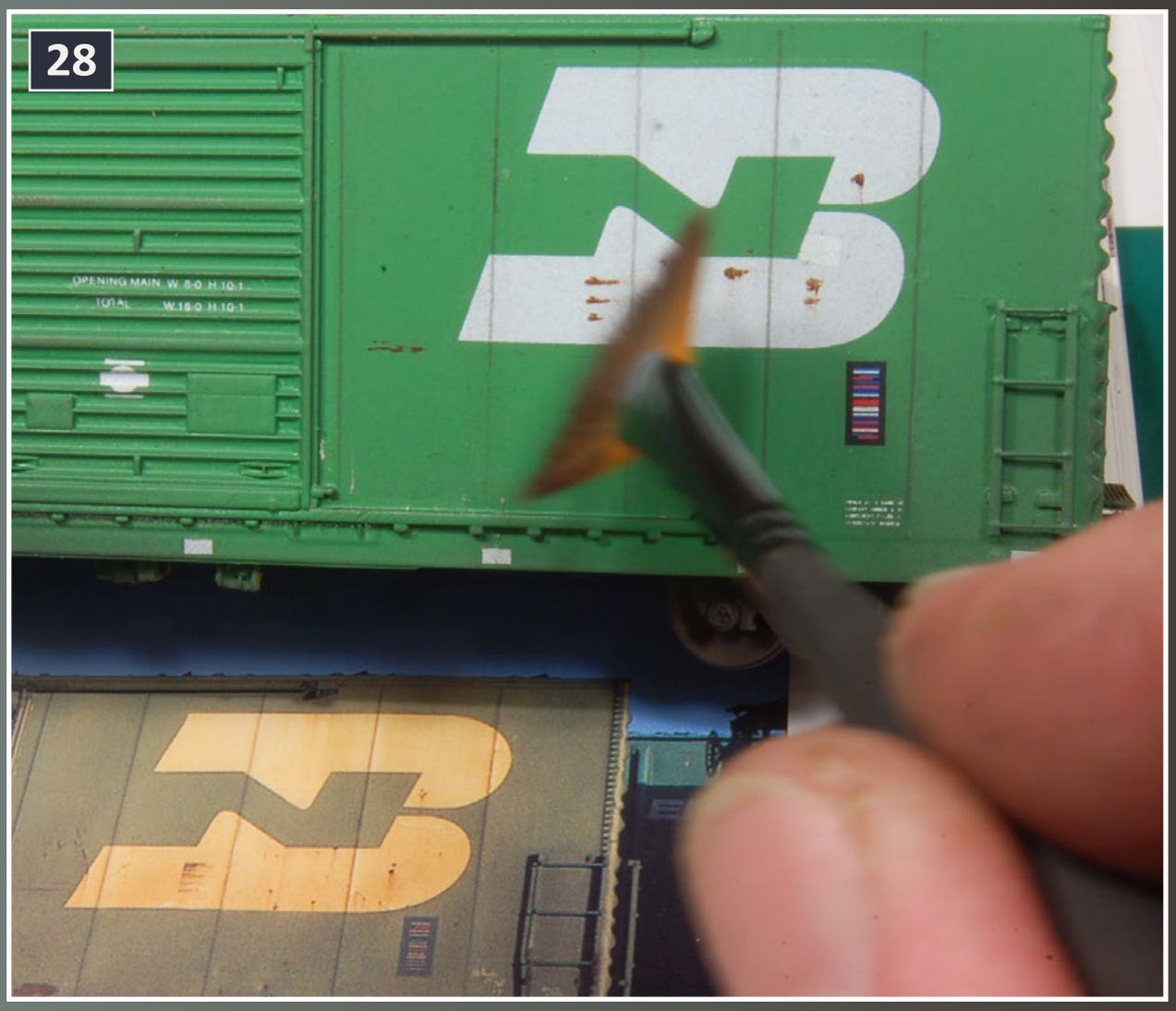
STEP 4: Weathering the car *Continued ...*

24. Here is the almost-finished car. The next stop is the paint booth, to start the weathering process.

25. I spray the car with Testors Dullcote to hide decal edges and give the model a correct-looking dead flat finish.

26. Apply some Floquil Grimy Black to the ends and underframe.

27. The prototype photo in the BN color guide shows some small minor rust spots. These really add to the weathered effect and are easy to duplicate by dabbing on small dots of Burnt Umber oil paint.



19. Apply light fast horizontal strokes using a fan brush.

STEP 4: Weathering the car *Continued ...*

29. Apply a few light vertical strokes to the patches.

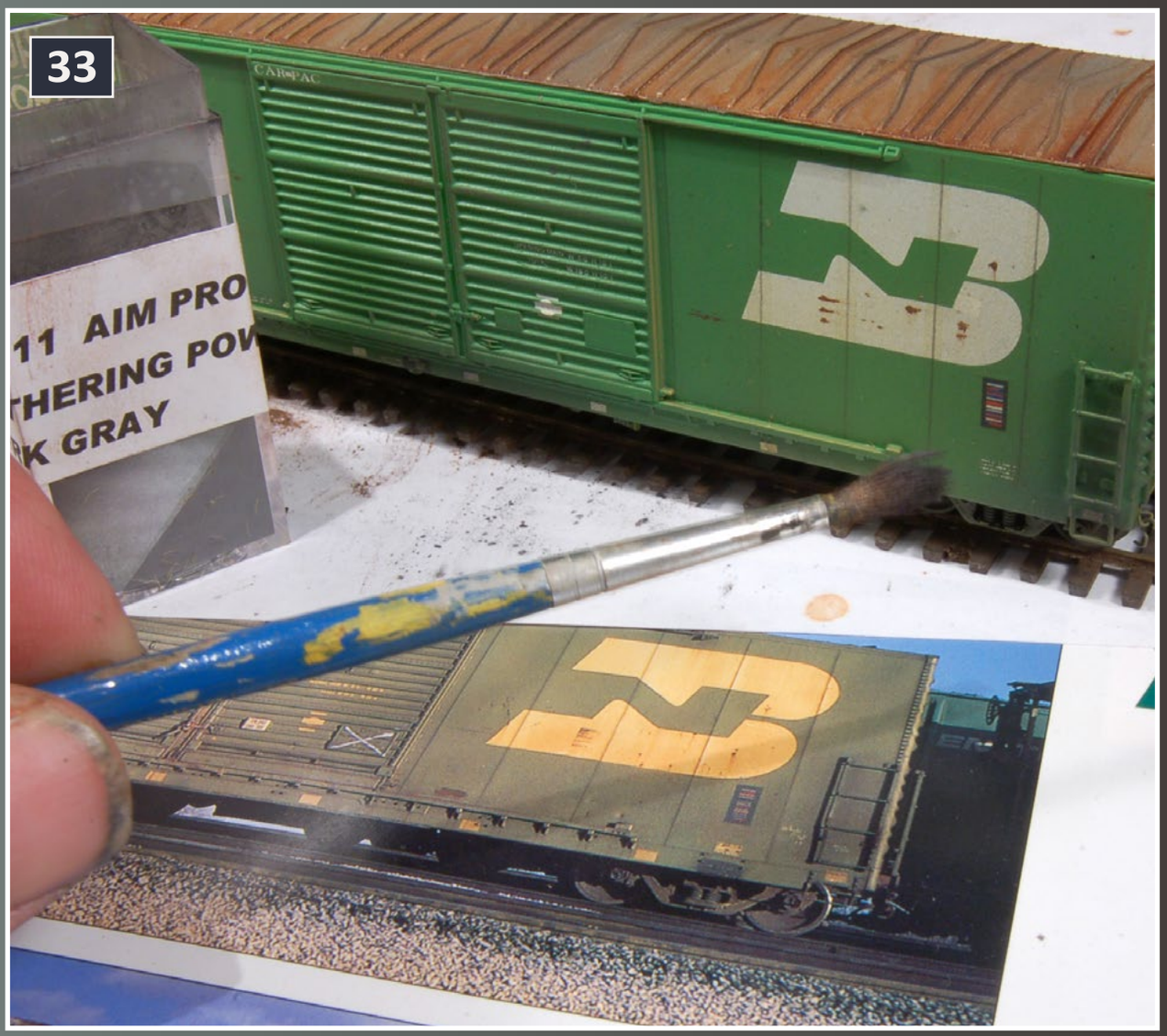
STEP 4: Weathering the car *Continued ...*

30. The photo in the color guide indicates an overall orange-rust coloration. I simulate this look by airbrushing a very light coat of Floquil UP Light Orange mixed with 50 percent thinner.

31. I use Microscale 1377 BN box car markings set and painted trim film to model new capacity data to duplicate an often overlooked detail.

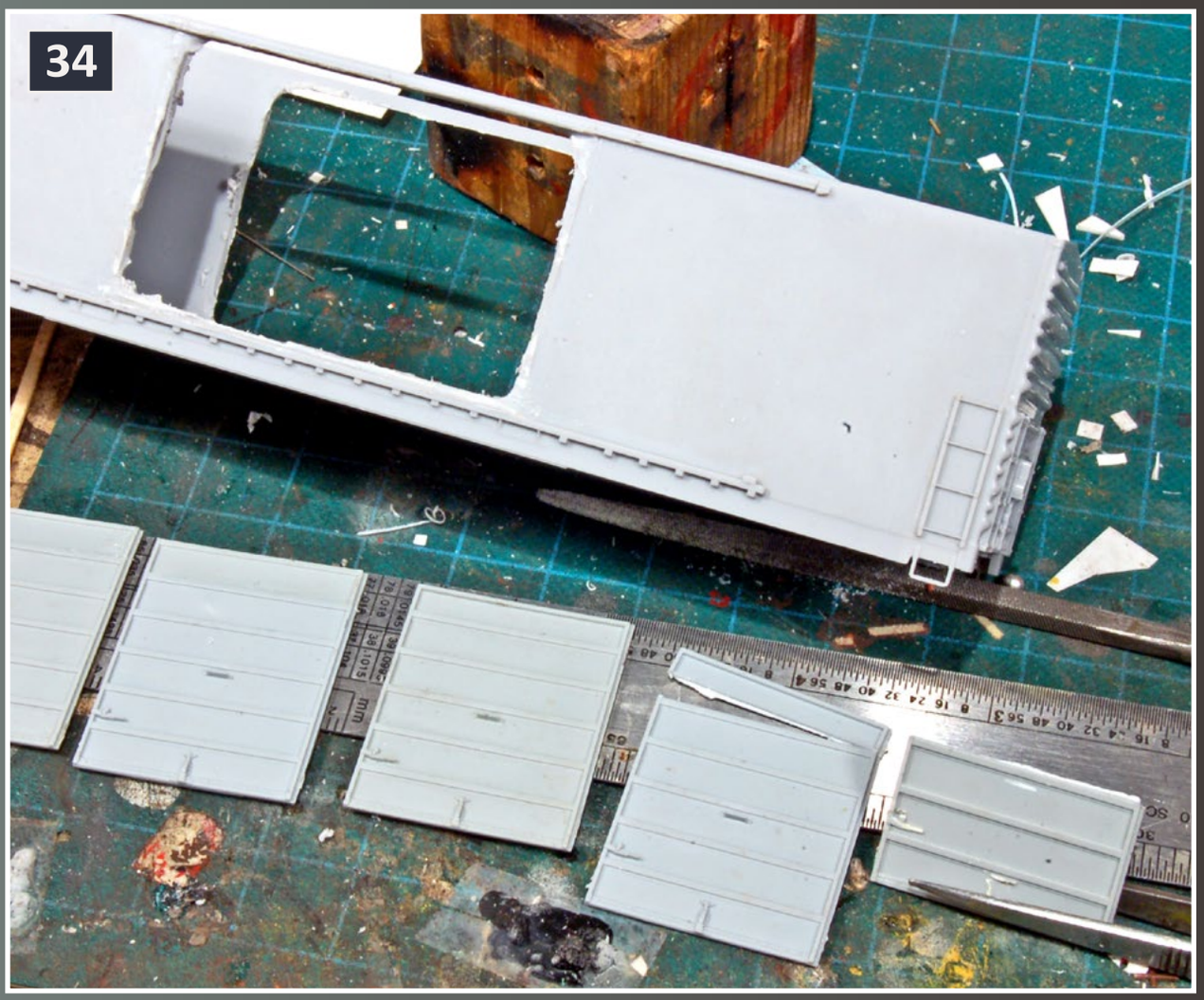
STEP 4: Weathering the car *Continued ...*

32. Highlight air hose details using Testors silver paint.



33. AIM weathering powders represent the grime that accumulates on the side and end ladders.

STEP 5. SP&S door modification



34. My SP&S car needs a bit more attention. I use a motor tool to cut out the doors, then kitbash correct six-panel doors from scrap box parts.

STEP 6. SP&S decals and paint

35. Paint the SP&S car pea green. My mix is Scalecoat II green, some white, and some reefer yellow. The best decal set for this project is Champ set HB-399.

STEP 6. SP&S decals and paint *Continued ...*

36. After researching prototype photos I came up with a pretty close pea green color match.

37. Here the car is seen far from home on Soo Line rails somewhere in the upper Midwest.

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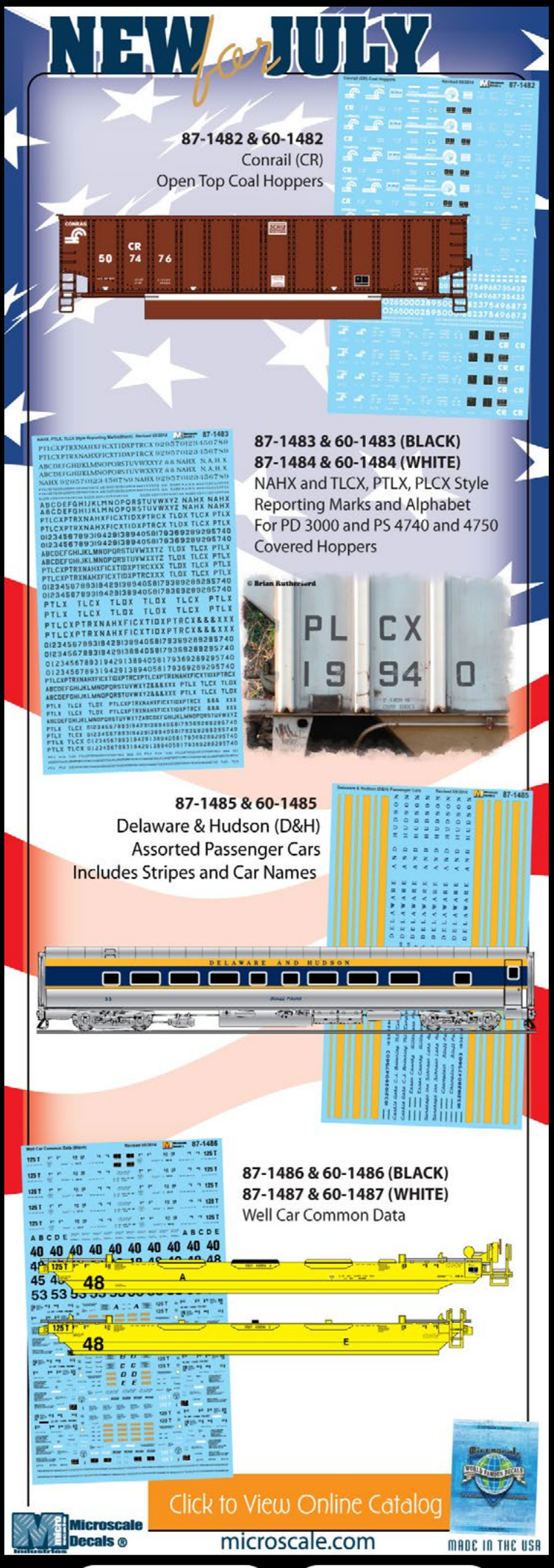

Bob Rivard has been fascinated with trains since the age of 5 when he received his first train set. The proverbial Lionel.

He really enjoys his job at KARE TV and has worked there for 33 years as a broadcast technician. He runs the robotic cameras during the 10 pm news.

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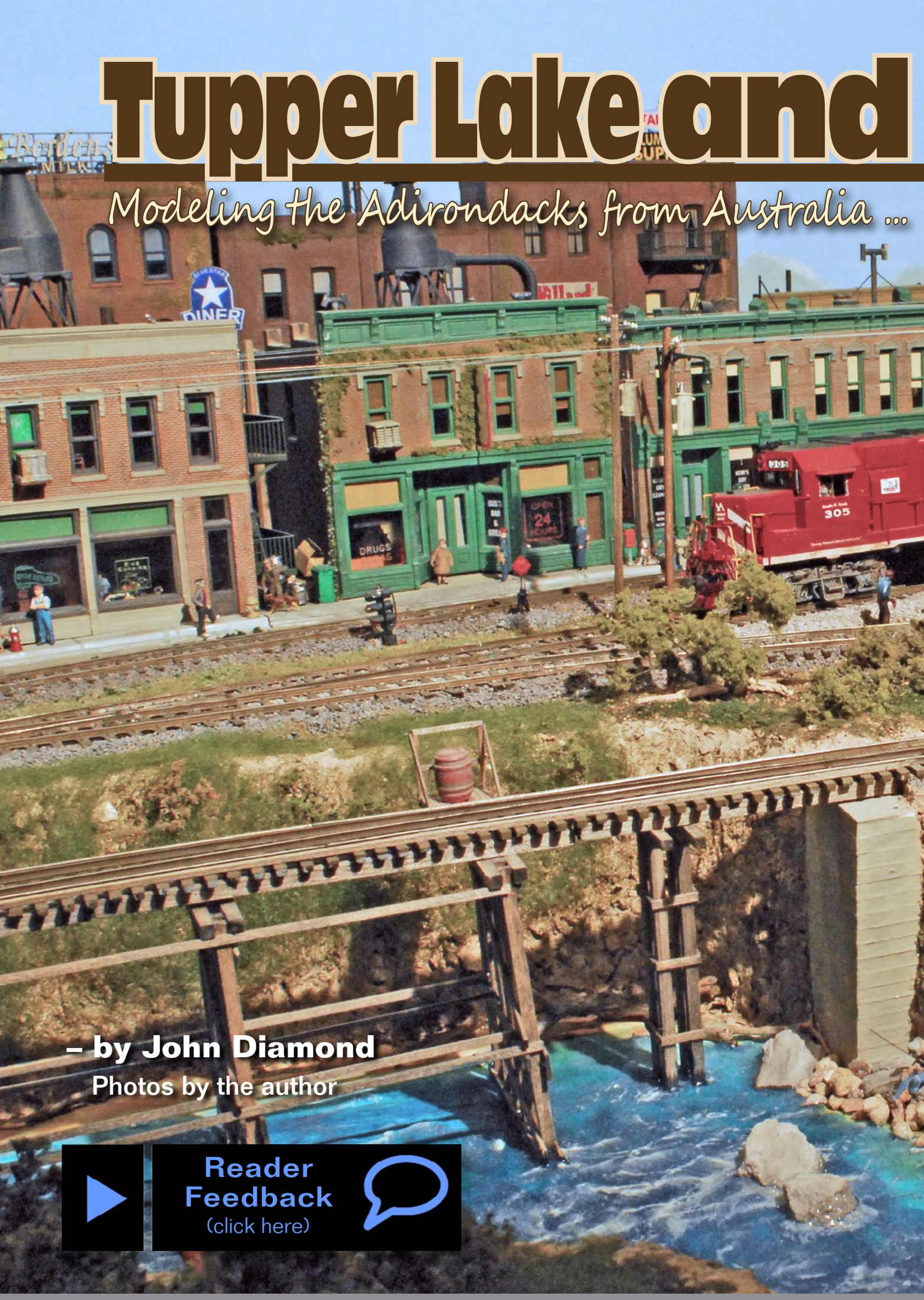
Tupper Lake and

Modeling the Adirondacks from Australia ...

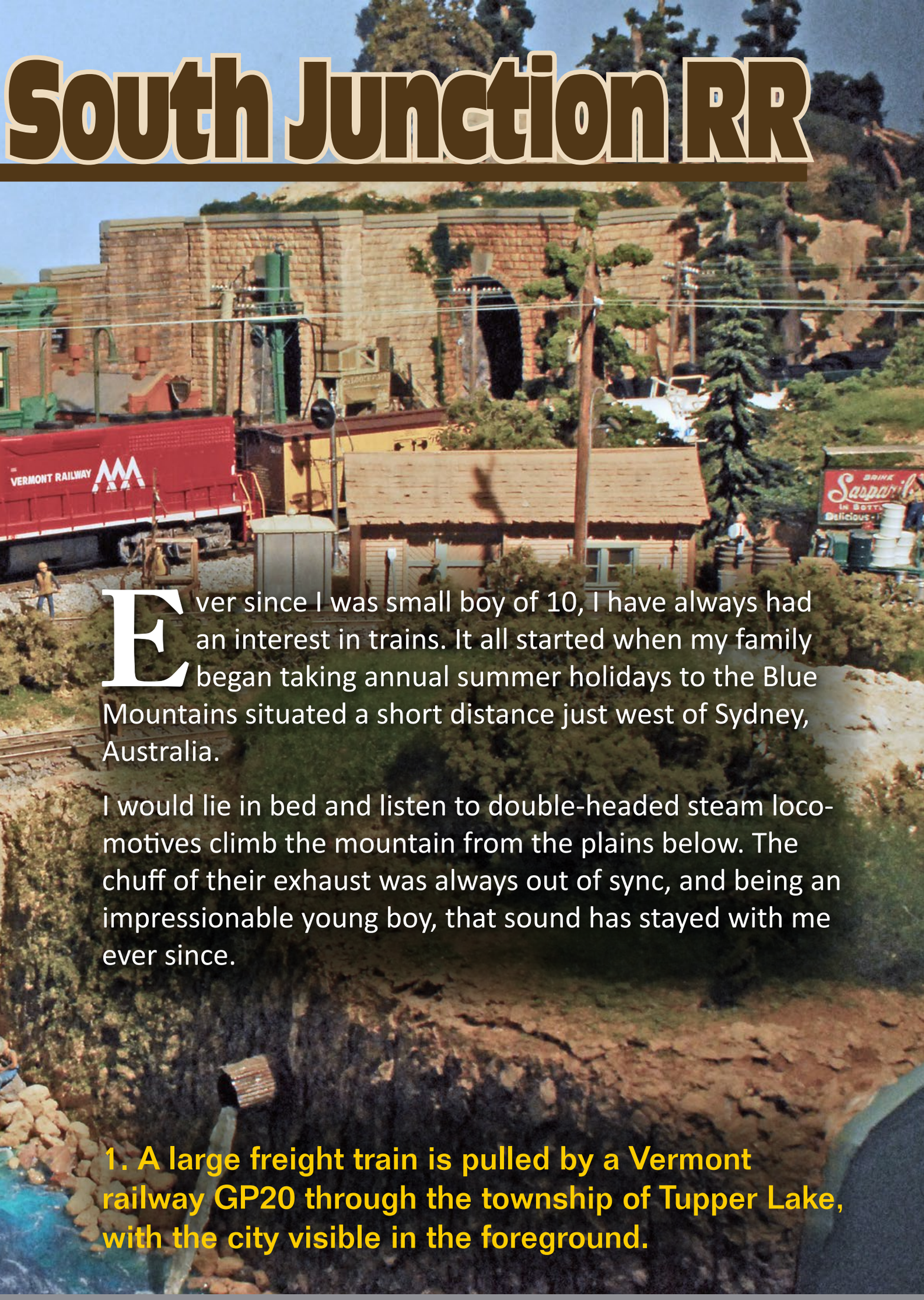


– by John Diamond

Photos by the author

Reader Feedback
(click here)

South Junction RR



Ever since I was small boy of 10, I have always had an interest in trains. It all started when my family began taking annual summer holidays to the Blue Mountains situated a short distance just west of Sydney, Australia.

I would lie in bed and listen to double-headed steam locomotives climb the mountain from the plains below. The chuff of their exhaust was always out of sync, and being an impressionable young boy, that sound has stayed with me ever since.

1. A large freight train is pulled by a Vermont railway GP20 through the township of Tupper Lake, with the city visible in the foreground.

As with many model railroaders, my parents took notice of my fascination with anything that ran on rails, and for my 11th birthday, my father bought me a Hornby train set that kept me fascinated hour after hour.

After my career in pharmacy began to grow, and once we purchased our first family home, I decided it was time to relive some of my early childhood experiences with trains and modeling. I began building my first proper model railroad back in the 1970s, and after I completed and tore down about three of them, I thought I had accumulated enough knowledge and experience to begin serious layout building.

The current layout I am working on, and the one featured here, is probably my sixth completed layout. During a family holiday with my two daughters to upstate New York, I fell in love with the scenery and vistas of the Adirondacks, and decided then that my next layout would capture the look and feel of this panoramic location. I was also surprised to see and learn that the famous Vermont RR was still operational, and that this would be a unique feature to capture in my recreation.

After doing some background research on the history of the railroads of the Adirondacks, I found that the New York Central once owned the rails through the Adirondacks all the way to the Canadian border. This is another railroad that would feature heavily in the locomotives and rolling stock of my layout.

My layout is not intended to be a completely historically accurate representation. I always intended for it to give the look and feel of a fictional area in the upper Adirondacks, while still featuring accurate townships and natural features. This allowed me greater control and more artistic license with my work. My layout is intended to be a bridge route between the towns and

2. Delaware and Hudson RS11 #5002 is underway with a long freight out of South Junction yard on a cloudy day with the Adirondack Mountains shrouded in fog in the background. As SW7 #874 pulls in for maintenance, Vermont railway #603 can be seen arrives with a caboose ready for reassignment.

cities that lie along the railroads from upstate New York all the way up to the Canadian border.

There are a number of famous natural lakes and streams in this area, including Tupper Lake, Saranac Lake, Lake Clear and Lake Placid. These all feature prominently in the layout. I built two- and three-track yards in each location, with the main yard at South Junction.

When it came to selecting a time period to depict in my layout, I decided upon the crucial era of the late 1930s to early 1950s.

This transition era allowed me to feature steam and diesel-electric locomotives.

During this time period in upstate New York, a number of other railroads operated on some of these historic routes. These were the Delaware and Hudson, Vermont Railway, and the Canadian Pacific, which originated from Chateaugay terminal, a feature I model.

My layout is constructed in a spare room that measures 10’x 12’, which is all the space my wife would allow me to have – don’t we all wish we had more room!

3. The day begins in the township of Tupper lake, and NYC SW7 #8880 makes an early morning run pushing a heavy unprocessed timber load across the trestle bridge at the Township of Tupper Lake on its way to Saranac yard at Lake Sarancac.

4. The day draws to a close at sunset, and people start heading home from work. Delaware & Hudson RS11 #5002 finally reaches its destination at Tupper Lake with its long freight. Apparently shoppers have been busy, given the number of parked cars for such a small town.

Concept and Track Plan

The track plan, which I heavily modified to fit my space, came from an article in Great Model Railroads magazine. The name for my layout, the Tupper Lake and South Junction RR, came from a plan book that has long been out of print.

I designed the layout for two or three operators, which usually are my grandsons, who helped me build it all those years ago.

I used to run my layout with a Dynatrol system, but it was cumbersome to use, so when DCC became available, switching over was easy.

Although Dynatrol gave good service, it could not duplicate the features available with DCC.

5. With the temperature climbing around midday, a NYC Hudson 4-6-4 Hudson heads for a much-needed maintenance run toward the New York Central yard at South Junction.

Construction and Track

Given the limited space, I had to use a single-track mainline, rather than two tracks as used historically by the railroads in this area.

The 10'x12' layout is designed mainly for point-to-point operations, but I made provisions as well for continuous running, which can be achieved by throwing a single turnout.

I used conventional open-grid and L-girder benchwork, with ½" plywood and Homasote cut to size (very dusty), and cork roadbed on top. This combination provides a very quiet surface for the continuous running of trains. The layout is supported on 2"x2" pine girders, and the rail is Micro Engineering code 83 on the mainline, and Micro Engineering code 70 in the yards.

Turnouts are from Micro Engineering, and all feature Hankscraft slow-action switch motors. The turnouts are wired for DCC, and all of them feature live frogs. They are directly wired to signals and to LEDs in the fascia through DPDT electronic switches. This arrangement shows the current position of all turnouts. I used Woodland Scenics fine gray ballast held in place with diluted white glue

I chose to use Micro Engineering turnouts because of their metal frogs, which make it easier to run steam locomotives. I have begun the long process of wiring Fast Tracks Frog Juicers into all my turnouts.

Scenery

I employed many traditional scenery methods. Landforms and mountains use cardboard strips to form basic terrain contours. Rather than dipping paper towels in soupy plaster (very messy) I coated them with full strength white glue using a 1” paint brush; this eliminates most of the mess associated with dripping plaster.

The rock work is cast in rubber molds which I made myself using lumps of coal and other suitable rocks. This helped give these features a natural appearance. These are stained with suitable colors suitable for their location.

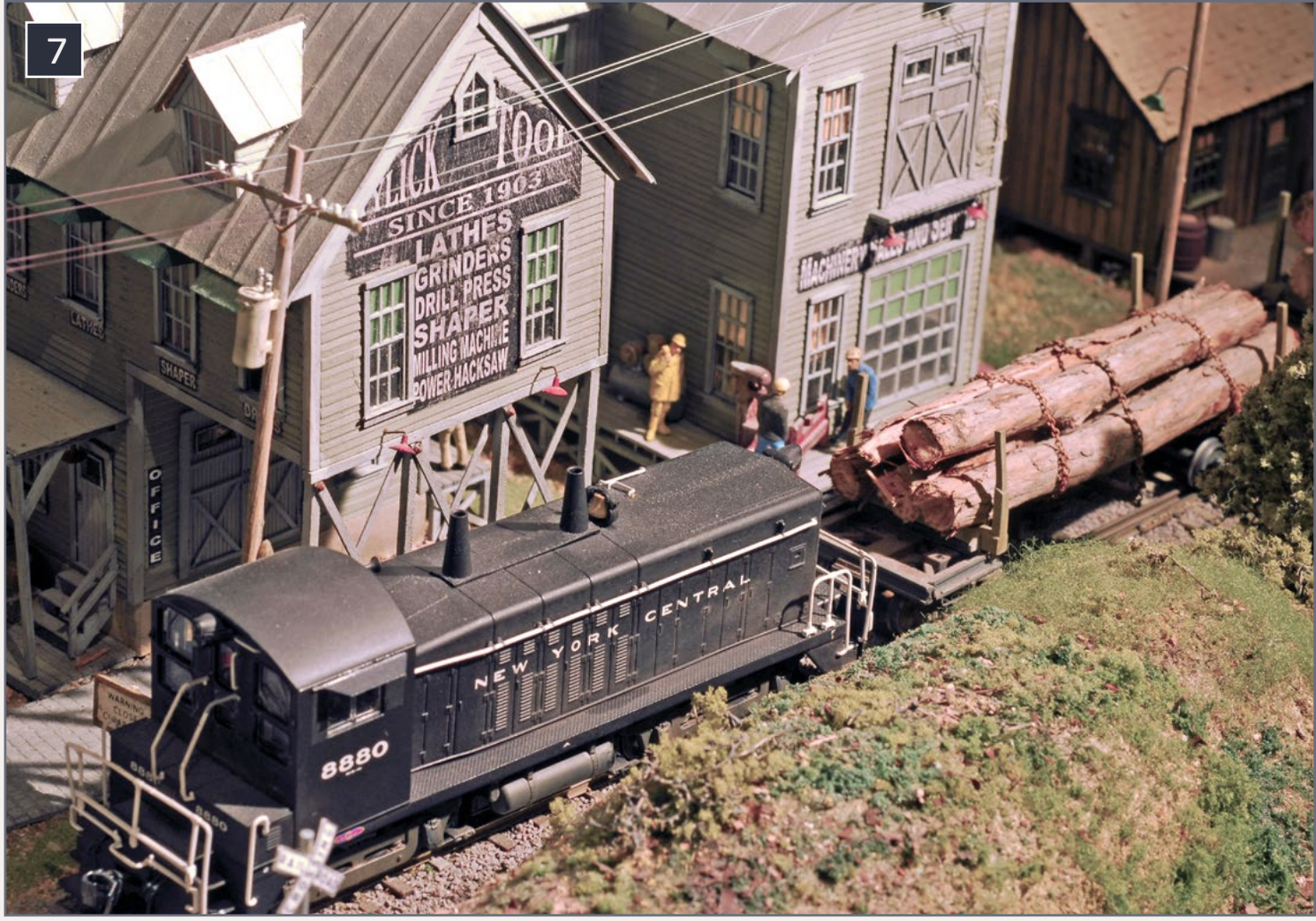
I made extensive use of the “ground goop” formula, which was published in an article by Lou Sassy in *Model Railroader.* It is hard to beat for holding scenery materials together once it dries hard, and is easily colored to represent earth tones.

For the mountainous scenery, I used Paul Scoles’ technique shown on his DVDs on scenery building. For the ground cover, I used real natural materials like leaves, which were then ground

up in a blender and placed on top of the ground goop before it set. I added rocks, bushes, trees other ground effects to help create the effect of natural ground cover.

I made the pine trees and Douglas firs by hand-shaping the trunks from balsa wood. I stained them a natural pine-tree color. Dried Caspia branches were then pushed into small holes drilled in the balsa and held by white glue. These were sprayed

6. The sun sets, and a NYC SW7 drops of its last car at the wharves in South Junction. The busy South Junction yards are in the background. Many wharf-front businesses are winding-down for the day. A busy cattle rancher is bedding-down his cows for the evening, while the South Junction freight terminal clears the platform, ready for business the next day.



7. By late afternoon, NYC SW #8880 has reached its destination in Saranac Lake with its heavy load of unprocessed timber, as it passes through town on its way to Saranac yard. Workers at Tylick Tool can be seen hard at work rushing to complete an order for shipment the next day

with green paint, and then sprinkled with Woodland Scenics green foam. Everything is held together by hair spray. It is not unreasonable to make half-a-dozen trees in an hour.

To create the river and creek scenes, I used Woodland Scenics water products. I first painted the river bottoms and creek beds with artist acrylics in different hues, to obtain the desired coloration. The backdrops were all hand-painted on Masonite, which runs the whole length around the layout.

Structures

Most railroad structures, such as switch towers, have been painted in New York Central colors. Other structures are either from kits or scratchbuilt. Each structure and locomotive has been weathered to depict heavy use. This was done by air-brush, artist acrylic colors, and powdered chalk for the buildings. The locomotives were done using a wash of India ink mixed with alcohol.

8. A mid morning run by a NYC GP7 can be seen as it crosses the truss/deck timber bridge that towers high above the serene waters of Lake Placid on its way to deliver mail and passengers to the station in the township of Lake Placid.

9. After departing Tupper Lake, a Vermont railway GP20 pulls into the main yard at South Junction on its way to Chateaguay.

All buildings feature micro bulbs and the appropriate blackout treatments to create dramatic night effects. Most of the buildings, such as barber shops, car dealerships, the local tavern, and cafes have detailed scenes inside for greater realism. A number of the business also feature scrolling neon signs for extra impact.

My layout features two stations – one at the township of Chateaugay on the main line, and the other at Saranac Lake on a branch line. This gives passenger trains, usually pulled by a venerable GP7, a destination to go to. The coach is full of passengers and lights so they can read their morning paper.

Many of the other rolling stock, especially cabooses, feature internal lights, as well as lighted markers.

Many scenes include many industrial and commercial sites such as Woodland's bulk fuel depot, a creamery, an icing platform for refrigerator cars, a coal trestle, an iron works, Mooney's plumbing supplies, Beacon's Food and general supply store, and the Cinkerra coal mine.

Locomotives, rolling stock and operations

Many of the freight loads in day-to-day operations are hauled by one of the Mikado 2-8-2s, which haul coal hoppers from

10. After a long haul from Chateaguay, a 2-8-2 Mikado comes through the crossing at Lake Clear.

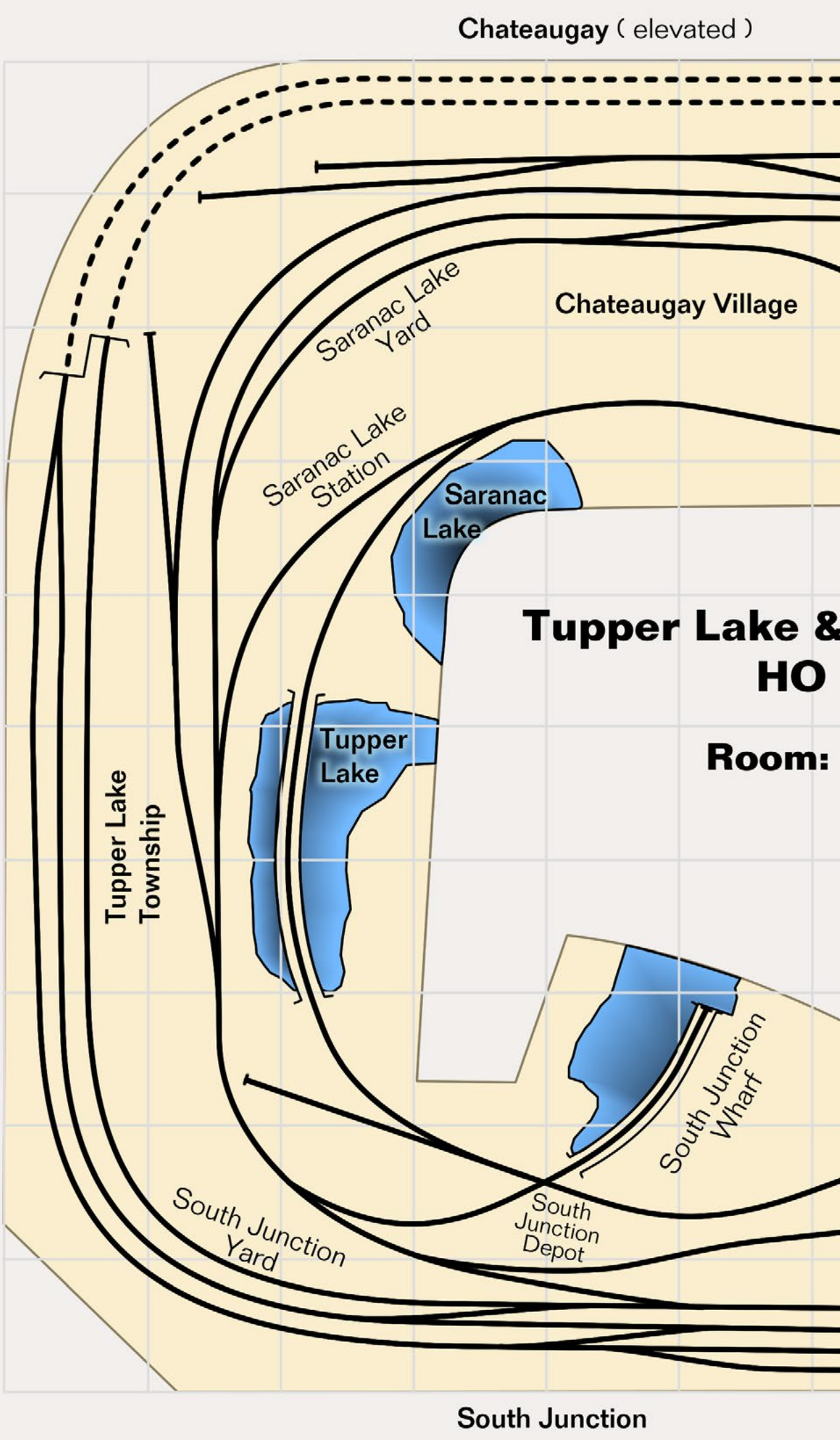
11. The morning commuter train, crosses the bridge at Lake Placid en route to the main depot at South Junction.

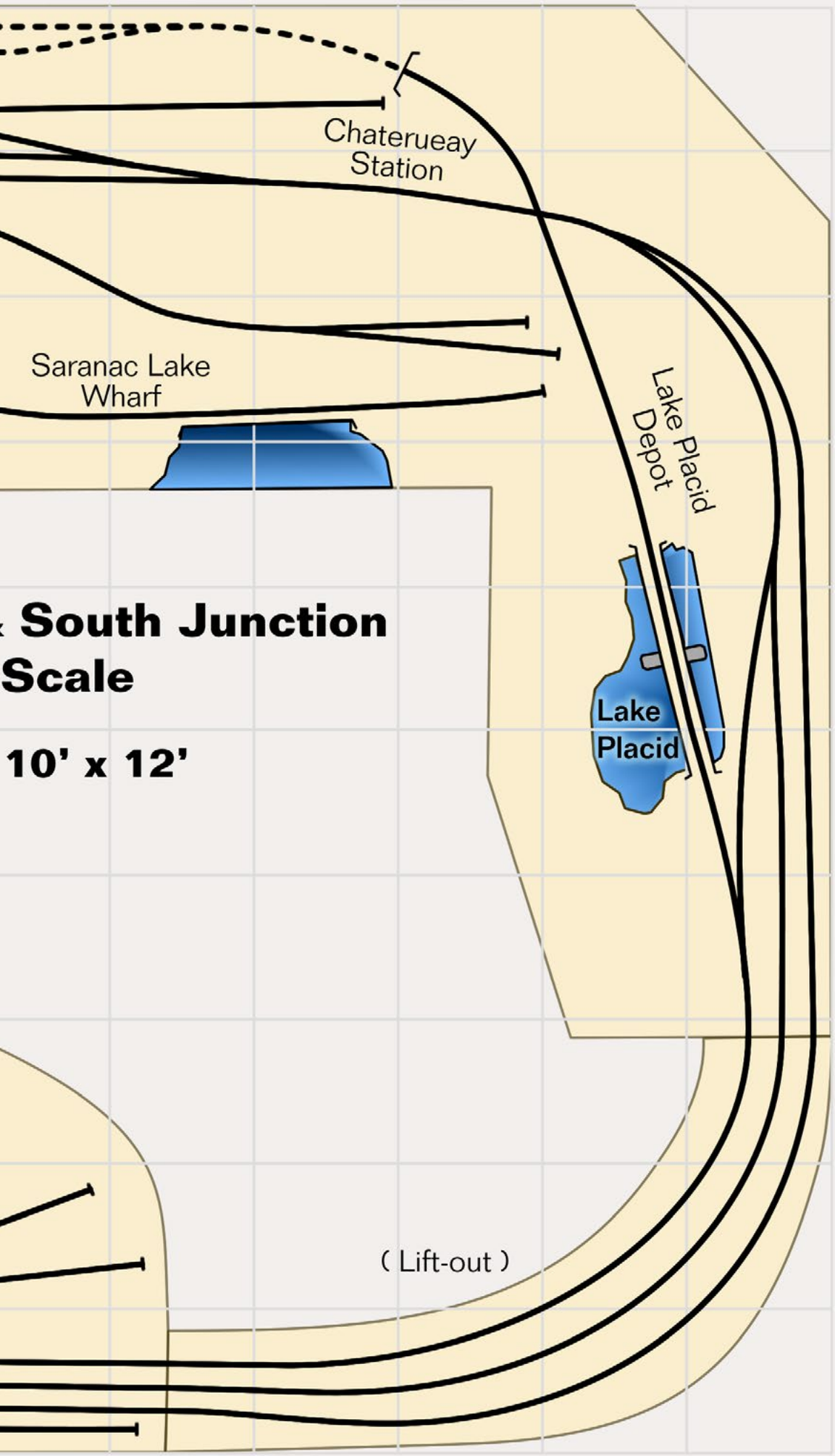
the coal trestle to one of the various depots around the layout. Blocks of empty coal hoppers are classified in the yard, and then sorted based on locations and payload.

Many of the trains are peddler freights which usually consist of up to five freight cars and a caboose. These operations are aided by placing cars around the various locations and industries on the layout. Each car is given its own unique car card to assist in deliveries and pickups.

Each train has a loco card with details of the locomotive, road name, number, and capacity, plus the car cards and waybills for the freight cars.

Once a locomotive has completed its drop-offs, the caboose is then returned to the caboose track and then is taken to the yard for servicing and maintenance.


Chateaugay (elevated)
Saranac Lake Yard
Chateaugay Village
Saranac Lake Station
Saranac Lake
Tupper Lake &
HO
Room:
Tupper Lake
Tupper Lake Township
South Junction Wharf
South Junction Yard
South Junction Depot
South Junction


Chaterueay
Station
Saranac Lake
Wharf
Lake Placid
Depot
South Junction
Scale
10' x 12'
Lake
Placid
(Lift-out)

At present, locomotives are early diesels from many of the mainstream manufacturers, including Kato, Atlas, Athearn, Trix, and Broadway Limited.

The fleet presently consists of one or more of the following: Alco RS1, Alco RS3, EMD GP7, EMD F7 A&B, Baldwin RF16 “Sharknose,” FM H-24-66 (Train Master), Alco 4-6-4 Hudson, Alco 2-8-2 Mikado.

Nearly all of the locomotives are equipped with sound, many coming from the manufacturer already equipped, but I have converted the older ones using DCC-based sound decoders with speakers.

Railroad at a glance

Name: Tupper Lake and South Junction

Scale: HO

Prototype: Freelanced, inspired by the New York Central

Locale: Adirondacks upstate New York

Era: Late 1930s - early 1950s.

Minimum Radius: 21”

Minimum turnout: No. 6

Maximum Grade: None

Bench work: Open Grid

Height: 48”

Roadbed: Cork on Homasote on ½" plywood

Track code: Code 70 and 83 flex track

Scenery: Plaster gauze over cardboard web. Extensive use of "ground goop"

Backdrop: Hand-painted Masonite

Control: NCE DCC with tethered cabs and wireless ■

Future Plans

The layout is nearly complete, and aside from small tweaks, I will be spending time running and operating the layout.

I am in the NMRA MMR achievement program, and have earned three certificates. I am working toward the final four. This is an ongoing goal and I will hopefully reach it soon. ☑

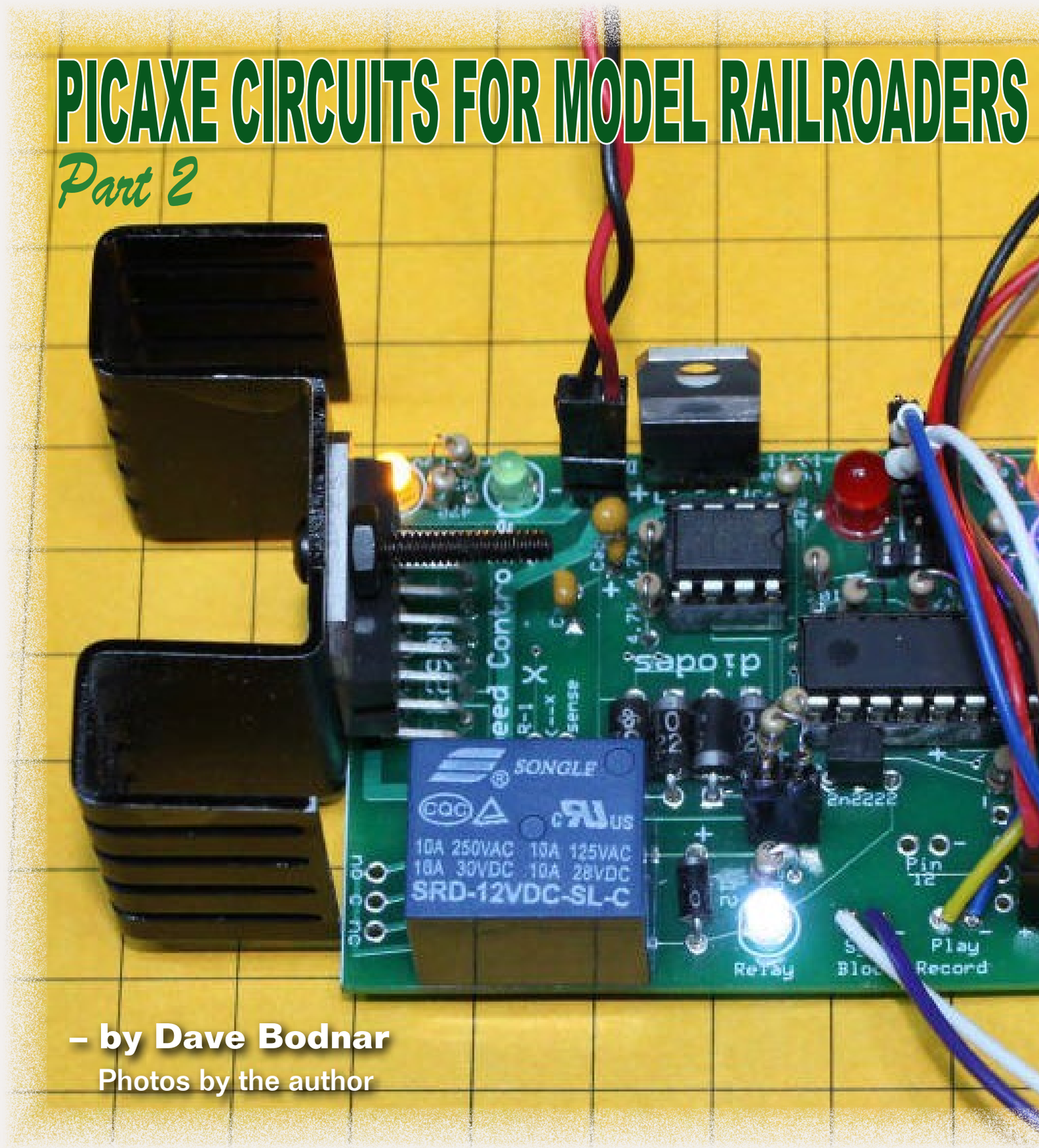
Reader Feedback
(click here)

John Diamond has been modelling for more than 30 years, mostly of Northern American railroads. These settings have provided a much broader canvas from which he could draw inspiration.

Although on a smaller scale than many layouts featured in US publications, John has been working on a bedroom layout for the last 9 years. It is only with the support of his loving wife, Wendy, that he has been able to persevere through many physical and medical trials, bringing his layout to near completion. However, as we all know, layouts are never truly finished.

PICAXE CIRCUITS FOR MODEL RAILROADERS

Part 2

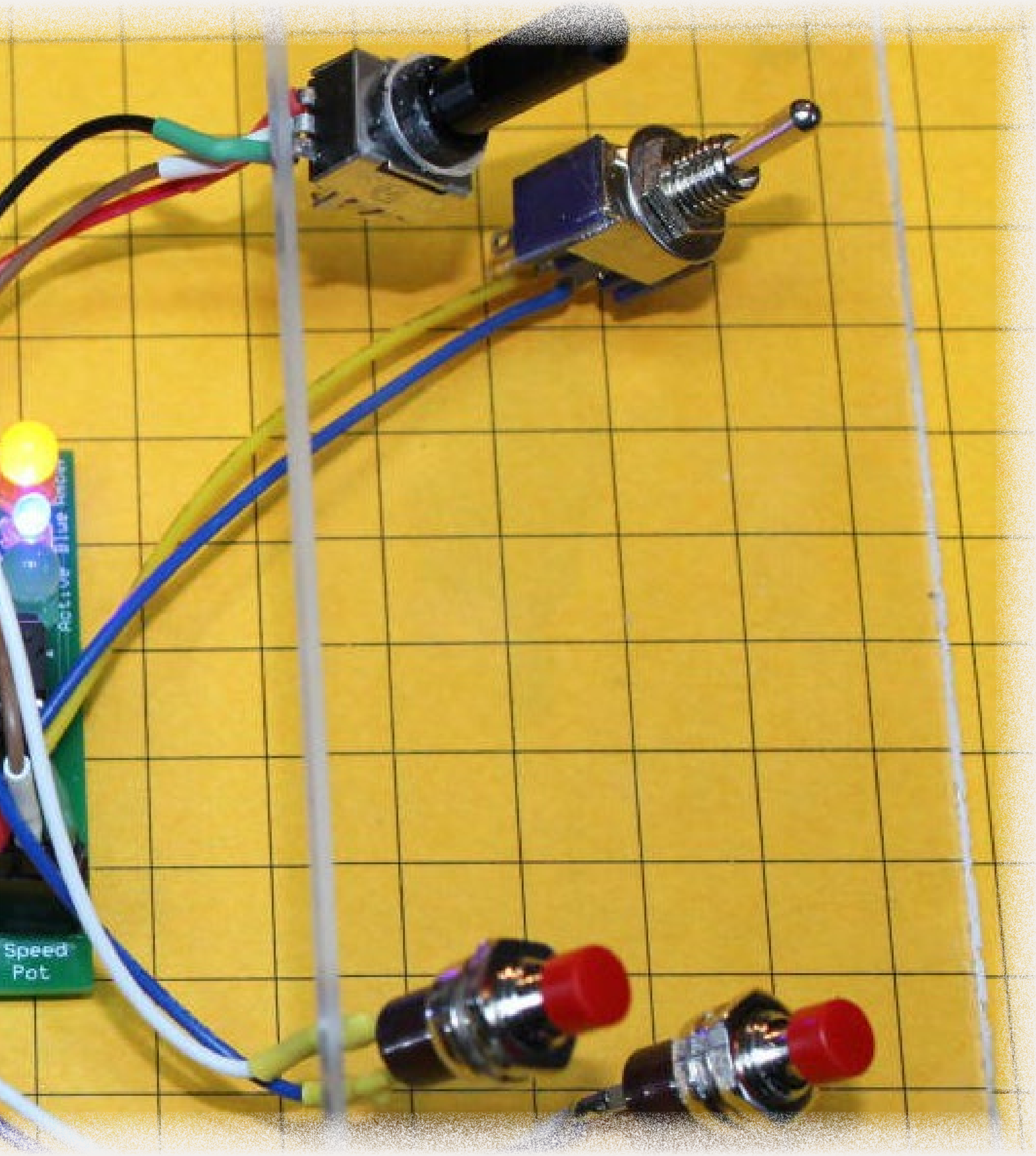


– by Dave Bodnar

Photos by the author

Reader Feedback (click here)

1. This train movement recorder circuit is used to play back ten or more minutes of recorded operation.

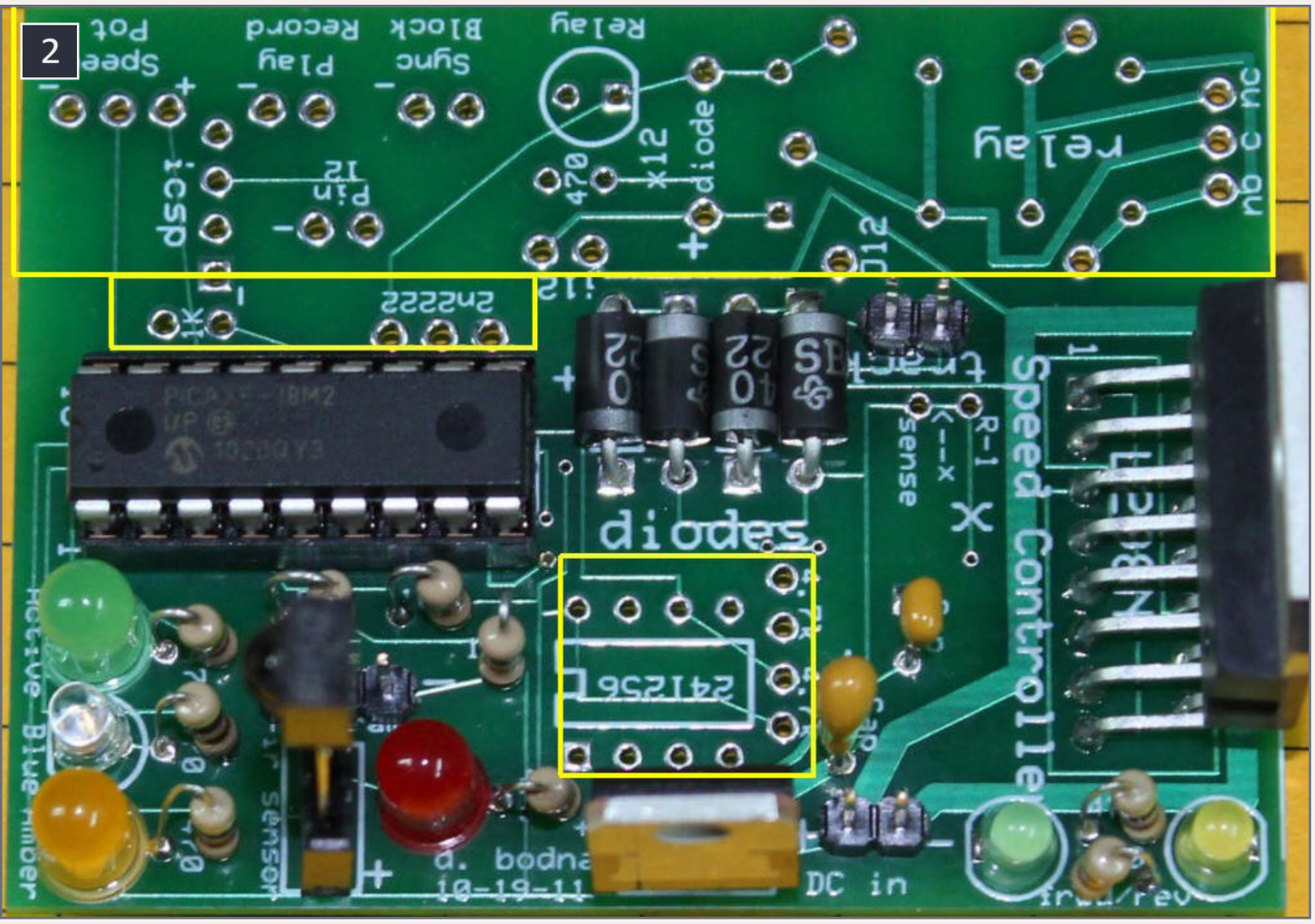


Record and play back your train movements ...

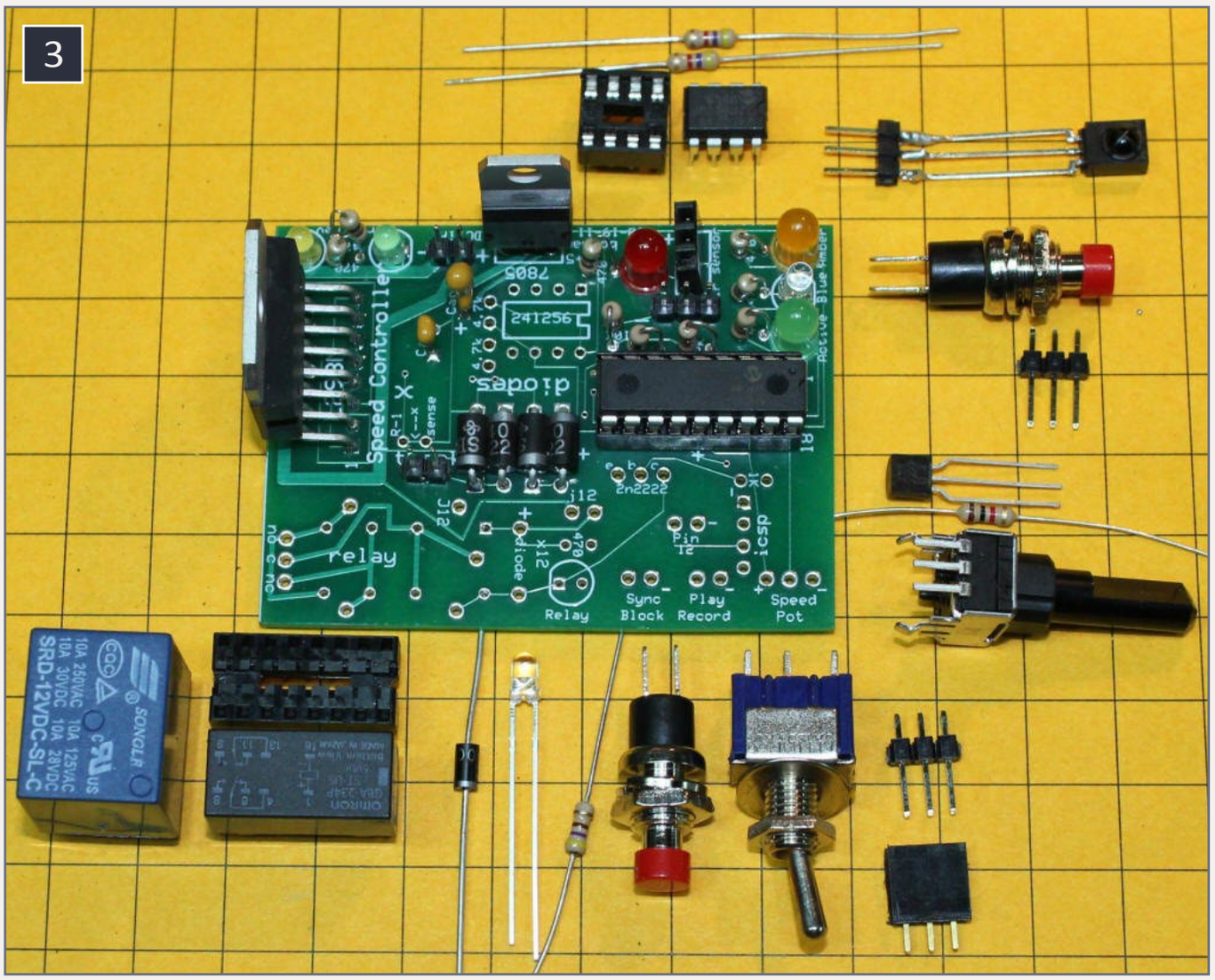
When I was working on plans for the original PICAXE based train controller in part 1 (see the June 2014 issue of MRH), I brainstormed a bit about other

things that could be done once you have an easy to use and reliable circuit for controlling trains. I considered a number of things but the most interesting modification was to add a memory chip to the circuit so that I could use it to record a train-running session and then play it back over and over.

The modifications to the original circuit that I show here in part 2 do exactly that: turn the device into a Record/Playback unit that lets you run the train in a complex pattern composed of forward movements, backward movements, stops, slow-speed



2. Here is the board from part 1 without the recorder modification. The highlighted areas were not used in the first project but will accommodate the parts needed to make the recorder.

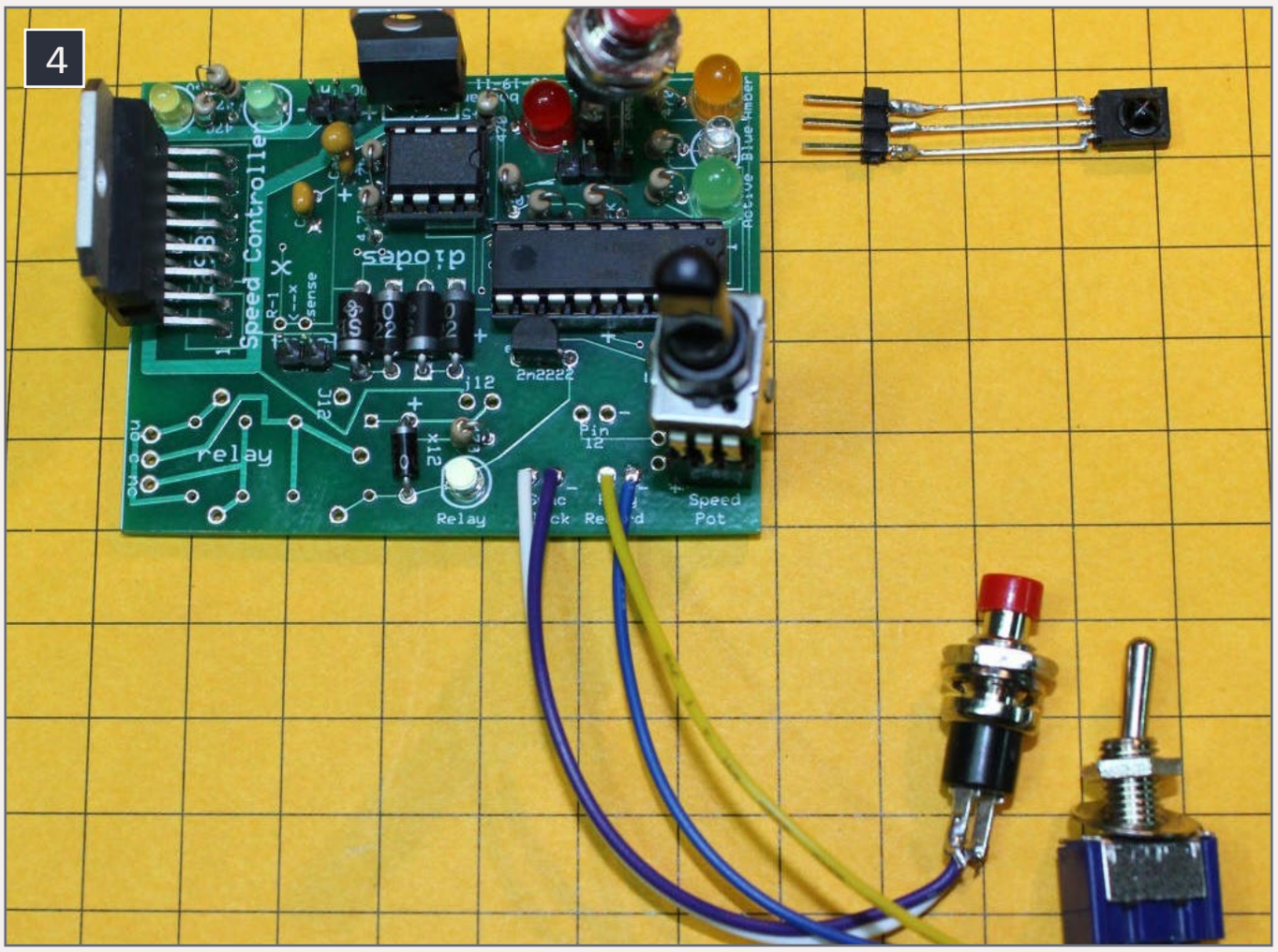


3. The photo at the top of the article [1] shows the completed board with the blue 12-volt relay shown here. The black relay next to it is a 5-volt unit that fits into a 16-pin IC socket.

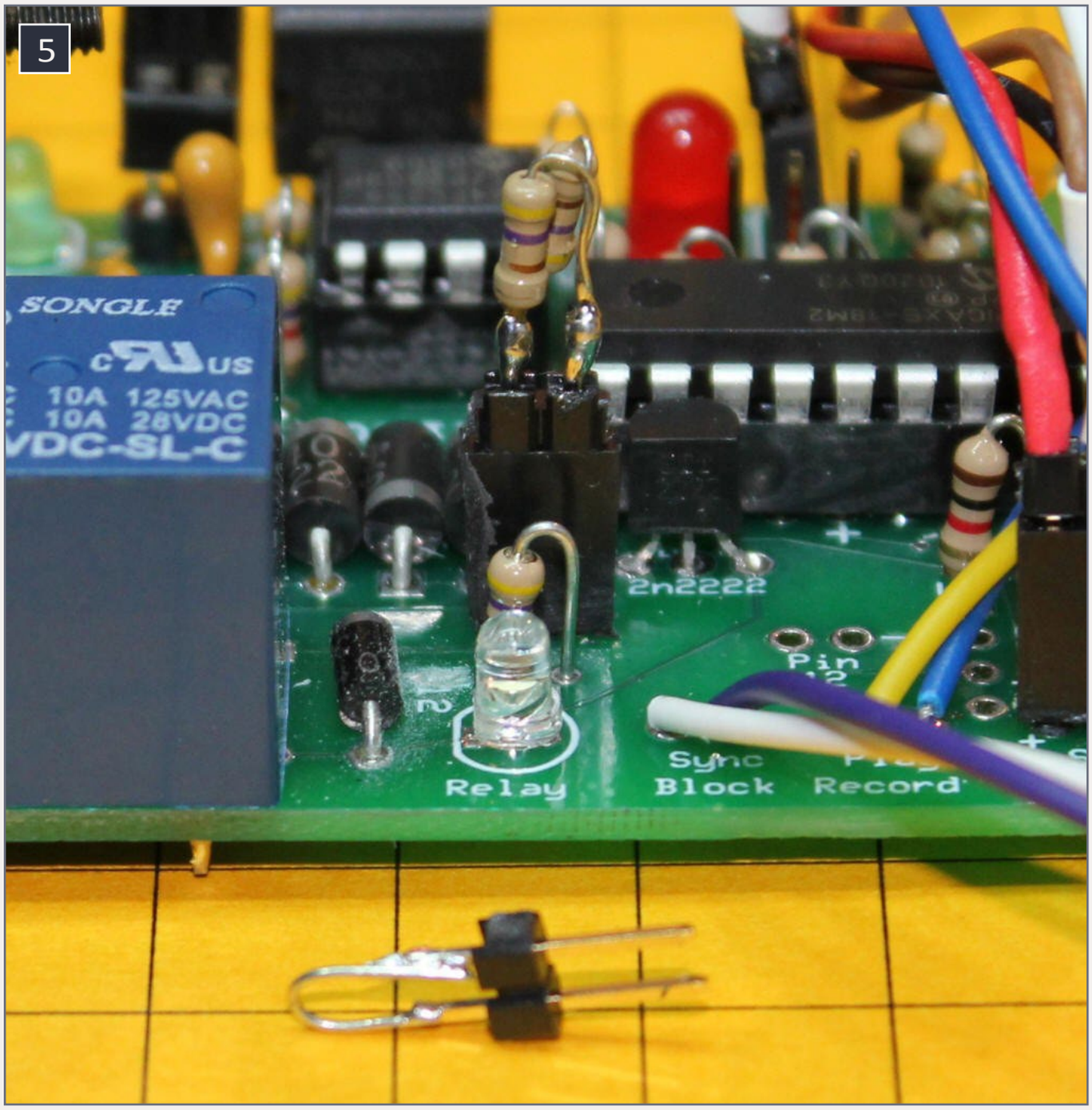
running, higher-speed running, and so on. You can record all these actions so that it can be played again and again. Ten or more minutes of running can be recorded and stored indefinitely for playback.

I use an isolated section of track as a “sync” block. I can control power to this block by a relay in the circuit. Producing a set of train motions that start and stop in this block gives a very reproducible sequence of movements can be played back.

An optional “Start” button can be used to initiate each play-back session, which is ideal for a public train display where viewers push a button to start a train. As I mentioned in part 1, I plan to install and use this controller at the Children’s Hospital layout that I help to maintain.



4. This photo shows the board with everything but the relay installed. The IR sensor has been removed and a push button installed in its place. The pushbutton connects to the two contacts on the IR sensor socket that are closest to the PICAXE chip. The two switches at the bottom are the play/record toggle switch and the sync block push button switch. They have been installed on short lengths of wire so that they can be mounted externally.



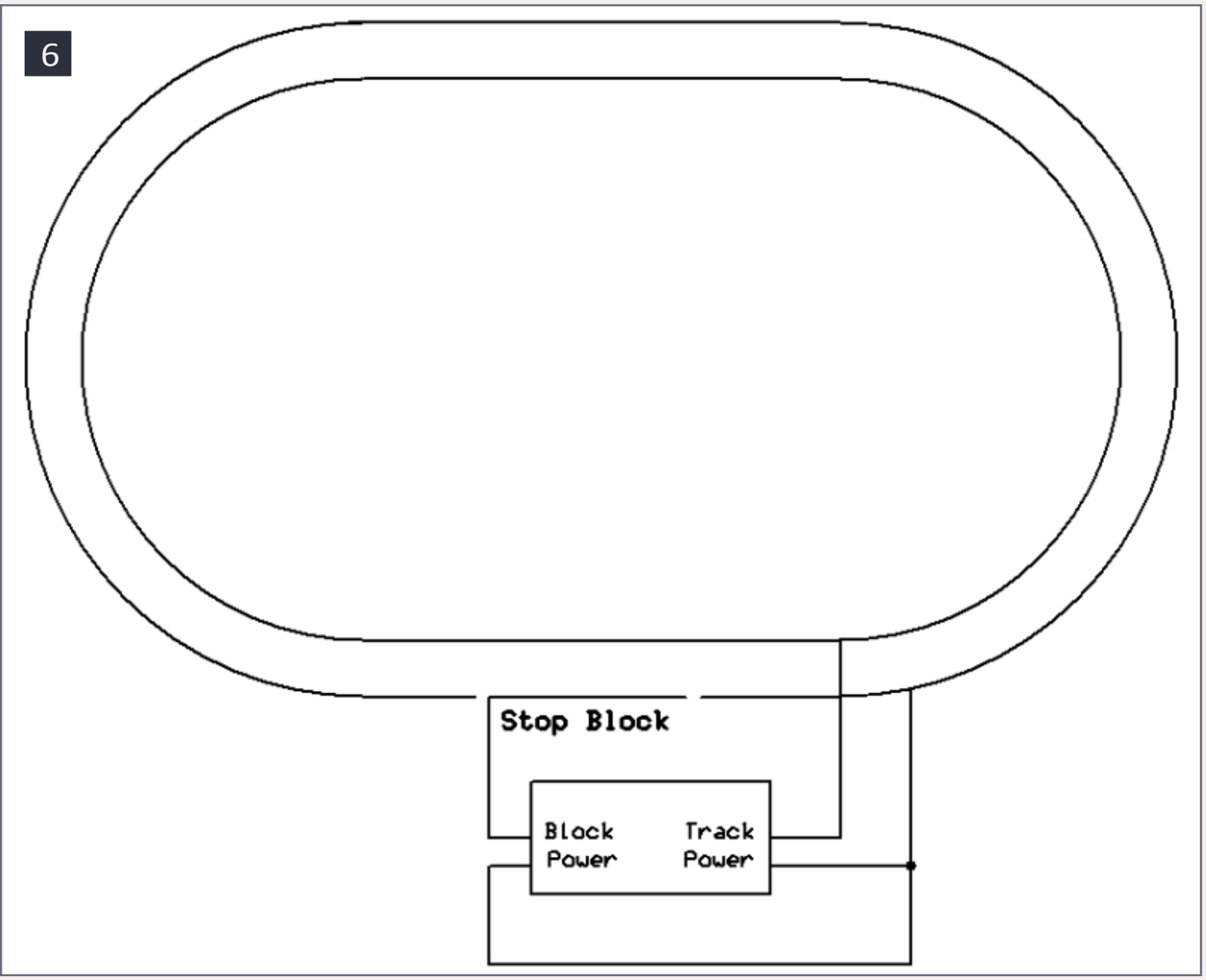
5. The LED above shows the state of the relay. When the relay is open (off) the LED is off. When it is closed the LED is on. An LED of any color or size can be used.

This unit also makes an ideal point-to-point controller for a trolley or small train. Adding diodes at each end of the track creates two sync points that can provide a very repeatable sequence of movements with an almost unlimited number of station stops, pauses, reverses, and so-on.

Activity recorder modification

Some hardware modifications and new software can turn the original circuit into a digital train travel recording unit. To use the controller this way adds two switches, a potentiometer (abbreviated “pot”), a relay, an external memory IC, and a few other simple parts.

Here is the board from part 1 without the recorder modification. The highlighted areas were not used in the first project but the additional parts outlined here make the recorder.



6. Track wiring using a stop block.

The extra components include:

- Speed potentiometer - 50,000 ohms, linear taper (any thing from 15K to 100K should work well)
- SPST push button switch
- SPST toggle switch
- (optional) SPST push button switch to start each playback session
- Relay (either 5 volt or 12 volt - see text)
- 2N2222 NPN transistor
- 8-pin DIP socket
- 24LS256 memory IC (others will work for more recording time - see text)
- 1K resistor
- 470 ohm resistor
- two 4.7K resistors
- LED
- 1N4001 diode (any generic silicon diode will work)

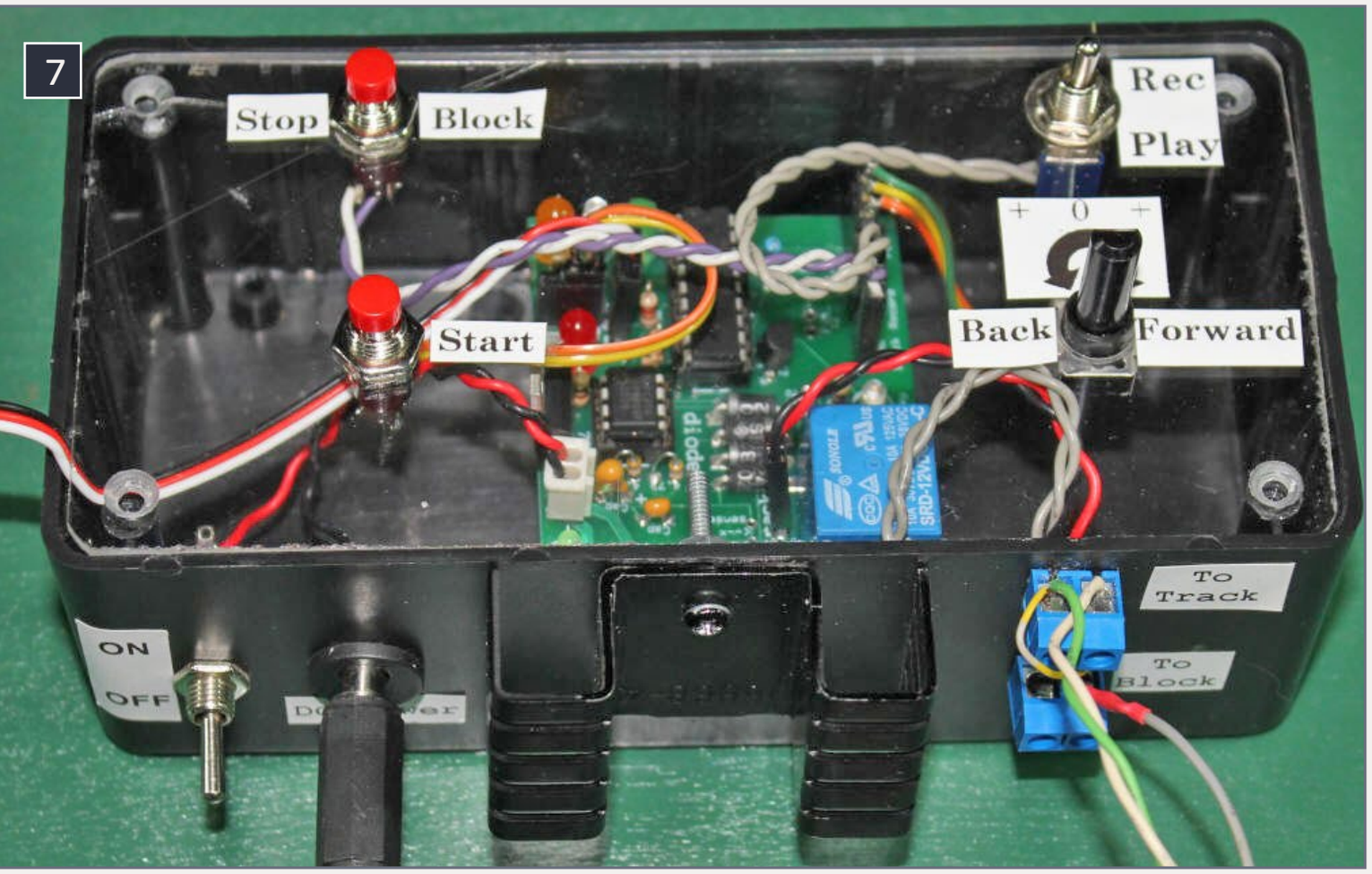
The photo at the top of the article [1] shows the completed board with the blue 12-volt relay shown here. The black relay next to it is a 5-volt unit that fits into a 16-pin IC socket.

Using the recorder

There are two modes of operation. In the RECORD mode the potentiometer is used to adjust the speed and direction of the train. When the pot is in the center position, the train is stopped and the amber LED is lit. When the pot is rotated to

“When the switch is set to PLAY the previously recorded train movements are played back ...”

the left of center, the train’s speed slowly increases in one direction. When the pot is rotated to the right of center, the train slowly increases speed in the other direction. The green LED’s brightness is proportional to the speed of the train. The memory IC records the time and potentiometer setting and can be read later to recreate the recorded movement pattern.



7. Mounting the PICAXE recording circuit in box with a lid made out of Plexiglass.

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When the switch is set to PLAY the previously recorded train movements are played back, and the train runs with the same behavior (speed, pauses and direction changes) as during the recording run.

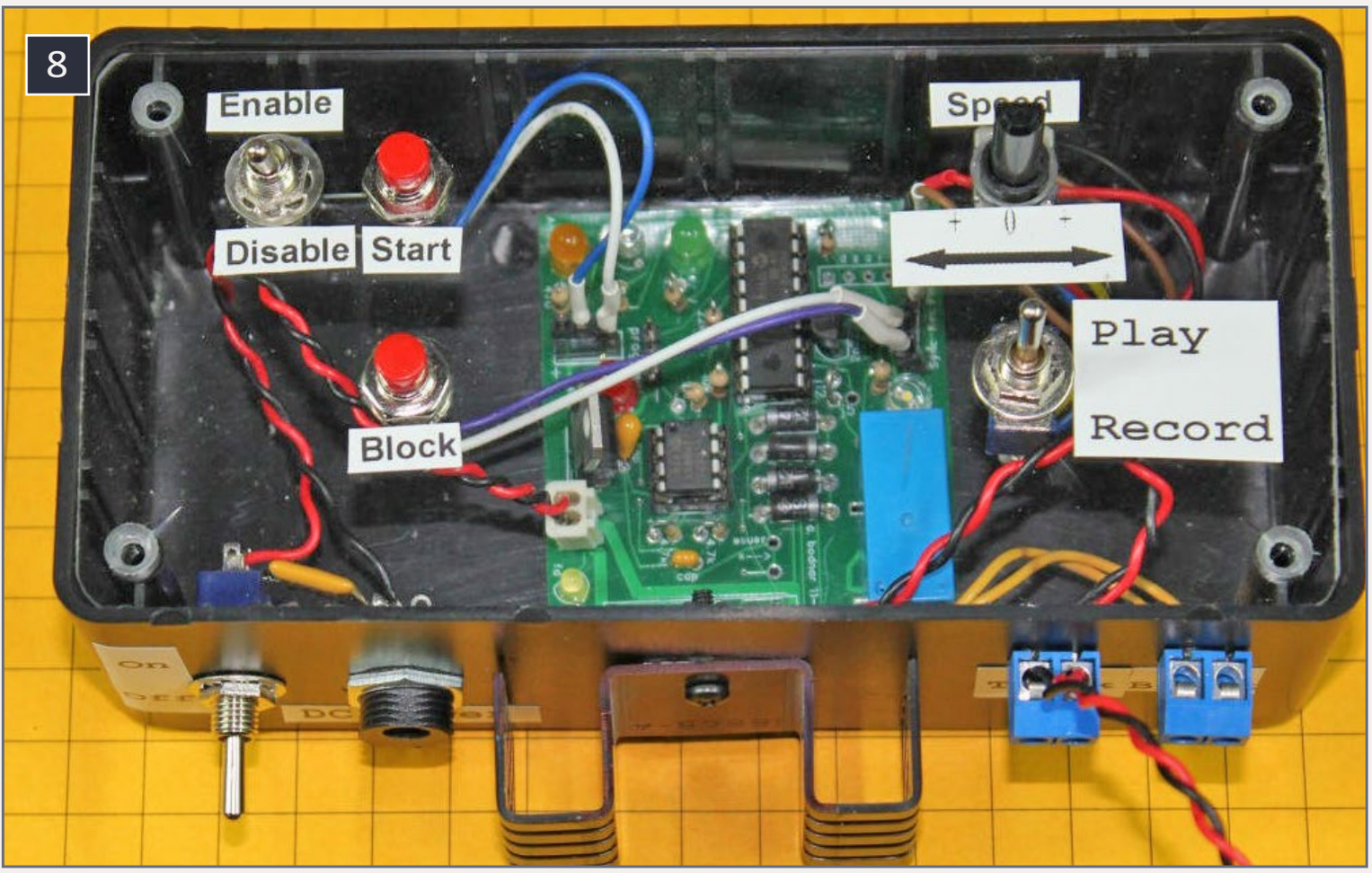
Dealing with sync errors

Because the recording and playback are based solely on time, the movements during playback are not 100% consistent. A number of factors can affect the precision of the playback:

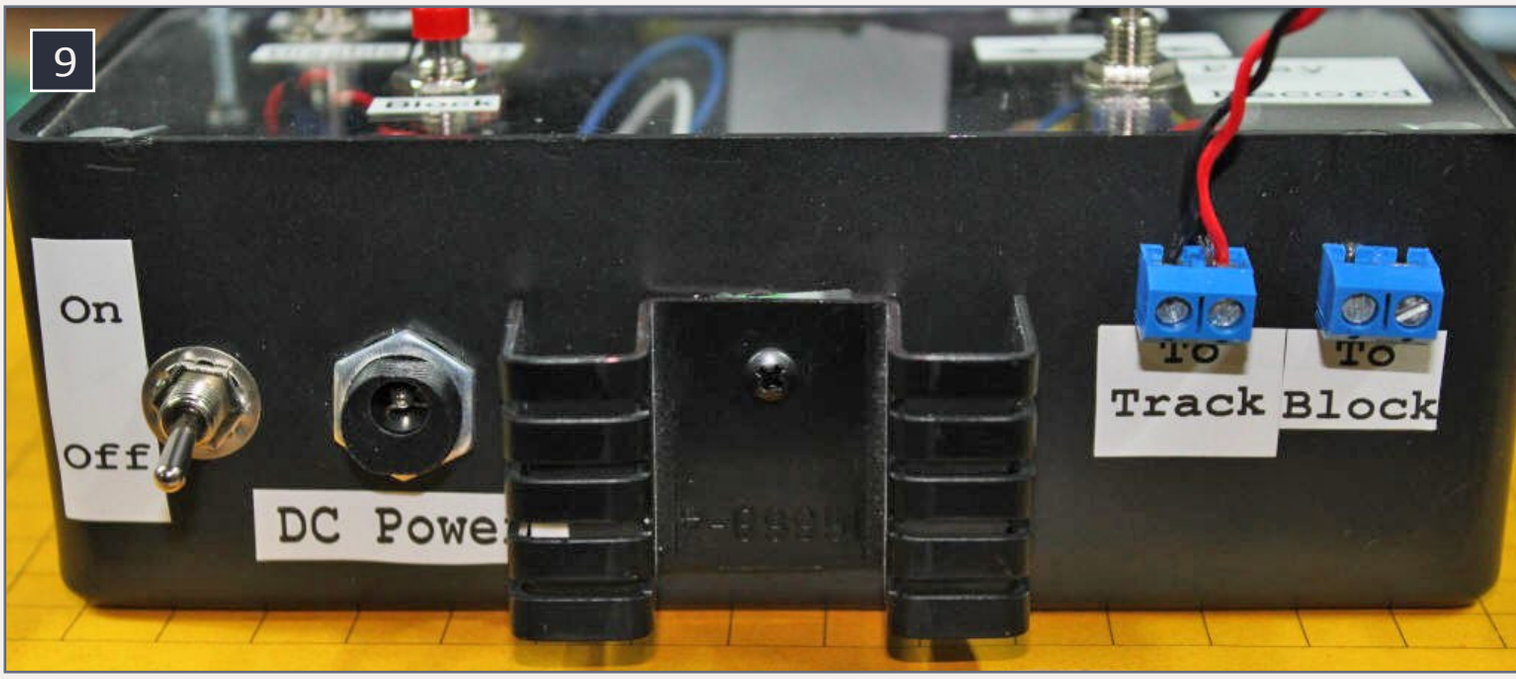
- a varying input voltage to the controller
- dirt on the track
- dirt on the wheels of the locomotive
- the train's motor and its lubricants warming up while in use

This inaccuracy can be mitigated to some extent by the use of a “sync block” to consistently start and stop the train at a fixed point at the beginning and end of each playback. This block is controlled by a relay added to the PICAXE circuit. The relay is activated by pressing the sync button at some time before the train reaches the block at the end of each recording. As you approach the block after activating it, the speed should be decreased so that the train enters the block slowly.

Be sure to keep the speed control set to the same slow speed for a few seconds after the train enters the block to keep a train that may be out of sync during playback moving



8. A top view of the recorder. Mark the controls so you don’t have to rely on your memory for the purpose of each switch.



9. This view of the side of the second unit shows the ON/OFF switch, DC POWER connection and the two pairs of output connections. The first is labeled “To Track.” These two contacts go to the track. The other two connections, labeled “To Block” are for the stop block. Connect one terminal to the uncut section of track and the other to the cut section of track so power can be supplied to the stop block when the relay is not active.

until it gets to the block. Failing to do this can cause the train to stop before getting to the sync block, throwing everything off. After the pause, change to PLAY and the recorded run will be replayed.

If the controller is used with a point-to-point layout that has diodes at each end, a separate sync block is not needed. Every time the train passes the diode, it will stop and will be back in sync when it restarts. See: trainelectronics.com/autoreverse/ for information on how these diodes can be installed.

An optional “Start” button can be added to the circuit to have the train start up while in play mode only after this button is

pressed. This button would be used at Children's Hospital and on similar viewer-operated layouts.

Track wiring

In a loop layout, the stop block should be two or three times the length of the locomotive. It is connected to the block power contacts as shown and the track power is connected to both rails of the track.

Prototype recorder

I mounted the controls for the recorder on a piece of Plexiglas [7]. The Speed pot is in the lower-right, the Record/Play switch is above it, and the Stop Block and Start buttons are to the left. The heat sink extends through the project box. The track and block connections are to its right, and the power plug and on/off switch are to its left.

Important note on recording

Be sure to run your train or trolley until it warms-up (two minutes is plenty) before recording, as a cold motor with cold lubrication runs quite a bit slower than when warm. This gives you a much better chance of having a repeatable run.

Kit available from the author

A kit with all the parts shown in the article is available from the author dave@davebodnar.com. All you need is a power supply and a motor to control. The cost of the kit is $67 + shipping. I can also supply a wired and tested unit, but my hope is that most readers will enjoy the experience of building the kit themselves.

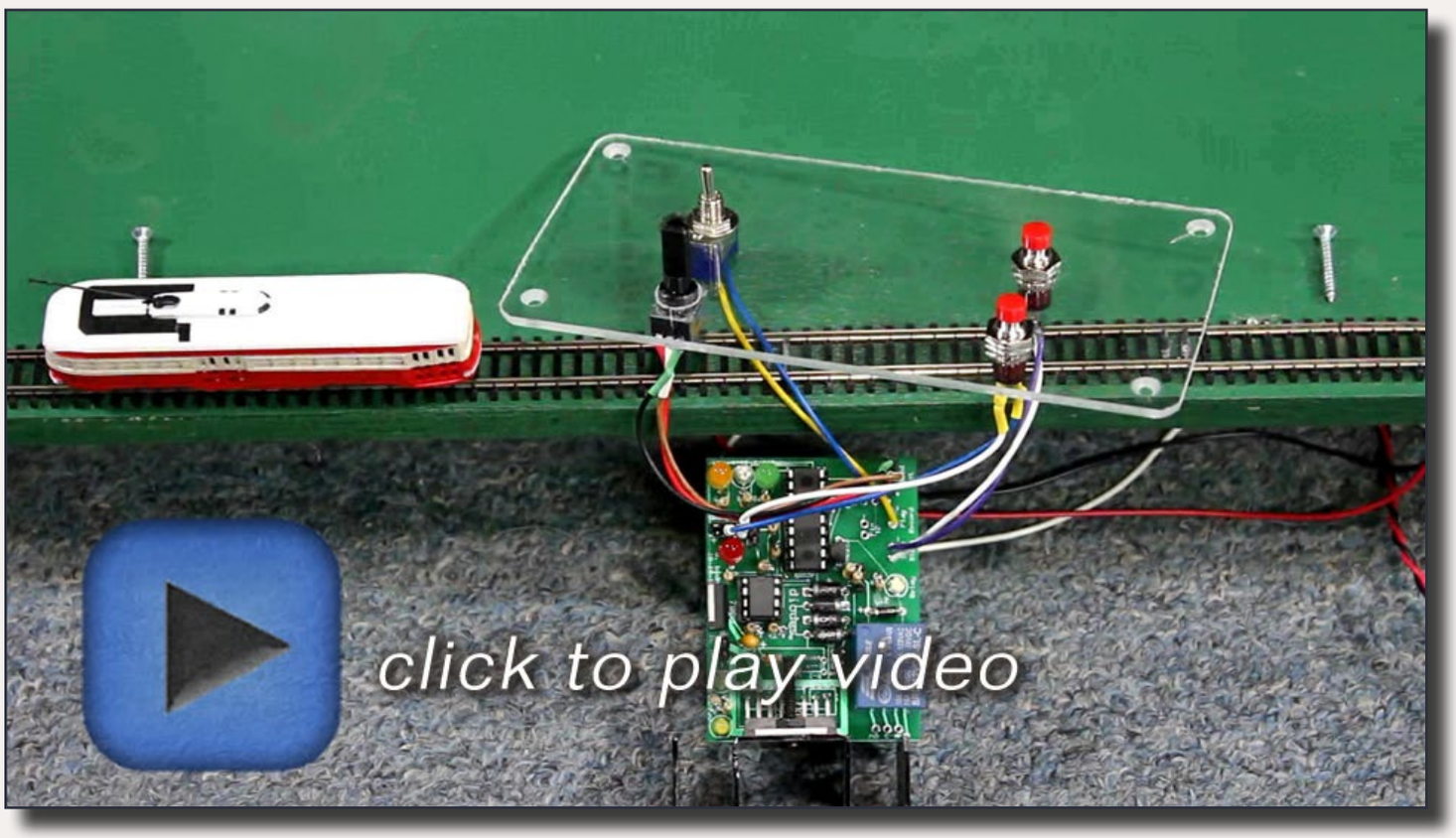
Going further

The Record/Playback program takes up less than half the program memory on the PICAXE, so there is lots of room for

experimentation. With some software modifications, the unit could easily be converted so that it not only records train movements, but also throws switches and triggers sounds based on train activity. The only limit is your programming skill and imagination!

Video

This video shows the controller recording a trolley's run on a small layout, then replaying it. The test track and trolley are N scale, but the controller will work with any DC-powered train, including HO and G scale. As you can see, this is an ideal system for demonstration railroads. We recently set it up at the Carnegie Science Center during a weekend of train-related science demonstrations, and let the young visitors record and playback a session. They really enjoyed it, and I am happy to report that it worked perfectly for two full days of operation.



Playback problems? Click to try a different version.

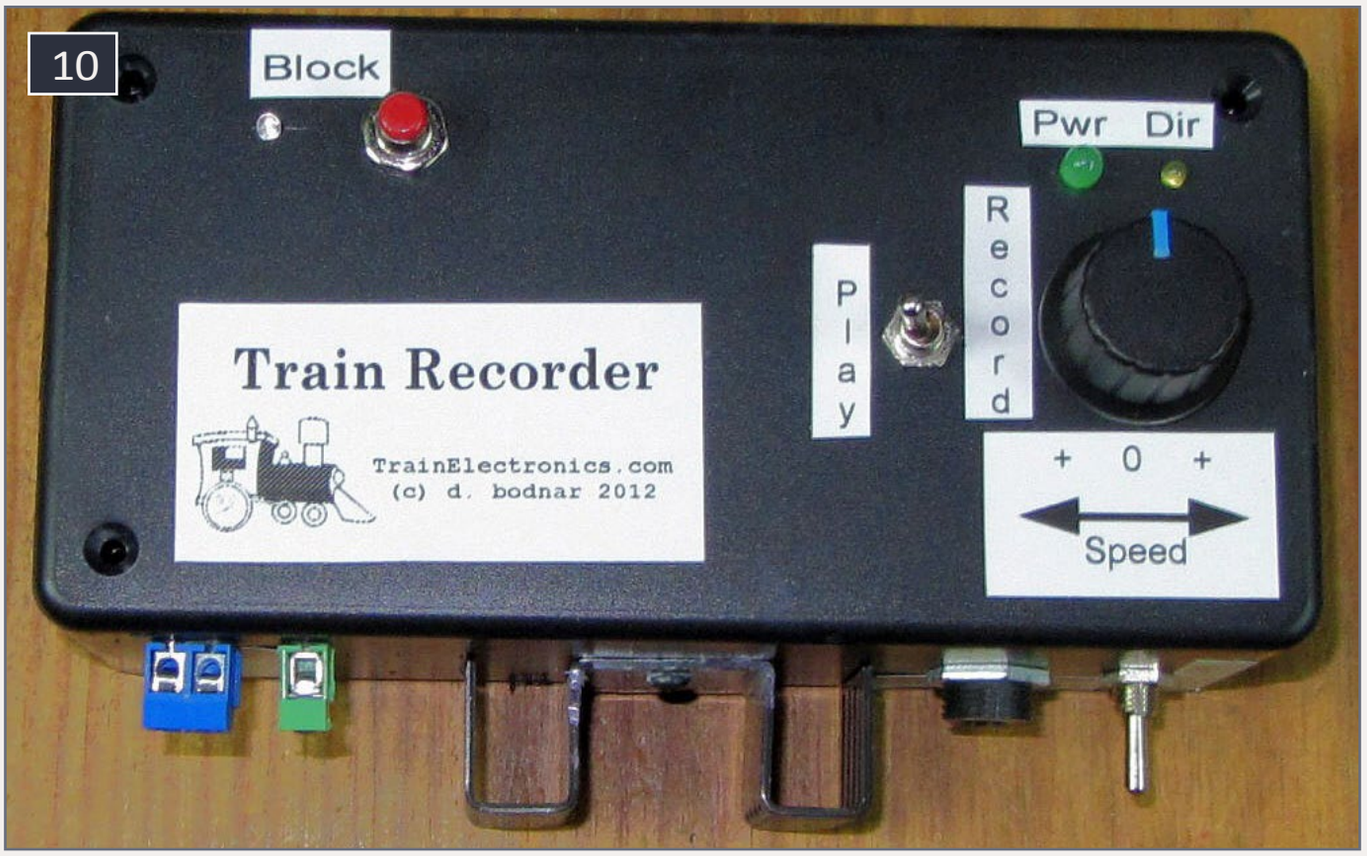
Another unit

I built a second unit and show it here. The controls are:

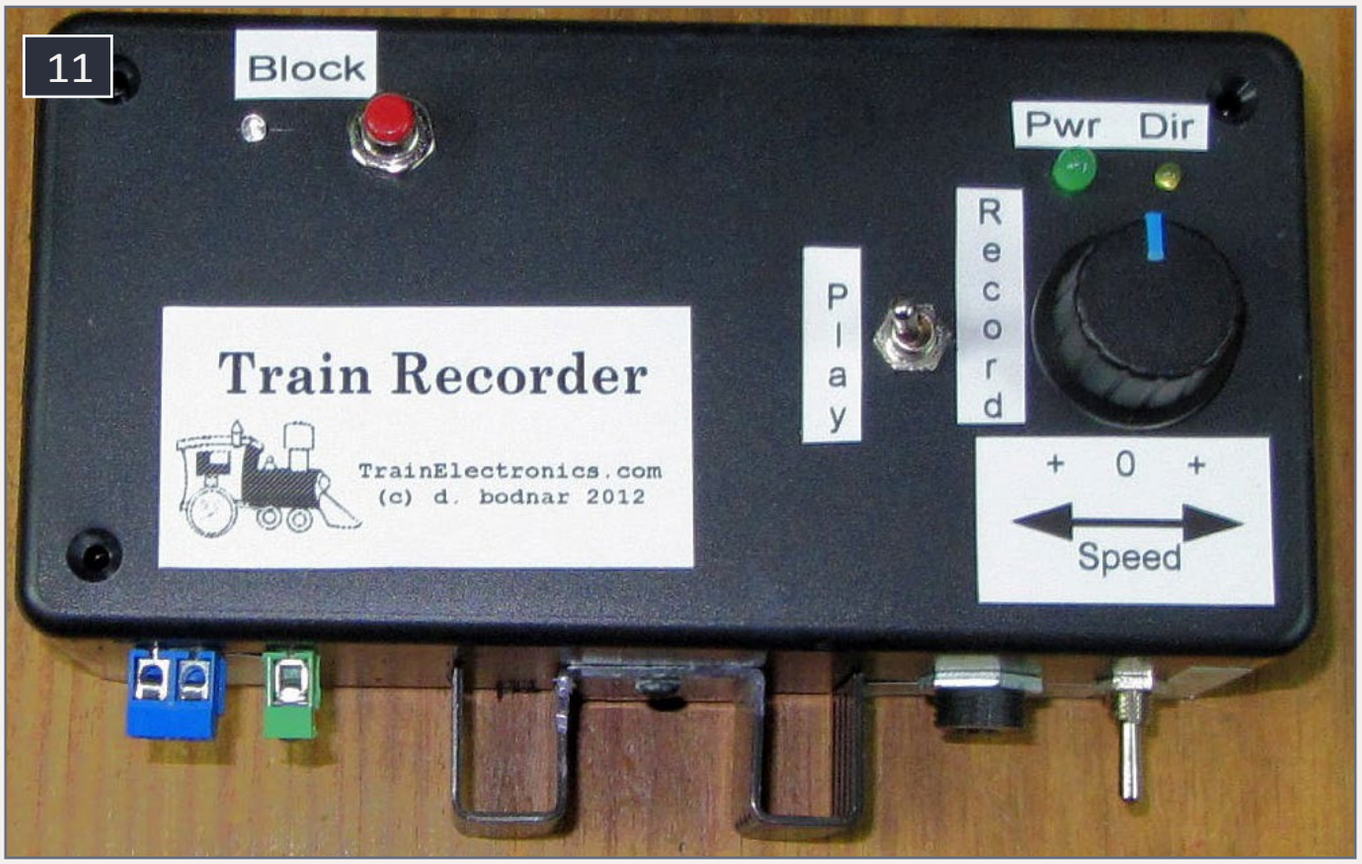
SPEED – a potentiometer that sets the speed of the train when in PLAY mode. Turn the pot left to speed up in one direction. Put it in the center position to stop. Turn the pot to the right to speed up in the other direction

PLAY/RECORD – a toggle switch that selects the operation mode

START – a pushbutton switch that can be activated by the ENABLE/DISABLE switch. If set to ENABLE the train will play



10. This is yet another unit with simplified controls. Speed is adjusted with the knob on the right. The larger green LED shows the power level, and the smaller LED next to it indicates direction. The Play/Record switch is to the left of the speed control. The LED and switch in the upper-left are for the block sync relay. When the relay is active and the block is unpowered, the LED is lit.



11. This side view shows the power connections and on/off switch on the right. The track is connected to the two blue terminals on the left. The cut section of the block is connected to the single green terminal.

back a session only after pressing the START button. If set to DISABLE the recording will be played back over and over.

BLOCK – a pushbutton switch that activates the block sync relay. If you are using a stop block, press this button as the train approaches the stop block and it will come to a complete stop, re-synchronizing its operation. Remember to keep the power on for a few seconds to allow the train to enter the stop block during playback, should it be slightly out of sync. ☑

Reader Feedback
(click here)

TRAINS IN THE TRON

– by Lance Mindheim

Photos by the author

A report on model railroading from New Zealand ...

In April I was privileged to be able to speak at the Trains in the Tron convention in Hamilton, New Zealand. The show was underwritten by the New Zealand Association of Model Railway Clubs, and run by the Hamilton Model Railroaders and Hamilton American Modellers. With roughly 180 attendees, the event had the flavor of a like-sized prototype modelers meet here such as Prototype Rails in Cocoa Beach. The venue was the Te Rapa Racecourse, a horse racing track, ideally suited for setting up the display layouts, showcasing the model judging, and evening dining.

Culturally New Zealand is very similar to the U.S., with the exception that the people are a bit more laid-back. Anecdotally it appears the modeling participation is a bit higher than here on a per capita basis, and enthusiasm for the hobby runs extremely high. The quality of modeling is exceptional and on par with an NMRA national event. Although few Kiwis have basements, they compensate by building high-quality outbuildings in their backyards.

The overall environment of their model railroad rooms is consistently very high (much higher than is typical of the US), with almost all layouts housed in spaces finished to a high level. Modeling themes are an eclectic mix of American HO, 9mm, 0, and Sn3.5. New Zealand railways are 42” gauge and modeling in S scale allows them use HO scale flex track. Operations is

1. The venue provided space for display layouts, a model judging room, clinic rooms, and a dining hall.

Reader Feedback
(click here)

in its infancy, but seems to be at the top of the list in terms of what many want to add to their modeling interests.

My suggestion to anybody with an opportunity to go to this wonderful country should go without hesitation! ☑

2. Event organizer Trevor James guides a train out of town on his Sn3.5 scale New Zealand National Railways (NZR) layout. Trevor runs frequent timetable-and-train order operating sessions.

3. The event was held in the clubhouse of the Te Rapa Racecourse, a horse racing track. The luxurious open spaces of the facility proved to be an ideal venue.

What is the Tron?

You know the sci-fi movie “Tron” ?

Well, Hamilton City Council was looking for a strapline for the city, “Hamilton City of Fountains,” etc.

Some smart person suggested “Hamiltron – City of the Future”.

Considering many think Hamilton just an oversize, backward cowtown, this didn’t go down too well with the council. So, naturally, the more the council derided it, the more the people loved it! Eventually it was simply shortened to “the Tron.” as in “What’s happening in the Tron?” So naturally “Trains in the Tron” was (very tongue-in-check) a play on “this event will show you the future for trains.” ■

4. The quality of modeling in New Zealand is extremely high, evidenced by Grant Morrell's award-winning entry.

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5. Layouts in New Zealand are often housed in dedicated outbuildings whose interiors are finished to a very high level. The particular structure houses Neil Ward's layout.

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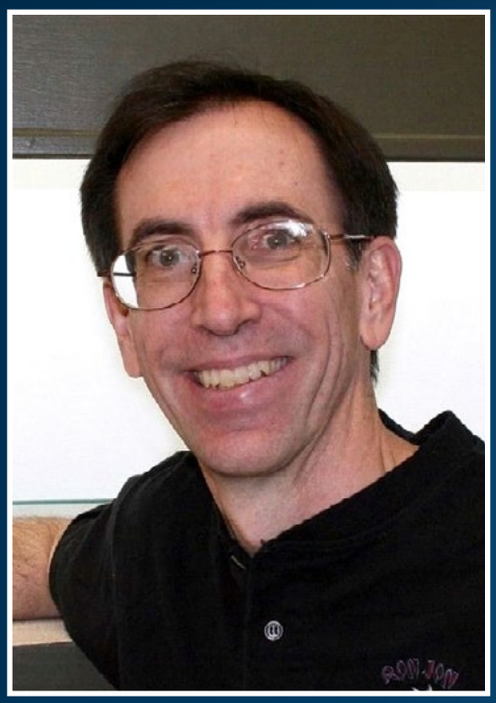
6. Glen Cubitt's HO scale Santa Fe layout would make David Barrow proud!

Reader Feedback (click here)



Lance Mindheim is the owner of The Shelf Layouts Company shelflayouts.com, a designer and builder of custom model railroads. He also has published several books about model railroad design and construction, which are available from his website.

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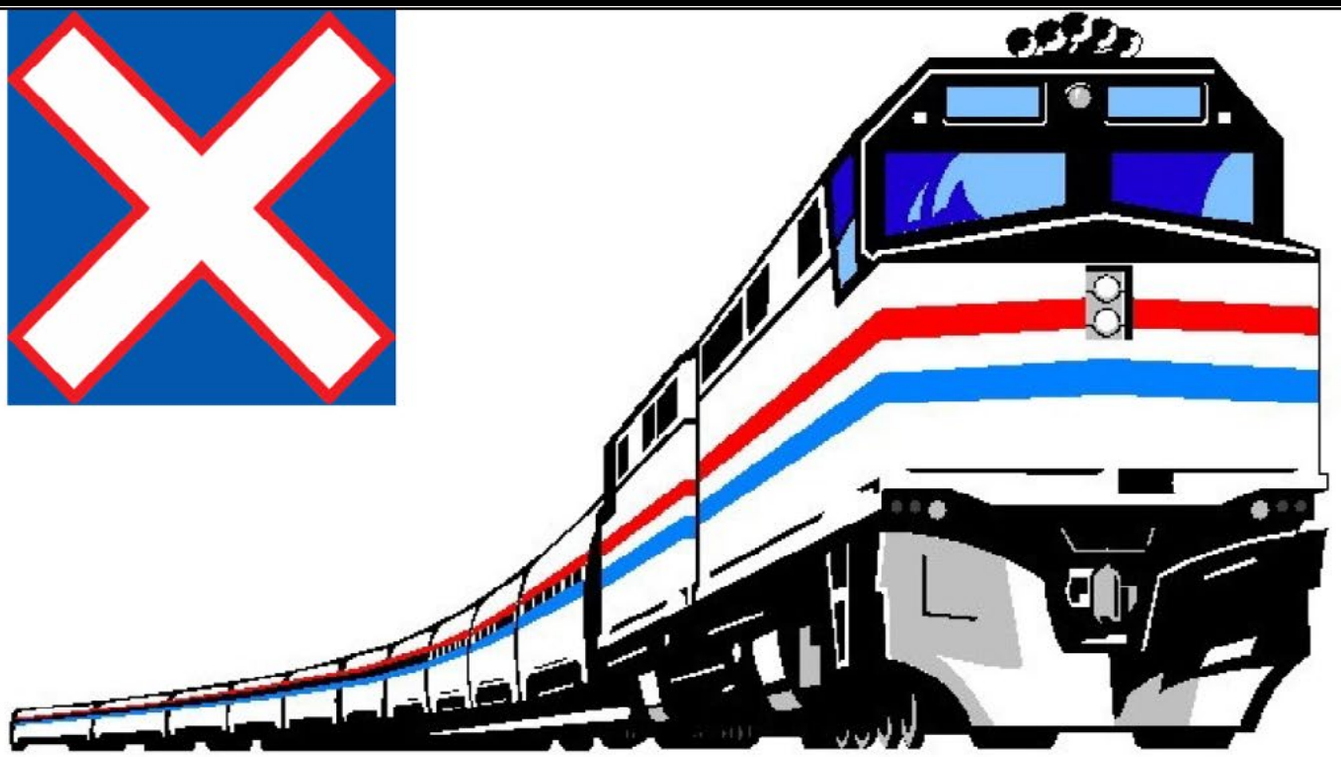

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First Edition

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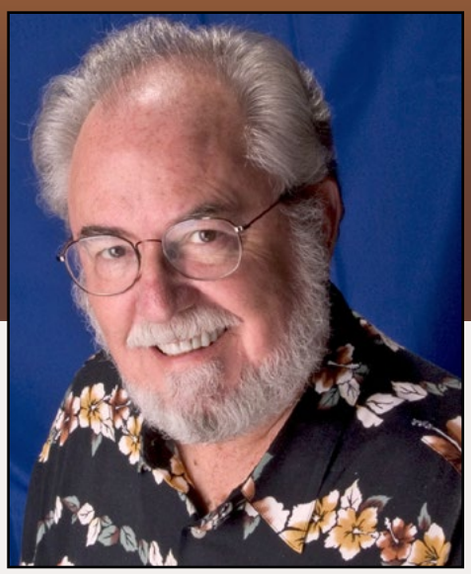


The Old Yardmaster

Reader Feedback
(click here)

July 2014:
The latest model railroad products, news & events

by Richard Bale and Jeff Shultz

Permanent home for Thomas

Thomas the Tank Engine and Edaville USA Railroad, a family entertainment center in southeastern New England, are teaming up to develop a permanent Thomas-themed park. It is scheduled to be open for business next summer. There are two other Thomas Lands, in the United Kingdom and Japan, but the New England version will be the largest. Thomas Land USA will have 14 rides based on the television show, with the highlight being a 20-minute train ride on a life-sized Thomas the Tank Engine. A roller coaster, drop tower, Ferris wheel and other rides will feature more Thomas characters. Thomas the Tank Engine is a U.K.-based series of books created by The Rev. Wilbert Awdry

and his son, Christopher. Hit Entertainment, a division of Fisher-Price, owns the Thomas brand. *USA TODAY's James R. Healey, Associated Press writer Mark Pratt, and Richard Bale of MRH contributed to this article* ...

Alpine Division Scale Models for sale

Mike DeGhetto, owner of Alpine Division Scale Models, plans to retire at the end of the year and is selling all of the tooling, dies, assembly fixtures, and manufacturing rights. The product line includes craftsman structure kits of embossed mat board, wood, metal, and plastic components. Although they have been upgraded over the years, many of the models were originally developed by Tru-Scale, Ayres Scale Models, Suydam, and California Models. Several of the old town buildings are based on structures from Knott's Berry Farm that were field-measured by Tom Ayres, Ed Suydam, and Walter Knott. DeGhetto will continue to produce and sell trolley supplies including overhead wire and catenary items, wire hangers, overhead trolley frogs and span poles. Interested parties should direct inquires to Mike DeGhetto, P.O. Box 6, Artesia, CA 90702, or telephone 562-860-6060...

QSI Solutions recovering

Josh Shedaker, the new owner of QSI Solutions, reports that restructuring the company, developing a new website, and upgrading some of the products is nearing completion. More reorganizing was needed than Shedaker had anticipated when he took the company over last September. He has issued an apology for any inconvenience imposed on customers and associates. Shedaker has also expressed his appreciation to everyone for their patience throughout the restructuring process. The new website can now be accessed at the original URL of **qsisolutions.com**...

New owner for Pre-Size

Pre-Size Model Specialties, a manufacturer of urethane cast tunnel portals, retaining walls, abutments, culverts, and bridge piers has been purchased by Steve Wolcott and Linda Lindsey. The line was formerly owned by Norm Rockwell of Norm's Train World. The company's products can be viewed in the current Walthers catalog. The new owners are in the process of building a new website which is expected to be online soon at pre-size.com. Meanwhile, inquiries can be sent to Pre-Size Model Specialties, P.O.Box 147, Paonia, Colorado 81428. The new email address is psmodelspecialties@gmail.com.

CUSTOM CARS

The Penn Central Railroad Historical Society (store.pcrrhs.org/model/ho-50%E2%80%99-postwar-double-door-box-car) is selling an HO scale 50' double-door boxcar that represents a Penn Central repaint of a New York Central car built by Despatch Shops. The model was produced by Atlas with separate ladders, grab irons, a detailed underframe, and metal wheelsets. Two road numbers are available. Visit the above website for pricing and ordering instructions.

The Amarillo Railroad Museum (amarillorailmuseum.com) is selling a PS-2CD 4750 cu.ft. covered hopper custom decorated for Burlington Northern with Ft. Worth & Denver reporting

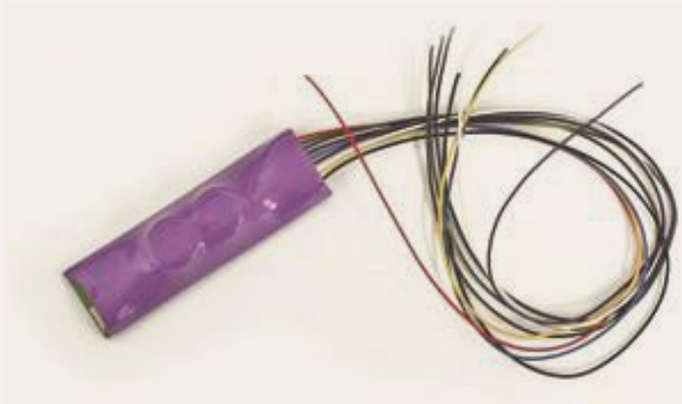
marks. The unique HO scale car was produced by Tangent Scale Models and accurately replicates prototype FW&D 459550-459649 series cars. Six road numbers are available at $41.00 each. Visit the above website for ordering information.

NEW PRODUCTS FOR ALL SCALES

The **Canadian National Railways Historical Association** (cnlines.ca) has released volume two of *"Canadian National Railways Diesel Locomotives."* Augmenting archival research into CN headquarters files with interviews with key participants, co-authors Glenn Courtney, Ken Goslett, and Kevin J. Holland provide a detailed story of Canadian National's road switcher fleet. Switchers on the Duluth, Winnipeg & Pacific; Central Vermont; Grand Trunk; and Grand Trunk Western are also thoroughly documented. The hardcover, 192 page, 11" by 8.5" horizontal format book includes more than 375 photos. Ordering and price information is available at the above website.

"Jersey Central Line Volume 4: Pennsylvania," is among the newest releases from **Morning Sun Books** (morningsunbooks.com). Author Mike Bednar, who lived in the Lehigh River area and witnessed the railroad's struggle during the decline of anthracite traffic, shares his recollections and the late history of CNJ's Pennsylvania Division in this all-color book.

Also just released by Morning Sun is *"Northern Power in Color Volume 1: Locomotives #1 to 2999"* by Stephen M. Timko. Coverage includes motive power from CB&Q, GN, NP, SP&S, and SLSF, plus first-generation road switchers built by Alco, Baldwin, and EMD. Second-generation coverage includes GP35s and GP38s.



SoundTraxx (soundtraxx.com) has introduced a new decoder that brings sounds to individual cars. The Tsunami® SoundCar™ Digital Sound Decoder™ can replicate rolling stock sounds for any scale from N through G scale. The variety of sounds available include brake cylinders, brake squeal, wheel clickety-clack, coupler clank and pin drop, coupler release with glad hand separation, flange squeal, wheel flat spots, reefer and passenger equipment generators, hand-brake tie down and release, and emergency brake valve. Also airhorns (Wabco E2, Nathan K5LA), air whistle (Hancock), and bells (cast, electric, and gong) with adjustable ring rates for cab cars and cabooses. The SoundCar™ also has four Hyperlight™-equipped outputs for interior and exterior lights.

The universal-style decoder is said to be easy to install in virtually any scale and works with on-board 8-ohm speakers. The SoundCar™ also includes a two-pin plug for optionally using the SoundTraxx CurrentKeeper™ to maintain sounds and lights

during momentary power losses due to imperfect wheel pick-ups. The SoundCar™ decoders have an MSRP of $42.50. They are also available in a three-pack at a list price of $112.95.

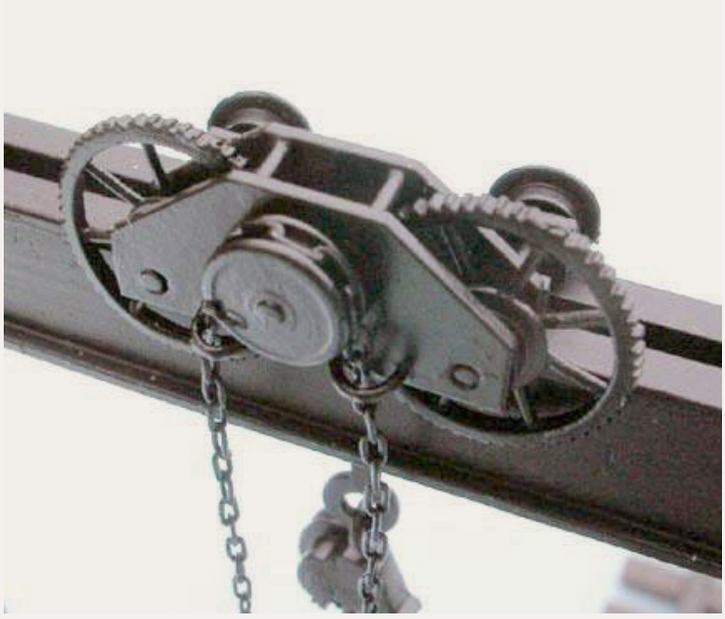
The Underground Railway Press is offering plans and instructions of the historically-interesting Russ Simpson structure kit line. Simpson HO scale structure kits have been unavailable since 1978. The plans and instructions cover such interesting structures as the mine head, boiler house and ore chutes at Gold King Mine; the bunk house at Rio Grande, Hillside water column, and the depot at Allison, Colorado. Also, the Mich-Cal portable camp house, West Side camp house, P&NI Diamond Springs water tank, and the NPC trestle culvert at Tomales. Each plan set is $4.00 plus $3.00 postage and handling per order. To order, or for additional information, contact: Underground Railway Press, PO Box 814MH, Brevard, NC 28712-0814.

O SCALE PRODUCT NEWS

Atlas O (atlaso.com) is developing a Trinity 5161 cu. ft. covered hopper for delivery during the first quarter of next year. The O scale Master series model is based on a curved-side prototype introduced in 1995. In addition to the Soo Line/CPR car shown above, the ready-to-run model will be available decorated for BNSF (wedge scheme), Norfolk Southern, and Union Pacific. Visit the above website for additional information on both the 2-rail and 3-rail versions of the model.

Bachmann (bachmanntrains.com) has released an On30 coach with an optional end railing to convert the coach to an observation car. Two unlettered paint schemes are available: burgundy and olive. Both color schemes are highlighted by gold pinstriping. The cars have an MSRP of $69.00 each.

B.T.S. (btsrr.com) is selling this imported O scale bridge crane. It is approximately 20’ wide with a 16’ clearance from the ground to the bottom of the bridge.



Fabricated of brass components, the painted, ready-to-install structure features a nicely detailed trolley that can be positioned as desired on the bridge. The crane is available direct from B.T.S. at $119.95.

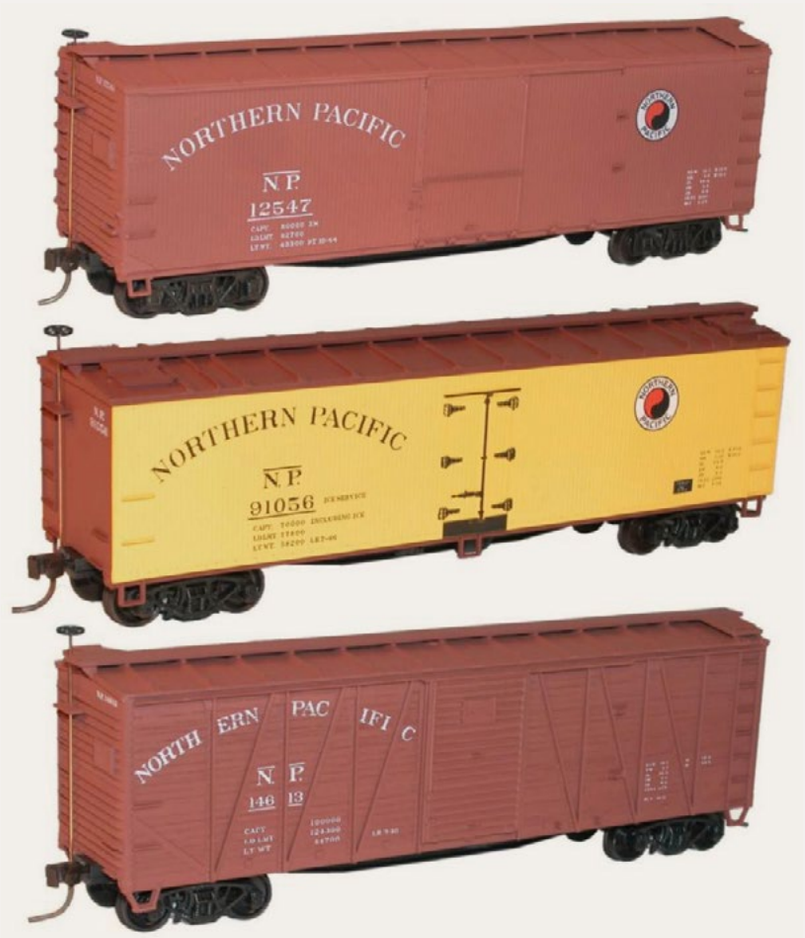
Trackside Scenery (tracksidescenery.com) has O scale kits for shallow relief tenement structures. The kits combine photo-realistic print sheets with laser-cut wood components to create a shallow 3D structure. Currently available are variations of a run-down three-story tenement building. The kits are available direct with pricing for O scale versions starting at $31.95. Visit the above website for details. See our HO scale report for an illustration of an unassembled kit.

HO SCALE PRODUCT NEWS

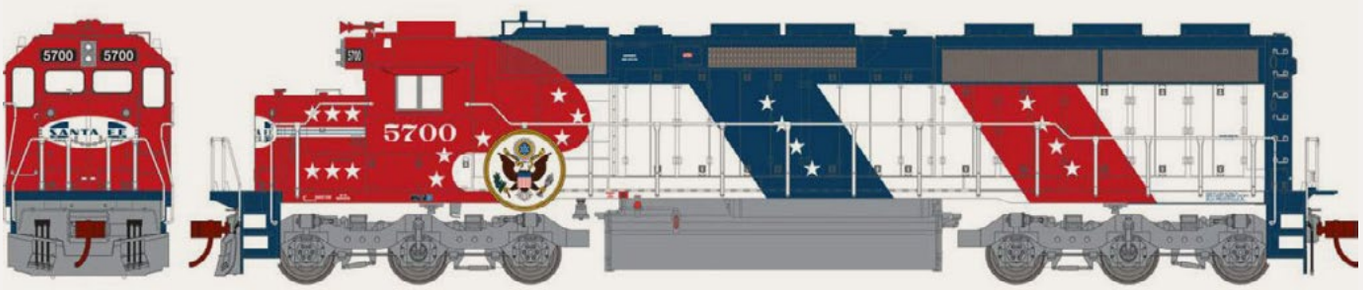
Accurail (accurail.com) has released several new kits for HO scale freight cars including the 50’ Denver & Rio Grande Western boxcar shown above. The model is based on a double-door, riveted-side prototype with Dreadnaught ends built during the late 1950s and early ‘60s.

Also new is a kit for a 40’ Fruit Growers Express steel reefer from the late 1940s. HO scale kits for two road names

– Missouri Pacific and Louisville & Nashville – are available for a 41’ AAR 11-panel steel gondola.



Accurail is selling a three-car set of 40’ Northern Pacific steam-era freight cars. The kits include a wood reefer and double-sheathed and single-sheathed box cars with Murphy corrugated ends. Check the above website for pricing information.

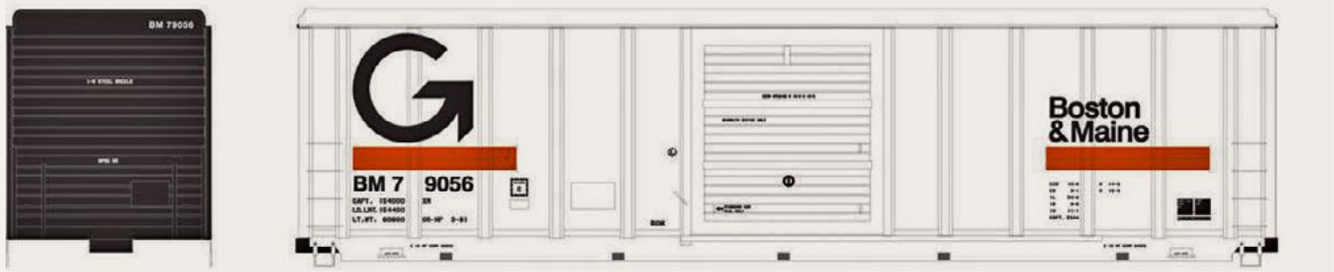


Athearn (athearn.com) has scheduled the next release of its Genesis series SD45-2 locomotives for January, 2015. Road names on the HO scale Ready-to-Roll® model will be CSX, Erie Lackawanna, Norfolk Southern, and two Santa Fe schemes.

Illustrated here is the SD45-2 in Santa Fe's Bicentennial scheme, and below, the short-lived Kodachrome livery.

Also scheduled for release next January is Athearn's Genesis FP7 diesel. In addition to the Rock Island version shown, the F unit will be offered for Penn Central and Atlantic Coast Line.

The third Athearn locomotive scheduled for release in January is a General Electric Dash 9-44CW. In addition to the NS Operation Lifesaver scheme illustrated here, the HO scale Ready-to-Roll® series model will be available decorated for Santa Fe (red and silver warbonnet), British Columbia Railway, Chicago & North Western, BNSF, and Union Pacific.



New freight cars coming from Athearn in January include a 50' Pullman-Standard 5344 cu. ft. boxcar. Road names will be

Green Mountain, CSX, Hartford & Slocomb (ex New Orleans Public Belt Railroad), Milwaukee Road, Union Pacific, and Guilford/Boston & Maine as illustrated.

Also due in January is another production run of Trinity 5161 triple-bay covered hoppers. Athearn will offer the HO scale model decorated for AGP, BNSF, Cargill, Borax, Consolidated Grain & Barge, and CHSX as illustrated above.

HO scale Husky Stack cars are the final models on Athearn's January delivery schedule. In addition to the CSX Intermodal scheme illustrated here, other road names will be BNSF, Trailer Train, TTX, and TTX with a new logo. Features of the Ready-to-Roll model include separately applied brake rigging and brake wheels, and machined metal wheels. The MSRP will be $24.98 each.

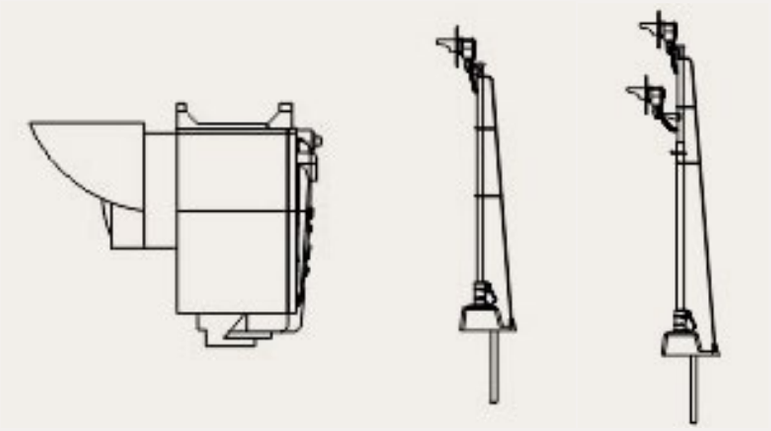
Atlas Model Railroad Company (atlasrr.com) is working on a pair of HO scale ready-to-run models for release in the first quarter of 2015. The models include a Trainman series Thrall 4750 covered hopper decorated for Minneapolis, Northfield & Southern; Reading Blue Mountain & Northern, Crystal Car Line, and Canadian National. An undecorated version will also be available.

Atlas is also working on new decorating schemes for a 25,500 gallon general purpose insulated tank car based on a prototype built in 1986. Road names for the Master series model will be CHSX- Harvest States, CTCX-CIT Group, TILX (vegetable oil), TILX (crude oil), and Transportation Equipment Co. Visit the above website for additional details including pricing.

Bachmann (bachmanntrains.com) has released an HO scale GP7 diesel locomotive in five new road names. They include Pennsylvania Railroad, Rock Island, Atlantic Coast Line, Boston & Maine, and a GM Demonstrator. The DCC sound-equipped model features Bachmann's SoundTraxx® diesel package with the sounds of the prime mover, three air horns, and a bell. The ready-to-run model has an MSRP of $199.00 each.

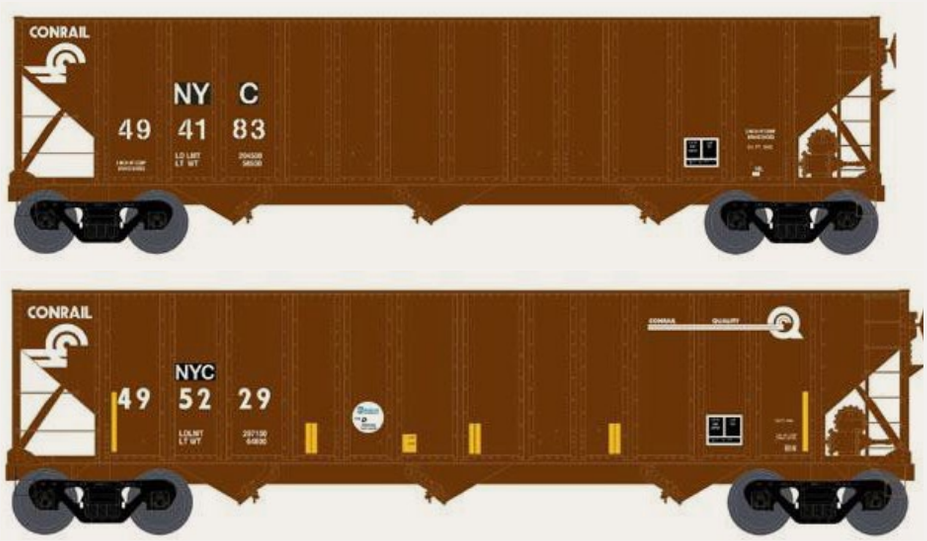
Bachmann has released HO scale heavyweight passenger equipment in five new road names. Available now are a 72' coach and a 72' combine decorated for Pennsylvania Railroad (postwar Tuscan red and yellow scheme), Baltimore & Ohio (blue, gray, and black), New York Central (green and yellow), Union Pacific (yellow, gray, and

red), and Santa Fe (Pullman green). The cars feature amber LED interior lighting. They have an MSRP of $95.00 each.



BLMA (blmamodels.com) has expanded its line of HO scale signals. The newest items include a United Switch & Signal Co. type H-2 signal head fitted with three LEDs (red, yellow, green). The H-2 head is available as a dwarf signal as well as single and dual head searchlight block signals mounted on a mast. Although based on ATSF prototypes, the signals are somewhat universal in appearance and are similar to types used throughout North America. Construction of the pre-painted signals is a combination of brass and plastic. Availability is expected later this summer. Check the above website for pricing and additional details.

Bowser (bowser-trains.com) is booking advance orders for another production run of its 100-ton open hopper cars. Delivery of the HO scale Executive series model is expected early next year. Road names will be Conrail (above), Conrail-NYC (next page), and Conrail-NYC with reflective paint and “Quality” slogan (bottom).



Also in the run will be hoppers decorated for AEPX (yellow end), Canadian National (black), Canadian National (brown), NW, N&W, Norfolk & Western (ham-burger scheme), Penn Central (class H43a), and Penn Central (class H43d).

ExactRail (exac-trail.com) has introduced an HO scale Bethlehem 4000 cu. ft. open-top hopper car. The proto-type was created in a rebuilding program that added 8” chord extensions to Bethlehem 3737 cu.ft. and 3716 cu.ft. cars. An additional spotting feature from the rebuild is the relocation of the grab irons on the sides and ends of the cars. The Platinum series model features an etched metal slack adjustor guard, machined metal wheels and axles, and Kadee #58 couplers. In addition to the green CNW car shown here, the Bethlehem 4000 hopper is available decorated for CNW (black), MP, MP-UP, and MP (screaming eagle). The ready-to-run model is available direct from ExactRail at $39.95.

HO scale prototype modelers will be pleased to learn that ExactRail is now selling many of its individual detail parts. Items such as roofs, underframes, cross-over walks, draft

boxes, stirrups, doors tracks, and door bars may now be purchased direct from ExactRail. Visit the above website for complete information.

InterMountain (intermountain-railway.com) has scheduled another production run of a Pullman- Standard 5277 cu.ft. exterior-post boxcar for delivery this fall. Road names will be Richmond, Fredericksburg & Potomac; Railbox (original); Railbox (late scheme); Canadian National; Burlington Northern; Green Bay & Western; CSXT (ex RF&P); and Golden Triangle Railroad. The ready-to-run HO scale cars will have an MSRP of $34.95.

Also in the works at InterMountain for release this fall are 60’ PS-1 boxcars decorated for Santa Fe, Chicago & North Western, Union Pacific, Canadian Pacific, Chesapeake & Ohio, Rock Island, and Burlington. Also two Grand Trunk Western schemes (BCR and blue), and the Detroit, Toledo & Ironton car shown above. The HO scale ready-to-run models have an MSRP of $34.95.

HO scale 10’ 6” modified 1937 AAR boxcars decorated for Santa Fe are expected from

InterMountain late this year. In addition to the San Francisco Chief car shown above, decorating schemes will be available for Scout, Grand Canyon, El Capitan, Chief, Texas Chief, and Super Chief. The ready-to- run models will have an MSRP of $32.95. A previously announced car decorated for Alton has been cancelled.

Kadee (kadee.com) is scheduled to release an HO scale ready-to-run model of a 50’ Milwaukee Road PS-1 boxcar with a 9’ Youngstown steel door in September. It will have an MSRP of $37.95.

Also coming in September is a 50-ton AAR standard open hopper car decorated for Santa Fe. The ready-to-run HO scale model represents a SF class GA72 car built in 1948. The model has an MSRP of $43.95 and comes with a removable coal load.

KatoUSA (katousa.com) has scheduled another production run of its HO scale EMD SD80MAC locomotives for release in October. The SD80MACs have a maximum speed of 75 mph and can generate up to 5,000 horsepower. Kato’s 1:87 version replicates a prototype introduced by EMD in late 1995. Road names on the ready-to-run models will be available in two numbers each for Norfolk Southern, Conrail, and CSX in the dark future scheme. Several consumer-applied detail parts are

supplied including individual windshield wipers, MU hoses, and grab irons. The models come with a standard 8-pin plug for an aftermarket DCC decoder (not supplied).

Kato plans to release HO scale Gunderson MAXI-IV well cars in new paint schemes beginning in August. Road names will be BNSF (swoosh), Pacer Stacktrain, and TTX with the new logo. Also expected to arrive at about the same time are new 53’ intermodal containers. Additional information on all new Kato items, including pricing, is available at their website.

Peach Creek Shops (peachcreekshops.com) is developing an HO scale model of a Berg hot metal car. The prototype was designed by P.T. Berg of the Carnegie Steel Company and manufactured in Youngstown, Ohio by the William A. Pollock Co.

The cars were used to transport hot metal from the blast furnace to the Bessemer plant.

Patterns for the HO scale resin cast model were made by Jim Reuter, a retired Smithsonian model maker. John Glaab, owner of Peach Creek Shops, expects to have the initial run ready for release next month. The cars will be offered assembled but unpainted. Pricing is TBA. Samples of the finished model will be shown at the 2014 Steel Mill Modelers Meet, to be held August 27-31 in Bethlehem, PA. See MRH Selected Events for additional information about the meet.

Rapido Trains (rapidotrains.com) has released HO scale models of VIA Rail Canada coaches. The ready-to-run cars replicate details of the Budd-built prototype including complete underbody details and a realistic stainless steel finish. Additional features include tinted windows,

window blinds, individually molded seats and antimacassars, and simulated etched-glass decorative panels. The interior lighting is track-powered. Canadian flag and “Canada” decals are included with each car.Pricing and ordering information are available on their website.

Rapido continues development work on HO scale versions of the Canadian-built FPA-4 and FPB-4 passenger locomotives. The model is being produced by Rapido exclusively for MLW, which is a contemporary model train investment company, not the now defunct Montreal Locomotive Works.

However, it will be available through all regular Rapido dealer outlets. The FPA-2 profile and Alco 251 prime mover made the prototypes unique to Canadian National. They were delivered from Montreal Locomotive Works in 1958 and ‘59 and continued in Canadian and American main line service into the late 1980s. Many of the retired FPA-4 and FPB-4 locomotives have found new life on tourist railroads across the United States.

A principal feature of the model is the accurate rendering of the unique FA nose. The design of the HO scale nose is based on a series of 3D scans of a prototype FA locomotive at

Exporail, Canada's National Train Museum. Additional features include complete underbody detail including all pipes, frame members and brake chains, operating dual-beam headlight, ditch lights, class lights, rear lights, cab interior on the A unit, and metal Macdonald-Cartier couplers. The models will be available for standard DC operation (DCC-ready with a 21-pin quick plug for an after-market decoder) or DCC with factory installed ESU LokSound decoders loaded with correct FPA-4 sound field recorded by Rapido.

The initial release will be decorated for CN (1959 scheme), CN (zebra scheme with noodle logo), VIA-CN (CN colors, wiped nose), VIA-CN (blue and gold scheme with CN on nose), VIA Rail Canada, Grand Canyon Railroad, Napa Valley Wine Train, and New York & Lake Erie. An undecorated version is also planned. Availability is expected late this year. Visit the above website for additional details including pricing.

Three new freight cars, including a type 103W 10,000 gallon welded tank car, are scheduled for release from **Red Caboose** this summer. Road names on the HO scale ready-to-run tankers will be UTLX, SHPX, Texaco, Sunco, GATX, Tidewater Flying A (black), Flying A (silver), Richfield, Warren, Atlantic Coast Line, Phillips 66, and Sinclair. Conoco cars will be available in both silver (above) and black schemes. Food industry tank cars will be available for Roma Wine, Fruit Industries, and Ambrose Wine.

The next production run of general service drop-bottom gondolas from Red Caboose will be decorated for Northern Pacific, Western Pacific, Denver & Rio Grande Western, Illinois Central, and Milwaukee Road. Also included are two Southern Pacific cars including a 1956 repaint and a car with extended sides for beet service, as illustrated above.

1937 AAR boxcars with double doors will be available from Red Caboose for Soo Line, Lehigh Valley, New York Central, Northern Pacific, Southern Pacific, Atlantic Coast Line, MKT, Cotton Belt, and Seaboard Railway as illustrated above. Three Union Pacific cars will be available in different paint schemes: standard boxcar red; BCR with a red, white and blue shield; and yellow with Automated Railway slogan. InterMountain Railway is responsible for marketing Red Caboose products. For additional information visit intermountain-railway.com.

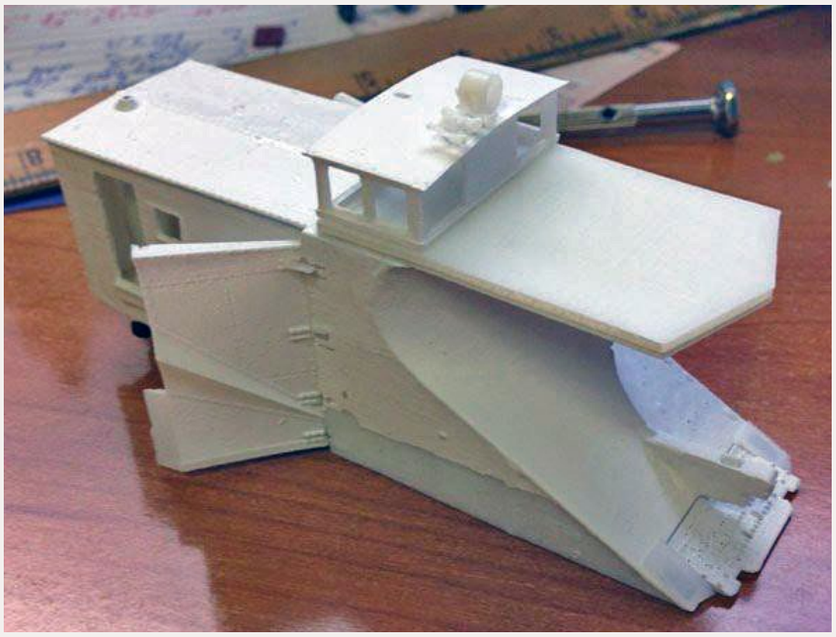
Tangent Scale Models (tangentscalemodels.com) has introduced an HO scale Pullman-Standard PS-2CD 4750 covered hopper. The PS4750 was the largest production covered hopper in history, making it suitable for any model setting from the 1970s to date. Tangent

has rendered the PS4750 in a dimensionally-accurate replica with authentic decorating schemes and accurate lettering fonts and stencils. Additional details include see-though metal running boards and crossover platforms, wire grab irons, uncoupling bars, separate air hoses, and Tangent 100-ton trucks with machined metal 36” wheels.

The model replicates the same variations in road-name details as Pullman-Standard applied to the prototype. Examples include variations in brake systems, outlet gates, roofs, roof hatches, roof overhangs, running boards, crossover platforms, end ladders, jacking pads, brake wheels and brake wheel housing. This is an accurate model with more than 100 parts per car including Kadee couplers, metal wheelsets and Tangent 100-ton trucks.

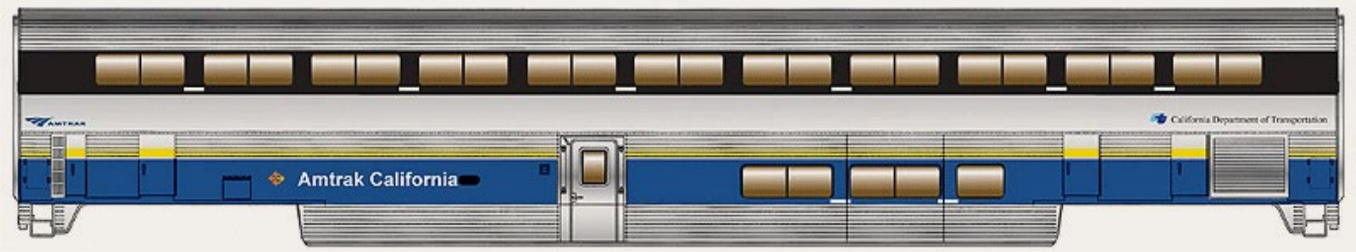
Roads currently available include a CRDX-Manitoba (gray with separate Manitoba provincial coat-of- arms) as seen here. Additional roadnames are ATSF-Atchison Topeka & Santa Fe class GA-191 (1975 red scheme); CNW-Chicago & North Western (1974 dark green with yellow lettering); CNW- Chicago & North Western (1974 blue faded to 1990s look); DRGW-Denver & Rio Grande Western (orange scheme with large DRGW logo); SOO- Soo Line (white body, yellow wheat stalk, dark green lettering); and PTLX-Percival Grain, Percival, IA (blue and black body, white billboard lettering). An undecorated kit for a car from the 1974-‘75 era is also available. Tangent’s PS4750 has an MSRP of $44.95. Mixing for multiple car discounts on direct quantity purchases in increments of 6, 12, 36 and 48 is allowed. Visit the above website for details.

Here is a look at the pilot model of a single-track snow plow under development by **TrueLine Trains** (truelinetrains.ca). The HO scale model is based on a prototype built by Canadian Car & Foundry and used by Canadian Pacific, Canadian National

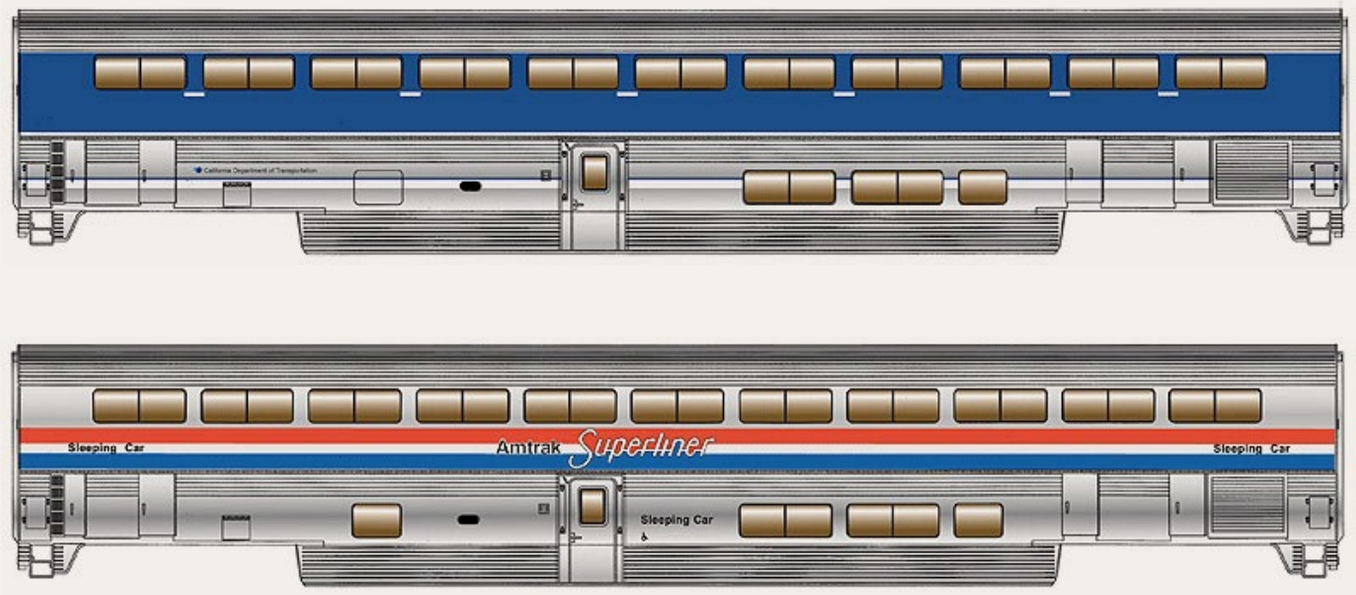


and other northern railways. Special features will include operational wings, code 88 stainless steel wheels, an ESU decoder, and Kadee #158 couplers. We don't know the minimum operating radius but according to TLT, the underframe is being designed to allow the plow to "navigate tight radii curves." Pricing and a firm availability date are pending.

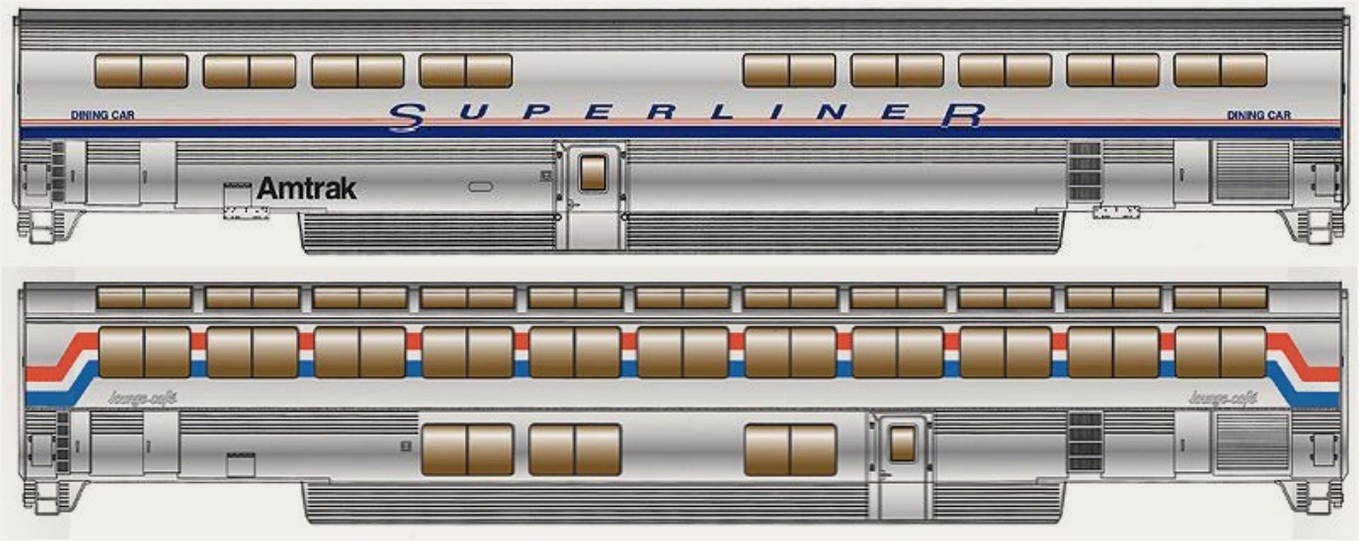
Trackside Scenery (tracksidescenery.com) has HO scale kits for shallow relief tenement structures. The kits combine photo-realistic print sheets with laser-cut wood components to create a shallow 3D structure. Currently available are variations of a run-down three-story tenement building. The kits are available direct with pricing for HO versions starting at $19.95. Visit the above website for details.



Walthers (walthers.com) is taking reservations for 85’ Amtrak Superliner I and Superliner II cars decorated in Phase III, Phase IVb, California, and Surfliner schemes. The ready-to-run models feature working diaphragms, metal grab irons, tinted windows, and both upper and lower interior details. The cars are painted with a metal finish that effectively simulates stainless steel. The first cars in the HO scale ready-to-run series scheduled for release in August include coaches decorated in the California (above) and Surfliner schemes (below).



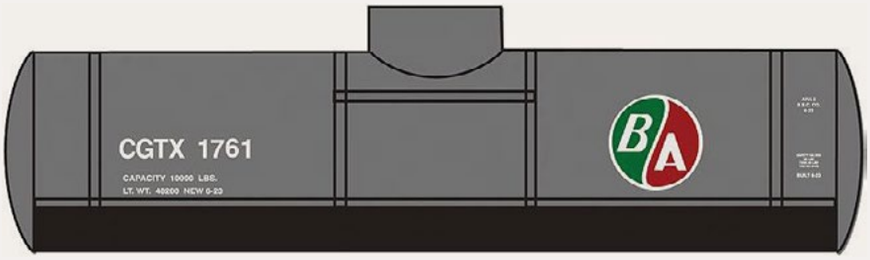
A September release date has been set for Superliner I Sleepers in Amtrak’s Phase III (above) and Phase IVb schemes. Superliner II Diners will be released in October in the Phase IVb (below) and Phase III schemes.



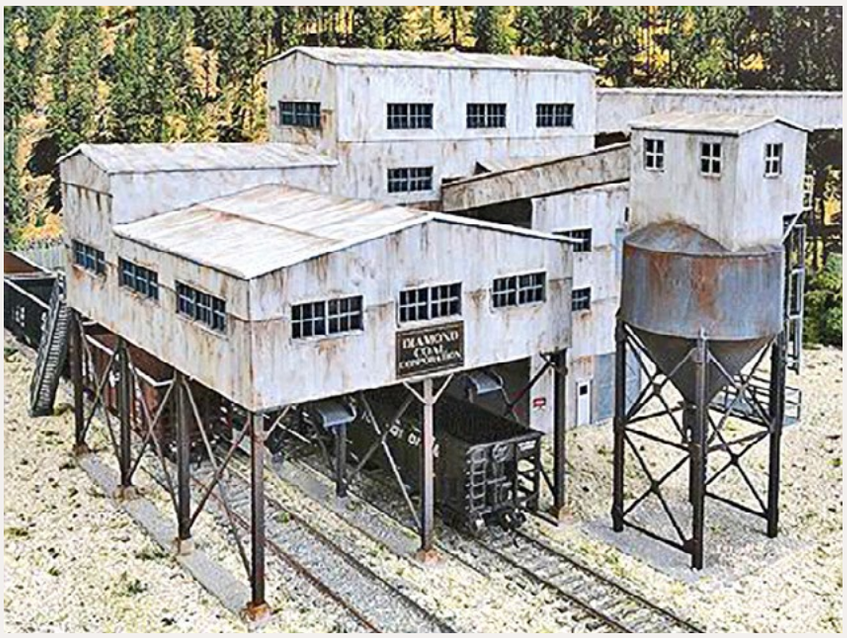
Scheduled for release in November is a Superliner I Lounge in the Phase III scheme (above). The series will be completed in December with the release of Superliner I Coach/Baggage cars in both the Phase IVb (below) and Phase III schemes.

The ready-to-run models will have an MSRP of $79.98. Lighted versions will list at $89.98. Visit the above website for additional information and images of all of the cars.

A 60’ Amtrak material handling car is due in September in both Phase III and IV schemes. Also in Phase III with a US Mail logo (above). The car will have an MSRP of $39.98.



The next production run of Walthers Mainline series 10,000 gallon 36’ tank car is scheduled for release in August. In addition to the CGTX-British American Oil car illustrated here, decorating schemes for the HO scale model will be Citgo, Gulf, Phillips 66, Sinclair, and Valvoline. The ready-to- run tanker will have an MSRP of $24.98.



Also scheduled for release next month is a Walthers Cornerstone™ kit for Diamond Coal Corporation. This is an impressive HO scale kit with a two-track tipple arrangement suitable for both steam or diesel eras. The corrugated metal structure with separate windows and doors is ideal for kitbashing or combining multiple kits. As shown here the finished model has a footprint of 19.375” x 13.1825” x 7.5” high. Diamond Coal has an MSRP of $49.98.

N SCALE PRODUCT NEWS

Athearn (athearn.com) will release another production run of its N scale Husky Stack cars early next year. Decorating schemes will be BNSF, CSX, Trailer Train, TTX, and TTX with a new logo as illustrated here. Features on the ready-to-run model include

etched metal walkways, separately applied brake rigging and brake wheel, and machined metal wheels. The MSRP will be $19.98 each.

Atlas Model Railroad Company (atlasrr.com) is preparing a Master series GP40/GP40-2 for release in the first quarter of next year. In addition to the CN unit shown, the GP40 version will be available decorated for Penn Central, Denver & Rio Grande Western, Soo Line, and The Rock.

The GP40-2 version of the diesel model will be available for Iowa, Chicago & Eastern; CSX; Western Pacific; Cotton Belt; and Ontario Northland as illustrated here. The N scale ready-to-run model will have an MSRP of $119.95 or $154.95 with a factory installed decoder.

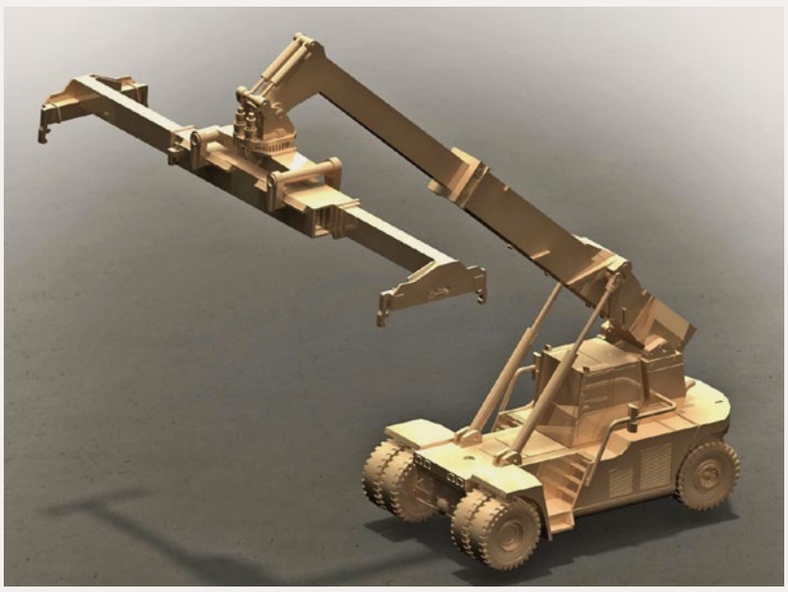
Also under development for release in the first quarter of 2015 is a pair of N scale ready-to-run freight cars. They include a Trainman series Thrall 4750 cu.ft. covered hopper decorated for Minneapolis, Northfield & Southern; Reading Blue Mountain & Northern, Crystal Car Line, and Canadian National. An undecorated version will also be available.

The 25,500 gallon general-purpose insulated tank car illustrated here is based on a prototype built in 1986. Atlas will offer an N scale ready-to-run version in its Master series decorated for CHSX-Harvest States, CTCX-CIT Group, TILX (vegetable oil), TILX (crude oil), and Transportation Equipment Co. Visit the above website for additional details including pricing.

The newest N scale items from **Bachmann** (bachmann-trains.com) include a locomotive for the point and a caboose to bring up the rear. The locomotive is an EMD GP7 equipped with a dual-mode DCC decoder for speed, direction, and lighting. In addition to the Rock Island unit illustrated here, road names are Union Pacific, Clinchfield, Pennsylvania, Denver & Rio Grande Western, and Jersey Central. The model has an MSRP of $139.00.

The latest release of Bachmann's N scale steel caboose is available with new numbers on some previously released road names as well as three new road names. The new road names are Boston & Maine, Delaware & Hudson, and

Norfolk & Western (blue scheme). Previously released road names that are now available with new numbers are Reading, Lehigh Valley (Tuscan red), and Western Maryland (speed writing). The ready-to-run model has an MSRP of $24.00 each.



Here is a computer generated look at a new Container Reachstacker coming from **Deluxe Innovations** (delux-etrains.com). The N scale ready-to-use model is based on a PPM Super Stacker prototype which later became part of the Terex line of equipment. The model is plastic with a heavy die-cast undercarriage. All wheels roll and the arms and rear wheels are positionable. The initial run will be decorated in generic colors (yellow, red, orange, and blue) with manufacturers' logos. The tentative MSRP is $79.95. Railroad names and decorating schemes are expected to be announced soon at a slightly higher price.

KatoUSA (katousa.com) has introduced a new N scale turntable including new track pieces and turnouts associated with the table. The prototypically slow-moving bridge, which is 6.3" long, takes approximately one minute to complete a 360 degree rotation. Additional illustrations, specifications, and pricing are available at the above website.

Kato is scheduled to release Union Pacific and BNSF (swoosh scheme) versions of its N scale ES44AC locomotive this month. They will be followed in August by the release of a CSX version in the dark future scheme as illustrated here. The production run is scheduled to be completed in September with the release of ES44AC locomotives decorated for Canadian Pacific and Canadian National. More information including pricing is available at their website.

Micro-Trains Line (micro-trains.com) has released several new N scale items including a Norfolk Southern SW1500 diesel switcher. The model has an MSRP of $109.95 and is DCC Plug 'n Play ready.

Micro-Trains continues to expand its selection of heavyweight passenger equipment. The newest addition is a New York Central parlor car decorated in the road's post-war two-tone gray scheme. The ready-to-run model has an MSRP of $29.35.

This new Western Pacific 40’ stock car from Micro-Trains has an MSRP of $16.95.

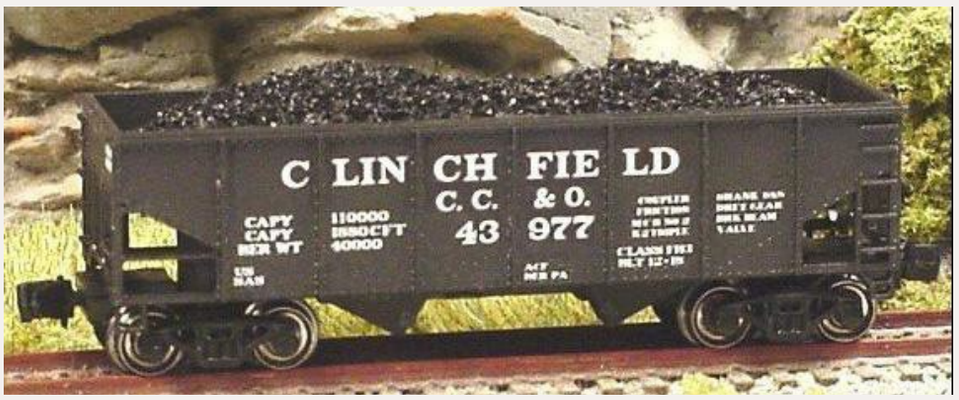
Micro-Trains’ newest N scale tanker is a 39’ single-dome car decorated for White Eagle Petroleum. It has an MSRP of $26.95.

This 50’ 14-panel steel gondola decorated for Canadian National comes with a load of large rocks. The model, which rides on National B-1 trucks, has an MSRP of $25.70. Additional new releases from Micro-Trains include a 40’ Norfolk & Western boxcar painted black with bold white lettering, and a Minnesota Dakota & Western 50’ rib-side boxcar with a plug door and sliding door. Visit the above website for information and pricing on other products available from Micro-Trains.

Monroe Models (monroemodels.us) is selling a group of kits for a variety of N scale fencing. The laser-cut material provides intricate patterns (ornate picket fence, above), as well as weathered fencing with random broken boards and knot holes (junk yard fence, above). Additional types include straight picket fencing and barn yard fencing. Each kit has several gates

and provides sufficient material to make over 330’ of fence. Visit the above website for pricing and additional details.

Z SCALE PRODUCT NEWS



Full Throttle (wdwfullthrottle.com) is selling Z scale models of Clinchfield 33’ twin-bay rib-side hopper cars. The open-top cars come with a simulated coal load. The models are manufactured for Full Throttle by Bowser and include Bowser’s Bettendorf-type trucks with blackened metal wheels. The ready- to-run Z scale models are sold in a collector two-pack at $42.00. Visit the above website for additional information including the availability of cars with different road numbers.

Micro-Trains Line (micro-trains.com) is selling a Z scale ready-to-run F7A

diesel locomotive decorated for Norfolk & Western. The MSRP is $109.95.

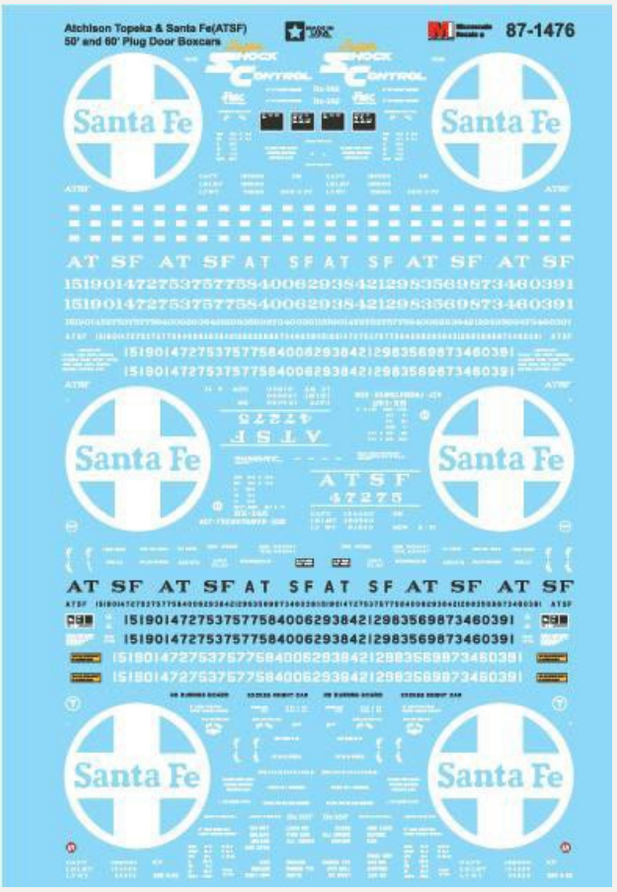
Also new from Micro-Trains is an ATSF 50’ rib-side boxcar with a plug door. It is decorated in the one-off Jekyll and Hyde dual red paint scheme. The unique car has an MSRP of $31.50.

This new Z scale TrailerTrain/CSX 70’ well car is being offered by Micro-Trains at an MSRP of $35.70.

NEW DECALS, SIGNS AND FINISHING PRODUCTS

Microscale (microscale.com) has released several new decals this month including sets for Maersk containers and ATSF 50’ and 60’ plug-door boxcars. The Santa Fe lettering set covers class BX-182, BX-145, and BX-187 boxcars. The lettering can be augmented with lettering sets MC-5002 (COTS panels), MC-4280 (ACI labels), and 87-1382 (ATSF boxcar data).

The new Maersk set will letter the 40’ and 45’ former Sea-Land international containers currently operated by Maersk plus lettering for a standard Maersk container. The bright blue 1110



Sea-Land name was acquired and assimilated into the operations of the A.P. Moller-Maersk Group in December 1999.

Additional new lettering sets from Microscale include CSX Intermodal (CSXI) 40’ and 48’ well cars with enough material to properly letter a five-unit Husky Stack of cars. Also, heavyweight passenger cars for the Reading Railroad Company including the streamlined Crusader, and New York Susquehanna & Western (NYS&W) SD40T-2, and SD70M diesel locomotives. Although specifically designed for the SD60, SD70M and SD40T-2 locomotives, the set will cover a variety of NYS&W hood diesels.

San Juan Decals (sanjuandecals.com) has introduced lettering sets for On3 scale Pacific Electric steam locomotives. The sets are priced at $8.95 each and contain sufficient material to decorate two locomotives. Available now are SJD-PEO White, SJD-PEO Grey, SJD-PEO Aluminum-Bronze. Also new is an On3 lettering set for a Colorado & Southern 30’ coal car (gondola) in the

Button Herald paint scheme. Item SJD-414 has sufficient material to letter one car. It is available at $9.95.

Mount Vernon Shops (mountvernonshops.com) is selling HO scale decals for Pennsylvania Railroad MOW equipment from 1960 forward. Each sheet has sufficient material (black lettering) to decorate two MOW cars of each generic type (flat car, gondola, camp car etc.) for a total of up to 17 cars. Item # HO-PWML is available through the above website at $13.00 plus postage.

Reader Feedback
(click here)

DISCLAIMER ..

The opinions expressed in this column are those of the writer and do not necessarily reflect the opinion of Model Railroad Hobbyist or its sponsors. Every effort is made to provide our readers with accurate and responsible news and information, however, neither Model Railroad Hobbyist or the writer of this column can be held responsible for any inaccuracies or typographical errors that may inadvertently appear in this column.

Send us your product announcements

If you are a hobby manufacturer with a product announcement, just click here and submit your announcement to us. Our web site and free magazine reach continues to grow, so get on board with this new media train that's hard to stop!

Briefly noted at press time...

. . . Tangent Scale Models has released the second production run of its highly-regarded General American triple-dome 6,000 gallon tank car. The HO scale cars are available now for STCX-Standard Tank Car Company (black), MPCX - Magnolia Petroleum Company (silver), GATX - General American Transportation (black 1941 scheme), GATX (black 1958 scheme), GATX (black 1968 scheme), GATX - Celanese Chemicals (jade green), HHCX - Champlin Refining Company Enid OK (white), and D&H – Delaware & Hudson Company Service (black). A black unlettered car is also available. Tangent owner David Lehlbach, told MRH he plans to be in Cleveland at the National Train Show later this month with lots of the new three-dome tank cars ready for immediate sale...

. . . Mystery loco. An unusual amount of hype built up late last month when sponsors of the Bay Area Prototype Modelers (BAPM) Meet announced that an unnamed manufacturer planned to unveil a 'mystery' locomotive at the BAPM meet scheduled for the weekend of June 21. Although three different pre-production samples of an HO scale GP60 were shown at the meet (Two Phase I versions that have never been done in HO before and a Phase II that has previously been produced by Proto2000/Walthers) the identity of the manufacturer was not revealed. MRH doesn't have any inside information on who the manufacturer is, but based on the general appearance of the models and the style of construction, we're betting on Fox Valley, an established manufacturer that has already done a GP60 in N scale. If the manufacturer, whoever it is, thought this type of product introduction would get folks talking about it... they are absolutely right. ■

TRAIN·MASTERS TV

Coming soon!

to MRH's premium web TV channel, TrainMasters TV

Back to the Basement

New Layout Construction Series

Also coming in the next 12 months ...

- George Sellios F&SM update
- Paul Scoles memorial
- La Mesa Club Tehachapi layout
- FreMo module-building series
- MRH Weekly Help Desk
- Historical prototype visits

***Exclusive! free* eBooks coming to TMTV...**

Structure plans
Loco kitbashing
Layout planning
Prototype info
... and more!

Super-saver prices in July and August

Become a TMTV member!

Selected Events

July 2014

CALIFORNIA McCLELLAND (Sacramento), July 16-20, National Summer Steam Up – Small-Scale Live Steam Event, HQ at Lions Gate Hotel. Info at **summersteamup.com**.

KANSAS, OVERLAND PARK, July 26, NMRA Turkey Creek Division Annual Train Show, at Shawnee Mission North High School, 7401 Johnson Drive, info at **tc-nmra.org**.

NEW JERSEY, GLASSBORO, July 12, Annual Train Show sponsored by the Strasburg Model Railroad Club, at St. Thomas Parish House, Routes 47 & 322 Focer Street. Info from Dave Luciano at **luciano1@comcast.net** or call (856) 988-0689.

OHIO, CLEVELAND, July 13-20, NMRA National Convention. Info at **2014cleveland.org**.

OHIO, CLEVELAND, July 18-20, National Train Show at New Cleveland Convention Center, 300 Lakeside Avenue. Info at **2014cleveland.org**.

TEXAS, SAN ANTONIO, July 26-27, 12th Annual Summer Family Train Show, sponsored by San Antonio Model Railroad Association, at Carmack Event Center, 1948 Austin Highway. Info at **samratx.org**.

WISCONSIN, LA CROSSE, July 19, 4000 Foundation Rail Fair, model railroad swap meet plus tours of restored CB&Q locomotive 4000, Milwaukee Road caboose 0359, and Grand Crossing Signal Tower. Sponsored by 4000 Foundation, at Copeland Park. Info at **4000foundation.com**.

August 2014

CANADA, ONTARIO, THUNDER BAY, September 30-October 3, Canadian Railway Modellers convention with clinics, prototype tours, a banquet with guest speaker, and railfanning, at Prince Arthur Waterfront Hotel. Info at **caorm.org/crc2014**.

ARIZONA, PRESCOTT, August 16, Annual Beat The Heat Swap Meet, sponsored by Central Arizona Model Railroad Club at Prescott Activity Center, 824 E. Gurley Street. Info from Steve Bumgardner at 928-775-3184.

CALIFORNIA, TEHACHAPI, August 9-10, Summer Model Train Show, sponsored by Tehachapi Loop Railroad Club, at West Park, 491 West D Street. Info at **tehachapilooprailroadclub.org**.

FLORIDA, THE VILLAGES, August 16-17, Summer Model Train Show and Sale at Savannah Regional Recreation Center, 1545 Buena Vista Blvd. Sponsored by The Villages Railroad Historical Society. Info from Alan Goldberg 352-205-4322, or email **amgold15@hotmail.com**.

****ILLINOIS, COLLINSVILLE (Metro St. Louis, Missouri),** August 8-9, St. Louis Railroad Prototype Modeler's Meet, at Gateway Convention Center. Featuring clinics by David Lehlbach, Pierre Oliver, Clark Propst, Jared Harper, Ed Hawkins, and Bill Schaumburg. View St. Louis RPM 2012 video produced by Ken Patterson for Model Railroad Hobbyist magazine at **youtube.com/watch?v=oins4ipx68E**. Further info at **home.mindspring.com/~icg/rpm/stlrpm.htm**.

MISSOURI, ST. LOUIS, August 24, Annual Model Train Show at the Museum of Transportation, 3015 Barrett Station Road. Info at **transportmuseumassociation.org**.

NEW HAMPSHIRE, CONCORD, August 17, 29th Annual Train Show, sponsored by Concord Model Railroad Club, at Everett Arena. Info at **trainweb.org/cmrc/index.html**.

PENNSYLVANIA, EVERETT, August 23-24, N-Scale Weekend Model Train Show, sponsored by Bedford Model Railroaders, at Sportsplex, 125 Willow Grove Drive.

VIRGINIA, CHANTILLY, August 7-10, Capitol Limited N Scale East Convention, co-sponsored by Northern Virginia NTRAK and Greenberg Train and Toy Shows, at Dulles Expo Center. Additional information available at **info@bigtrainlayout.org**.

Future 2014 (by location)

CANADA, QUEBEC, LAVAL, October 4-5, The North Shore Train Show, at Complexe Multi-Sports, 995 rue Bois-de-Boulogne. Info at **salondutrainrivenord.org**.

CALIFORNIA, SAN DIEGO, September 3-7, 2014 NMRA Pacific Southwest Region Convention, at Marriott Courtyard Hotel, 595 Hotel Circle South. Info at **psrnmra.org**.

FLORIDA, PALM BAY, December 21, HO Scale Module Display sponsored by Palm Bay Model Railroad Club, at Franklin T. Degroodt Memorial Library, 6475 Minton Road.

GEORGIA, KENNESAW, September 19-20, Atlanta Railroad Prototype Modelers Meet, jointly sponsored by the Southern Railway Historical Association, Atlantic Coast Line & Seaboard Airline Railroads Historical Society, Central of Georgia Railway Historical Society, and Nashville, Chattanooga & St Louis Preservation Society. At the Southern Museum of Civil War and Locomotive History, 2829 Cherokee Street. Info at **srha.net** or contact Frank Greene at **frgreene290@comcast.net**.

ILLINOIS, NAPERVILLE, October 9-11, 21st Annual Naperville RPM Conference, hosted by Joe D'elia at Sheraton Lisle-Chicago Hotel, 3000 Warrenville Road, Lisle. Info at **railroadprototype-modelers.org/naper_meet.htm**.

INDIANA, DANVILLE, November 22, NMRA Central Indiana Division Train Show, at Hendricks County Fair Grounds. Info at **cid.railfan.net**.

INDIANA, MIDDLEBURY, September 12-13, NMRA Michiana Division 2014 Education & Training Conference, at Das Dutchman Essenhaus Conference Center. For info send email to **danbrewer.nmra@yahoo.com**.

KANSAS, OVERLAND PARK (Metro Kansas City, Missouri), September 3-6, 34th National Narrow Gauge Convention. Info at **kansascity2014.com**.

MASSACHUSETTS, PALMER, September 11-14, NMRA NER Convention. Info at **nediamonds2014.org**.

MICHIGAN, MUSKEGON, October 26, Fall Model Train Show, sponsored by Muskegon Railroad Historical Society, at Golden Token Hall, 1300 E. Laketon Ave. Info at **mrhs-online.org**.

NEBRASKA, NORTH PLATTE, September 19-21, North Platte 2014 Rail Fest Model Train Expo, at National Guard Armory, 1700 N. Jeffers St. Info at **nprailfest.com**.

OHIO, WEST CHESTER, October 11-12, NMRA, Mid Central Region, Cincinnati Division 7, 47th Annual Model Railroad Show. At Lakota West High School, 8940 Union Centre Blvd. Info at cincy-div7.org. Sales table info from Roy Hord at (513) 777-5337 or **rhord@fuse.net**.

TEXAS, FOREST HILL, Oct 11-12, Texas Western Train Show featuring model train modular layouts, vendor displays, clinics, nearly 100 sales tables, contests, door prizes, and free parking. At Forest Hill Civic and Convention Center, 6901 Wichita Street. Info at **twtrainshow.com**.

VERMONT, RUTLAND, September 27, Rutland Train Show, featuring model trains, railroad history, and vendors. Co-sponsored by the Rutland Railway Association and Rutland Railroad Museum. Holiday Inn on State Route 7. Info at **therutlandrailwayassociation.org**.

VIRGINIA, FREDERICKBURG, September 12-13, Mid-Atlantic Railroad Prototype Modelers Meet, with model displays, clinics, and RPM camaraderie. Wingate by Wyndham Hotel, 20 Sanford Drive. Info at **marpm.org**.

Future 2015 (by location)

FLORIDA, COCOA BEACH, January 8-10, 2015, Prototype Rails RPM meet hosted by Mike Brock, at Cocoa Beach Hilton Hotel, 1550 North Atlantic Avenue. Info at **prototyperails.com**.

OREGON, PORTLAND, August 23-30, 2015, NMRA National Convention and National Train Show. Info at **nmra2015.org**.

PENNSYLVANIA, PHILADEPHIA, May 15-17, 2015, Biennial Meet of the East Penn Traction Club, at Pennsylvania Convention Center. Info at **eastpenn.org/2015_meet_announcement.htm**.

TEXAS, HOUSTON, September 2-5, 2015, 35th National Narrow Gauge Convention. Info at **nngc-2015.com**.

WASHINGTON, BELLEVUE, April 16-18, 2015, 30th Annual Sn3 Symposium at The Bellevue Sheraton, 100 112th Ave NE.

Yes, Virginia, MRH is indexed.

Click here to learn more about looking up articles in the online index by Rod Goodwin.

Future 2016 and beyond (by location)

INDIANA, INDIANAPOLIS, July 3-10, 2016, NMRA National Convention and National Train Show. Info at nmra2016.org.

MAINE, AUGUSTA, Sept. 7-10, 2016, 36th National Narrow Gauge Convention. Info at nngc2016.org. ■

Reader Feedback (click here)

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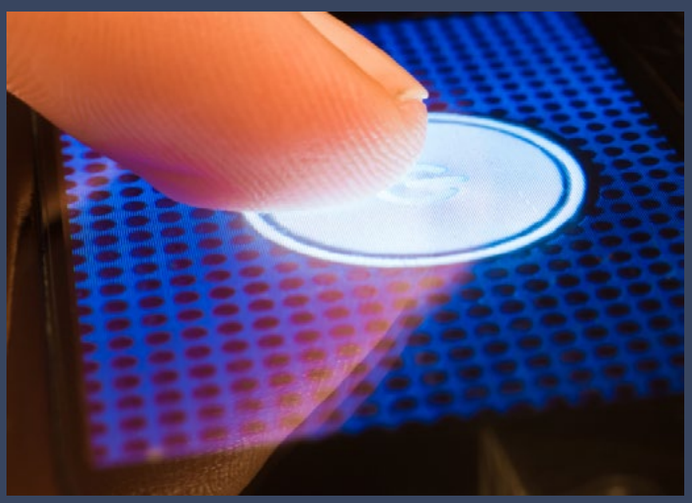
Next generation of DCC system?

Reverse Running: Stepping outside the box with a contrary view

by Joe Fugate



Reader Feedback
(click here)

In the computer/electronics world, anything over five years old is ancient obsolete technology, and anything over 3 years old is on the verge of obsolete.

When I look at the current DCC systems by Digitrax, NCE, Lenz, EasyDCC, MRC (and others like Zimo) what do I find? I find systems essentially unchanged since the mid 1990s. That means our current DCC user interface and system technology is now going on 20 years old!

This makes DCC systems a literal dinosaur. These systems were designed before cell phones, before tablets, and in fact almost before laptops! I believe we're long overdue for the next generation of DCC systems to emerge.

Modern touch interfaces are taking the world by storm, and there's one new model railroad system that's not even DCC, but it's clearly in step with the times: RailPro. Its touch-screen, direct-to-the-loco approach feels a lot more modern than our 20-year-old DCC system technology.

If model railroading is to appeal to the younger generations who have grown up with computer games and now mobile devices, moving to updated technology will become a require-

ment or you risk having your market share eroded by some upstart who delivers a fresh, new system and interface that's up with the times.

I can tell you my 13 year-old grandson took to RailPro like a duck takes to water. I had to explain to my grandson how to use an NCE throttle and all its buttons, but when I handed him the RailPro system that MRH got to demo, my grandson took off with virtually *zero* explanation.

I am also hearing stories from older guys who are using RailPro[1] – the visual touch interface is so much easier to understand and navigate than the old-school and somewhat cryptic interfaces common to today's DCC systems. These systems were modern in the 1990s, but they look hopelessly dated today.

As high-tech consumer devices continue to advance toward ever simpler and more friendly interfaces, people will naturally compare model railroading technology (or any hobby's technology) to what they're used to with the other devices they encounter in their daily lives. If model train technology appears ancient by comparison, many newcomers to the hobby are going to write our hobby off as antiquated and irrelevant.

The model railroad tech running our trains *must* get updated to modern expectations or we risk being written off by the public. I also see this as a grand opportunity for some upstart company to capture significant market share from the entrenched DCC system vendors if they don't update their UI's soon.

So what about it? Are there any vendors willing to show us all what a DCC system designed in the 21st century can be like? ☑

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1 RailPro isn't perfect, but it shows what's possible with a state-of-the-art system design. The DCC system vendors should ignore RailPro only at their own peril.

Derailments

humor, bizarre and fun facts (allegedly)

This one may make you a little dizzy watching it, but it is the true definition of a spiral!

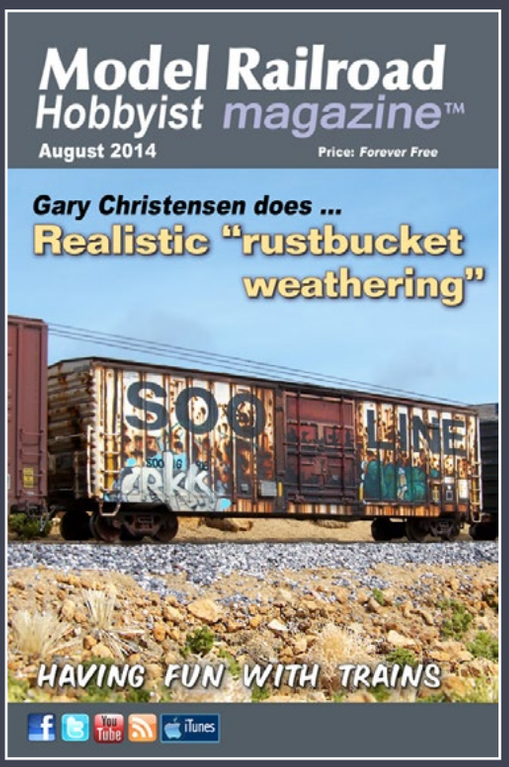
If you're the first to **submit a bit of good humor or bizarre facts** and we use it, it's worth $25!

Reader Feedback
(click here)

For the love of model trains

Coming in the August issue

- Ultra-realistic "rustbucket" weathering
- Railroading blogs
- Realistic switch control
- Building your first resin car
- Introduction to modeling in 3D
- Another $500 layout contest winner
- *...and lots more!*



More Derailments humor and bizarre facts ...

Dialog overheard from an all-female loco cleaning crew ...

"Shirley, do you think we will ever get those boys to clean up after themselves?"

"I doubt it, Marge."

Photo from Pinterest women in railroading gallery