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Model Railroad Hobbyist magazine™

March 2014

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Guy Cantwell on ...

Batch building freight cars



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MRH-Mar 2014



Model Railroad Hobbyist magazine™

Issue 49

Front Cover: Guy Cantwell demonstrates tips and techniques that can help you improve your modeling as well as reducing the time required for each individual car.



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Issue password: Mar2014

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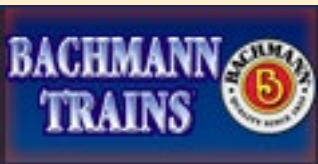
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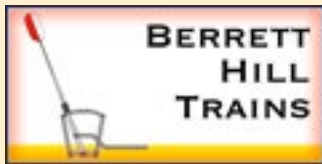
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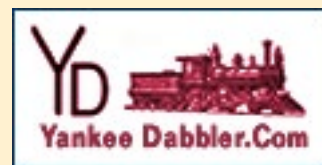
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by Guy Cantwell



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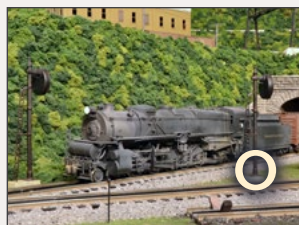
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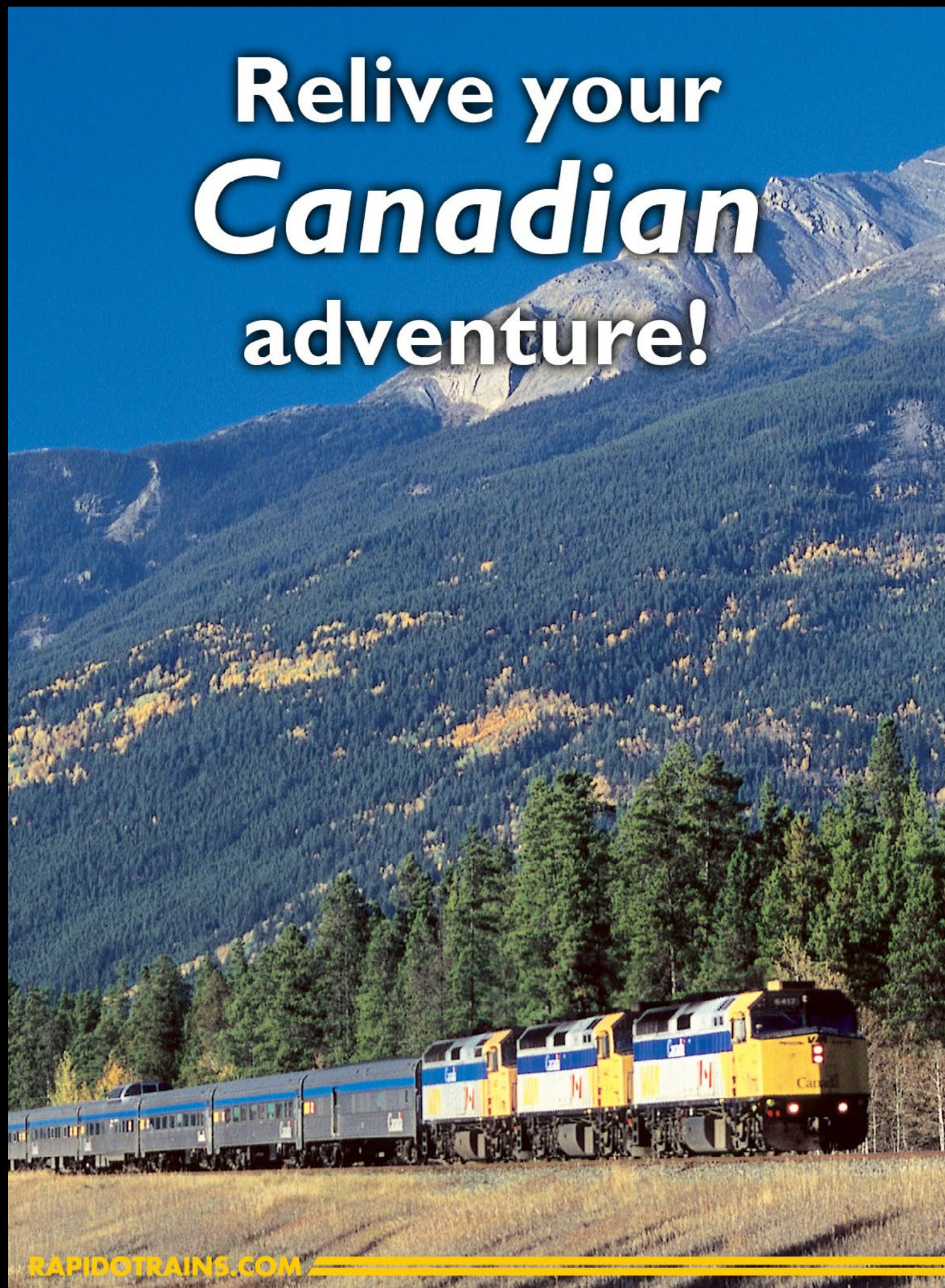
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Moving beyond intimidation

Stepping out of your comfort zone



Assistant Editor's editorial by Don Hanley

Last month Joe brought up an interesting subject of inspiration vs. intimidation [MRH Feb 2014](#). I am going to take it a step further.

The Olympics just ended in Sochi. The Olympians trained for thousand of hours with the goal of winning a gold medal. If I were to ask a biathlon skier to compete in figure skating instead, or vice versa, I am sure they would look at me like I'm nuts. They did not train for that event, even though they are Olympic athletes.

In the same way, each and every one of us has our comfort zone – that area where we are confident in what we do. Working within your comfort zone takes very little effort. You know the routine – what works and what doesn't. The danger of staying within your comfort zone is that you don't grow.

In our pursuit of the hobby, each and every one of us have certain segments where we are proficient, and others where we...well let's say not very proficient at all. Some segments are natural for us because they falls within our natural inclination or professional training. There are those who are naturally artistic so painting a backdrop or composing a scene is



second-nature to them. There are others who have degrees in electrical engineering, so wiring and electrical circuits are no mystery to them.

However if you ask an artistic individual to work on wiring or an engineer to paint a backdrop, each will most likely panic, thinking, I can't do that. We, like the Olympians, can identify where we excel and where we stumble. Those areas or segments of the hobby where we stumble are outside our comfort zone, and therein lies the challenge. Are you intimidated or inspired?

Inspiration to move outside your comfort zone requires courage, work, and education. How many of us have had the old saying drilled into our heads, "if you are going to do it, do it right." You need to overcome the idea that, as adults, we must do it right or to perform to gold-medal standards the first time out of the gate. Instead let's take the approach of children learning to walk. They really don't care how many times they fall down – they get up and try again. Soon they are running all over the place and into everything, much to the parents' chagrin.

In the same way, when I move into a new segment of the hobby, I am often frustrated. I try something new and it doesn't work the way I envisioned. So I tear it apart or trash it, and start over. Often it is the third or fourth attempt that I am successful. Unfortunately, I think too many stop trying after the first or second attempt.

So am I proficient? Not really; I have only figured out how to achieve results that are acceptable, as well some methods that don't work. I have not achieved the skills of a master; that requires a lot more practice. My progress was not automatic, but rather about taking control of my growth in the hobby.

When I have a contact or meet a fellow modeler who is much better at a skill I am attempting to improve, I ask questions, such as:

How did you achieve that effect?

What type of tools are required?

What sort of problems should I look out for?

Do you have any recommended resources?

Can you tell me what didn't work?

I am not expecting a complete how-to tutorial, but rather little bits of information. I then take information and apply it on my current project, or on my next project.

Even in areas of the hobby where I am confident of my abilities, I am open to learning more. I do not consider myself an expert who knows everything, nor should you. There are new products and methodologies arriving on the scene constantly.

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If I learn of a new way of approaching a task, or a new technique, does it mean I have to use it? No, but I may find something useful that will allow me to modify how I approach a task or technique.

So how do I know if I am improving in my skills, or what is the quality of my modeling? I ask for honest feedback. This takes courage and the willingness to hear comments that I may not necessarily like. But the feedback taken to heart can be very constructive. It allows me to measure my abilities, and provides a benchmark for my skills. Without the feedback, I have no way to measure my growth in the hobby.

To further my growth in the hobby, I recently decided to pursue the NMRA Master Model Railroader merit achievement. In reading through the requirements for the different categories, I suddenly realized that my goal is more involved than I had anticipated, and a lot more growth is required to achieve it. To complete the achievement, I must step outside my comfort zone in several areas.

While achieving the goal may take more effort and time than I initially anticipated, in the long run the journey will be worth it. In parting, I would like to leave you with this quote from Henry Ford - "Whether you think you can or you think you can't - you're right."

▶

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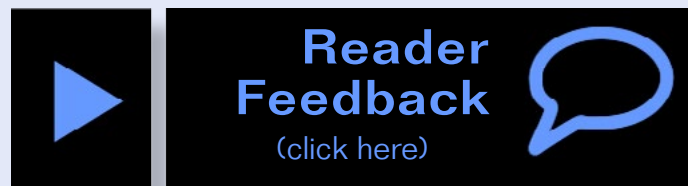
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Notes from the MRH STAFF

500-dollar layout contest winners, articles we need, and more ...



\$500 dollar layout contest winners

For the last two years, we've been running a \$500 layout contest to see how creative we can be in showing new modelers how they might be able to get started in the hobby.

We've finished judging this year's entries and we have selected the winners.

Grand prize winner: The Illinois Railway traction layout, submitted by Tyrone Johnsen.

First place winner: Modeling a Short Line by Eugene Griffin.

Second place winner: Kayton Short Line by Robert Douglas.

Third place winner: T-Trak modules by Thomas Tuerke.

Honorable mention: Intermodal terminal by Philippe Grégoire.

Each of these winners will get their submission published, and the submitter will get paid for their article plus a bonus appropriate for their award level.



Feb 2014 MRH Ratings

The five top-rated articles in the [February 2014](#) issue of MRH are:

- 4.7 DCC Impulses: Unraveling DCC addresses
- 4.7 Journey to Allagash Country, part 2
- 4.6 Structures in tight places
- 4.5 Questions, Answers, and Tips
- 4.4 Publisher's musings - Intimidated or inspired?

- Issue overall: 4.4

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 this year, we are also including the following prizes:

- Grand prize: Free two-year subscription to TrainMasters TV
- First place: Free one-year subscription to TrainMasters TV
- Second place: Six months of TrainMasters TV for free
- Third place: Three months of TrainMasters TV for free
- Honorable mention: One month of TrainMasters TV for free

If the winner already is a TrainMasters TV subscriber, then we will extend their current subscription by the amount of the prize.

TrainMasters TV questions and answers

We've received a few questions on TrainMasters TV and how it's priced, so here's the questions and some answers.

“Why are there videos being shown on TMTV that I have previously purchased as DVDs? Isn't that double charging customers for the same product? Would like to hear how this is justified. Thank you.”

More than a few TMTV subscribers have not seen these *Model Trains Video* titles, plus we hear from some TMTV members that they like that all these videos will now be at their fingertips.

The intention ever since the TrainMasters idea was formed way back when was to move the *Model Trains Video* video archive to TMTV as a convenience for those who currently own the videos and as new content for those who haven't ever purchased these videos.

Also, don't overlook that you've had these DVDs for years already and have benefited from that on DVD players or on computers. Now this content will be at your fingertips on your smartphone or tablet as well!

Save yourself some money

Now that you know this is the trajectory for the *Model Trains Video* archive, if you don't own some of those video titles, then just wait. All of the *Model Trains Video* titles are coming to TMTV in time.

Finally, *Model Trains Video* will be doing new titles in 2014. If you're a TMTV subscriber, no need to buy the DVDs unless you really want DVDs. Just wait, and those DVD new titles will also be coming to TMTV.

We see this archive content as an extra benefit to TMTV subscribers. The new TMTV content is what you are paying for and our promise was to get you more than 60 minutes of all new content every month.

In February, TMTV added 2 hours and 10 minutes of all-new video, and 66 minutes of video from the *Model Trains Video* archive.

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Compare that to other model railroading internet video providers like *Model Railroader Video Plus*. I think you will find they're adding more titles per month than we are, but the total all-new video minutes they're adding each month is less than 50% of what TMTV is adding every month.

Which would you rather get: five 2-3 minute cursory videos or a 10-15 minute in-depth video?

TrainMasters TV clearly shows you the amount of video minutes you're getting each month, but the competition doesn't openly publish their total minutes posted because it doesn't compare favorably with what you're getting from TMTV.

Is all the new stand alone video going to TrainMasters TV, or will Model Trains Video be doing any more new DVDs?

Okay, you know how Hollywood movies work, right?

- Movie is released to theaters
- About 6 months later, the movie comes out on DVD

Those who can't wait will go see the movie now. Those who can wait will get the movie on DVD. Some will see the movie and will also get the DVD.

Here's how our videos will work

- DVD comes out from Model Trains video
- Same video comes to TrainMasters TV about 6 months later

Some will want the video on DVD regardless. Others will just wait for the video to come to TMTV. Others, who are TMTV subscribers, will also get the DVD even though they know it will be on TMTV because they like having a DVD version.

The last video we released on DVD was volume 2 of Mike Confalone's *Scenery modeling outside the box*, which was released 16 months ago now (November 2012).

Any DVD title older than 6 months is a candidate for going to TMTV.

Is reliable battery power here yet?

For HO scale and smaller, is reliable battery power here yet?

For G scale, battery power has become quite popular because there's plenty of space for batteries. Even with O scale, there's roughly 8 times the space that you have in HO for batteries and a wireless DCC receiver board.

Two of the more popular wireless DCC and battery powered systems we're aware of are Northwest Shortline's Stanton system,

March 2014 Bonus Extras!

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DVD and HD quality versions of the videos in this issue, plus:

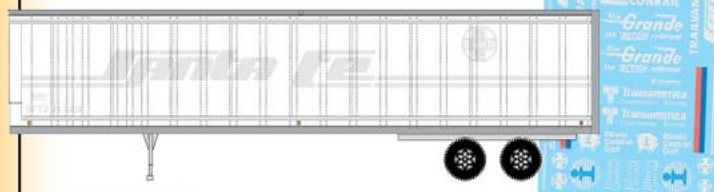
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Assorted Tank Cars



MC-5033, 60-5033 & 48-5033 (WHITE)
MC-5034, 60-5034 & 48-5033 (BLACK)
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and TAM Valley's Dead Rail System.

Each of these two systems have advantages and disadvantages as we see it.

The Stanton System comes with a basic handheld wireless DCC throttle, but it's pretty basic. You can't access all the CVs in sound decoders with it, for example.

On the plus side, the Stanton system comes with a nice battery circuit board that steps up the power, allowing you to use a smaller, lower voltage battery.

And even better, the Stanton system has the capability to charge the battery from the rails.

With TAM Valley's DRS-1 system, you add a transmitter to your existing DCC system and you can use your current DCC system throttles to send wireless DCC signals to the DRS-1 receiver in the loco.

However, TAM's system doesn't have a very well-developed charging system or voltage step-up approach. TAM recommends you remove the batteries from the loco and recharge it that way. Or if you are clever, add a recharging jack somewhere on your loco so you can "plug it in" to recharge it.

Is anyone out there experimenting with these systems? If so, we'd like to hear from you. MRH is also doing experiments and we hope to bring you some authoritative results in the months ahead.

Along with that, we also have a review of the Stanton system from Bernie Kempinski coming in the April MRH. Bernie's using battery power in his O scale Civil War steamers.

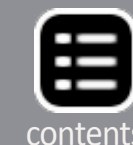
We got a chance to try this out at the Atlanta Convention last summer on Bernie and Gerry Fitzgerald's O scale Civil War modules. Never a concern about shorts or a stuttering locomotive with contact problems!

So contact us if you have some experience with these systems. We'd like to add that into the projects we're doing to get the best report possible on the state of wireless and battery powered DCC in the hobby.

State-of-the-art article submission

As Internet technology improves, it's getting ever easier to submit article to MRH. We thought it would be good to discuss the latest and easiest way to get your article to us.

First, we assume you are using some kind of word processor to put your article together. The following are your most common choices:



1. Microsoft Word
2. Open Office (free)
3. Libre Office (free)
4. Google Docs (free)

While Microsoft Word is a fine choice, the free ones work just as well for building articles to submit to MRH, so you don't need to spend any extra money if you don't want to.

When building your article, we're finding it's just as easy if you will paste your images inline in your text where you think they go, and put your caption underneath the image in a bold font.

For your images, make them at least 2400 x 1800 pixels, and paste them in at that size, don't reduce their resolution. You can scale them down to fit the page in your document.

Once you're all done with your document, save it as PDF. All these writing tools have a save as PDF option, so go ahead and use it. This packages up all your article pieces-parts into one combined document package.

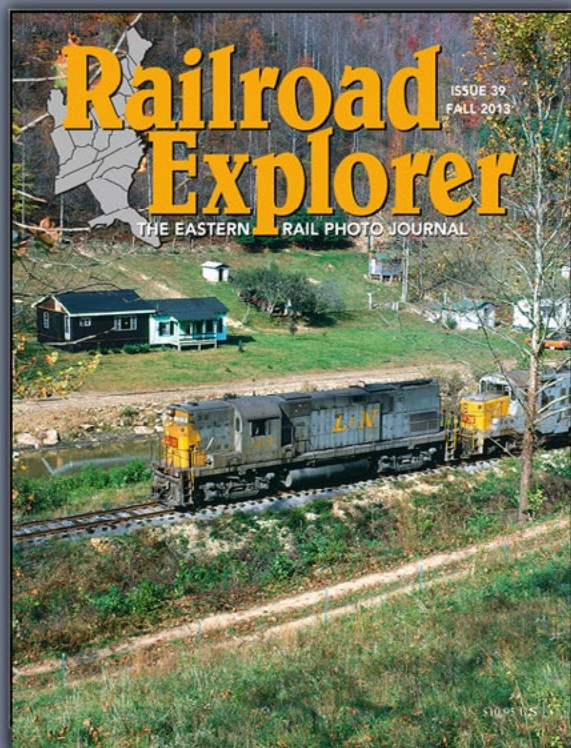
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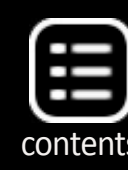
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The one exception to this will be if you have video content to send to us. You will need to send us the video as a separate file. Even short videos can get quite large, so Google Drive is your best bet there.

When preparing video for submission to us, we prefer at least 1080 x 720 high-definition, render as a high quality MP4 or WEBM format. High quality is generally at least 8 mbps, with 15 mbps even better.

You will find most of this summarized in the submission guidelines on the mrhmag.com website under the Authors menu.

Reminder: MRH discount for TMTV

MRH subscribers can [subscribe to TrainMasters TV](#) and get a 20% discount.

Becoming an MRH subscriber is free. Just go to this link:

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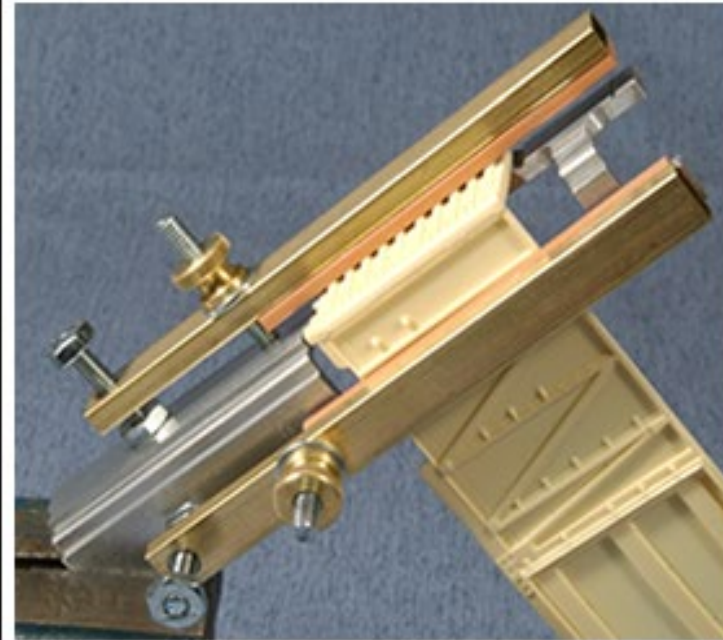
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This issue

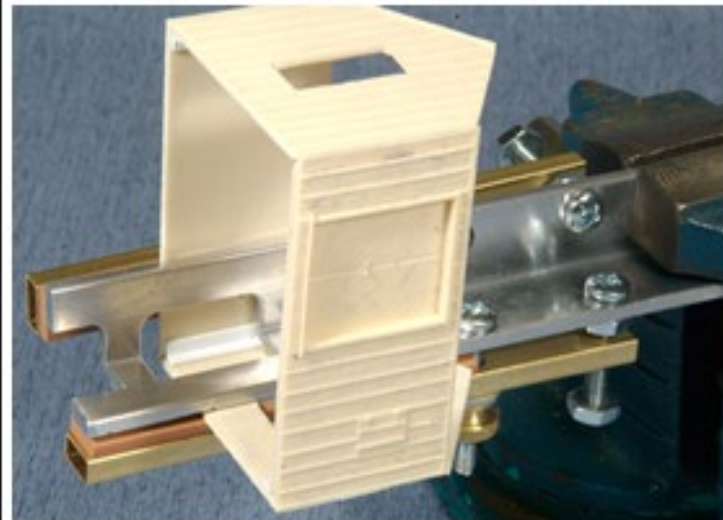
For many with limited time, Guy Cantwell shares with us how he batch builds freight cars. He shares his tips and

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techniques for reducing the time required to build a fleet as well as improving the quality of your modeling.

Looking for an unusual locomotive? Michael Kreiser kit-bashes this unique Seaboard BQ23 locomotive that can only be had taking the plunge and modifying an existing locomotive.

So you think that three rail track is for toy trains only? Not so, Bob Bartizek has built and operates a high-fidelity scale three rail layout that is second to none for equipment detailing, scenery and operations. Enjoy the ride as Bob gives us a tour on his Pennsylvania and Western RR. You will also find Bob's layout featured prominently on TrainMasters TV this month.

We often hear there's a need to teach our youth about model railroading. James Eager has taken concern and done more than just wring his hands – he's put it into action. He shares with us achievements made by Boy Scouts as they pursue the model railroad merit badge.

Did you know MRH has a podcast? We do, and it's one of the top-rated iTunes railroad-specific podcast. Not sure how to access it? This month our staff will show you several ways that you can access the show. Now you can keep up-to-date on the hobby as you work on your layout.

In our regular columns this month, Bruce Petrarca tells us the ins and outs of 12 different DCC myths and Tony Thompson provides insights into the bulk oil industry. He shows us how to model this once common rail served industry.

[... On to next page of text →](#)

March ...

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Jack Burgess, our tool man, shares more useful tools for our modeling tool box. The right tools can make all the difference between so-so modeling and quality modeling.

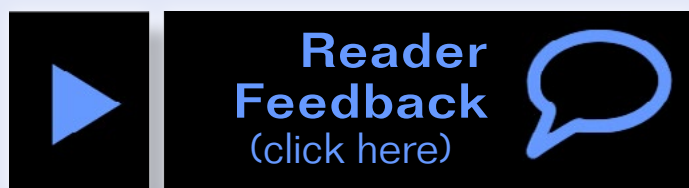
Ken Patterson shares more great modeling with What's Neat This Week. Ken's gotten really enamored with HOn3 lately and has been having a ball. To quote Ken, "my HOn3 pursuits are truly what's neat for me!"

The announcement that Floquil and PollyScale were going the way of the dinosaur rocked the model railroading world, but thanks to companies like Micro-Mark, the paint void is being filled very nicely with more modern paints. Be sure to check out our review of MicroLux paints in this issue.

We wrap up this month with Reverse Running, our contrary view commentary. This time, we ask the question: are we all a bunch of copycats? This subject created a lively discussion among the staff and we suspect that it will do the same for you, our readers.

And finally there's our Derailments segment. This month we have a fun vintage model railroading video submitted by Ray and Renee Grosser that's sure to give you a few chuckles this issue's rear markers.

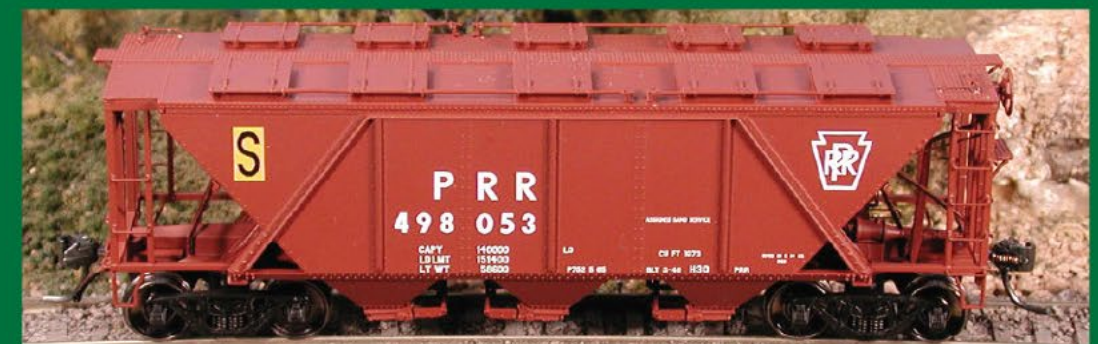
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Questions, Answers and Tips

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QUESTIONS AND ANSWERS

Plan a helix

Q. What is the smallest practical radius for a helix in N scale? My layout plans include one, but I only have room for a small radius. I am beginning to think a long ramp with a return loop and a staging yard may be better. I will run mostly freight, usually with two locos, and a maximum of 12 to 15 cars. Most of my cars are 4" and my locos are mostly SD40-size six-axle types.

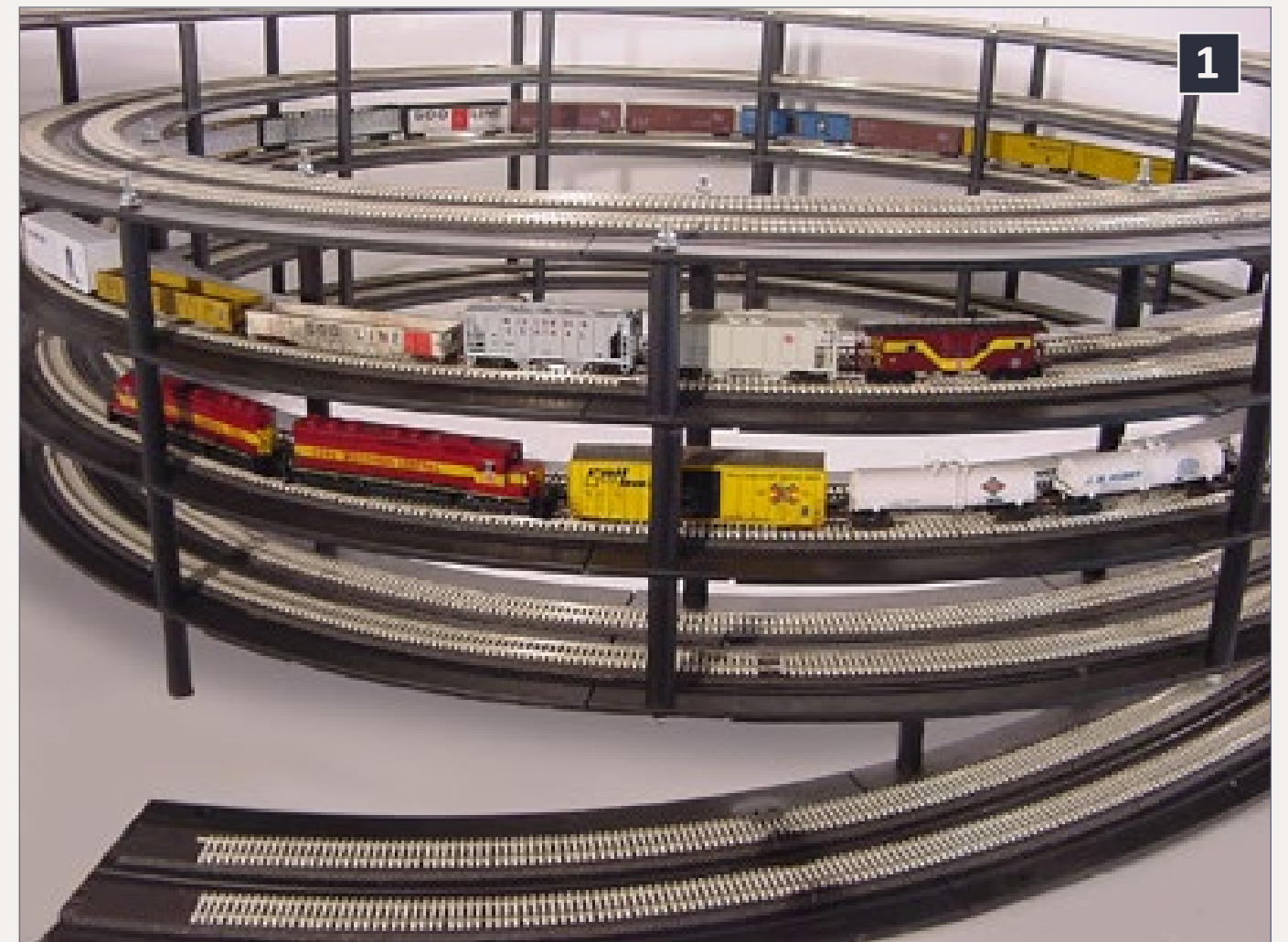
– Paul

A. Prof Klyzlr scribbled a dazzling array of numbers and formulas on the back of an old shopping bag and came up with the following answers:

- Radius – 15 ¼" curve radius. This is based on 130mm loco length x 3 = 390mm curve radius. We may be able to go tighter,

but this would be a good radius to aim for so everything stays coupled and runs reasonably. 2 times pi times the radius (2x3.14x15.25) equals about a 96" trip around the circle.

- Vertical space – A Life-Like SW1200 is just under 1-1/2" tall, from the roadbed to the top of the cab, including the track the loco is sitting on. Allow more for excess-height cars and double-stacks! Allow 1" for roadbed, possibly ½" or ¾" plywood or another material. Allow 2" between the top of the equipment and the bottom of the next turn of the helix for finger room to rerail cars. Total: 4 ½" to 5" from one rail up to the next.



1: Commercial helix kits available in several scales can save the time and effort of calculating grades and radii, and can eliminate the need for specialized tools. EasyHelix.com photo.

- Unfortunately, that combination produces a 5.3% grade.
- To achieve a 4% (1:25) grade, the track radius will need to be greater, the roadbed and access space thinner, or the helix will need to be stretched into an oval to put more running track into each level. Calculations say 96" divided by 25 = 3-3/4" of separation. That's linear run divided by grade equals rise-per-lap.

Jeff Shultz noted that with all that track in a helix (1), double or triple track could make the helix an extension of the staging yard, and maybe allow stealing room from the staging yard to make the helix a bit larger.

A solution to extend the run in the helix is "herniating" one or more of the mid-helix loops into a little shadowbox scene, as a check if the train is still moving. "Crawling worm" indicator systems can trace trains as they navigate the helix, and if a "worm" of LED indicators suddenly splits in two, you know there's a breakaway! Cheap security cameras are another way to monitor action within the helix.

D.K. Austin suggests searching eBay for a commercial helix kit to get a good idea of what is involved. Even an N scale helix with a 15" inch total rise is going to take up a table area of about 36" x 36". That is deeper than a modern house closet.

CoolRidge69Vette is planning a new N scale layout with a helix at the end of his mainline run, to spiral down to a lower level staging and storage yard. "I was formerly considering a 36" diameter unit," he said. "The discussion fits my arrangement as well, so now I'll be designing it around the idea of a 40" helix. I appreciate the discussion ... I love the information on this site."

Helixes – model-railroad-hobbyist.com/node/9982?page=1.
– MRH

What's in the hopper?

Q. I'm going to model the Johns-Manville company in Richmond, IN as it was in the mid-1970s. They received a lot of covered hoppers, but I don't know what was in them. The company's current website says products include Formaldehyde-free™ fiberglass building insulation, commercial roofing membranes and roof insulations, filtration media, and mats and reinforcements. And, did they ship finished products in boxcars?

– NS Engineer

A. "If it's a roofing and insulation manufacturer, I would say one possibility for the covered hoppers is roofing granules. I know the WC used to move a lot of it," said Mike (wcrails). "The granules are used in making shingles."

Jason Cook found a recent aerial view of the factory at binged.it/1gNRHm0.

"In looking at the imagery, there is a white-roofed shed type structure and I assume an under-track unloading pit where the covered hopper is parked next to it. The coloration of the material in and around the shed reminds me of cullet, broken glass," Jason said.

"I know there is a customer on the Indiana Northeastern Railroad in Ashley, Indiana, that loads out cullet in covered hoppers, I assume from the Guardian Industries windshield plant in Ashley. If you look at the tracks on the east-west axis along the plant, I see seven covered hoppers on two tracks ... there appears to be a light-colored material on the track in places. I will guess that is soda ash or silica. The longer cars are probably the soda ash, the shorter ones the silica.

"Any chance you have some pictures of this plant from the 1970s? I'd be interested in seeing the mix of cars back then. Be

interesting to see if there were C&O/B&O/Chessie cars from the sand pits up around Muskegon, Michigan or DT&I, D&TSL cars from the southeast Michigan/northwest Ohio area. Richmond isn't far from Muncie where Ball Glass was. That could have been a semi-local source of cullet in the '70s. Hope you're able to find more info about this place in the Penn Central days."

Joe Atkinson's Iowa Interstate prototype also serves a Johns Manville plant (off-layout in Wilton, Iowa), and he found all their inbound loads had a commodity classification of simply "PLASTIC". They originated at Formosa Plastics Corp., Point Comfort, TX (from UP) and Georgia Gulf Corp., Aberdeen, MS (from UP and BNSF).

Ken K. referred to another factory: Covered hoppers are often found at fiberglass manufacturing plants such as this Owens Corning facility binged.it/1eW5MHP in Brookville, IN. A friend of his in Brookville said that, as the industry moves away from materials containing formaldehyde to stick the fibers together, they are turning to other materials. A very unspecific answer, but a hint as to what the material is used for and that whatever it is, it's probably proprietary.

One interesting aspect of the Brookville facility is the storage silos where they unload the cars. There are augers, belts, and chutes for moving palletized or granular solids. Zoom-in on the plant and switch to Street View for some high-resolution images of the silos (and Pink Panther). There is lots of finished product on pallets in the yard. Ken has seen boxcars in the yard, but doesn't know if they ship products by rail.

Randy Seiler added, "That Brookville plant manufactures shingles. The covered hoppers carry roofing granules. I am modeling that plant in 1974, served by the Penn Central. Back then it was Lloyd Frey Roofing. Here they are moving those empty covered hoppers from Brookville a couple of months ago."

(See the area at youtube.com/watch?v=xh-aX0d5UGA.)

That still leaves the question open about what a shingle or insulation plant would have been shipping and receiving in the '70s. Does anyone know?

What's in those cars? – model-railroad-hobbyist.com/node/16627.

Painting N scale rail

Q. I am modeling my N scale yard which I am hand-laying using jigs from Fast Tracks. I am getting close to painting the rails and ties and looking at giving most of it a coat of a grimy black color, as I model the transition years. I am thinking of using household latex paint for this. I have been reading about mixing this for airbrushing, but am getting far more "Can't be done" articles than ones that explain how to do it. Has anyone done this with good results?

– Allan66

A. Eric Hall uses Behr Color Sample paint with a Badger 350, shooting through the large tip and thinning 50% with isopropyl alcohol.

He uses Espresso Beans, Broadway, and Aging Barrel, and sometimes some Mined Coal to lighten the browns up. Shop for colors, not names. House paint names change frequently. His base is Espresso Beans with a brush wash with Aging Barrel. "I like to use a minimum of three colors on anything I do. Four and five colors are better just to fool the eye. Just a slight change in color shade will take away that two-tone look that we see all the time."

He finishes with chalk dusting on the center and the outer edges of the track, and sometimes uses black non-sanded grout. See Eric's Gila Springs & Mesquite layout design and progress at model-railroad-hobbyist.com/node/15077.

Jeff G. applies thinned latex house paint with a brush. “Lay a few lengths of track and brush with house paint thinned 50/50 with rubbing alcohol or water. After ballasting the track, you can thin this paint even more and use it as a wash over the ballasted track to tone it down/grime it up even further. Dave Frary's scenery book covers this.” The book is “How to Build Realistic Model Railroad Scenery.”

Tom Haag, K-Pack, and Rob Spangler (2) use Rustoleum camouflage spray can colors for track. Rob has been painting and ballasting yard track using dark brown camouflage for most of the track, and dry-brushed additional weathering on top of that. After the ballast is complete he paints the sides of the rails, and adds some weathering powders.



2: The track and ballast on Rob Spangler's Western Pacific layout are colored with Rustoleum camouflage spray paint. Rob Spangler photo.

“The whole process was pretty simple,” Rob said, “and I would recommend it over trying to airbrush latex or craft paints, which aren't usually designed for airbrush use. There are so many spray paint colors available I'm sure you could find one that's acceptable. Control isn't too bad, as I get minimal overspray. I use only a little tape, or scrap cardboard and paper to hold in place for masking things like ground throws, and plywood or hardboard scraps to protect the backdrop. One advantage of the Rustoleum camouflage paint is the spray nozzle is designed for use at any angle, so just about any way you need to orient the can it will still spray.”

DJ suggests dusting with black powdered tempera paint for that grimy yard look.

Painting track & ballast – model-railroad-hobbyist.com/node/16226.

– MRH



TIPS

Read the fine print

Having been getting older lately and I'm finding that the small writing on decal sheets is getting fuzzier, despite the use of glasses. My best way to read the small lettering is to get the decal sheet and blow it up.

If you have a printer with a photocopy option, it is fairly simple to enlarge the section you are having trouble with, to

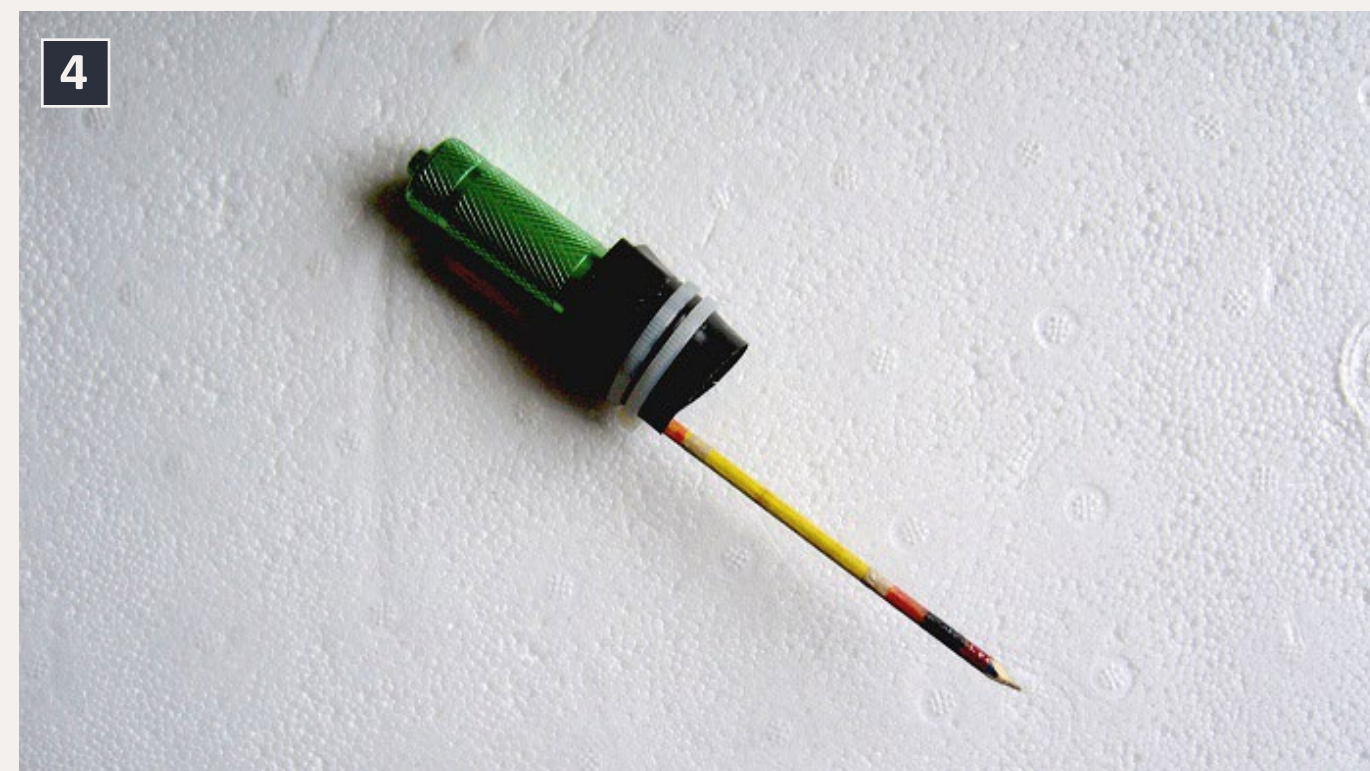
200% or more (3). Makes it easier to read and identify those small lettering pieces. I have done this with most sheets and find it works OK. White lettering can be a problem, but I have found that the blue background on Microscale sheets comes out OK so I can read the small lettering. Your printer can be a valuable modeling tool.

– Rob McLear

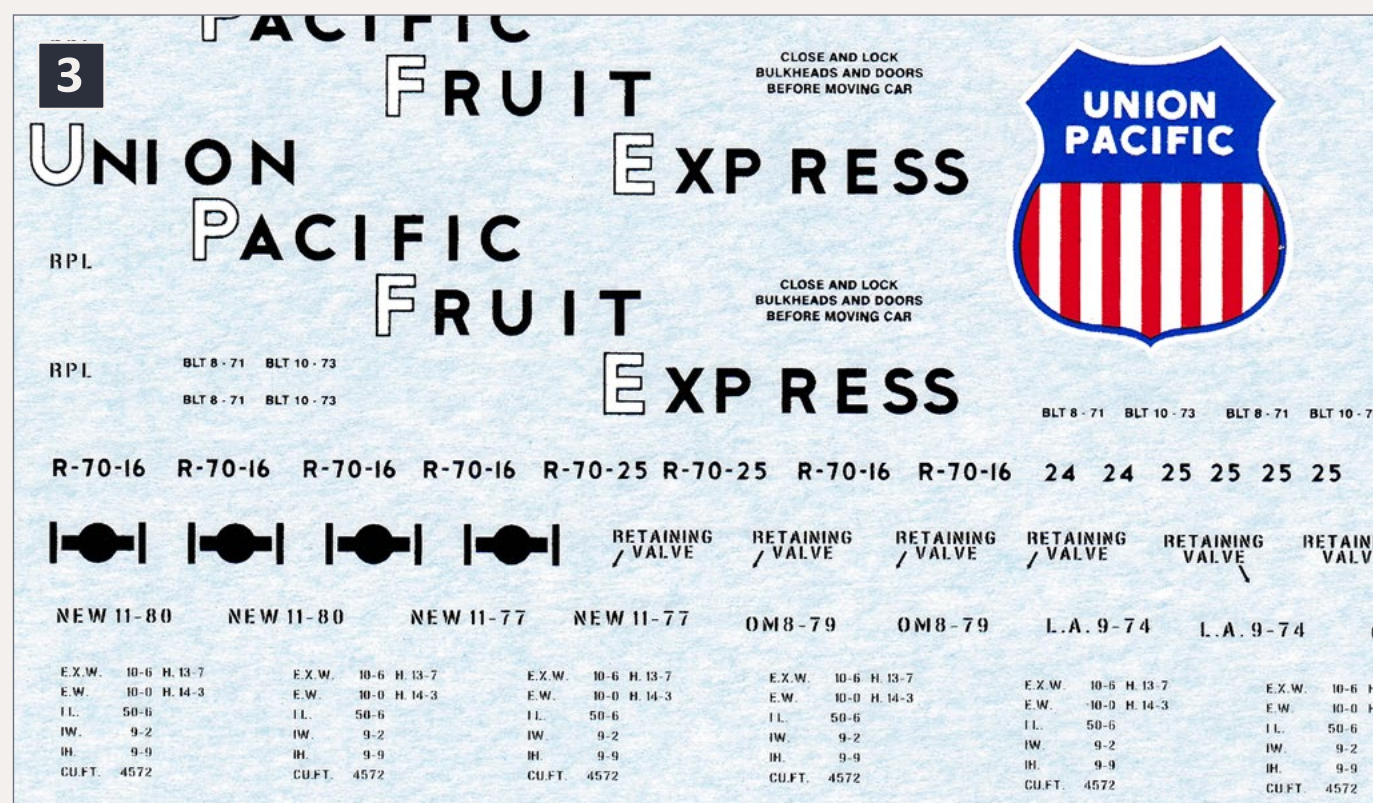
Lighted switching pick

Sometimes uncoupling in a dark corner of the layout is not easy. Attaching a key ring LED light (4) to the pick will help you see where you are placing the pick on the couplers. I used small zip ties. Model railroading has to be fun.

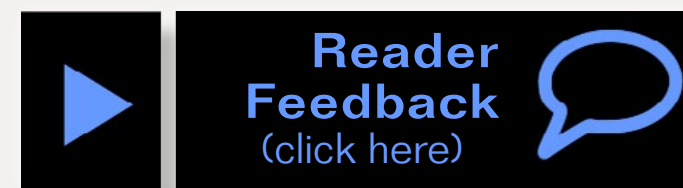
– Marc Hofer



4: Zip ties connect a skewer/pic to an LED microlight, to shine brightness where it is needed while switching trains. Marc Hofer photo.



3: Magnifying Microscale's 87-242 sheet for Union Pacific 57' mechanical refrigerator cars makes it easy to see dimensional data and other small lettering.



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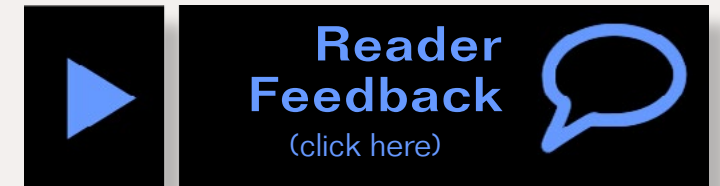
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Myths of DCC

DCC tips, tricks, and techniques



DCC Impulses column

by Bruce Petrarca

Photos and illustrations by author

These must be true, because folks say them...

In the years that I've worked with DCC, I've heard many "truths" about DCC that just aren't correct. Or, they may be correct for one situation, but not for another. So, in true "Ghostbuster" tradition, I decided to take some of these head-on. I asked a few friends to contribute their favorites.

You know it is easy to believe something that you see on TV or on the Internet as being gospel, not realizing that it is pretty easy for inaccuracies to get out there.

1. The DCC track signal is AC (or DC) voltage

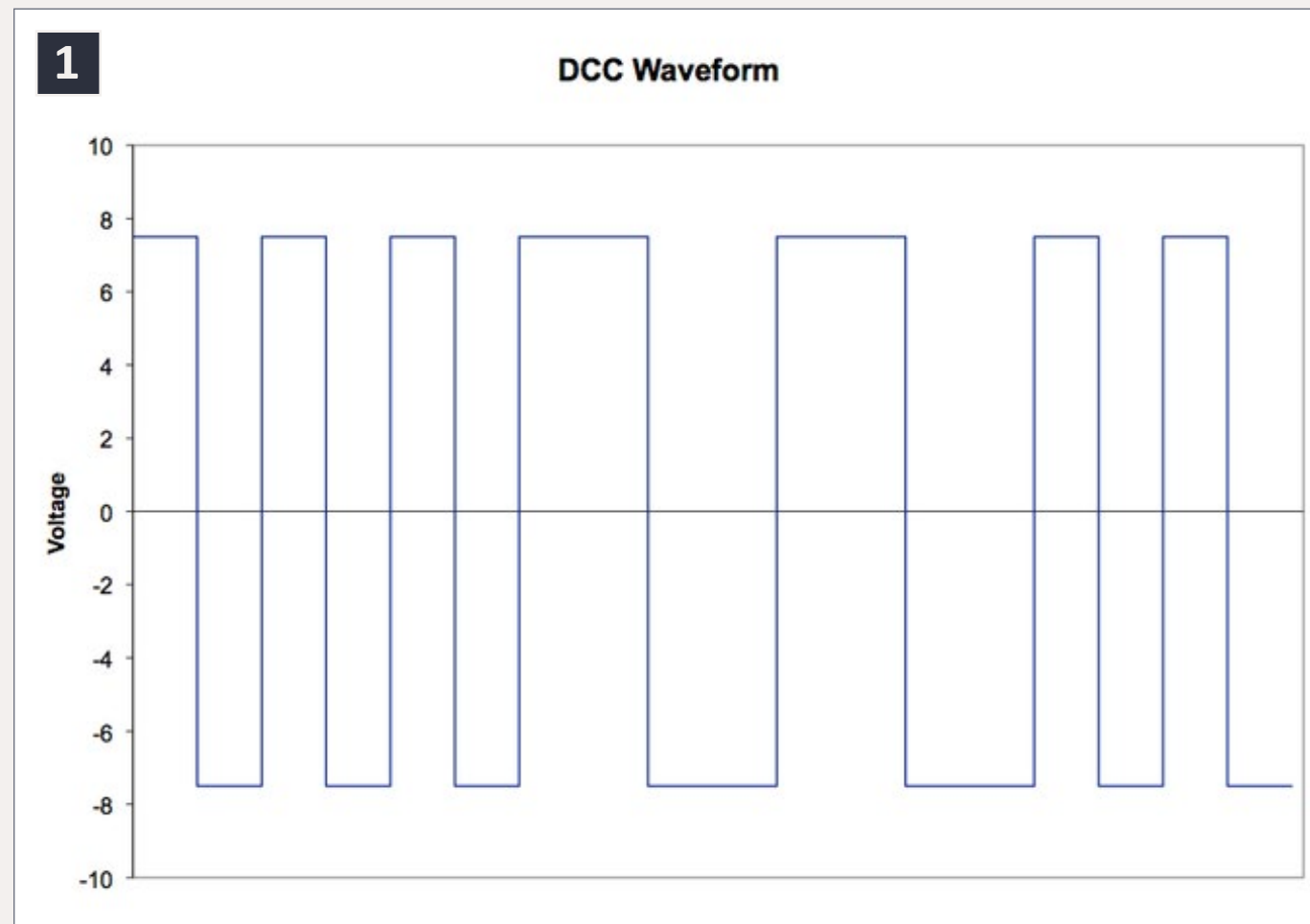
The correct answer is: "D, none of the above".

DCC puts a voltage across the rails that is a collection of computer data pulses. Assume a 15 volt track voltage; at any given time, the voltage on one rail will be 15 volts higher than the other. They take turns being the higher voltage and they switch at the same time. The time span between when they switch varies based on the data being sent between the DCC



system and the decoders. This is square-wave data, as shown in figure 1.

If you measure from a common point like the case ground on some DCC systems to each rail, you will see half of figure 1, for example, the signal going from zero to + 7.5 volts.



1: DCC Data – Voltage between the rails with 15 volt track voltage setting.

2. My multi-meter accurately reads my DCC track voltage

Your multi-meter will not give you accurate readings, due to the fact that the DCC signal is neither sine-wave AC nor steady DC, which are the two types of voltage that multi-meters are designed to measure.

But what those AC numbers actually are means nothing. If you set the DCC track voltage with an oscilloscope to 15 volts, your multi-meter may read anywhere from 9 to 22 volts.

For accurate DCC measurements, I highly recommend the RR-AmpMeter shown in figure 3.

You can build circuitry to measure DCC. My friend Marcus Ammann, from Australia, has a circuit on his web site to build your own [DCC ammeter](#) His method drops the DCC voltage by about 1.5 volts, so it is not a good thing to leave connected all the time. However, it is an inexpensive way to build your own DCC current measuring system.

3. The larger your layout, the more boosters you need

“When measuring DCC track voltage with a multi-meter, the actual number you get is inaccurate, but you can rely on the differences in values obtained different places on the layout.”



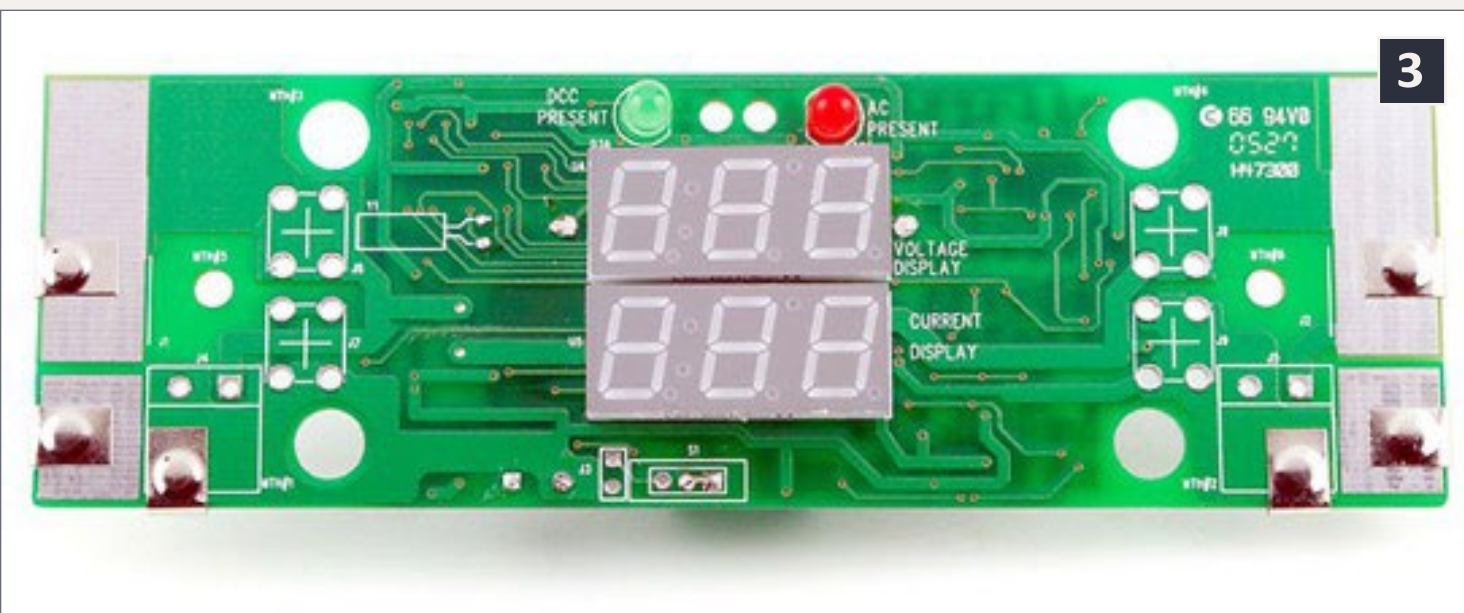
2: Inexpensive digital multi-meter.

I think this is left over from the CB days, when folks saw that an (illegal) amplifier would send their signal further. So, a DCC booster must be needed to send the DCC signal further down the track.

Okay, assuming that your layout is wired as I described in my [December 2011 MRH](#) column, the power required to run the layout is not determined by how long the mainline is, or by how many yards or spurs you have.

Whether your layout takes up 2000 square feet or it is a 6-foot shelf layout, your power needs will be determined by power consumed on the layout, not the physical size. Points to consider are locos (powered, either stationary or running), lighted cars, and accessories like lights and stationary decoders powered from the track bus.

Each locomotive will always draw some power, ranging from a little when it is sitting quietly on track with its lights turned off, to a lot when it is making loud sounds and pulling hard with



3: The RR-AmpMeter is designed to measure DCC signal voltage and current. Photo courtesy American Hobby Distributors.

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4: I can run a low current draw G loco over my entire garden layout with my PowerCab (1.5 amp) system due to good wiring practices.

all the lights on. Okay, let's assume that you have a loco that draws $\frac{1}{2}$ amp maximum – a reasonable value for modern HO models. It will draw the same $\frac{1}{2}$ amp whether it is on a yard-long test track or 100 yards away on a huge layout.

Yes, large layouts have more room for more locomotives to be running or sitting and idling.

An HO scale passenger car with incandescent bulbs can draw more power than a modern loco. It is possible for a long string of passenger cars and a multi-unit locomotive set to overwhelm a DCC system rated at 5 amps.

If you are using your DCC power to run turnouts, either directly or through stationary decoders, they add to the load, too.

Don't forget those lighted buildings that you tacked on to the track bus.

I recommend building your layout with power districts in mind – based on what area of the layout is likely to be under the control of a single operator. This way, you can split sections off, using circuit breakers as needed.

If you need more power, your booster will tell you by shutting down during peak operations. Add another booster and move some of the circuit breakers over to it.

4. The highest current booster is best

Initially, this makes sense. You add up your power needs, factor in something for future expansion and buy the booster that fills that need, say 10 amps. Then you use circuit breakers to break it up into reasonable districts.

“Two or three smaller boosters and power supplies will be more useful than one large booster. In the event of a booster failure, you will be able to jumper from one district to another and keep running, perhaps with a reduced roster. One large booster and the necessary power supply may NOT be less expensive, either.”

Points to consider are:

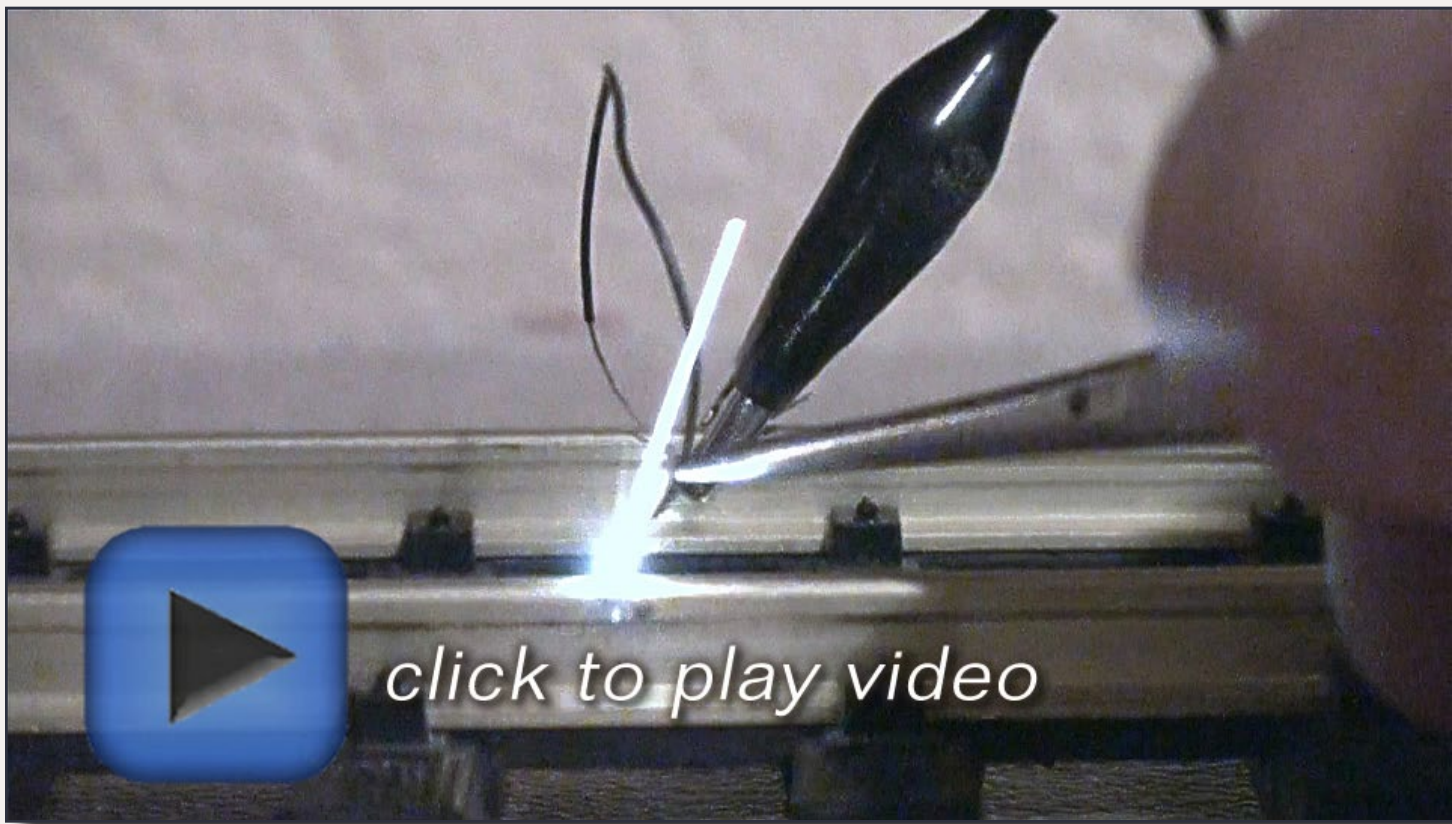
- This makes the operation of your layout dependent on a single item – the large booster. If you were to use two smaller boosters and one failed, a jumper cable would have the single booster delivering power to the entire layout for running, perhaps in a diminished capacity.

- Many of the high amperage boosters are designed for larger scales and have unbelievable power delivery capabilities. They can overwhelm smaller scale rolling stock with their instantaneous current delivery possibilities. The NCE 10-amp booster, for example, can deliver 60 amps into a short faster than a circuit breaker can trip.

Our club layout pcmrc.org uses three boosters feeding 17 circuit breakers to distribute power across the layout. When we had a failure just before an operation session, we jumped a connection between two booster districts and keep on trucking (see video).

5. Sound decoders take a lot more power

I think this got started when sound decoders started using larger energy storage capacitors to keep them running over minor power dropouts. They do consume a lot of power when they are “cold started.” The initial inrush current is quite large and can overwhelm some boosters and circuit breakers.



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“After start-up, a sound decoder does not use appreciably more power than a non-sound decoder.”

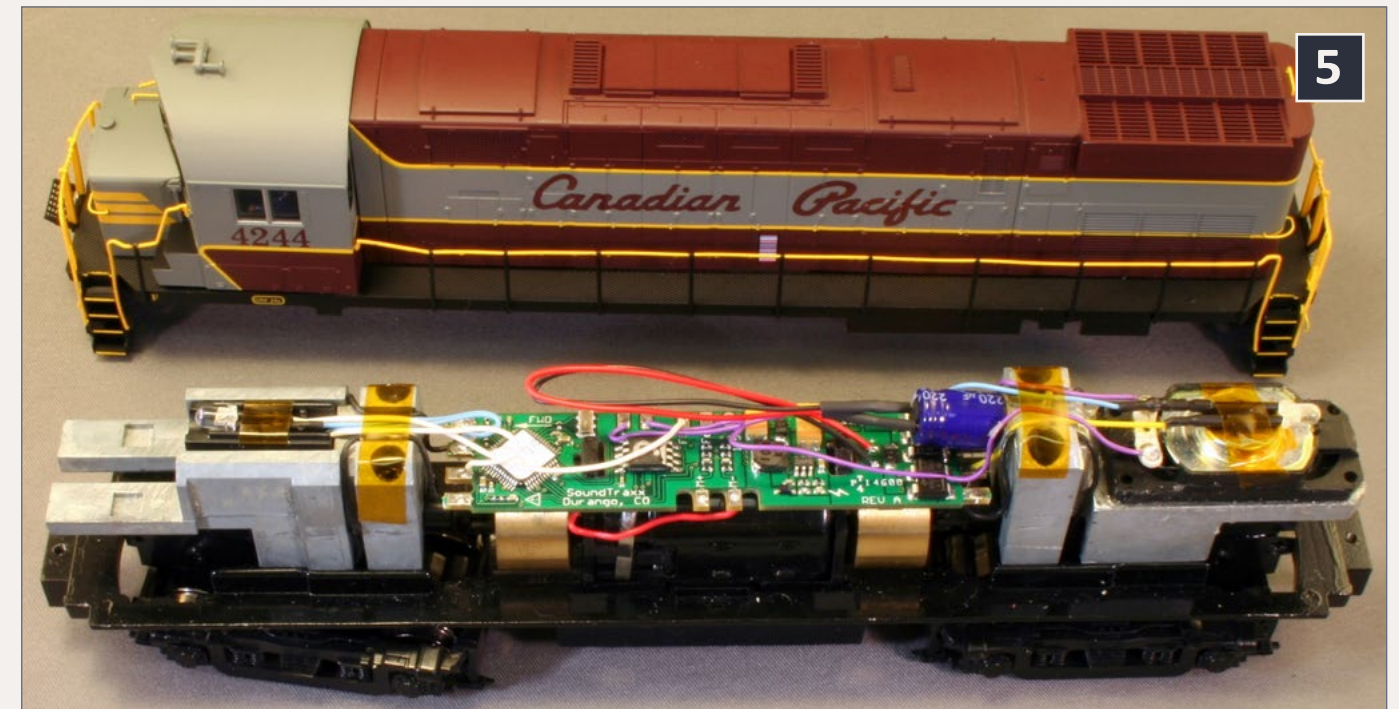
Consider this. A very common rating for the audio power out of a decoder is one watt. One watt of power from a 10-volt supply (a low value for the DC generated off a DCC waveform) will consume 0.1 amp when making a lot of noise. A running HO loco will consume probably ½ amp under the same conditions. Thus, the sound decoder only increases the power needed for the loco by about 20% when running hard.

6. BEMF never works for consisted locos

Absolute statements are always wrong.

“Can have issues”, yes. “Is more sensitive to loco and decoder differences”, yes.

Let’s use my club’s experience again. We have six consists of two or three locos that we use on a regular basis. All but one



5: Tsunami sound decoder in Atlas C-424 HO-scale loco.

consist has BEMF enabled and runs smoothly. The one that does not have BEMF enabled has three identical era Stewart F unit models but the engines have different-vintage decoders with different BEMF designs. Disabling BEMF for the group was finally my choice to achieve the desired performance without changing decoders. If I were to put TCS A4 decoders in all locos, they would run fine with BEMF enabled. The same holds true if I were to put a SoundTraxx Tsunami in one loco and “Tsilent Tsunami” (motor and lights only) decoders in the others.

Let’s look at the majority of the club consists that run flawlessly with BEMF enabled. Within each consist:

- They have the same manufacturer, vintage, and model locos. For example: Life-Like Proto 2000 GP20 models from a light blue box.
- They have the same model and vintage decoders. For example Digitrax DN-143 decoders.



6: Consisted locos on the PCMRC layout – consistent loco and decoder design and attention to detail allow them to run together with BEMF activated.

- They have the same settings for momentum (acceleration and deceleration).
- They were speed matched with BEMF enabled (see my [December 2013 MRH](#) column):
 - They start to creep on a low speed step (lower than 5 out of 128)
 - They would run several yards at top speed in both directions and not close up a space of a few inches.
 - They are speed limited to about 40 SMPH, plenty fast enough for operations on our layout.
- Even though we have a Digitrax system, they are consisted by advanced decoder-based consisting, see my [February 2014 MRH](#) column for more information.

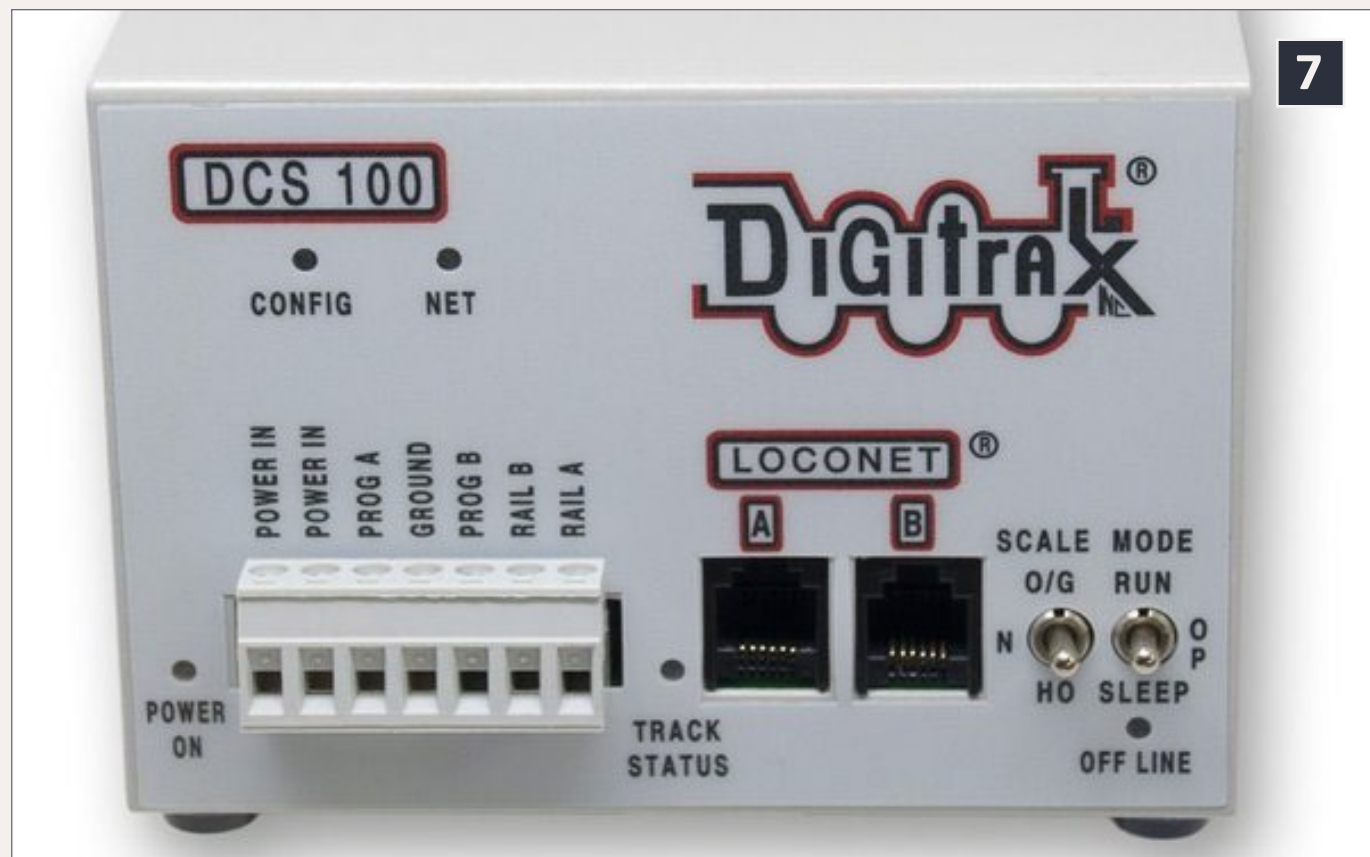
Did it take some time fiddling with them (using DecoderPro) to achieve this result? Definitely. Was it worth it? Yes, I believe so. They pull smoothly around the layout (most are used on through freights, running from staging to the main yard, exchanging cars and returning to staging).

7. The command station shuts down when the booster sees a short

My friend, Ross Kudlick, contributed this myth.

Lenz provides a way to overcome this. Connecting the E terminal between their boosters and their command station will force a shutdown of the command station if any booster stops supplying power due to either a short or overheating.

This makes no matter on a layout with one command station and one booster. If the booster has shut down, the fact that the command station continues to run is immaterial.



7

7: Digitrax DCS100 – command station and booster in one box.

On larger layouts, if one booster stops providing power, the rest of the boosters, and the command station, will continue to run normally. This can drive a train from a powered region into one that has shut down, temporarily bridging power from the active region to the dead one, as the wheels of the loco(s) bridge the gaps between the districts.

“Intrinsically, the command station does not know whether the booster is functioning normally, or is shut down due to an overload.”

8. Programming-On-the-Main is dangerous

This myth comes from down under, where Marcus Ammann suggested it. But it is a world-wide myth.

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First, let's talk about two similar, but different things:

- Programming-On-the-Main (POM, aka Ops-Mode programming – shown as Po on Digitrax DT400 series throttles) – where you tell your command station to program a specific CV in a decoder with a specific address.
- Blast-mode programming – where (frequently by selecting address zero) you tell the command station to program the same value into every decoder on the layout regardless of its address.

Both of these are methods of programming a loco that is not located on an isolated programming track, so they are frequently confused.

POM uses the same mechanism (sending a packet of data to a specific address on the DCC track bus) that is used, for example, to tell a loco to turn on its headlight or ring its bell or move down the track. POM is no more dangerous than running a



loco on your layout. There is no reason to remove all the locos from the layout or any such drastic measure when using POM.

Blast mode is the “nuclear” option. It will reprogram any decoder that sees its commands. It is designed to globally set things like acceleration rates or to recover decoders that seem to have totally lost their way.

Understand that, without the rare installation of bi-directional layout communication, like Digitrax’ Transponding or Lenz’ RailCom, you cannot read back CVs from your decoders using POM or blast-mode programming.

There are two cases where hardware creates similar situations and can reprogram every loco on the layout.

- The Digitrax DB150 has a very limited command station function. It has no programming track connection. As such, it cannot read back CVs. It also uses the layout as its programming

“Assure that you are, indeed, programming-on-the-main. Your system should ask for an address to receive the data. If you aren’t asked for an address, beware. Don’t use address 0, as you’ll probably be in blast mode.”

track – sort of like a hardware version of blast mode programming.

- The NCE PowerCab has a single 2-pin track connector. It functions as the DCC track bus for the most part. When the PowerCab is put into service-mode programming, that single output becomes the programming track. If you use an external booster, like the NCE SB5 or a Tam Valley Depot booster, this possibility is eliminated. The PowerCab loses its programming abilities while plugged into a SB5 and the Tam



8: PowerCab POM screen asking for locomotive address.

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Valley Depot booster won't pass the service mode programming onto the track.

There is an accessory from NCE that can be used in either of these situations. The Auto-Switch has three connectors: one to go to the track output of either the DB150 or the PowerCab; and one each for the DCC bus and the programming track. When either unit goes into service mode programming, a relay inside the Auto-Switch picks and disconnects the DCC bus from the track output, preventing programming what is on the layout.

9. CV 29 is different among different decoders

Here is another ditty from Ross.

There are only four CVs that are mandatory in the NMRA Recommended Practice 9.2.2 document: **Primary (short) Address** (CV 1), **Manufacturer's Version** (CV 7, selected by the manufacturer), **Manufacturer's ID** (CV 8, assigned by the NMRA) and **Configuration Data #1** (CV 29). RP 9.2.2 also specifies exactly what every bit in the CV29 must control and how.

If you want to check this out, you can read NMRA RP 9.2.2 on the NMRA web site nmra.org/standards/DCC/standards.

“Any decoder from any manufacturer that pretends to meet NMRA standards must have CV29 defined per RP 9.2.2.”

10. Knowing the stall current is necessary to select a decoder

Mark Gurries, an electronics engineer who maintains an extensive website on DCC topics, raised this one.



9: DecoderPro - CV 29 collects data (orange background) from several tabs in DecoderPro – but it is the same data for all decoders.

Folks who have followed my column know that I have long discussed the use of stall current to safely size decoders. No, I'm not backing down on my stand there, but let's look at Mark's viewpoint, explained on his web site [markgurries](http://markgurries.com).

Current generation HO and N scale locomotives are far more efficient than those built as recently as a decade ago. Modern locos rarely stall above one amp. Many stall well below one amp. Most operate at a small fraction (1/4 or so) of an amp.

Modern decoders in all sizes can handle at least one amp on a continuous basis and most have thermal protection to shut themselves down before the internal temperatures get too high.

“Thus, if you go to your local hobby shop and purchase a new vintage HO or smaller loco and a DCC decoder, you can use them together without a lot of testing or danger.”

However, there are situations where stall and running current are still important, such as larger scale locomotives and older-vintage locomotives. If you are working on a situation like this, you can read about stall current on my web site mrdccu.com.

11. You can only use a N-scale decoder in a N-scale loco

Similar to the discussion in section 10, technology has impacted this myth.

Early on, manufacturers struggled to make decoders small enough for the smaller scale locos. To do so, compromises were made, including low power transistors and power



10: Current vintage loco and decoder – N-scale (DN163) decoder is just fine running an HO-scale locomotive. This is the same design Atlas C-424 as was shown in figure 5.

supplies. This created a group of small decoders that were less capable than their big brothers. Today’s N (and even Z) decoders typically have operating current ratings of an amp or more.

Small decoders are usually a bit more expensive than their larger brothers. They also tend to have fewer lighting functions. But they are easily capable of running most HO and smaller locos.

“I select decoders based on what I need to fit in the available space, not what “size” the manufacturer hangs on the package.”

One significant exception is the SoundTraxx Micro Tsunami (TSU-750). It packs a lot into a small package, so is limited to $\frac{3}{4}$ amp total current (motor and lights). It has an internal fuse that requires factory replacement if it blows. Also, it is sensitive

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to heat build-up and is much happier with an external way to dissipate some heat, as I've discussed several times.

12. It's OK to run DC and DCC at the same time

Another topic suggested by Mark Gurries.

I'm sure the source of this myth is folks who are trying to ease the transition to DCC. Over the years, I've seen many ideas of how to mix the two technologies on a single layout at the same time.

If you want to go this way, wire your layout with DCC in mind (large gauge bus wires and frequent feeders). If you design in some block switches, make sure they are heavy-duty automotive type (rated 10 amps or more), not micro-miniature toggles. Don't use any DCC-only accessories, like reverse loop controllers. Then, use a connector between your DCC system and the layout.

I currently use a two-pin connector from Molex that is rugged, reliable and inexpensive; previously, I used Cinch-Jones connectors. That way, you can unplug your DCC system and plug in a DC power pack and run the layout on DC, if you want to do so.

The danger of simultaneous running is the possibility of interconnection between the two technologies, even when they are on separate tracks.

If a loco jumps the track and bridges to a parallel track that is being used with different technology, the resulting interconnection can seriously damage the DCC system, any decoders on either part of the layout, and even the power pack supplying DC to the layout.

“The only safe way to run DC and DCC on the same layout is not at the same time. Completely disconnect one before you connect the other.”

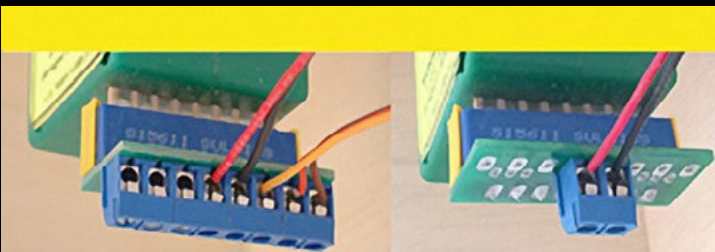
Schemes that use block selection switches to accomplish the transition had best be protected, as we did for a bit on the Flagstaff (AZ) club. There was a box with a two-direction (center off) switch that provided AC power to the DCC system or the DC power packs.

Thus there was no way that both systems could be active at the same time unless someone bypassed the switch and plugged one system directly into the wall.

Conclusion

So there you are, a dozen dragons slain. Hopefully, I explained the “why” behind the “what” well enough that you don't have to take my contentions purely on face value. If you found this

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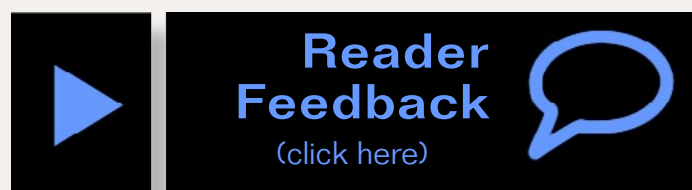
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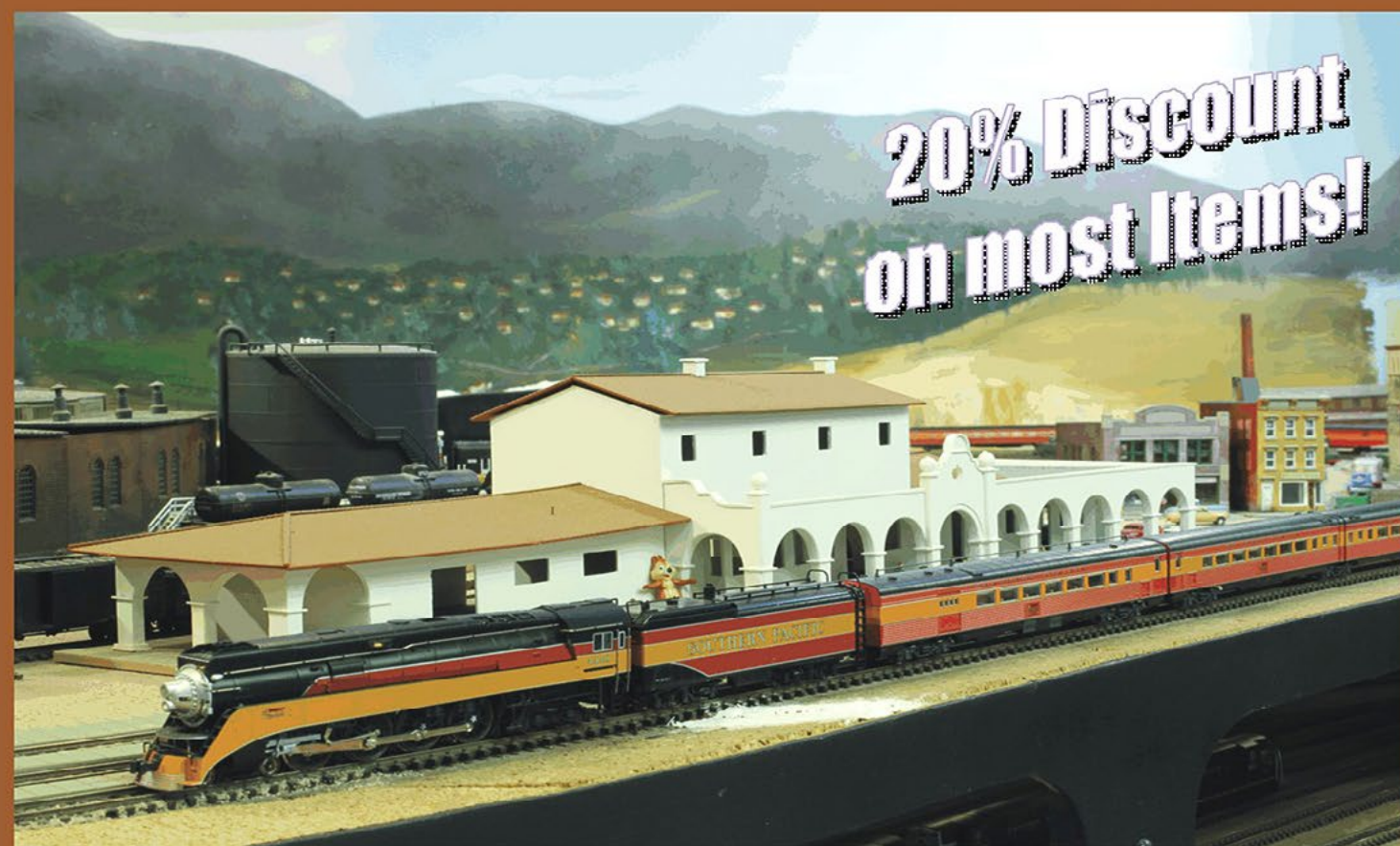
Please join in the conversation that invariably develops there about the topics presented in the column. Share your experiences. Thanks.

This month's column is long enough, so we'll not stop by Mr. DCC's Workbench just now. Check back next month. Until then, I wish you green boards.



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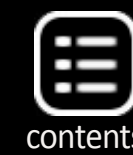
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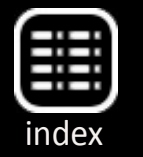
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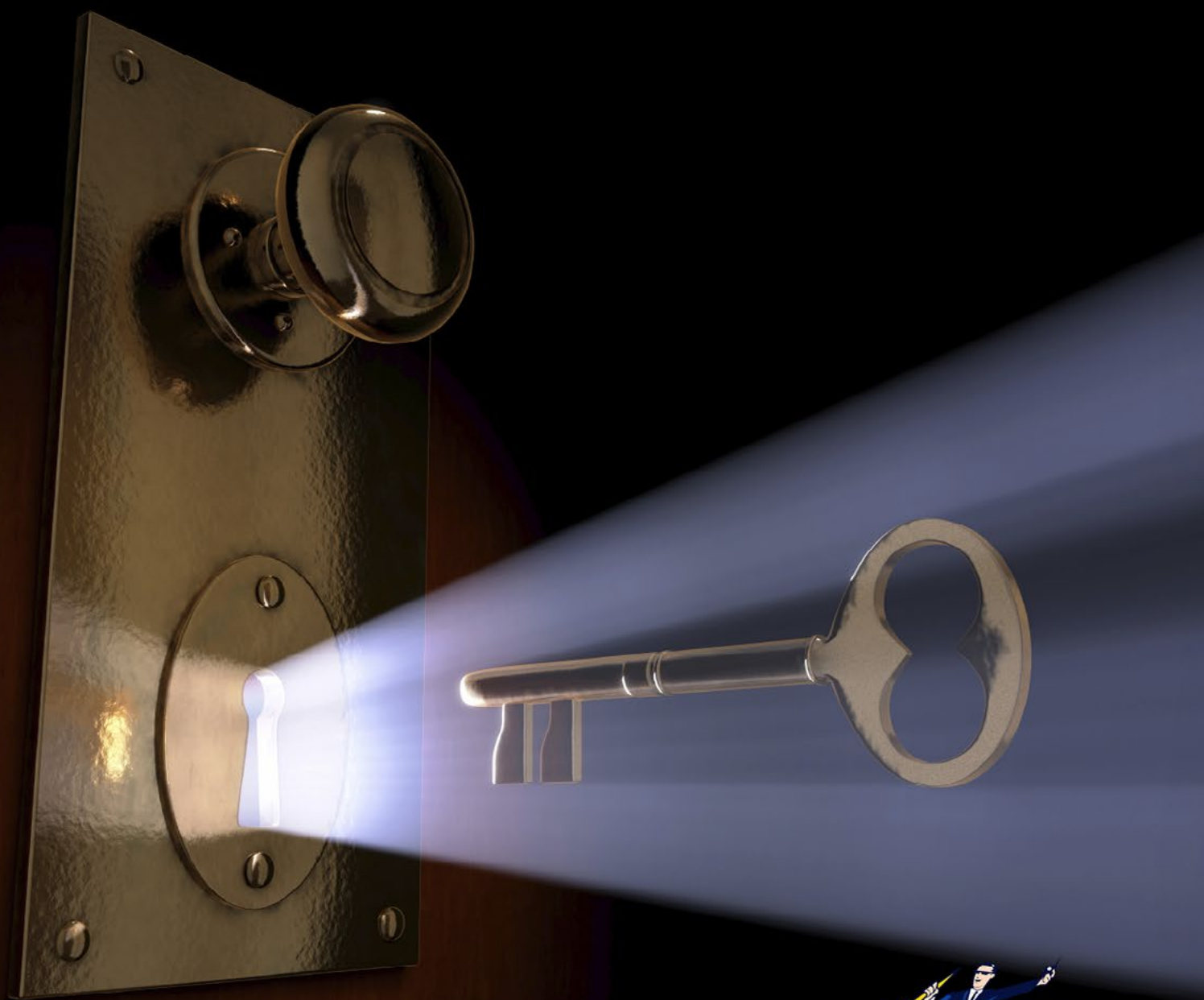
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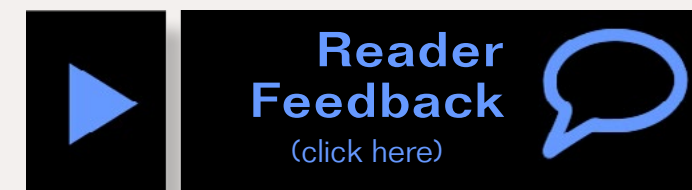
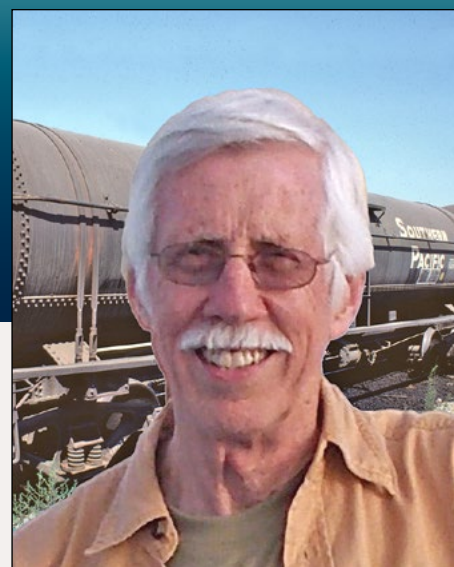
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Modeling a bulk oil dealer

Modeling real railroads and what they do



Getting Real column

by Tony Thompson

How to arrange elements of this commonly found industry ...

Many small towns in the transition era had at least one bulk oil dealer, which usually was affiliated with a major oil company. Around 1940, there were more than 30,000 of them across the United States. Thus the rail sidings for these dealers represent a significant industry throughout North America. My own modeling is set in the coast of central California in 1953. I plan eventually to have at least one oil dealer in each town on my layout, and will choose appropriate regional oil companies where possible. Sure, national brands like Texaco and Shell may well have been present, but why not add to the identification of the region modeled, by choosing companies like Union Oil, Richfield, or Associated? I may even include Standard Oil of California, in the 1950s using the marketing name "Chevron" (today the whole company is renamed Chevron).

I have long photographed and collected photos of surviving bulk oil dealerships, many of which were rail-served at one



time. They readily depict the main features of such businesses. There are usually two to five tall vertical tanks, rarely all identical, and often one or more shorter vertical tanks. Many dealerships also had horizontal tanks, but not all. The piping connecting tanks to the rail unloading point, and to the usual truck loading point, may be above or below ground. Groups of tanks almost always had walkways up top and ladders or stairways to access them. You then have an office building, often combined with a warehouse for lubricants and other packaged materials, and usually a pump house.

Before continuing, I should mention that there is a very helpful Kalmbach book on the general topic of the petroleum industry, *The Model Railroader's Guide to Industries Along the Tracks*, by Jeff Wilson, Kalmbach, 2004. This volume was the first of a multi-volume series on lineside industries, and unfortunately is out of print, but can be found for sale by online dealers in used books.

There also have been a number of articles over the years in model magazines about oil dealers. Two especially good ones, because they contain plans, were in *Railmodel Journal* (now available at trainlife.com). One was in December 1994, the other in April 1996, and both include partial construction articles (full citations in the Bibliography).

The oil company for the model I am building in this column is Associated. My brief history of Associated, an interesting company, is listed in the Bibliography.

Prototype Bulk Oil Dealers

I know from my own photographs of bulk oil dealerships, that since the 1970s few of them are still rail-served, but often one can detect where the rails once were, and sometimes the



1: A Texaco bulk oil dealer, in Woodland, California, December 17, 1939. The siding is part of the Sacramento Northern (by this time a property of the Western Pacific). This silver tank car is a relatively rare car with such a paint scheme, assigned to deliver consumer products and thus given a brighter paint scheme. Note also the adjoining dealership, with its Signal Gasoline tank logo – Wilbur C. Whittaker photo.

abandoned siding is still in place. I will just present illustrative examples here, chosen to be reasonably representative of prototype variety.

One of the better prototype photos out there is this one from Woodland, California (1), taken by Wilbur Whittaker. It shows a Texaco dealership, with the next-door Signal Oil company tank just visible. The tank car is that modeler's favorite, the silver tank with black lettering. But nearly all the tank cars in every oil company fleet were plain black, and in most cases only a few cars, assigned to consumer products such as kerosene, would receive the silver paint scheme. Nevertheless, as

this photo illustrates, the one place such cars did go was to local oil dealers.

Another interesting example of a bulk oil plant is a Standard Oil of California facility in Waterford, California, about 12 miles east of Modesto. This plant had two large vertical tanks of different heights, and a pair of large horizontal tanks. It is shown in (2). The tanks of different sizes, combining vertical and horizontal, were common at these facilities, likely reflecting construction at different times.



2: A Standard Oil of California bulk oil dealer in Waterford, California (east of Modesto). Here there are two vertical tanks, with two horizontal tanks between them, all painted silver. Barely visible behind the right-hand tank is a truck loading platform, and in the distance is the warehouse. This 1973 photo was included in the April 1996 *Railmodel Journal* article listed in the Bibliography. – Robert Schleicher photo.



3: This dealership in Ukiah, California had four vertical tanks of the same height (the fourth is behind the visible three), and two shorter tanks, along with horizontal tanks, in 2008. – Author photo.

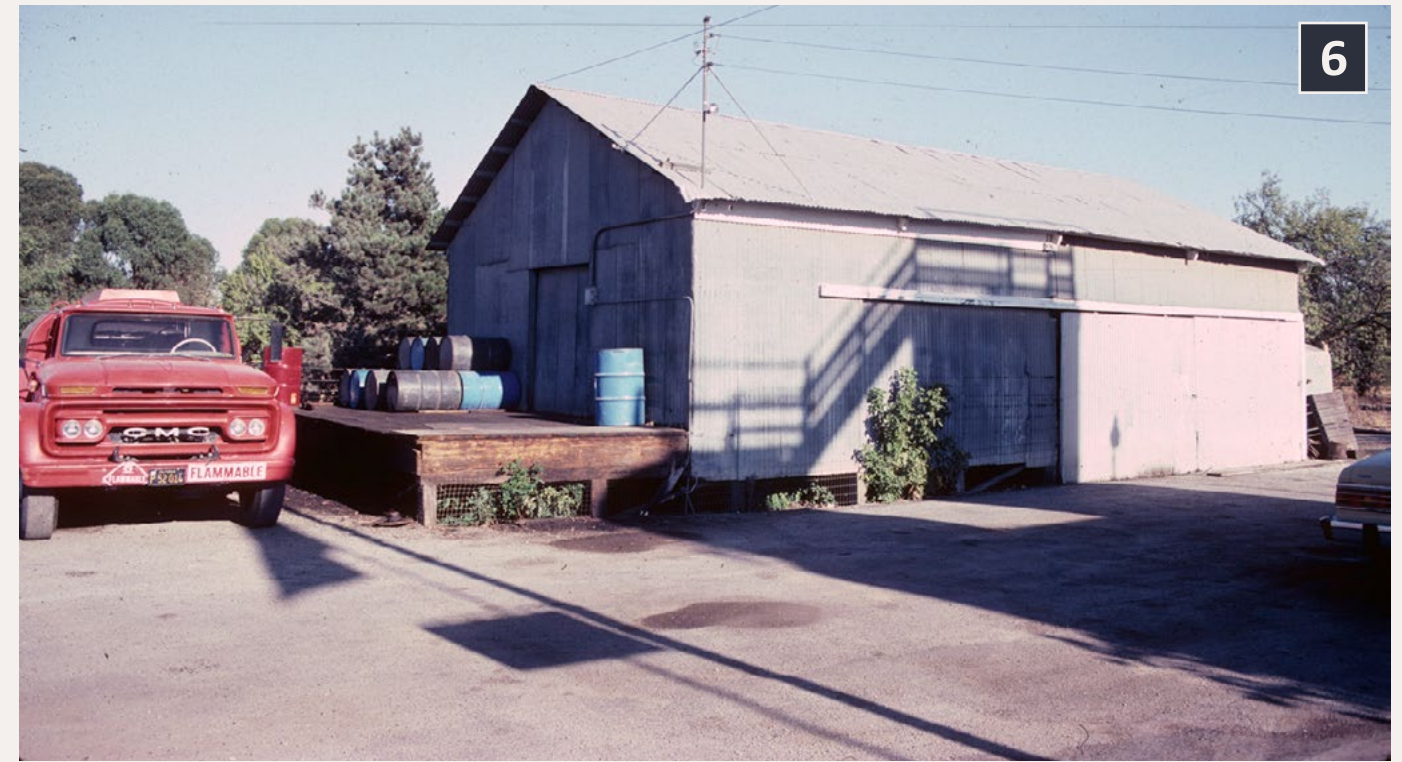
My third example was found in Ukiah, California, an independent dealership. There were four tall vertical tanks of the same height, two shorter vertical ones, and several horizontal tanks. It is shown in (3).

One additional prototype dealer to be shown was photographed in 1981 in Livermore, California, by which time it was no longer rail-served. It had all the elements: vertical and horizontal tanks, truck loading facilities, and a warehouse. It is shown in (4, 5 and 6). It's notable that the tanks shown are white. I have also seen light gray tanks, but silver is the most common color.

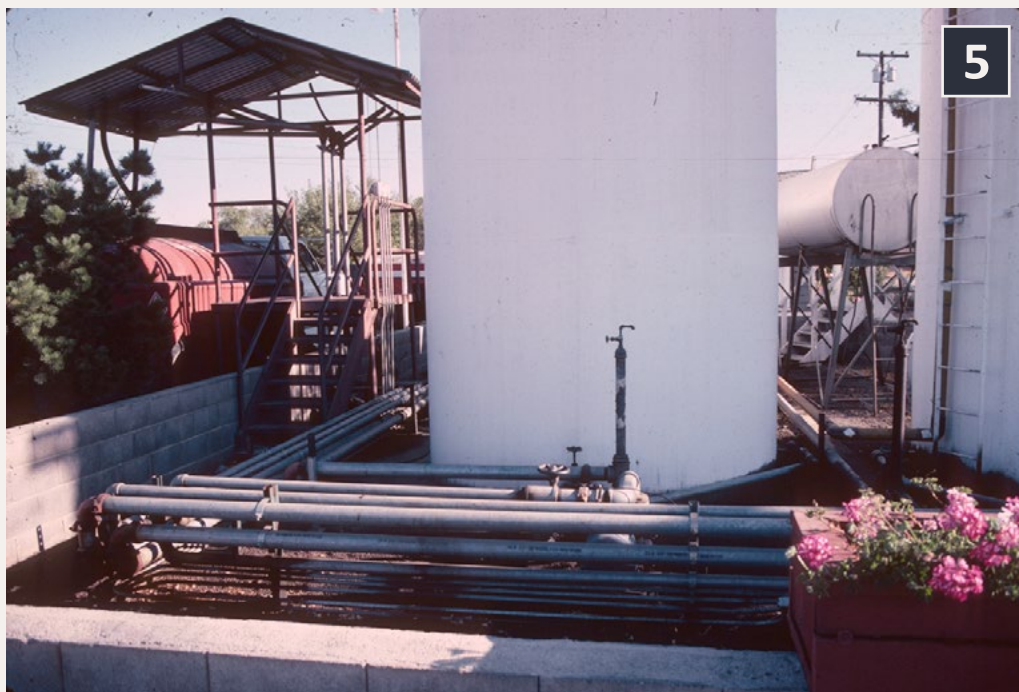
What was in those tanks? It depends on era. Before World War II, kerosene was widely used for lighting, cooking and tractor



4: This bulk oil dealership in Livermore, California had a trio of vertical tanks of the same height (one is hidden), and one taller tank. The dealership was named for its owner, Bob Frydendahl, and did not exhibit any oil company logos, though a painted-out Texaco emblem could be seen. Photos taken in August 1981. – Author photo.



6: The Frydendahl facility in Livermore also had this smallish corrugated steel warehouse, with a loading platform at truck height. Lots of oil drums are stacked on the platform. – Author photo.



5: Looking between two vertical tanks, one of the horizontal tanks can be seen. This plant had exposed piping, as visible here. The truck loading platform is at left. –Author photo

fuel in rural areas. Gasoline went from a minor product to a major one in the 1920s, but increasingly the oil companies delivered directly to filling stations. However, oil dealers continued to stock and sell gasoline as a farm fuel. Heating oil was and is quite regional in use, with some areas far more dependent than others. But virtually the same material, “fuel oil,” is used for a wide variety of commercial and industrial needs. Diesel fuel was almost non-existent at bulk dealers before about 1950, but in the years since, has become a major part of bulk oil sales.

A particular dealer might have as few as two or three tanks, or as many as a dozen. Moreover, some tanks might be much smaller than others, for small-volume fuels. And as mentioned, within bulk oil dealer facilities, a variety of tanks are visible, often similar but not identical. These are characteristics desirable to capture in a model.

The all-but-universal walkway across the tops of tanks was for maintenance access. These walks varied considerably and were obviously designed to suit the particular arrangement of tankage. Piping between tanks, and connecting to pumps and inlet and discharge facilities, might be entirely underground, partly underground, or entirely above ground. Looking at a wide variety of photos, I would say they show all combinations, so the modeler can choose how much piping to include. Even at large oil refineries, as I have often seen in northern California, there is visible piping to some tanks and none to others.



7: Tank car unloading hoses at Standard Oil's plant in Bayway, New Jersey. The platform above is for car loading. –Standard Oil Company photo, Rob Evans collection.

The liquids being unloaded required only a hose and a fitting which could attach to the bottom outlet of a tank car (7). This is, of course, quite easy to model. But pumping would be needed to get the product into a tank, often well above track level, so a small pump house is a typical part of these bulk oil facilities. Usually the pump house is well away from other structures.

An important and visible part of one of these dealerships was a warehouse, where the plant office could be located,



8: This Union Oil warehouse in Livermore California, was photographed in June 1985. The flush lading door toward the right end of the side is a common arrangement. The building has few windows and a large company logo. – Author photo.

along with storage for packaged oils and greases, anywhere from cartons of quart cans to full-size drums. These products could arrive by rail, and if that was the case, there would be a trackside unloading door. Delivery to local consumers would be by truck, so there should be a corresponding door with truck access. An example of such a building is in (6); another is shown in Figure 8, a warehouse belonging to Union Oil.

Finally, it was common to have a loading facility for tank trucks for local delivery. A small platform and shed roof was common (see 5), but some facilities arranged to load directly from tanks. One example is the Keystone Oil facility in New Cumberland, Pennsylvania, as shown in (9). This photo also shows that support framing for horizontal tanks need not be massive.

With these elements in mind – tanks of various sizes and kinds, a warehouse, an unloading spot with pump house, a truck loading platform, and piping between elements if desired – let's turn to modeling. It should be evident even from the small sample of prototype photos included here that arrangements of the elements in bulk oil plants are quite variable, and thus can be realistically modeled in a variety of ways. My focus here is a particular bulk oil plant which I freelanced using prototype information, but I will show also a couple of other models to indicate the range of possibilities in this kind of modeling. And



9: This oil dealer, in New Cumberland, Pennsylvania, was photographed in May 1985. The stairway leads to a minimal platform, and loading pipes come directly from tanks. In the background can be seen the top walkway on a four-tank set of vertical tanks. – Author photo.

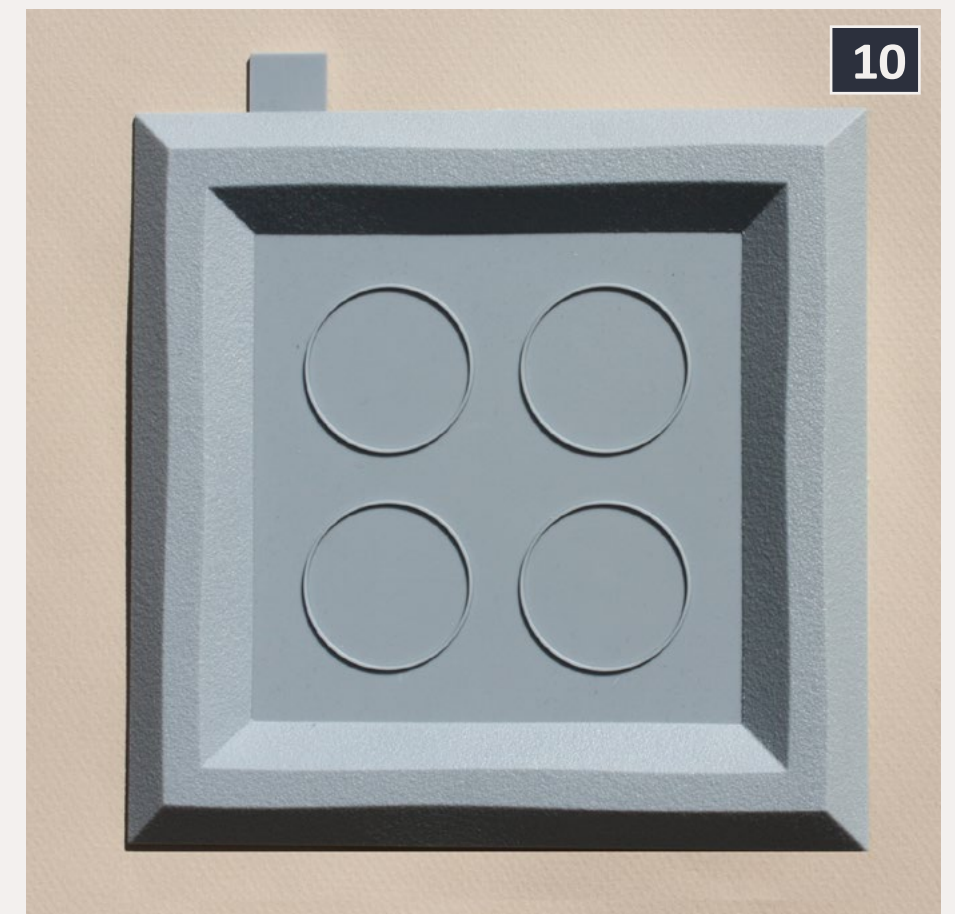
it should be evident that this is not one of those industries you can model by building one structure.

The Model

For this project, I began with the Walthers McGraw Oil kit. I wanted to change it in several ways, however, so it is mostly a kitbash. First, my space is longer than it is wide, so I needed to modify the arrangement of tanks from the four-square pattern provided in the kit. Second, I wanted to alter the look of the kit in any event, so it is not so obviously a commercial product. I used my knowledge of prototype bulk oil dealers to do the rearranging and selection of details. Here is how I did all this, starting with building the various storage tanks.

The tank base

I set out to convert the tank base in the Walthers kit to a lengthwise configuration. The berm surrounding this base looks good, so I wanted to include it in the new arrangement. 10 and 11 show the original base, and the six cuts I made in that base.



10: This is the tank base as provided in the Walthers McGraw Oil kit. It is about 6.75 inches square. –All model photos by author.

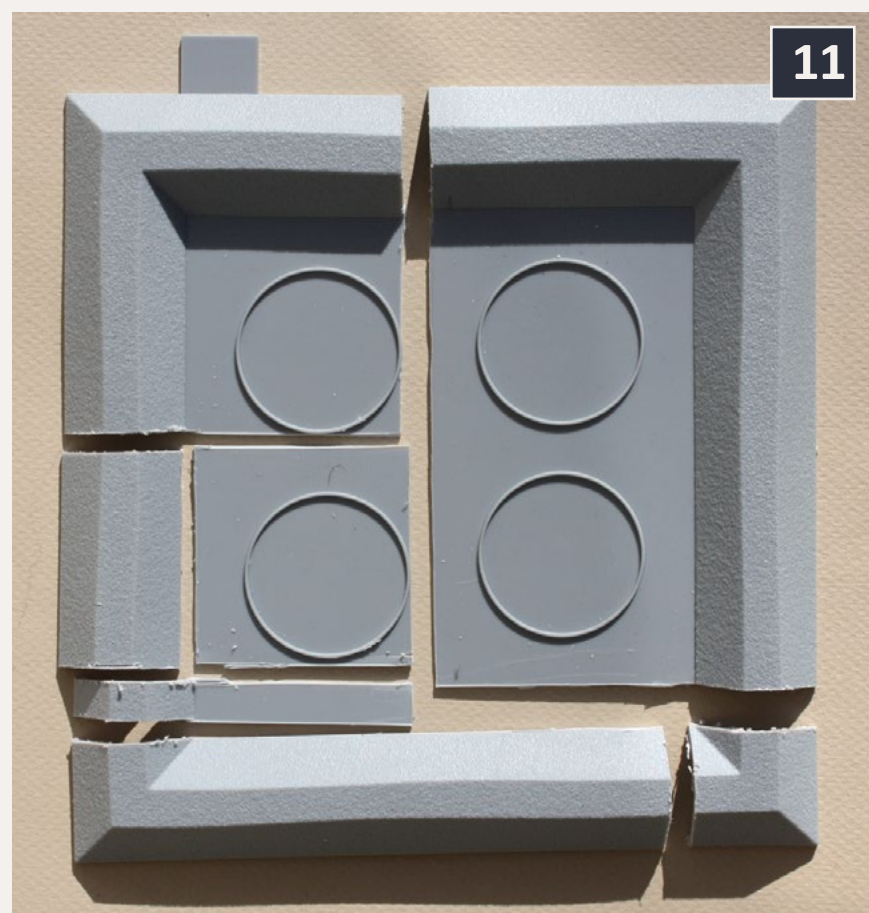
I used a razor saw for each cut through the berm, and simply scribed and snapped the cuts through the flat portions.

These cuts were chosen to permit reassembly of the cut pieces into a three-tank arrangement, including the use of the entire berm of the original base. Just one piece is left over in this process. The rearranged pieces are shown in (12).

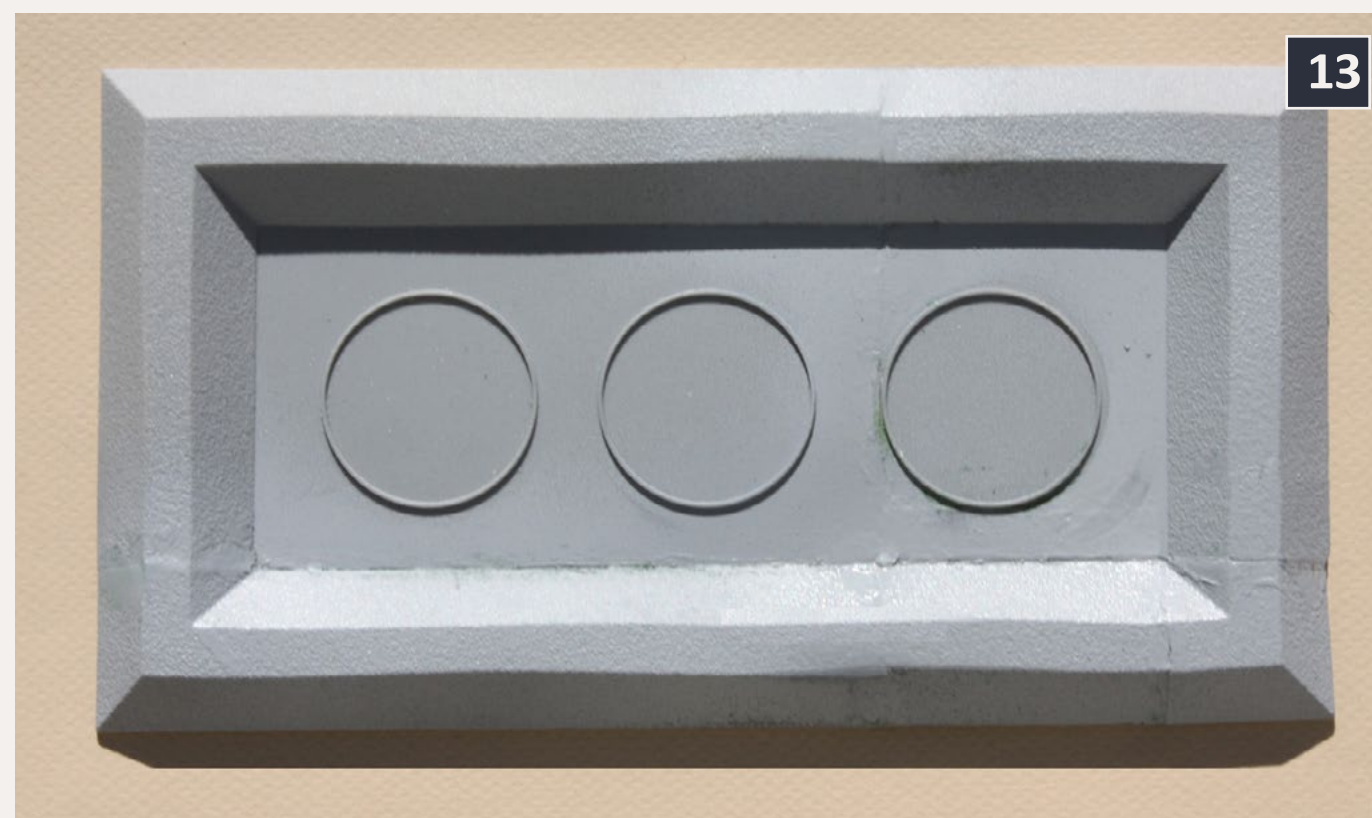
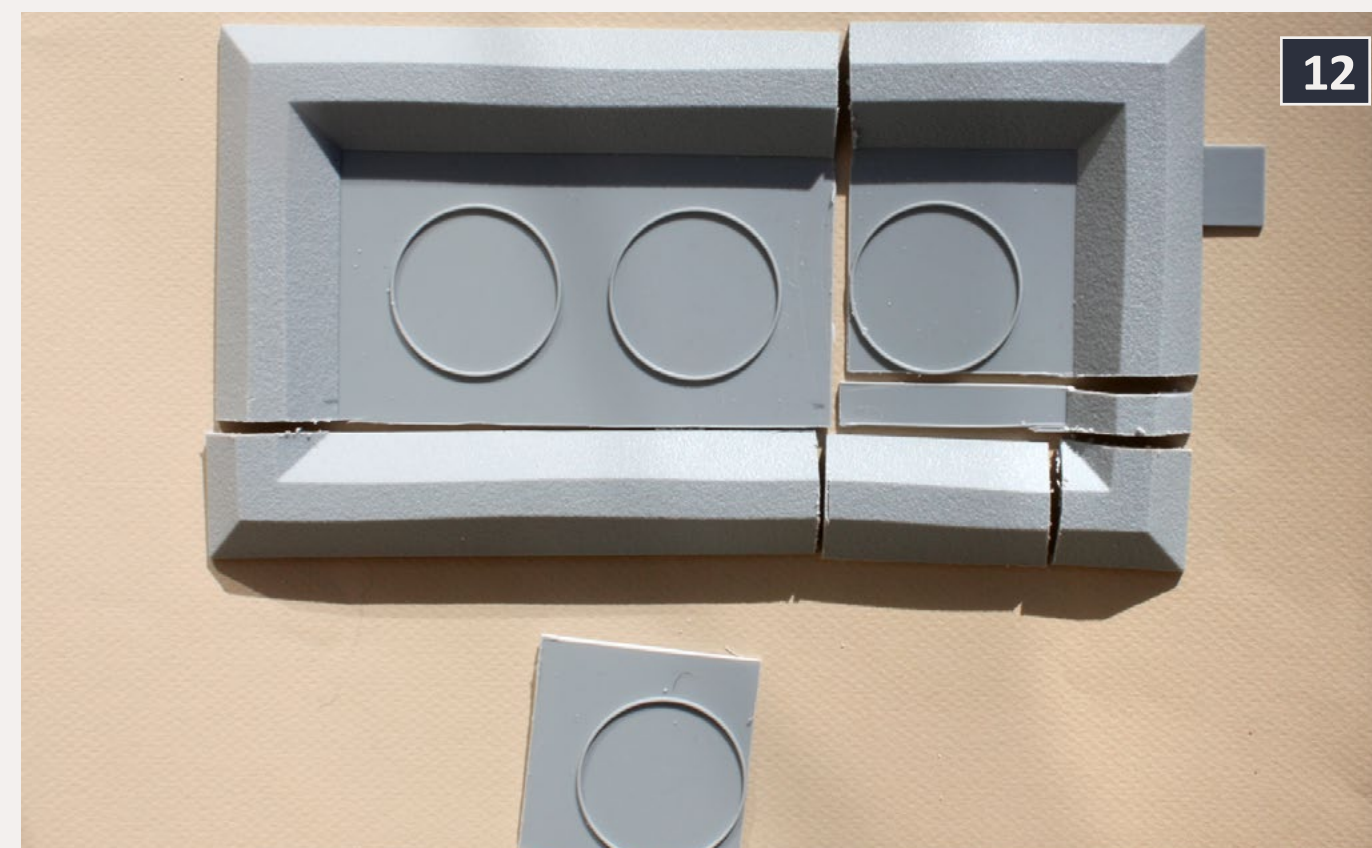
The simplest reassembly is to use styrene solvent cement and butt-joint all the pieces together, without adding a base underneath. That's what I did, adding some reinforcement strips of styrene inside the joints in the berm.

But partly in the interests of getting everything square, and partly to facilitate filling of any gaps, I also cemented the assembly to a base of manila file-folder stock. Gaps due to saw kerf were filled with modeling putty. The completed base is shown in (13).

Berms like these are often made of asphalt or oiled earth. Either way, they are a dark color, for which I chose Southern Pacific Lark



11: Here are the cuts I made in the Walthers tank base. There are six of them, and the long horizontal cut along the bottom berm, and the vertical cut in the center, are easiest to do first.



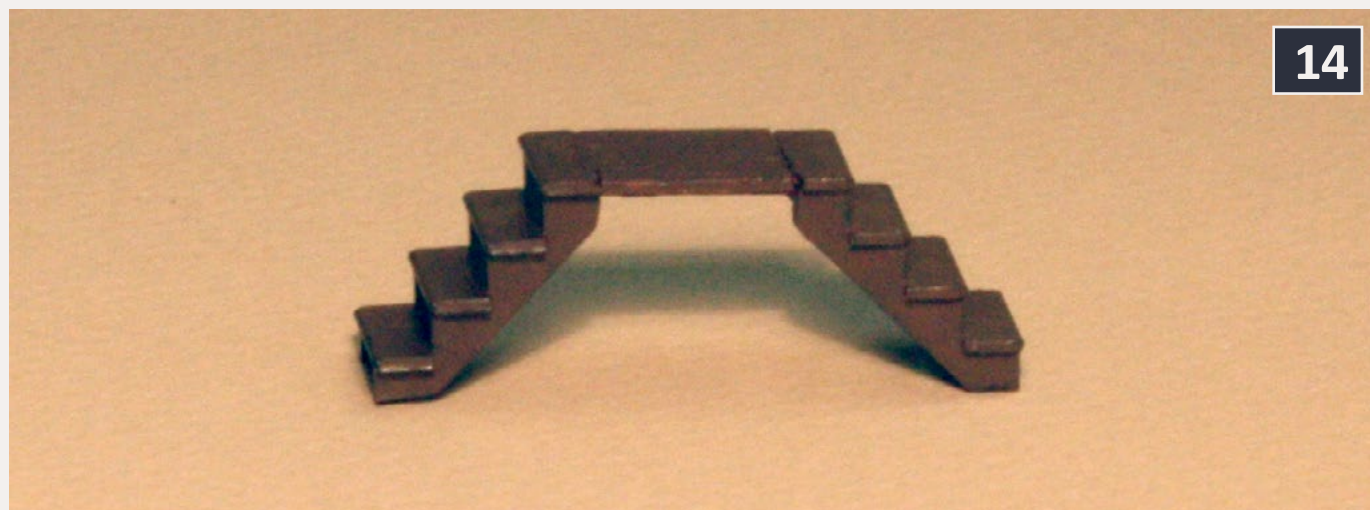
12 - 13: Shown here are the rearranged pieces from Figure 11, along with the left-over tank base piece below the assembled pieces. Figure 13, the assembled tank base, with gaps filled with modeling putty, and gray primer sprayed on.

Light Gray. The flat area around the tanks was usually dirt, for which I used Woodland Scenics Dark Soil.

The Walthers kit provides a stile for workmen to cross the slanted sides of the berm. Such stiles are common on the prototype, and I have seen them both with and without hand-rails. I felt the Walthers one was kind of oversize, so I didn't use the kit stile. Instead, I used some styrene steps from the Central Valley Steps and Ladders set, no. 1602. This set was also used for other parts of this project. Stiles like these are often painted a dark color, or may be unpainted wood. For mine, see (14).

The vertical tanks

For the Walthers vertical tanks themselves, I used only three of the four provided in the McGraw kit. The kit tanks are represented as welded tanks. The kit's weld lines are a bit heavy, a good two scale inches high, from which any welder I know would recoil in horror. I replaced them with the decal-transfer weld lines from Archer Fine Transfers (set no. AR88018). These do indeed look better, but unless your tanks are going

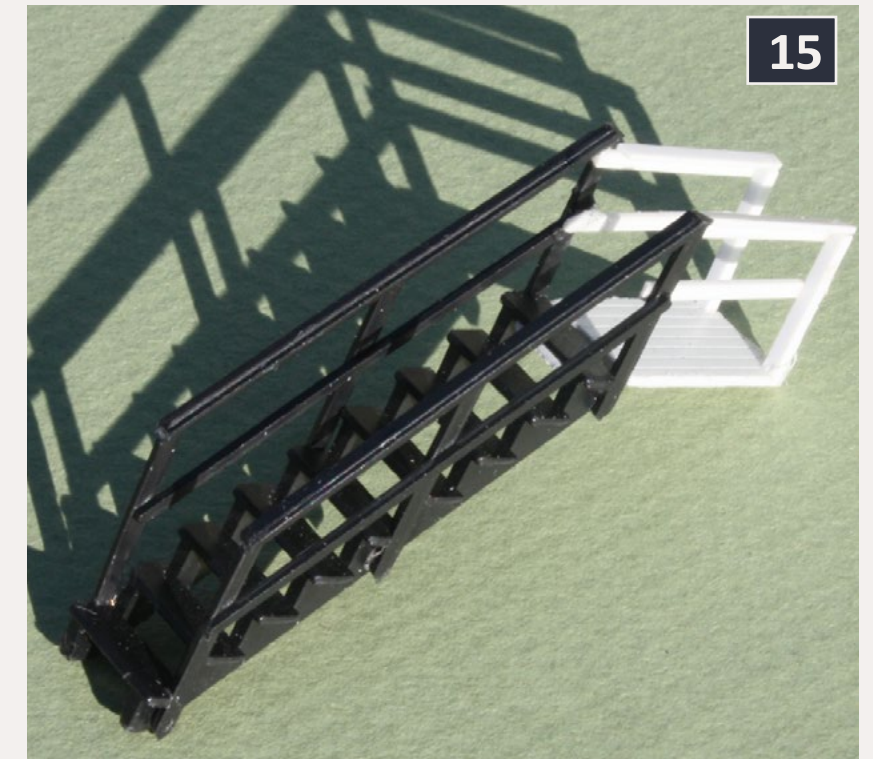


14

14: The stile to facilitate passage over the tank berm was made from two segments of Central Valley stairway from the CV Steps and Ladders set.

to be close to the front of the layout (mine are not), the gain in appearance is probably not worth the effort.

I wanted to duplicate the common prototype appearance of non-identical tanks, so I simply omitted one course on one of the Walthers tanks. I also decided to represent it as an older, riveted tank, and accordingly



15

15: The Central Valley stairs and railing (black) received a horizontal top walk with Evergreen styrene (white).

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sanded off the weld lines and added Archer rivets, set no. AR88025.

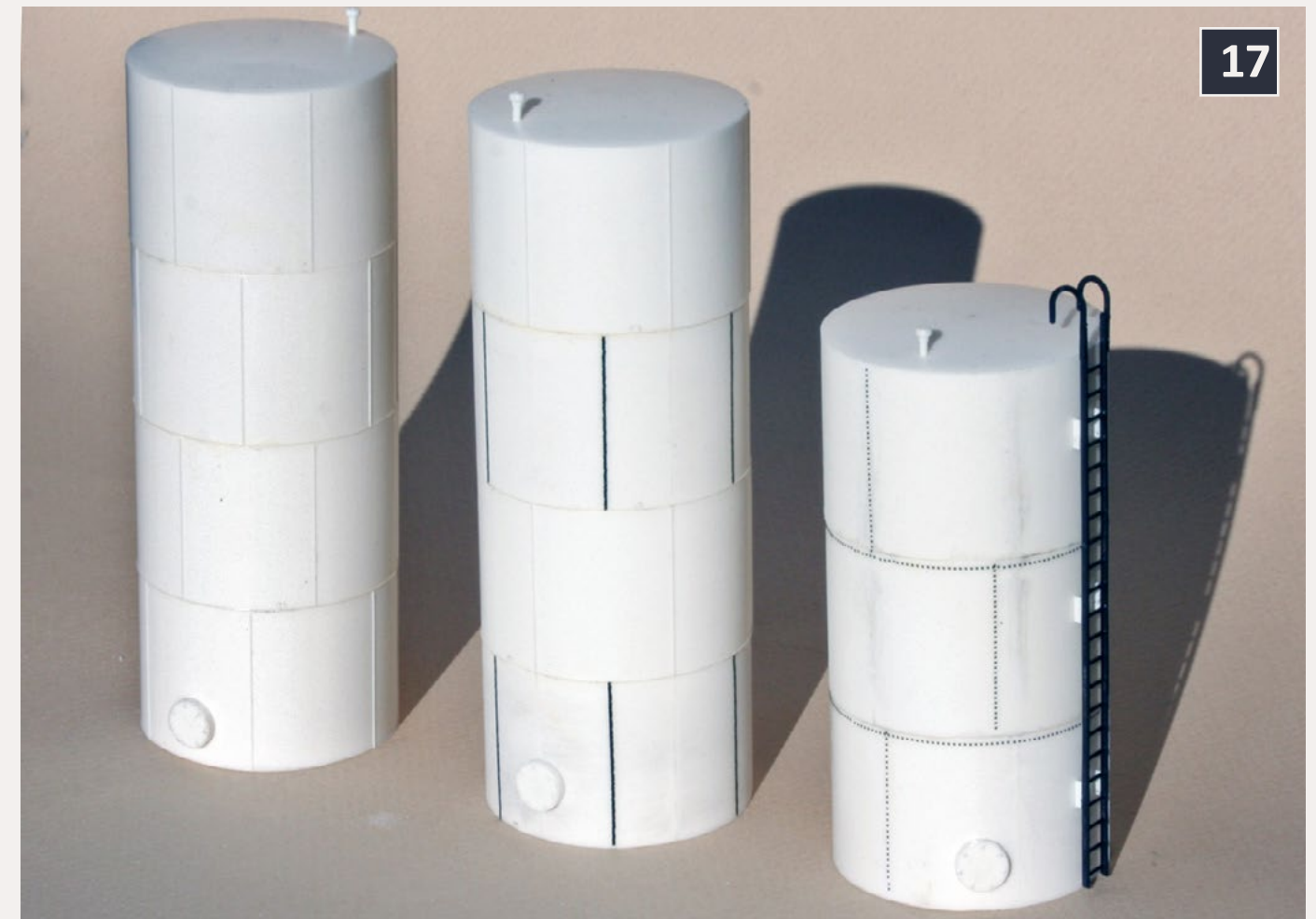
The McGraw kit includes top walkways, designed to connect tanks of the same height. This is fine for my pair of identical tanks, but I needed to connect those two with the shorter tank. As is common in the prototype, I chose to arrange a stairway to connect the shorter tank to the adjoining tall one, then a ladder from the ground to the top of the short tank.

The ladder was made from a length of the ladder in the Central Valley Steps and Ladders set, which includes rounded ladder-top returns. I used short lengths of scale 2 x 4" styrene for standoffs between the tank and ladder.

The stairway is also from the same Central Valley set, along with the side railings. I then needed a short horizontal walk at



16: This view from beneath the stairway assembly may clarify the construction of the horizontal walkway, and clearly shows the splice plate attaching the two parts.



17: The Walthers tanks ready for paint. The center tank has Archer weld lines on two segments. The shorter one at right has received Archer rivets and has the Central Valley ladder attached.

the top of the stairs. The thickness of the CV stair treads is about 0.030", so I simply used a piece of Evergreen 0.030" styrene for the walk, and added a pair of scale 4" x 4" end posts. The nearest match to the Central Valley railings appeared to be about 2" x 4" lumber, so I added that also. The assembled stairway and top walk is shown prior to painting in (15), while (16) shows the assembly from underneath. The piece of styrene used to splice the stairs to the horizontal walk can be seen.

17 shows the tanks ready for paint. The ladder arrangement is clearly visible. With tanks and walkways separate, I airbrushed

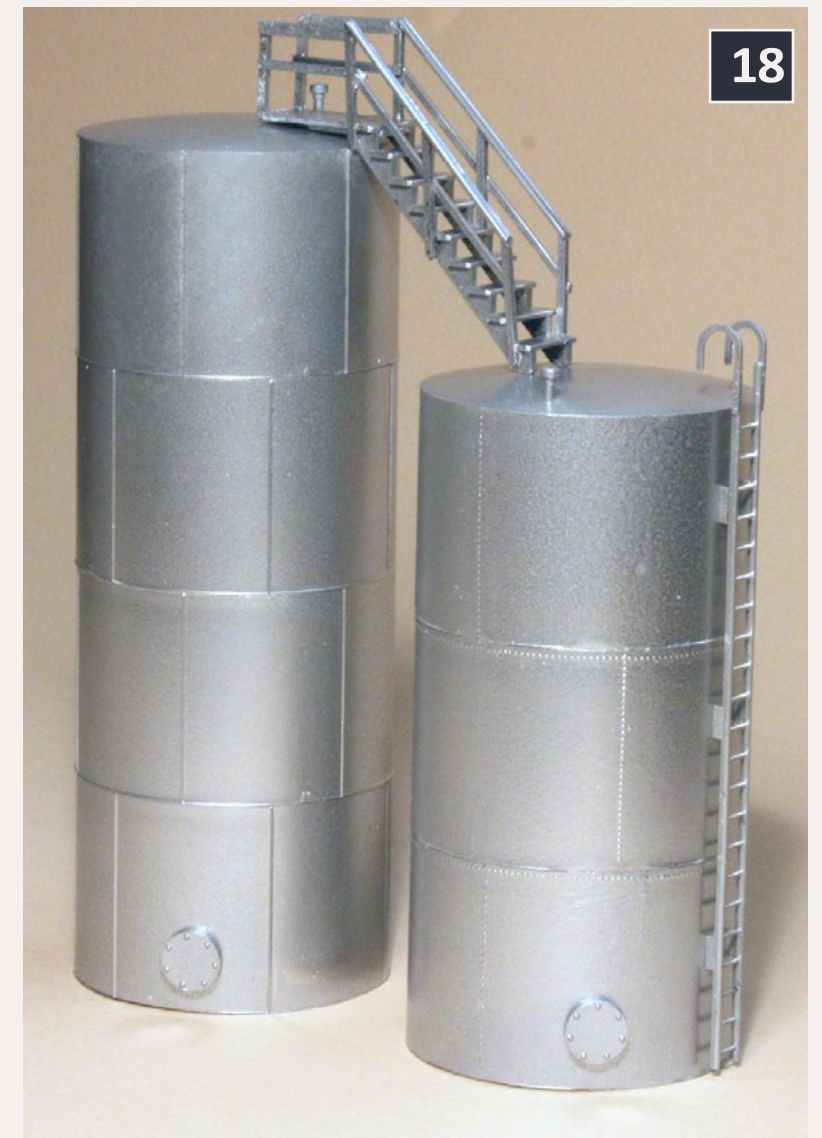
all of them a silver color. The painted walkway is shown as it would be arranged when the tankage is completed, in (18).

The final touch was to add to the center tank an Associated Oil Company logo (the "Flying A") from Microscale set 87-874. Once the tank decoration was done, I gave the tanks an overcoat of flat finish so I could lightly weather them. One could regard these as freshly painted tanks, but I decided it was a little more likely that they had been in service awhile since their last paint job. I used washes of acrylic paint, mixing gray, brown, and black to suit, to lightly dirty and streak them, then added a final coat of flat finish to take care of any glossiness from the acrylics.

One comment: In most bulk oil depots I have seen, patches or streaks of rust are usually absent (Figure 3 shows an

exception), so I recommend omitting rust on tanks like these.

With all tank painting and weathering done, and the tank base ready to accept the tanks, they were all attached with styrene cement. Small word of warning: not every tank may have a square bottom. This is worth checking before you cement tanks which are out of plumb in place. Then (19) shows the vertical tanks at this point.



18: In this view, the tanks have been painted silver, and the stairway and top walk assembly is shown approximately where it will be located after the final tank assembly is made. The walkway assembly is not yet glued on. That step will be taken after the tanks are attached to the base, to ensure correct spacing.

The horizontal tank

A horizontal tank or two is such a common feature of prototype bulk oil dealers that I wanted to add one. I decided to make the tank by the old-fashioned method, just to compare with Archer rivets. I started with a segment of toilet paper roll, and made riveted overlays for it. I used 0.005" transparent styrene

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for the overlay, and manually impressed rivets with a scribe. The great advantage of the transparency is that you can position graph paper underneath, to guide the formation of exactly spaced and aligned rivets.

For supports, I cut two from 1/8" balsa sheet, with an upper radius to fit the tank. I painted these a concrete color, as shown in (20).

The rivet-impressed overlay sheets were glued to the paper tube with canopy glue. Then I sprayed the finished tank with gray primer, and it is shown on the supports in (21). The finish color was silver, followed by weathering with acrylic washes.

The propane tank



19: Completed, painted and weathered tanks are attached to the base, with walkways and the stile remaining to be attached.

Propane was a relatively new fuel in 1953, but some dealers in rural areas were beginning to supply it. I decided to add such a capability to my bulk plant. I began with a length of Plastruct tubing, 7/8" diameter, which I cut to about a 6-1/2" length. Plastruct makes hemispherical ends for this tube diameter, part no.

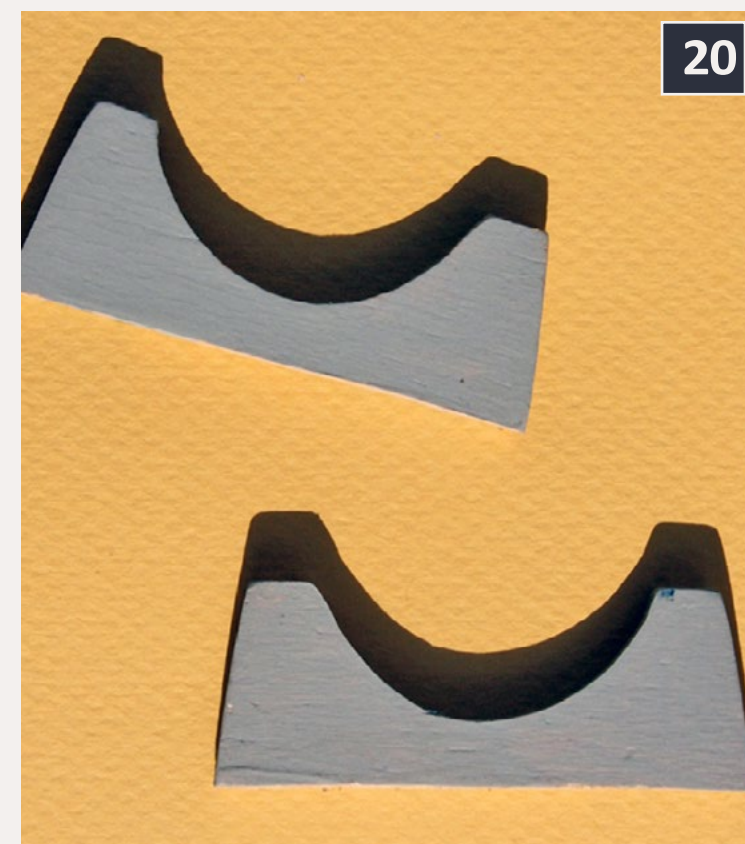
VHH-28, so I purchased a set of those and added them to the tubing, using Plastruct's own Plastic Weld cement.

Plastruct also offers tank supports for this diameter tubing, part no. VS-28, and I added those also. To get them all aligned, I drew a lengthwise line approximately at the tank bottom, and lined up the supports touching that line. The tank at this point is shown in (22).

The tank color was planned as the same silver as the other tankage, so I airbrushed this tank that color along with the other tanks. Prototype tank supports like the ones on this model are often concrete, and I decided to make mine look that way too. I used a mix of light gray with a bit of brown to get a tawny look, a color which reflects the color of the sand used to make the concrete.

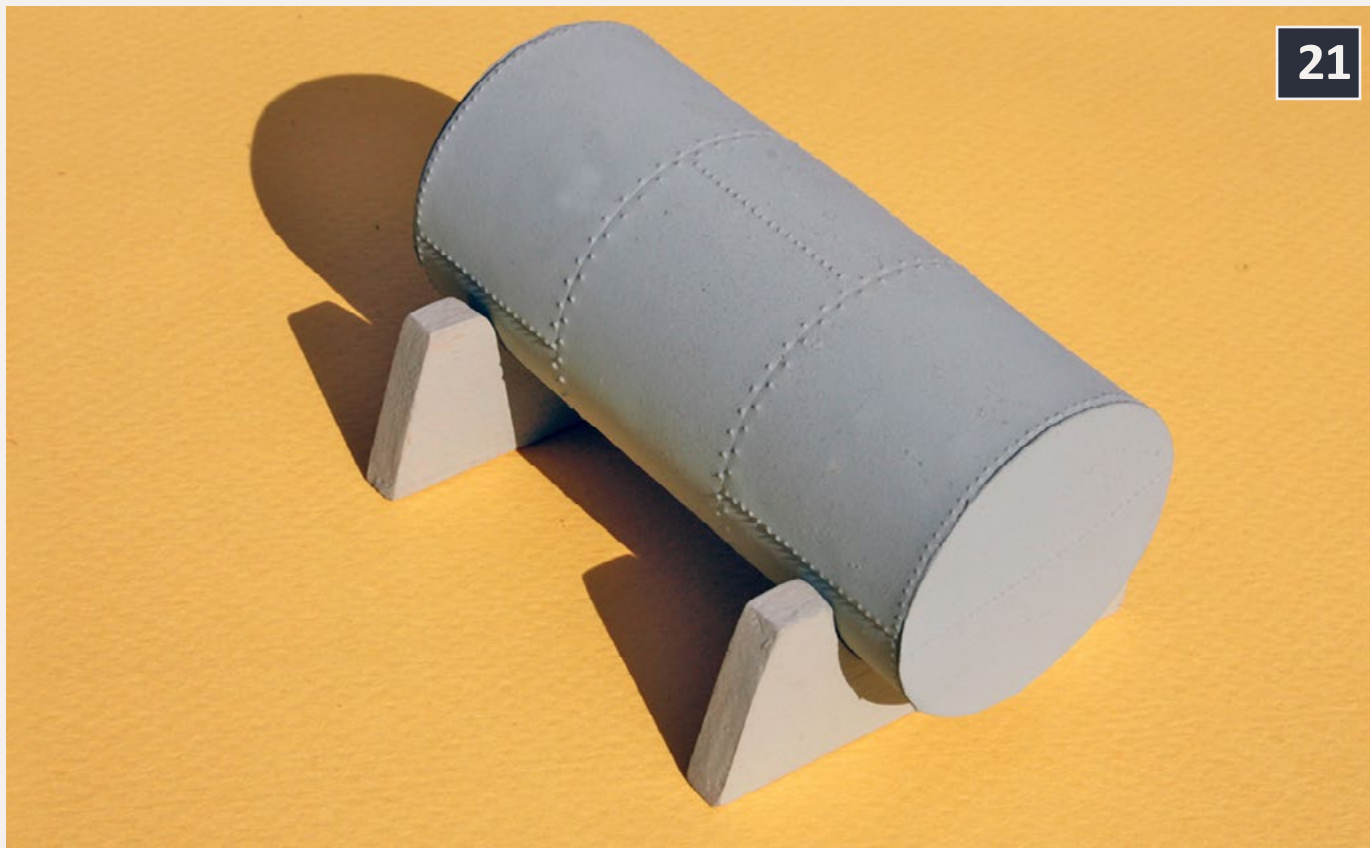
Propane unloading platform

A high-pressure tank car, in which products like propane are shipped, had in the transition era a tank-top structure some modelers might assume was an expansion dome, but which was in fact a valve housing. Inside it are the attachment points



20: Supports for the horizontal tank, cut from balsa sheet, sanded smooth, and painted.

[... On to next page of text →](#)



21

21: The completed horizontal tank, sprayed with gray primer, and resting on its "concrete" supports.



22

22: The propane tank ready for paint, as assembled with Plastruct tubing and tube ends, plus tank supports from the same source.

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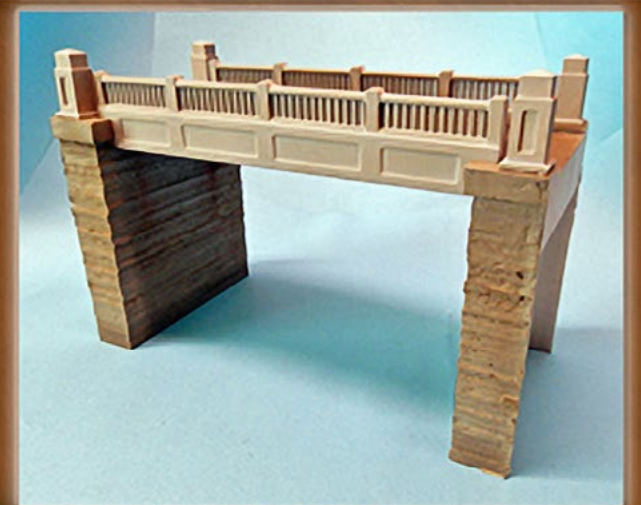


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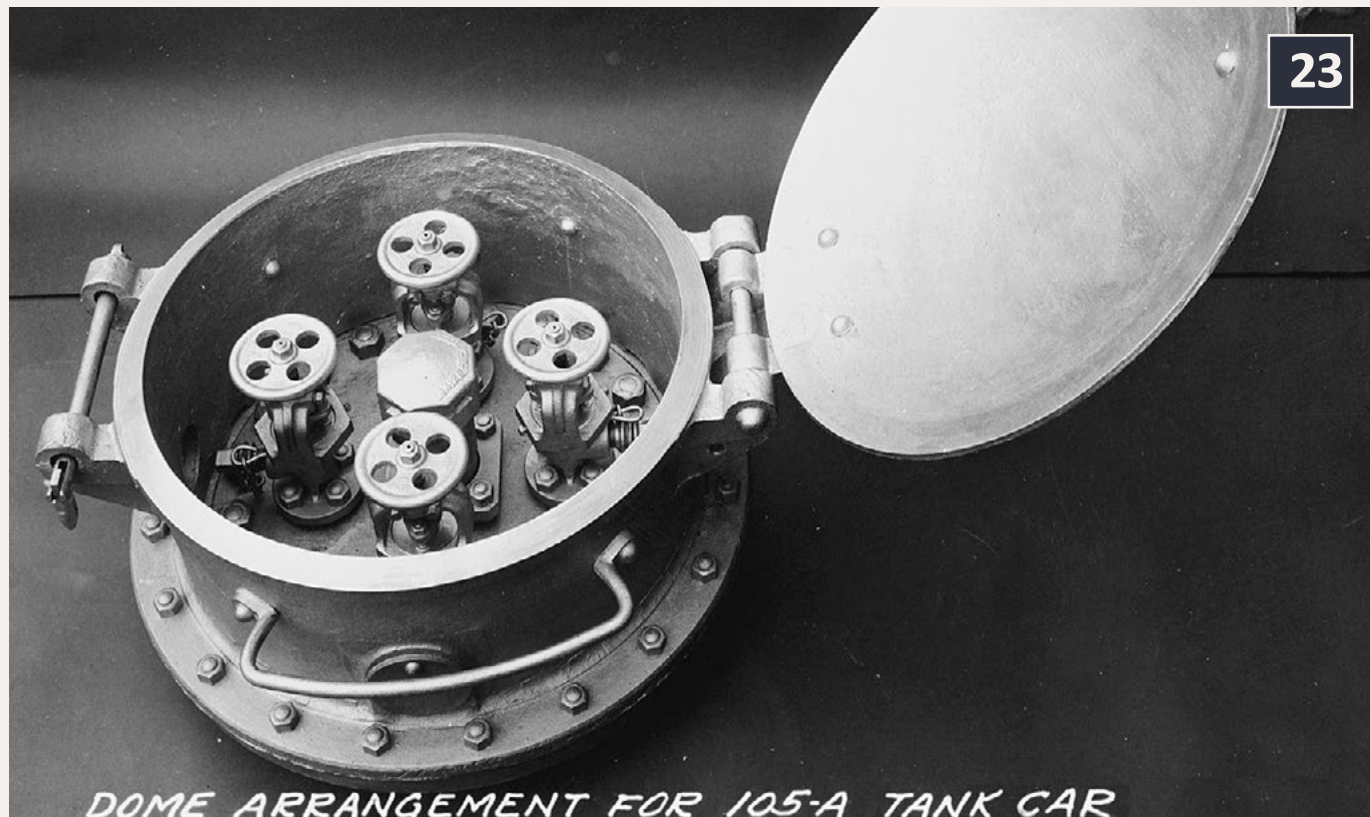


[← back to previous page of text ...](#)

for loading and unloading the cargo, and appropriate valves. 23 shows the interior of such a housing.

A workman would climb the car's side ladder to the walkway, or step across from a platform. Either way, he had to work safely around the high-pressure fittings for the car's cargo. It was common to provide some sort of elevated platform, roughly 10' off the ground, to make it easier to do this work.

24 shows a workman loading a tank car, but you can see that he has used a plank to reach the tank top from the platform, and he is simply standing atop the tank. This might be not be satisfactory if he had to make pipe connections and manipulate the valves and fittings of a high-pressure car as part of the job.



23: The interior of the valve casing on a high-pressure tank car (ICC 105). – American Car & Foundry photo, courtesy Ed Kaminski.



24: Loading oil at the Phillips refinery in Borger, Texas in November 1942. The boom with rotating pipe joints is fed from the platform. The workman has crossed to the tank from the platform at left with a length of lumber. – John Vachon photo, Library of Congress, no. LC-USW3-011638.

I decided to make a small platform for this purpose. It only needs four legs, a top, and a ladder or stairway for access. I first cut the four legs from scale 4" x 4" styrene and braced them across the ends with scale 1" x 6" styrene, 25. I also added some brass ladder stock. The piping and the railing are taken from the McGraw Oil kit. The resulting structure is quite simple, (26).

The warehouse

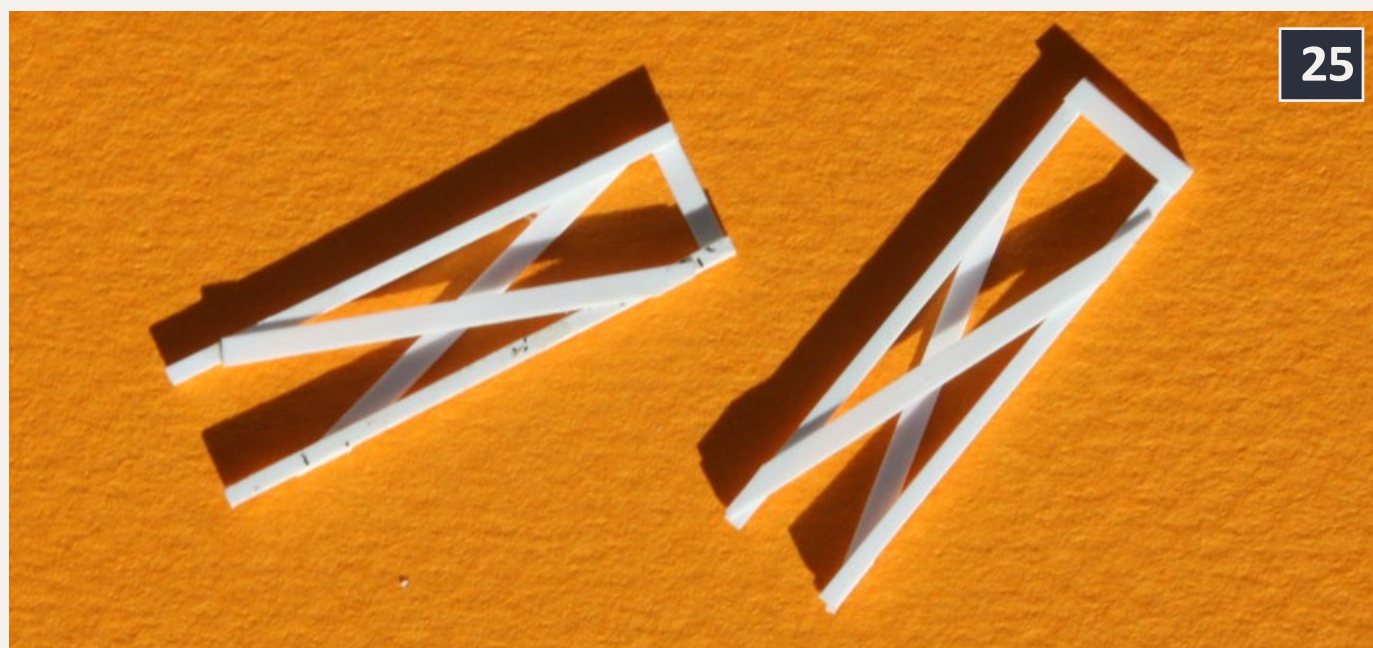
For my available space, I designed a building which is 18' x 31' in size. I decided to model it with Evergreen clapboard siding, their

no. 4061. This was chosen in part to harmonize with my pump house. The walls and ends are simple to cut from the sheet.

The windows I used for this structure were Grandt Line no. 5030, with a Tichy Train Group no. 8032 door. The larger loading doors were scratchbuilt in the same way as the doors in my Southern Pacific depot, described in my column for Model Railroad Hobbyist in [November 2012](#), page 36, and are described below.

With the sizes of window and door openings identified, they were laid out and then cut from the Evergreen sheet. To achieve a snug fit, I like to cut these openings close to the exact size and then file the openings so the parts will drop in.

Once these wall openings were correctly sized, I assembled the building. I used scale 6" x 8" styrene strip inside each corner, and added exterior corner trim of scale 1" x 6" styrene, as you see in (27). Next was to airbrush the entire assembly. I chose a single paint color for the structure, along with all trim strips,



25: The first step in building the platform is to make a pair of end supports from styrene.

since on many buildings like this, the trim is not a separate color. My color choice was light gray.

The sliding doors at the loading end of the warehouse were made from Evergreen car siding, material no. 2037, framed with scale 1" x 6" styrene. I built these with the car siding taped inside the building, then removed them so they could be separately painted the trim color, (28).

The traditional Associated trim color was bright red. I mixed about half and half Floquil SP Scarlet and SP Daylight Red, and airbrushed all the door and window moldings, along with some scale 1" x 4" styrene strip to use for trim around the loading doors. While I was at it, I masked and painted the windows and door for the pump house, and the body of the delivery tank truck (both described below).

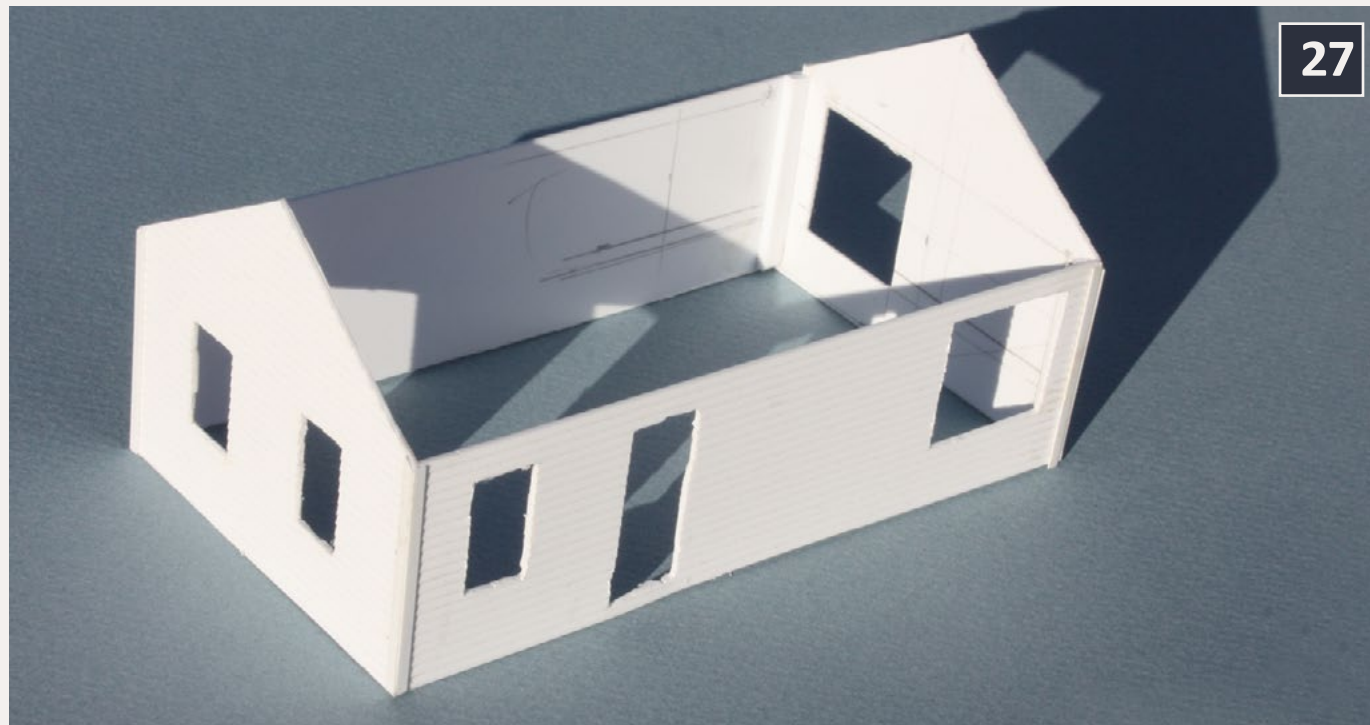
The detail parts of the warehouse could now be glued in place, along with the trim around the loading doors, (29). Visible here is the cross-wall of 0.060" styrene I made to add some stiffness to the structure. Some light weathering of the building was also added at this point.



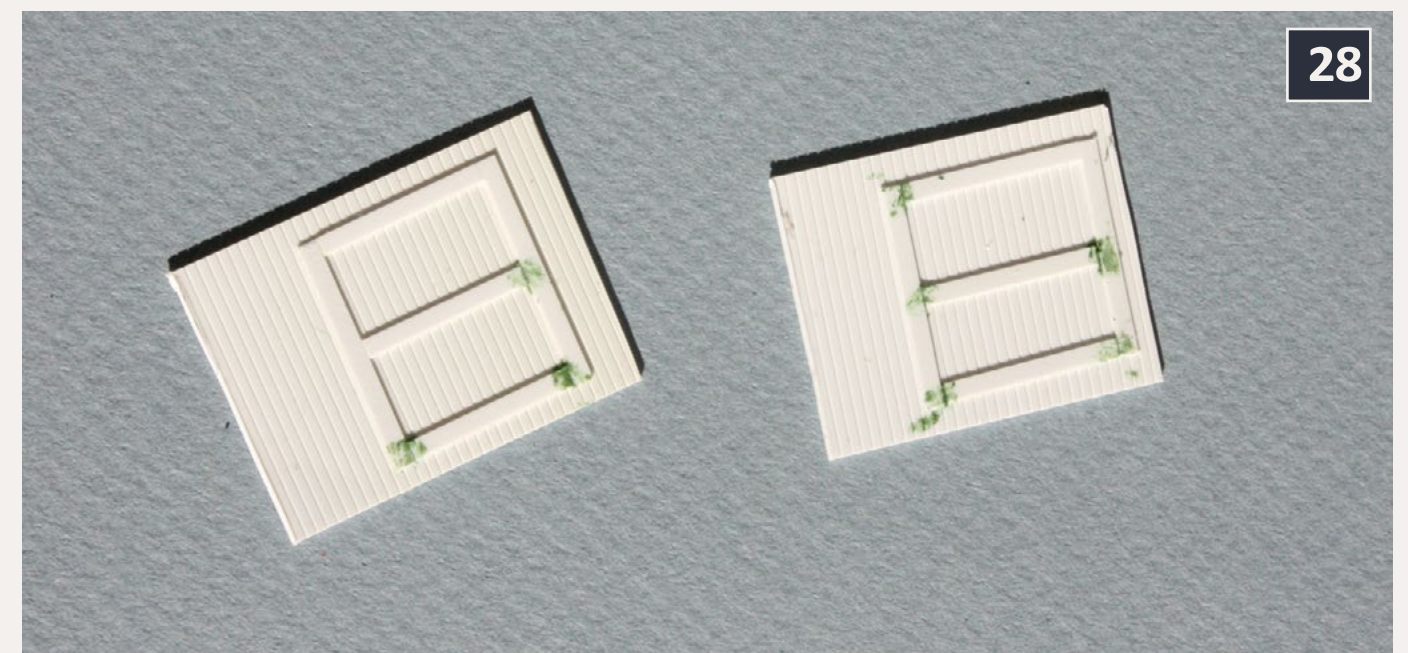
26: Here is the complete platform. I may add a plank like the one shown in Figure 24.

The roof on these kinds of buildings is often corrugated steel, and I had on hand a fine set of material from the English company Wills, their part SS MP 219. [Wills was a brand name of Ratio Models; Ratio is now part of Peco.] I have used this material before and am quite pleased with the result, though it is intended for OO scale. It is actually meant to represent corrugated asbestos siding (and you could make this roof that way if you prefer), but it also gives a good representation of corrugated iron. I used 1/16" styrene rod (Evergreen no. 222) as a ridge piece, and added a chimney vent with a piece of brass tubing.

Once assembled, the roof was painted dark gray, and a ridge sign added. This was taken from an old graphic that advertised Associated. Though the original was black and white, I converted the black to red, using Adobe Photoshop, and printed



27: The rough warehouse structure. Window and door openings look a little ragged, but the trim around these openings will conceal those irregularities. Corners have been trimmed with styrene strip. Next step is painting.



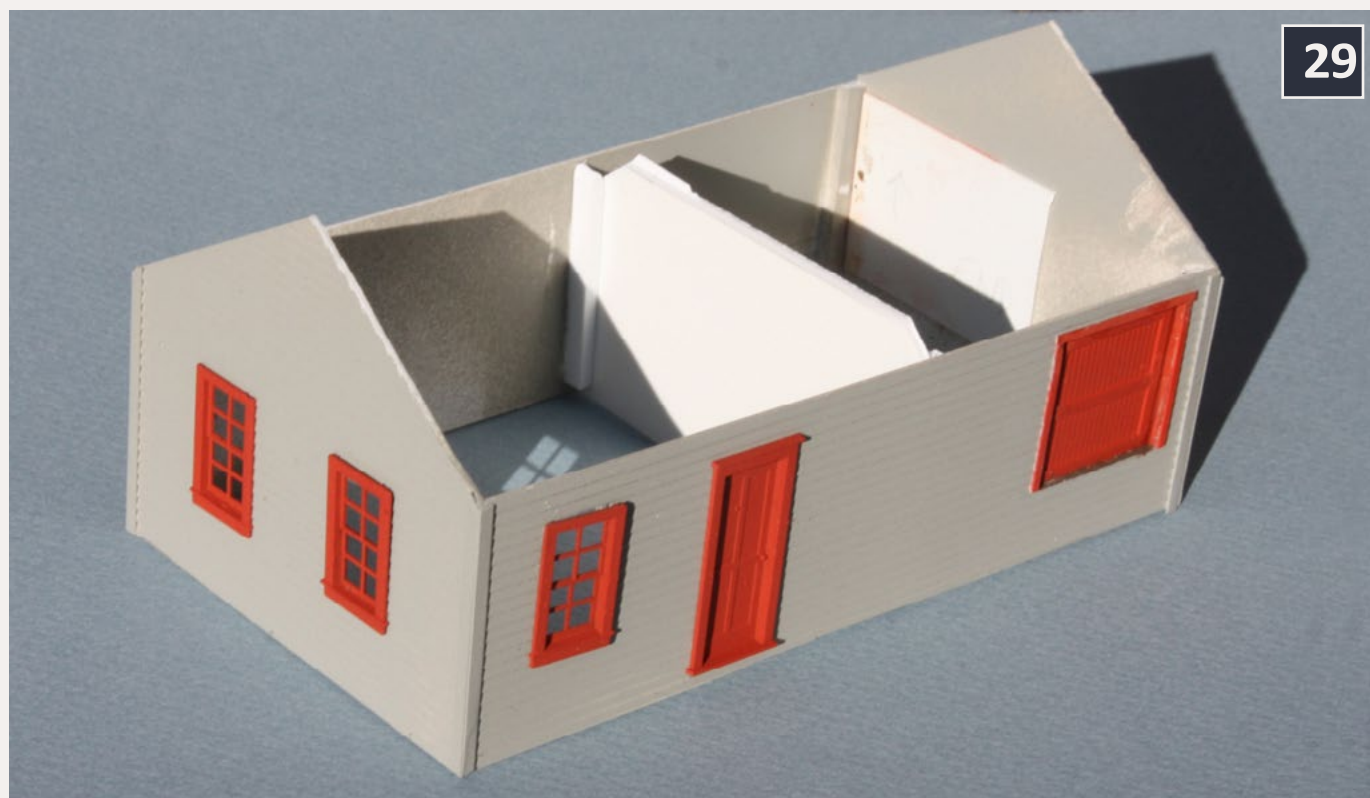
28: The warehouse loading doors were fabricated from styrene strip and scribed sheet, with overlap provided all around, so they can be glued in place from the inside. Modeling putty fills a few gaps.

the resulting image at my local copy shop on glossy stock, using a high-resolution color printer. The sign is shown in (30).

Since I have included propane in this dealership, I added a sign on the warehouse, "Propane now sold here," and an additional, smaller company sign on the building end. I also added a buffer timber underneath the truck loading door on the building end, simply a piece of stripwood.

Last, I added a loading platform for the rail siding. Inspired by (6), I decided to make it fairly large, so I could include some barrels or other details on the platform. My dock is a simple styrene box, using scribed siding for the deck, and the same clapboard siding as the main building for the enclosure underneath. Eventually I will add some oil drums and other detail to this dock.

The completed model is presented in (31). The photograph is taken with the building oriented as it will be seen from the layout aisle.



29: The completed warehouse, with the roof still to be added. A cross-brace has been added to stiffen the structure.



30: The rooftop sign for the warehouse, adopted with Adobe Photoshop from an old graphic image.



31: The completed office/warehouse, with roof and rooftop sign installed, signs on end of building, and trackside loading dock attached.

The pump house. These are always small buildings, usually containing only the valves and pumps needed to move product around, into, and out of the tanks. I had on hand part of a Like-Like Trains kit for a stock pen, which, as a frame structure, looked suitable to me. (More recent versions of this Life-Like kit don't include the building.) The McGraw Oil kit provides small brick structures for the office and the pump house, but would not be typical in the east or midwest, but is typical in the west.

I simply painted the structure the same light gray as the warehouse, and then painted the door and windows the same shade of red used on the warehouse trim.

Tank car unloading

For the kinds of petroleum products handled at oil dealers like this one, a simple hose to attach to the tank car bottom outlet would suffice for gravity unloading (though the pumping system was used to move the product to its storage tank). All that needs to be modeled is some suitable hoses on the ground. Figure 7 shows the kind of thing I mean. The simplest way to do this is to use the unloading pipe from the McGraw Oil kit parts, which is what I did. For hose, I used a coiled piece of No. 22 wire with black insulation, painting each end Tamiya “Dark Copper” to represent bronze couplings. One can show such a hose connected to piping, or not.



32: The truck loading facility, white styrene attached to the gray platform from the McGraw Oil kit, before adding a roof and painting.

The truck loading facility

Bulk oil dealers usually operated tank trucks for local delivery, and, of course, had to be able to load trucks from the storage tanks. I built a simple, small facility of this kind, starting with the platform for the smaller structure in the McGraw Oil kit, plus the loading pipe from the kit. I added side walls and a roof, as is common in these structures. It's shown unpainted, before attachment of the roof, in (32).



33: An Associated delivery truck, made from a Mini-Metals 1941–46 Chevrolet tank truck, shown at a grade crossing.

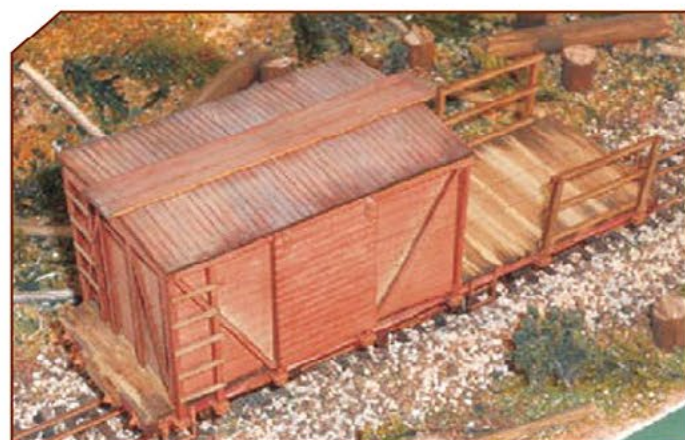
A delivery truck

One way to help identify your oil dealer is to have a highway delivery truck alongside your loading platform. I used a Classic Metal Works (“Mini-Metals”) 1941–1946 Chevrolet tank truck, and repainted it. These models can be disassembled from underneath, handy for painting, since glazing can be removed and the tires kept separate.

The tank supplied with this model looks too big for the kind of trucks built in 1946 and before, so probably represents a later addition to an older chassis.

Although I don't know exactly how Associated delivery trucks were painted, I chose to paint mine the same red color used for trim on the structures. For emblems and lettering, I used the same Microscale set used for the vertical tank emblem, 87-874, along with pieces from their O-scale set, 48-434.

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34: An Associated tank car, photographed at Tacoma, Washington on February 19, 1955. The car is a Type 11 design from American Car & Foundry, and it was last reweighed in April 1921, nearly 34 years earlier! Unlike other freight cars, tank cars did not need to be reweighed regularly, as their cargoes were billed by gallonage, not weight, thus the light weight of the car was not important. – Chet McCoid photo, Bob's Photo collection.

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I also added correct 1953 California commercial truck license plates. I discussed how to do this in one of my blog posts; a link is given in the Bibliography, under "Plates." The completed truck is shown in (33).

Tank Cars

The tank cars which would serve this facility are not really part of this column on building the industry, but for clarification I show an example of what I need. This also illustrates the opportunity to strengthen the regional layout image with an oil company like this one.



As late as the 1950s, Associated, though a part of Tidewater Associated Oil Company since 1926 (see Bibliography for more on the history), continued to operate its own tank cars under the reporting mark AOX. (34) shows a prototype photo taken in 1955 of such a car.

I have a couple of models of these cars, one of which is a Sunset brass "TM8" car. The other is a stand-in, an old Soho tank car lettered with decals from Funaro & Camerlengo (F&C). There is also a resin tank car kit from F&C for an Associated tank car, for those interested in building one. Upgrading this kit was the topic of an article by Ted Culotta from his series on Essential Freight Cars (see Bibliography). My stand-in is shown in (35).

The completed bulk oil depot

Assembling all the component parts shown above, my concluding photos depict the facility as it appears on my layout, (36 and 37). The two different viewpoints of the photos illustrate all the component parts.



35: The Soho brass tank car, lettered with decals from Funaro & Camerlengo, as a stand-in for the prototype car shown in Figure 34.



36: A view from the northeast of the Associated bulk oil dealer, in place in my layout town of Shumala. At far left can be seen the platform for unloading propane tanks, and at far right is the truck loading platform. That's the Shumala yard office in the foreground.

Other Bulk Oil Dealer Models

One other model I have built is the old Chooch kit, no. 9015, now out of production, which I put together as a Union Oil Company dealer. It is shown as (38). The tanks are somewhat smaller than the Walthers tanks and are arranged differently. I have included some barrels painted in Union's blue and orange colors.

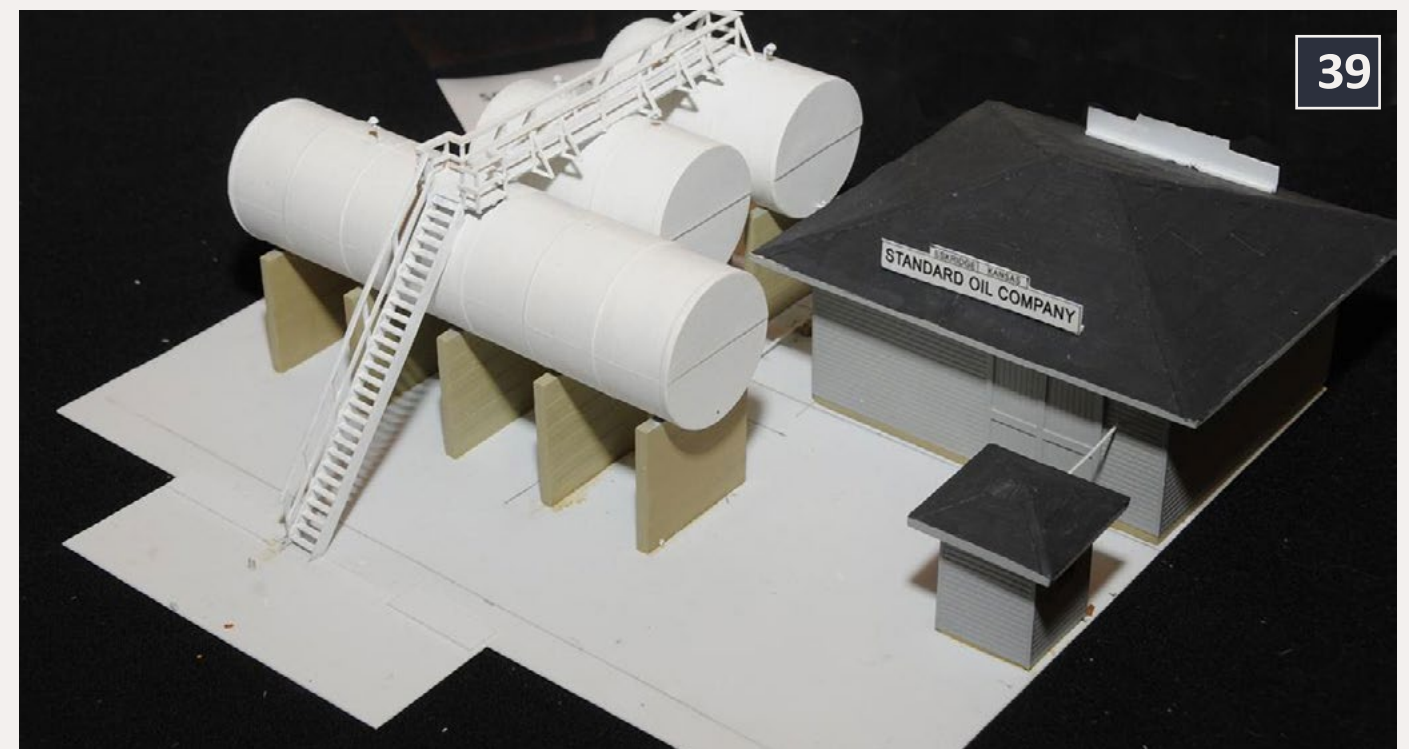
Jared Harper is modeling Santa Fe's Alma branch in Kansas, and has put together two bulk oil dealerships based on prototype photographs. These form an interesting contrast to the kind of arrangement I have modeled, and with Jared's permission, I show two of his models here, (39 and 40). The models rest on a plain styrene base, but the structures themselves are

[... On to next page of text →](#)



37

37: A view from almost the opposite direction. The propane tank and unloading platform are at left. Between that platform and the pump house is the pipe and coiled unloading hose for tank cars. The fuel and water cranes are part of the Shumala engine terminal.



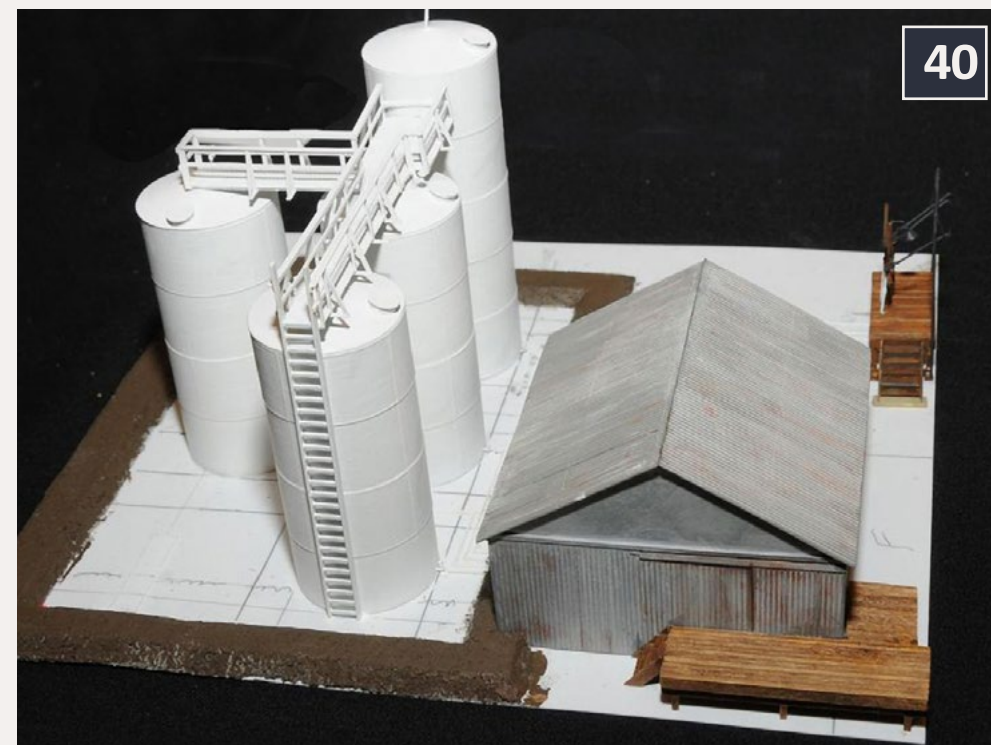
39

39: This Standard Oil dealership has three tanks, all horizontal, one of them quite large. There is also a building to house the warehouse/office, and a pump house. – Author photo.



38

38: This is the Chooch kit for a bulk oil facility, though I have added the warehouse at left of center as a scratchbuilt structure. The kit contained three tanks, two of greater height than the third, and a suitable pump house, all to be built on a base which includes a berm to surround the tanks. Note I have spotted a Union Oil tank car in front of it.



40

40: This dealership has four vertical tanks, three of the same size and one taller, with an interesting arrangement inside a berm. A truck loading platform is at far right, behind the warehouse. – Author photo.

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complete. The black cloth backgrounds of both model photos help make the models stand out.

These models, though each is different from what I chose to model, show the various ways this kind of oil facility may be arranged.

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Ted Culotta, "AC&F Type 11 tank cars," *Essential Freight Cars*: 45, *Railroad Model Craftsman*, July 2009, pages 80–89.

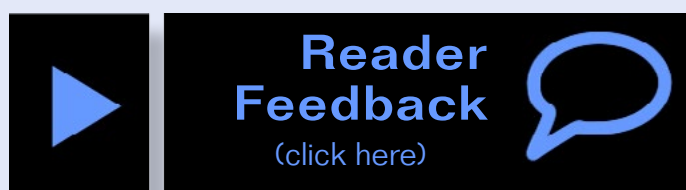
Olaf Melhouse, "Modeling the Oil Industry: Texaco Bulk Oil Depot at Devils Lake, N.D.," *Railmodel Journal*, December 1994, pages 12–18. Plates: modelingthesp.blogspot.com/2012/11/vehicle-license-plates-in-ho-scale.html

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What's neat this week column by Ken Patterson

1



1: The blue C-19 was caught resting along a body of water that only doubled the beauty of the locomotive. Just a little resin makes for a great reflective photograph any day.



contents



index

My whole adventure started with Joe Fugate requesting a click and spin of a locomotive. Well, I took it upon myself to build an operating scene of the Dallas Divide for some beauty shot stills and video.

It started as a dog-bone return loop, simply to eliminate a second person on the throttle, as the train could simply make its circle between takes. A few more trips to Micro Engineering and 20 more feet of track later, I was able to incorporate a turntable, a three-track yard, a mainline passing siding, and two industrial spur tracks for what became an operating layout of 9 by 2 ½ feet.

During the whole build-up process I documented the construction of the mountains, and the run by scene inspired by a photograph on page 89 of Josie Moore Crum's "The Rio Grande Southern Story, Vol. 1." Lining the train up on the

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track to match the photo, then tracing the mountains on foam using the train's roof as my height guide, worked out really well.

By documenting the whole construction process, from foam to wrapped black oak sides, to the built-in electronics and blocks, I have what will eventually turn out to be a two-hour video sharing the whole process of construction, photography and operation with prototype photos and models from Blackstone (blackstonemodels.com). This month's video and stills are born from this four-week adventure into RGS modeling. I put together about 20 runbys on six different

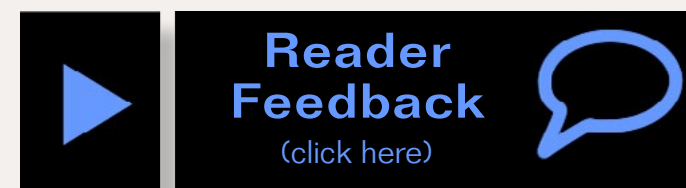
4



4: C-19 tight shot. This used the full power of Helicon Focus software to provide the depth of field that makes this model pop off the page. This C-19 is a smooth running model with lots of detail.

running scenes to make a very entertaining video full of smooth running action. So, check out this month's video and enjoy the still shots with captions.

Photos continued on next pages ...



3: Sunrise. This is simply a good moment combining quality engineering in the model with a little nature for a stunning photo.





5: Dallas Divide, as modeled from a photo on page 89 of "The Rio Grande Southern Story, Vol. 1." The horseback riders make the shot, along with layered scenery and the background mountains. It took five days to create all the props for this magnificent photograph that is now the wallpaper for my desktop computer. It was a fun shot to put together.

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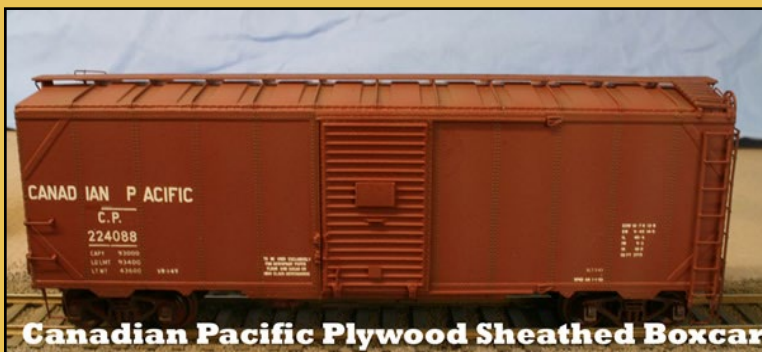
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VICES, CLAMPS, AND ANGLE PLATES

Holding things securely is one key to better modeling...

by Jack Burgess



As a prolific scratchbuilder, I tend to think of vises as fairly basic modeling tools. However, I realize many kit builders, whether they are building laser-cut wood kits or resin freight cars, may think otherwise. However, I believe many modelers will find times when a good vise can be an asset.

I purchased my first modeling vise, a standard Panavise model, back in the 1970s. I used this vise for several decades, but wasn't happy with the nylon jaws since they didn't seem to hold parts as securely as I needed. When I set up my current workshop ([February 2013 MRH](#)), I changed to a Proxxon model FMS 75 Precision Vise. While my Panavise was a standard "screw to the workbench" model, this Proxxon model was fitted with a vacuum base which requires it to be used on a smooth, non-porous surface.



1: This is my Panavise with its vacuum base and steel jaw inserts.

Both of these vises use a ball joint which allows the vise to be rotated to nearly any angle. This is a valuable feature—if I'm filing something to shape using the vise, I will rotate the vise so the object is at right angles to my line-of-sight so I can accurately judge my progress.

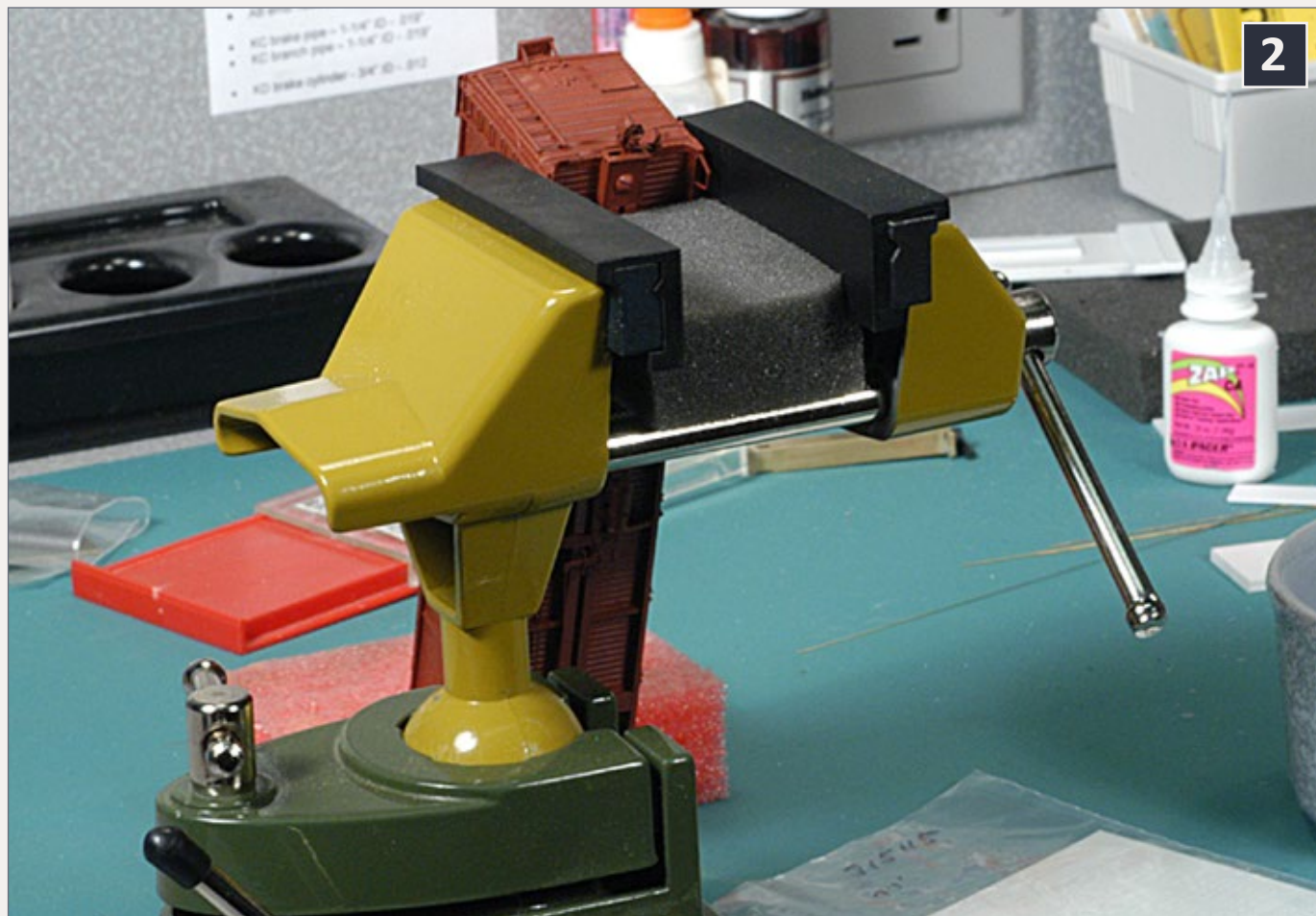
The Proxxon vise is less expensive than a comparable Panavise model, and works reasonably well. However, I was somewhat disappointed by the roughness of the ball joint. Ultimately, I ended up purchasing another Panavise, but one with a vacuum base. I also purchased a set of steel replacement jaws which solved the problems I had with the earlier nylon jaws. My current vise is shown in (1).

A vacuum base for a modeling vise is obviously a personal choice. The advantage of a vacuum base is that it can be moved to different places when needed, something you can't do if the vise is attached to the workbench. But a vise with a vacuum base needs to be locked down by moving a

lever which raises the rubber pad on the bottom of the vise, creating the suction which locks the vise down. I don't find that step burdensome, and prefer the ability to move the vise as needed. If your workbench doesn't have a smooth, non-porous surface, you won't be able to use a vacuum base model. My workbench is covered with plastic laminate.

Most uses for modeling vises are fairly obvious, such as holding parts for filing, etc. Another use is holding boxcars and refrigerator cars while adding the decal lettering on the ends. This is shown in (2 to 4).

Most modelers would find a single vise more than satisfactory. But, as a tool fan, one is not enough for me. I have a precision drill press, and for years used an old Unimat vise

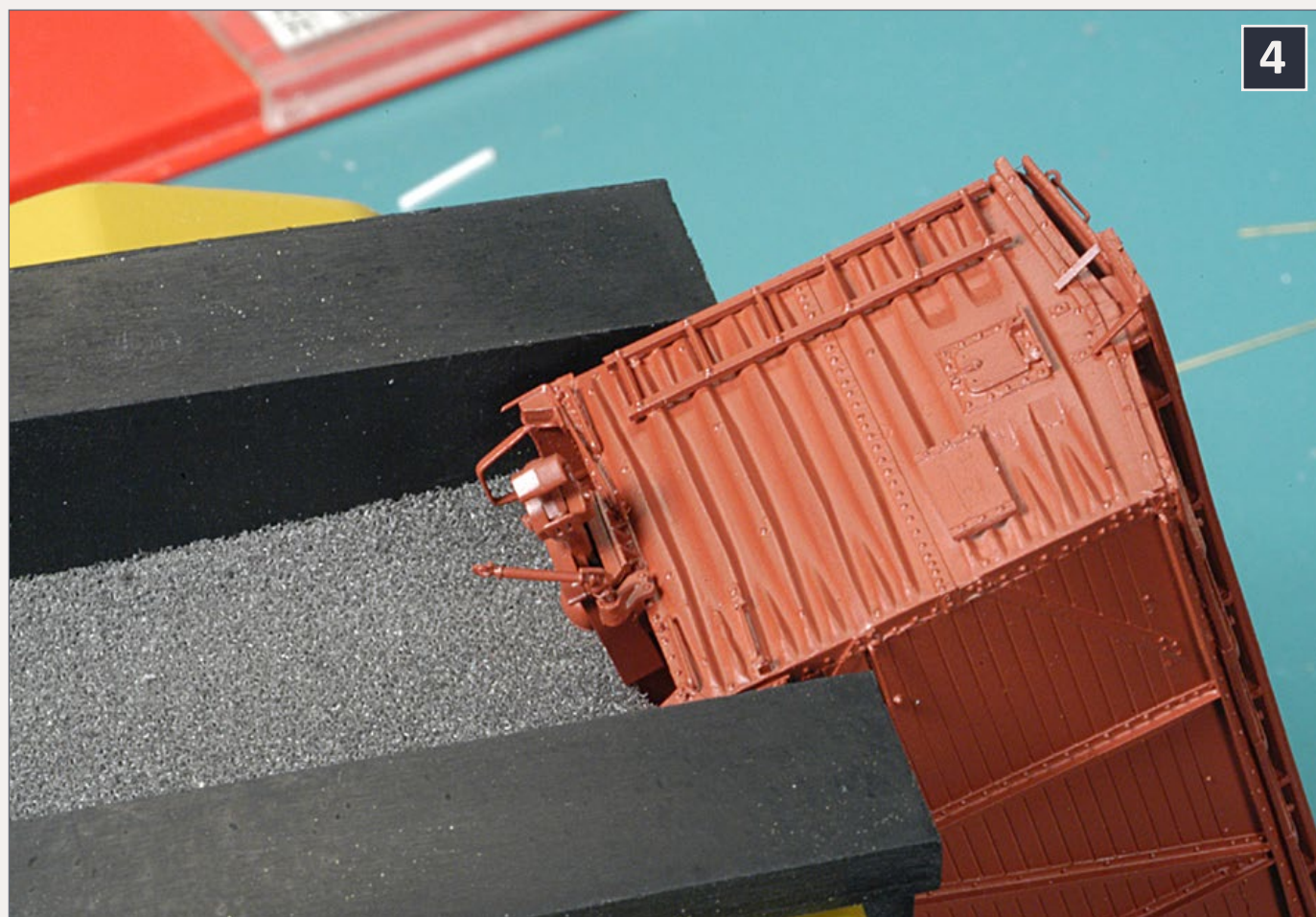


2: Here is my former Proxxon vise set up for holding a freight car while the end decals are applied.

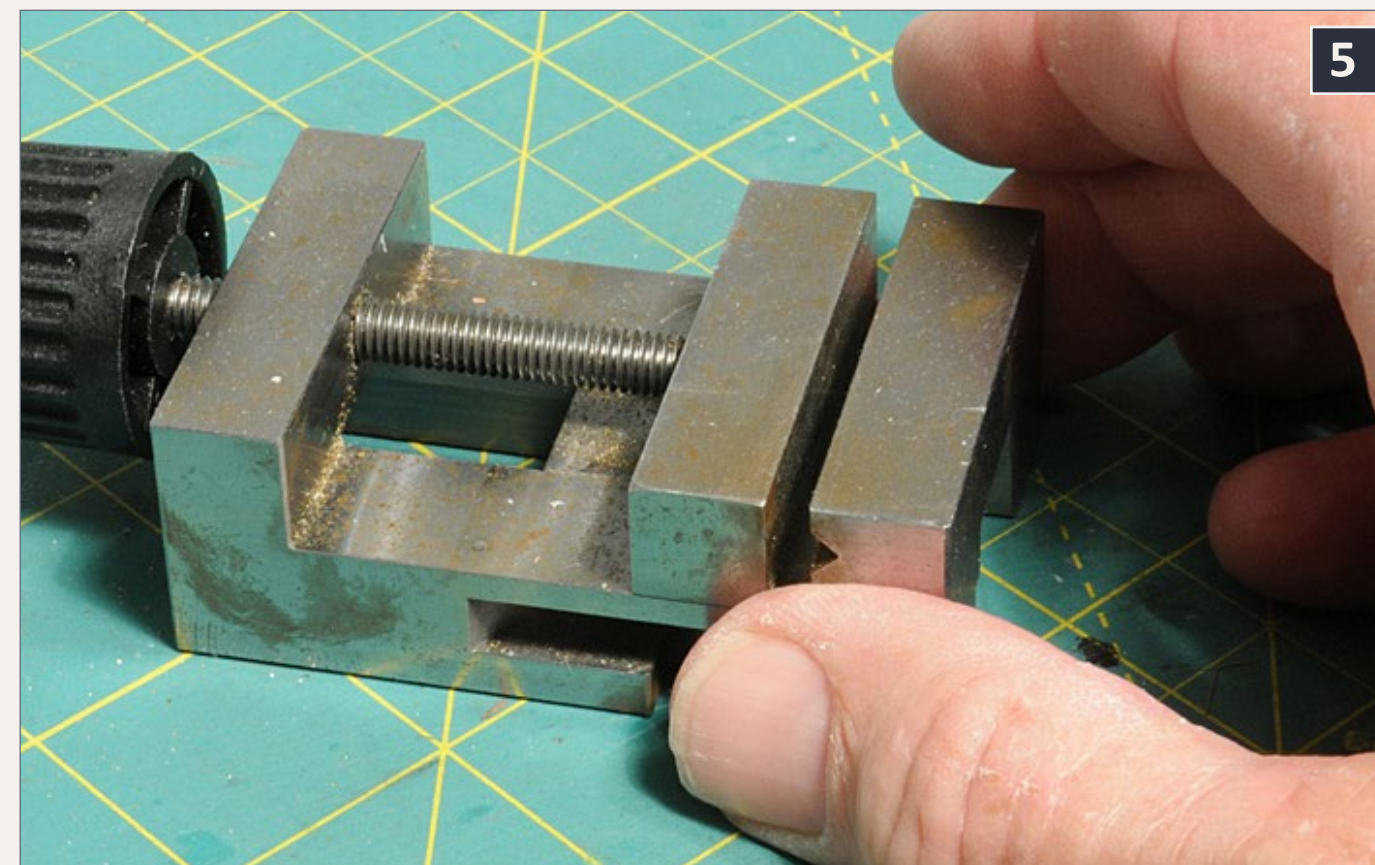


3: I've turned the vise (and boxcar) 90° to provide a better view of the setup. The bottom end of the car rests on a scrap of dense foam. This raises the car enough so the other end rests between the jaws. Note that only a portion of the bottom of the end of the car rests on the red foam. In order to avoid the need wait while the decals dry enough to handle the car, I first decal one side of the car and then one end. I then swap the car end-for-end and decal the second end. By then the decals on the first side have dried, and I can decal the second side.

to hold parts while drilling them. However, that Unimat vise is fairly crude by today's standards. After using it for decades and having a "I need to buy a new tool" moment, I decided to purchase a replacement vise. I chose a Proxxon Precision Machine Vise which is shown in Photo 5. This is a small, very nice vise with a smooth movement and a clamping capacity of just over 1¼". It is not an inexpensive vise, since the list price is more than even the Panavise. But while I purchased it primarily to hold things while drilling them in the drill press, I now find myself using it in a lot of different situations, from supplementing my third hand ([April 2013 MRH](#)) to holding parts for gluing or soldering.



4: The top end of the car rests on a piece of soft foam between the jaws. The jaws of the vise make just enough contact with the car to keep it from rocking side-to-side.



5: This is my Proxxon Precision Machine Vise.

While the Unimat vise has both horizontal and vertical V grooves for holding round rods, this vise only has a horizontal V groove. However, the three sides of the vise are square, which allows the vise to be positioned on one side to hold a round rod vertically.

The finished top surface of this vise has another advantage. If you need to place a part in this vise in order to drill a hole in it, and you need to ensure the part is at a right angle to the drill press, put the part upside-down on a flat surface such as a glass plate, place the vise upside-down over the part, and close the jaws. The part will then be parallel to the top of the vise.

Clamps

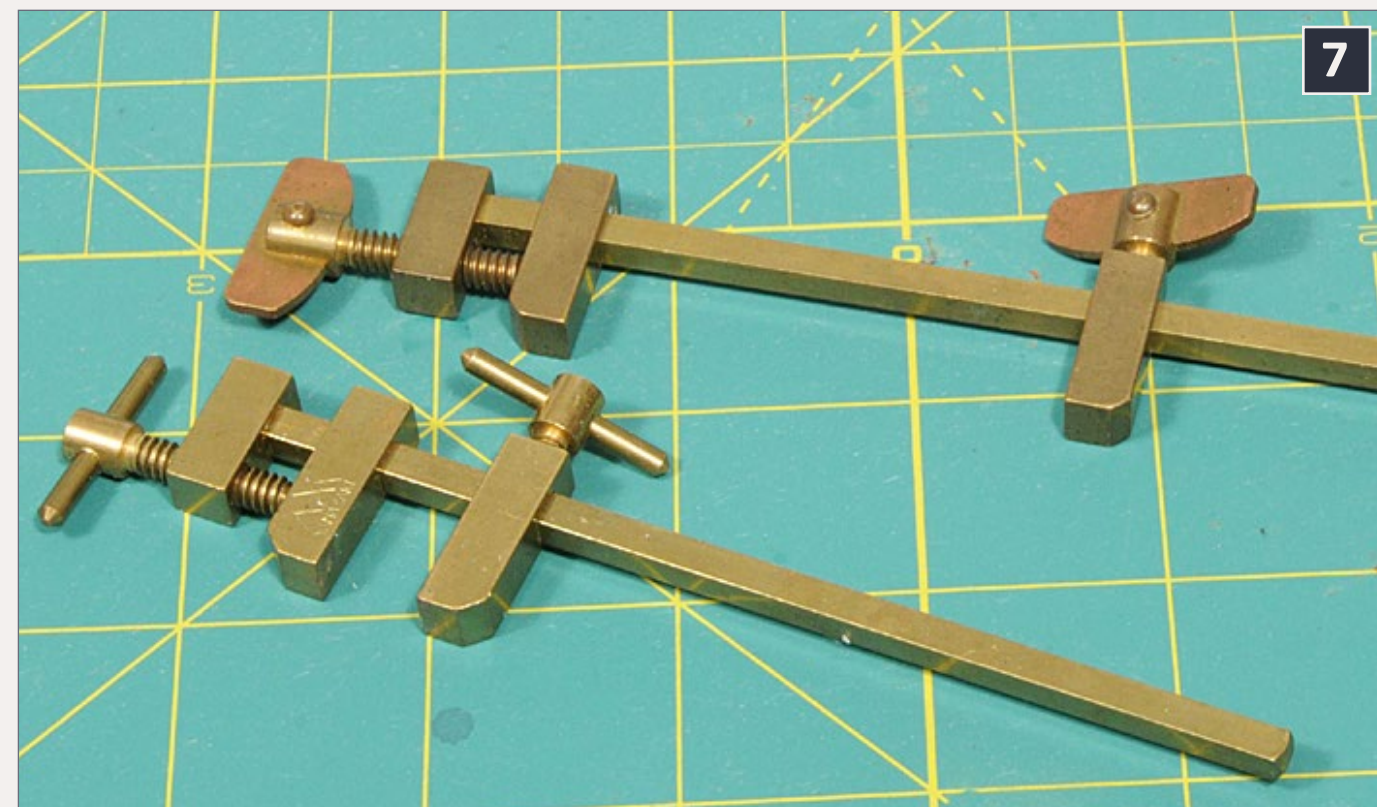
Clamps seem to be a favorite modeling tool. I suspect the first "Reader's Tip" involving using wood clothespins (reversed to result in the long flat ends being used for

clamping) first appeared in *Model Railroader* magazine in the 1940s. I too made up some of these clamps back in the 1970s when there weren't many options, but we now have many better alternatives.

I've bought my share of different clamps over the years, all of which I thought would be the last modeling clamps I would ever "need" to purchase. Unfortunately, many of these didn't live up to their claims. You can see part of my current collection of clamps in (6). Not shown are some small C clamps and some small one-hand bar clamps; I even have some very old small Delrin clamps which use rubber bands to provide the clamping pressure; they actually work reasonably well, although the rubber bands break at inappropriate times. I'm sure they are no longer available.



6: I have over a dozen clamps. Here are just some of them.



7: Here are 3½" and 6" brass bar clamps. The wing head thumb screw on top of the sliding jaw allows the jaw to be locked in place, with final clamping provided by tightening the end wing-head thumb screw.

Some clamps work fine and others don't. Generally, once I realize a clamp isn't working out, I regulate it to a secondary status. The box in my tool drawer for my clamps can actually hold a lot more than I have, so there is no incentive to toss out those clamps that don't work. As long as I can quickly find the clamp I want, the secondary ones get to stay for a while longer.

The brass bar clamps, as sold by Micro-Mark and shown in (7), work as intended. These clamps might work well if you build laser-cut wood structures and need to hold side/end assemblies in place while the wood glue dries. To use one of these clamps, you need to set the sliding jaw slightly wider than the object being clamped before gluing the joints together, but with the sliding jaw unlocked. Once the parts are assembled, you can hold the assembly with one hand

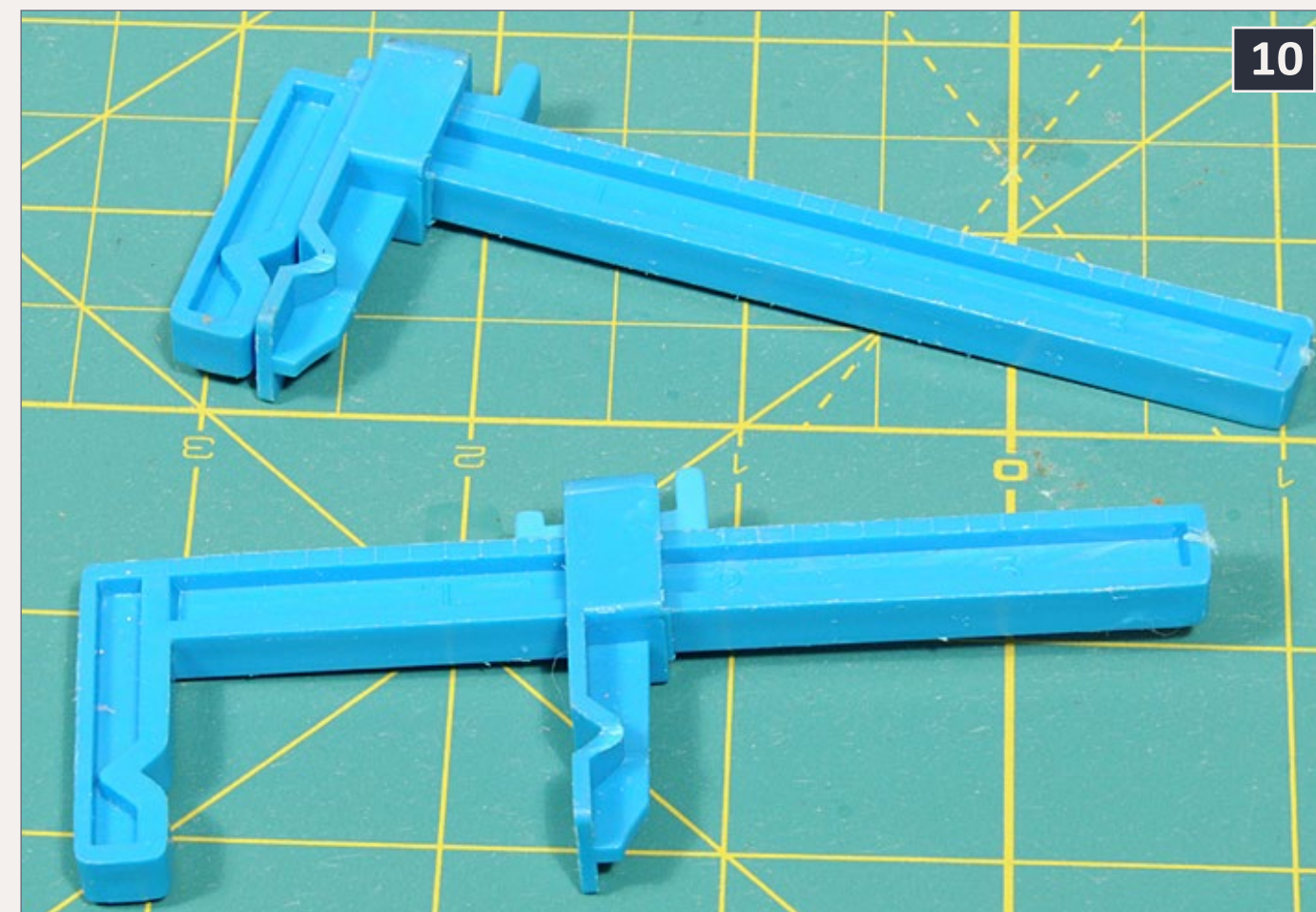
while placing the clamp around the parts and pressing the sliding jaw up to the assembly. Lock the sliding jaw in place, and then finish clamping the assembly by tightening the wing-head thumb screw on the fixed jaw. Since I primarily scratchbuild with styrene, and don't build wood laser kits, my need for this type of clamp is limited.

Machinist clamps (9) are fairly specialized clamps. Considerable clamping pressure can be applied to an object by inserting a rod in the hole through the knurled caps on the screws to increase leverage. They work very well in situations such as drilling, soldering, or machining, where considerable pressure is needed to hold the work so it will not move.

I've had several different friction clamps over the years such as the ones in (10), which rely on friction to hold them in



9: The jaws on these machinist clamps are tightened by turning one screw in while turning the other screw out.



10: These friction clamps consist of a fixed jaw plus a sliding jaw. A tapered slider at the top of the sliding jaw locks it in place. To use it, the clamp is placed with the fixed jaw tight to one side of the work and the sliding jaw is moved up to the other side of the work, and locked in place by pushing in the slider. This means you are basically using just finger pressure to tighten the clamp in place, unlike bar clamps and traditional C clamps, where a screw is used to apply pressure.

place once locked. Like bar clamps, these clamps can work on large and relatively small projects. Unlike the brass bar clamps, these clamps can be locked in place with a single hand. Another variety of friction clamp uses a thin round rod with two polycarbonate jaws that move along the rod. This design theoretically lets you apply the clamp to almost any shape. But in practice, I found it very difficult to keep the jaws from rotating around the rod when clamping

something. These didn't last long in my tool drawer, and I have basically found that the friction clamps don't work very well in the real world of modeling.

Spring clamps are the type of clamp I use most often, at least when I need only a small clamping range. However it is also important to make sure the clamp doesn't apply too much pressure to the modeling parts. As such, the clamps I currently use most often are the clamps sold by Micro-Mark called Miniature Spring Clamps (11). These clamps have a $\frac{3}{4}$ " capacity and don't apply too much pressure for most jobs. These are fairly common – I found a large bag of the same clamps at my local ACE hardware store.



11: Spring clamps like these are available from Micro-Mark as well as some hardware stores.



12: These angle plates were purchased from Micro-Mark.

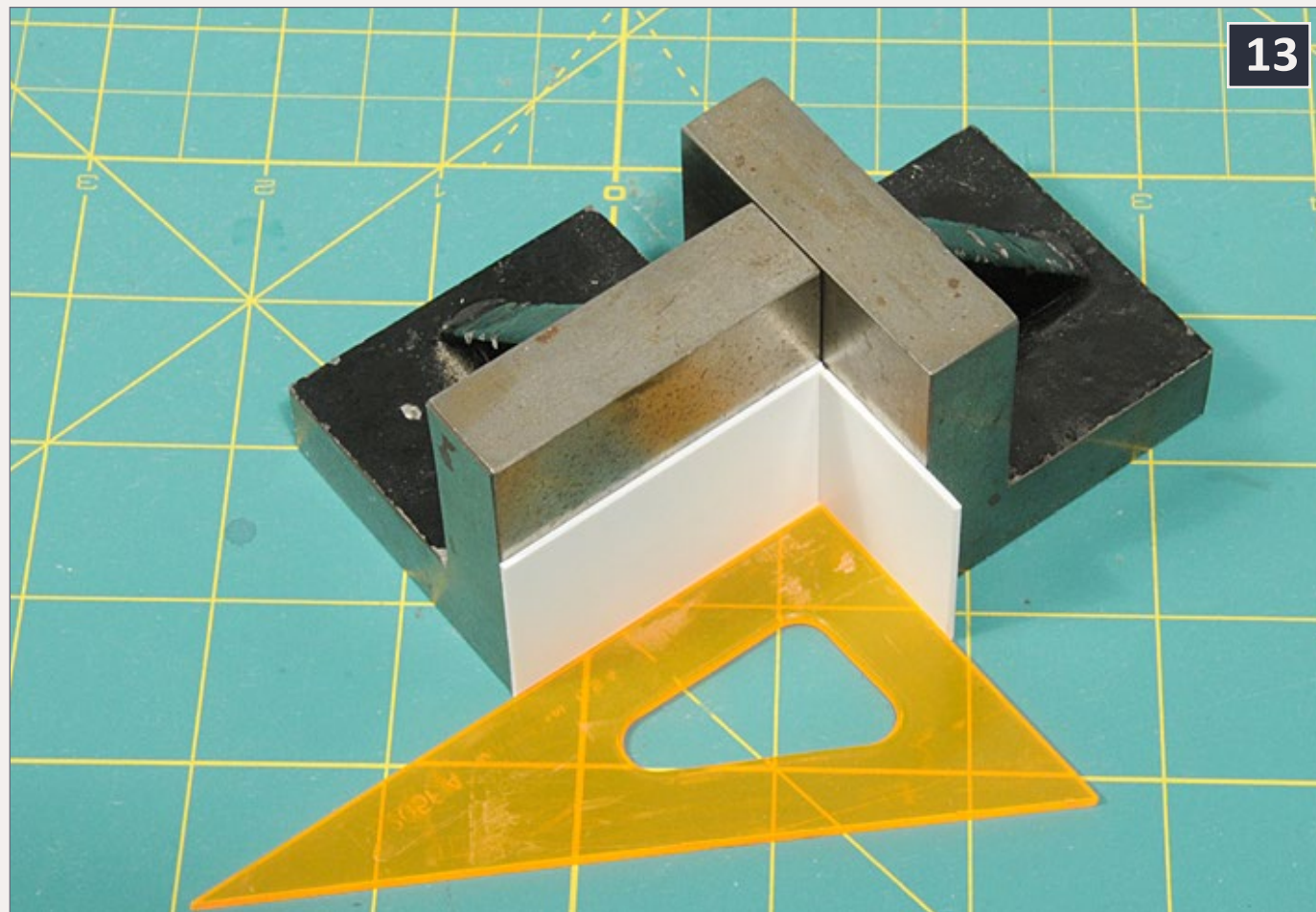
My favorite clamps for building resin freight car kits are the Coffman clamps that were discussed in a Tool Shed article in the [March 2011 MRH](#).

Angle Plates

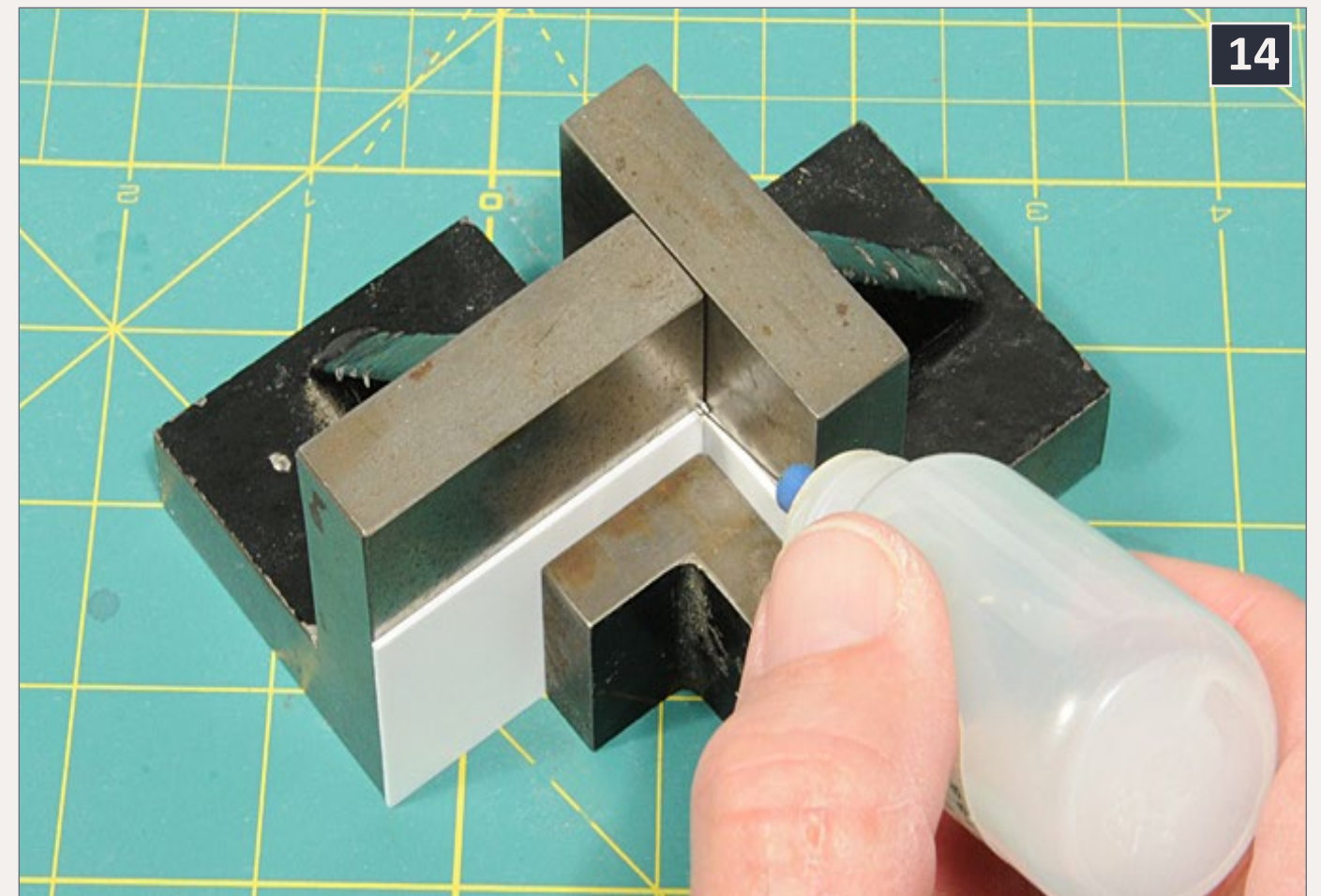
Angle plates are used with a milling machine to hold the piece vertical while it being machined. Parts clamped to the vertical surface can be held perpendicular to the table even if they are not flat on the bottom. Angle plates normally have T-slots so it can be securely fastened to a milling table.

I purchased my angle plates (12) from Micro-Mark. My large ones are 2" models, while my small one is 1". They don't have T-slots or another way to hold them to a milling table other than clamping them. While I don't use them with my milling machine, I do use them all the time when building

structures. 13 shows a typical application where two angle plates and a drafting triangle are used to hold two sides of a scratchbuilt building at 90° while they are glued together. 14 show an alternative approach using two large angle plates and a small angle plate to hold the sides of a building in line while it is under construction. I've also used them to keep something on the workbench from sliding while adding a new part. On a recent project, I rested a brass frame on the large ones while soldering cross members in place, as shown in (15).

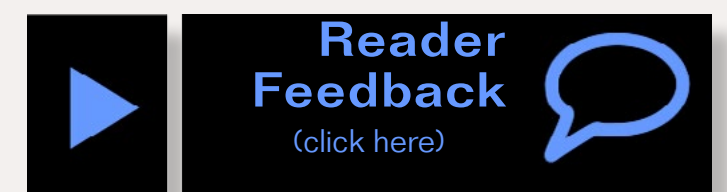


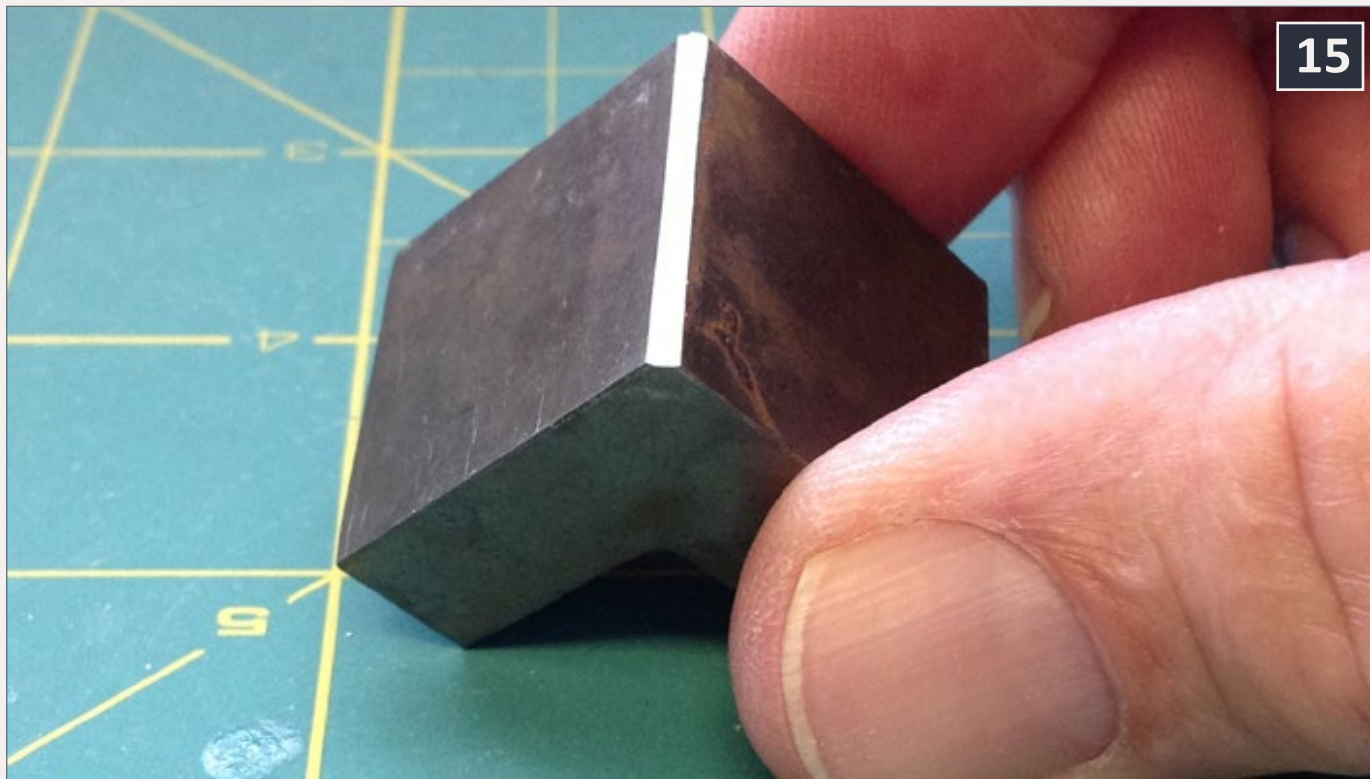
13: The larger angle plates are arranged tight together to create a 90° angle. Two sides of a structure under construction are positioned up against the angle plates, and held in place with a small drafting triangle. The building sides need to be tight to each other before they are bonded together with a drop of styrene cement. This gives you an accurate 90° corner.



14: A better variation of the setup shown in Photo 13 uses a small angle plate to hold the two sides in alignment. The edge of the small angle plate adjacent to the joint between the two pieces of styrene was ground-down so the cement won't creep from the joint onto the angle plate. The styrene cement is being applied using an A-West bottle.

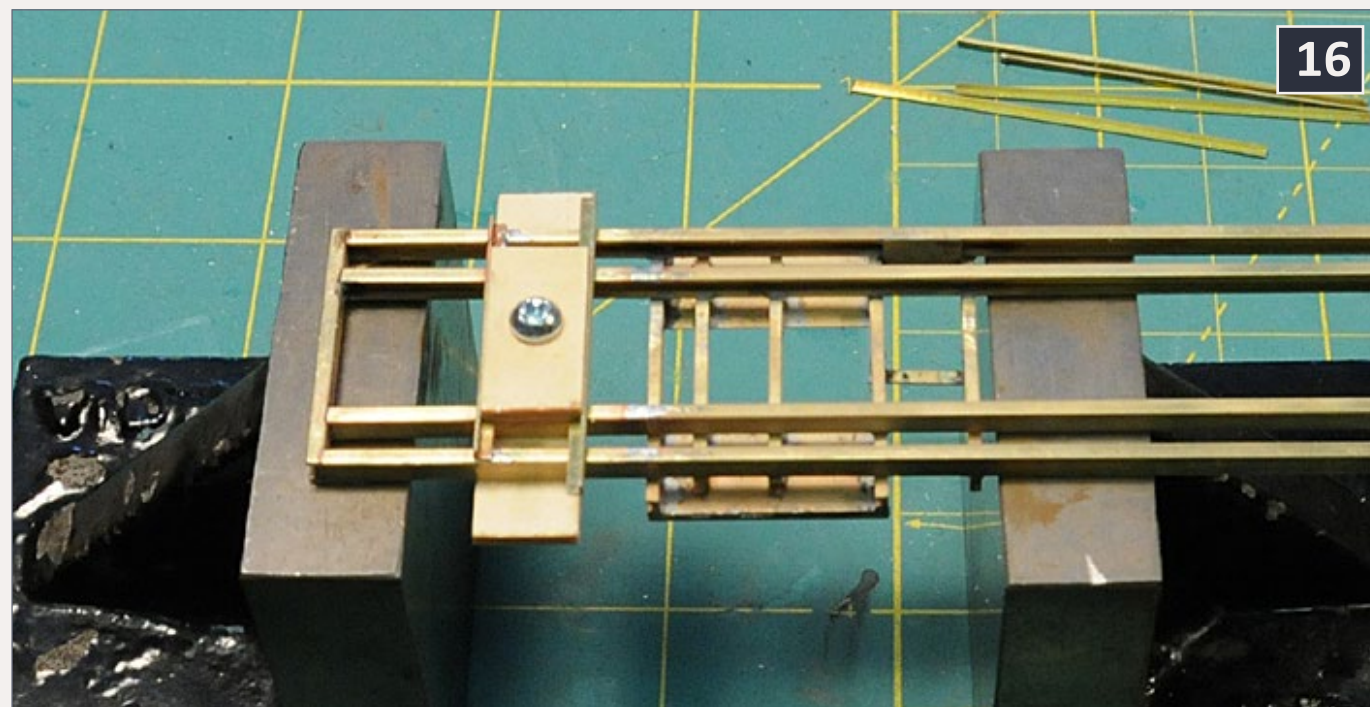
Disclaimer – I love good tools and don't hesitate to invest in them.





15

15: Here is the corner of the small angle plate showing how the corner was ground-down.



16

16: Here the angle plates support the brass frame of a Proto48 Fairmont weed burner under construction while cross members are soldered in place. A simple wood clamp holds the parts in alignment while being soldered.

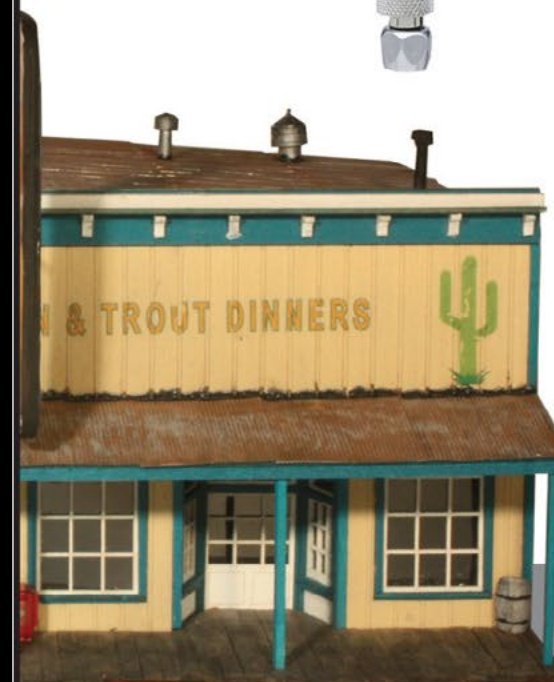
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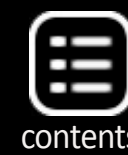
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*Models By... Alan Houtz,
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Batch-building Freight Cars 101 – Part 1

– Guy Cantwell

Model photos by author



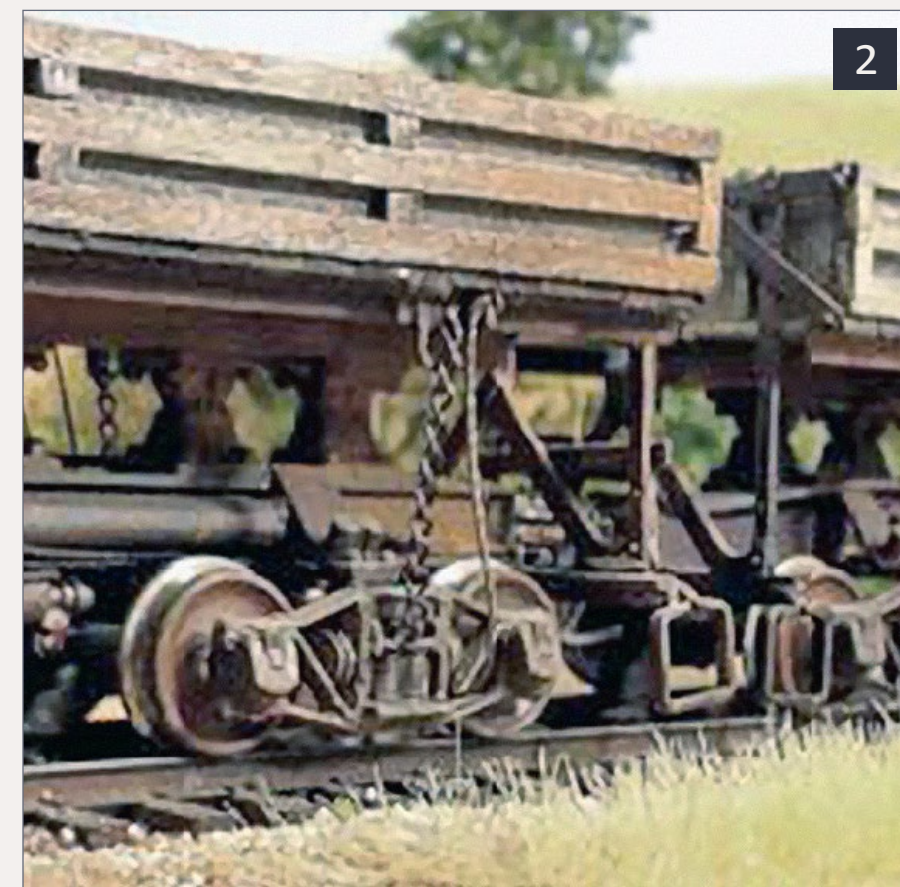
Tips and tricks to building detailed cars quickly ...



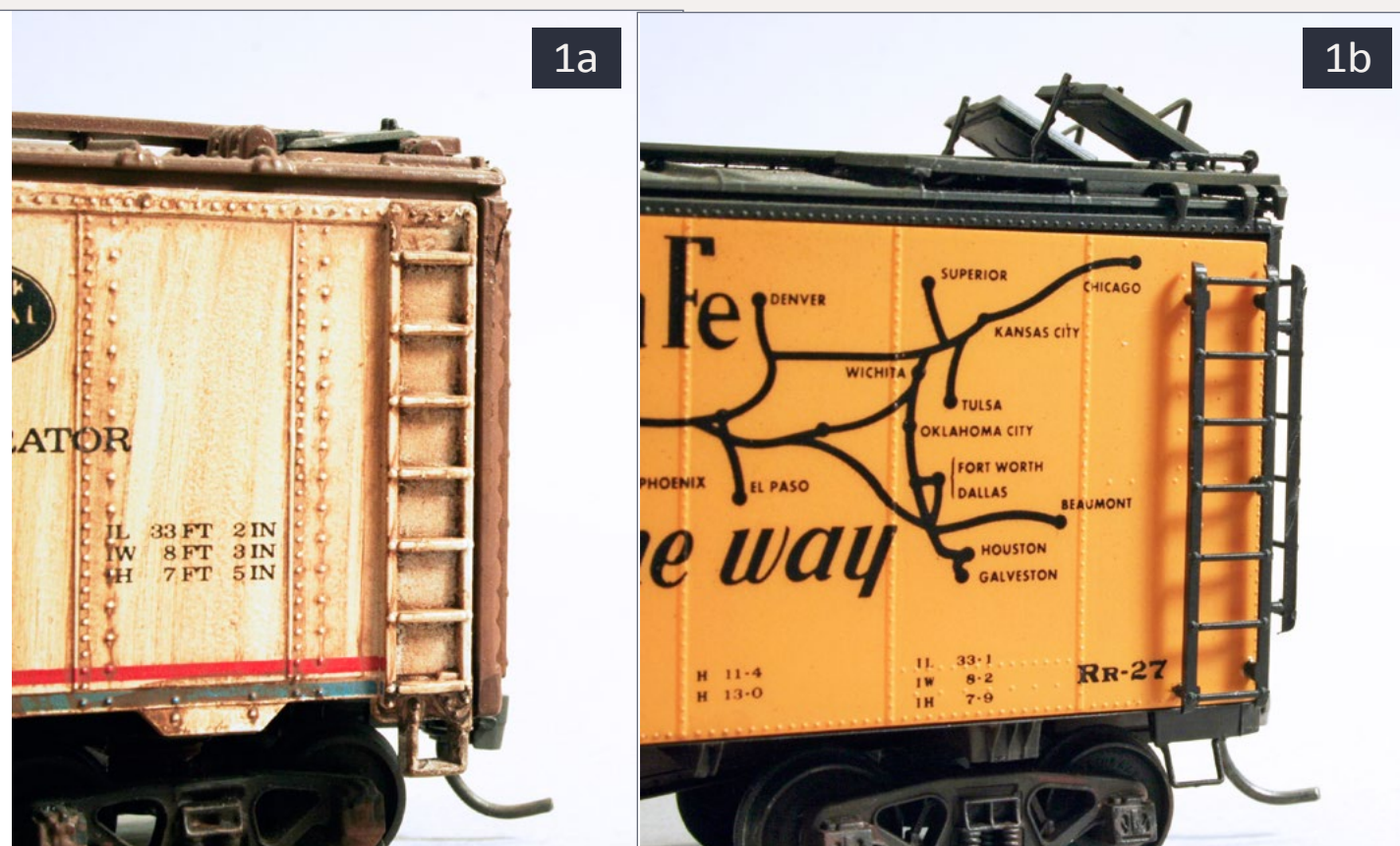
Several years ago I set out to upgrade the rolling stock on my layout. I had been visiting layouts in the area and had noticed that many of them featured very realistic rolling stock. After some investigation, I went out and bought some highly detailed kits by Intermountain, Red Caboose, Proto 2000, and others. My heart sank a bit as I opened the boxes and discovered lots of parts, and sprue after sprue of very

small parts. I was more familiar with “shake-the-box” kits that go together in under an hour. These looked like they would take days to finish one kit. Hmmm....

While I do enjoy building car kits, the number of cars needed for the layout made me realize I needed some techniques to speed things up a bit. Over the years, I learned some methods from very skilled local modelers to help in the efficient construction of rolling stock. In this article I offer some tips for building more detailed cars in less time. We’ll start by looking at some kit building techniques, and the process of building kits in batches. We’ll follow this with a step-by-step demonstration of some of these ideas in a batch-build of four Proto 2000 stock cars. To start, let’s take a look at what we mean by “highly detailed” and how that idea applies to three basic categories of rolling stock kits.



2: Notice the high level of detail possible in the craftsman kit compared to photos 1a and 1b.



1a-1b: The difference between kits is in the details. This side-by-side comparison shows the dramatic difference between the better-detailed refrigerator car in the middle and the blue-box model on the left. These differences are especially noticeable in close up photographs.

What makes a kit “highly detailed?”

A highly detailed kit builds into an accurate model of the prototype that features finer parts and correct dimensions. These kits feature separately applied grabirons, running boards, ladders, and stirrups. The rivets and cast-on details are molded in

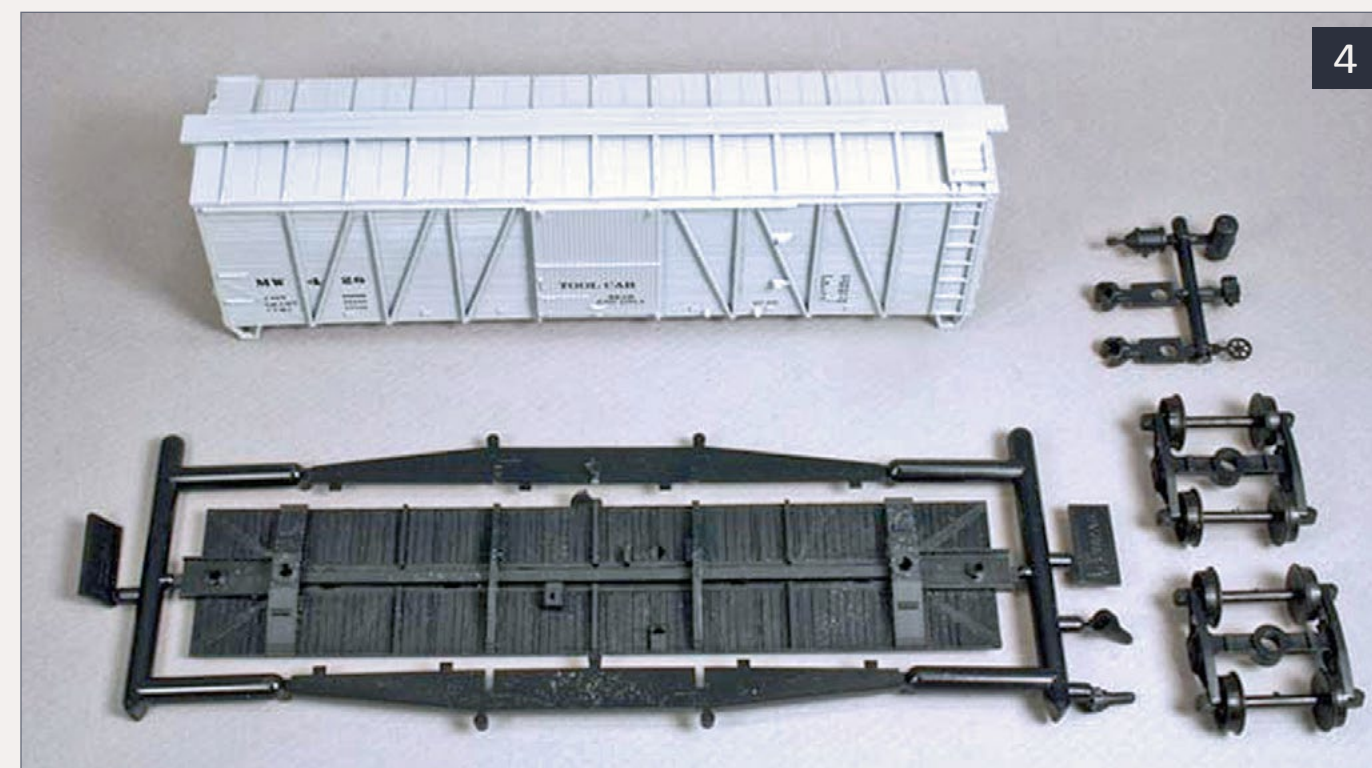
scale sizes. Car bodies, doors, and hatches offer excellent detail and have accurate dimensions. While these aspects may seem insignificant by themselves, you definitely can see the difference when viewing the cars on the layout and in photographs. The neat thing about having nicely detailed cars in your roster is that just a few of them can improve the overall appearance of the layout. As their numbers increase, so does the realism of the layout.

Comparison shopping:

To get some perspective on what types of kits are out there, let's split them into three categories: "shake-the-box," "highly detailed," and "craftsman kits." Following is a list of several kit manufacturers grouped from "shake-the-box" to "ultra-craftsman." Many of these kits may now be out of production, but



3: This is a typical "shake-the-box" kit from group one in the kits listings. Note that the grabirons and brake assembly are molded on to the car. The stirrup step is oversized, and the lack of weathering on the end of the car has an unrealistic "shiny" look.



4: This kit is what is commonly known as a "shake the box" kit. Notice that there are roughly fifteen parts to assemble. The weight and trucks are included (the weight not shown in photo) and operating couplers need to be supplied by the modeler. This kit builds up into a good-looking model very quickly without breaking the bank.

can be had, often very cheaply, on the secondary market. You will notice that as the detail increases, so does the number of parts. It is also fair to say that the skills necessary to complete the kits also increase as you move through the categories.

Group one – shake-the-box kits

- Athearn blue-box
- Accurail
- Branchline/Yardmaster
- Kato
- Walthers

The kits in this group run from the time-tested Athearn “blue-box” to more modern kits such as the Branchline “Yardmaster,” and Kato kits. These kits all feature molded-on grabirons and other details. Many of us started with these kits and have fond memories of putting them together. Kits in this category are easy to build, and are perfect for beginners and kids. For more-experienced modelers, they offer a quick way to fill out a roster without breaking the bank.

Group two – highly detailed kits

Walthers Gold Line

Branchline/Blueprint

Red Caboose

Intermountain

Proto 2000



5: This Red Caboose boxcar has separately applied grabirons, great rivet detail, and scale doors and ladders. The car has been weathered with powders.



6: Here are all the parts in a Proto 2000 stock car - 78 to be exact. These kits build up nicely into well-detailed models that run well.

Kits in this group offer finer details and more-accurate renditions of specific cars. They often have lots of parts and build up into “contest quality” cars. Individually applied grabirons, ladders, and stirrup steps are the norm here. These kits provide fine detail without having to fabricate parts, apply decals or paint car bodies. Certain aspects of building kits in this category take some getting used to such as drilling out grabiron holes, cutting delicate parts from sprues, and gluing fine parts. If you are comfortable with “shake-the-box” kits, give one of these a try.

Group three – craftsman kits

Tichy

Sunshine

Westerfield

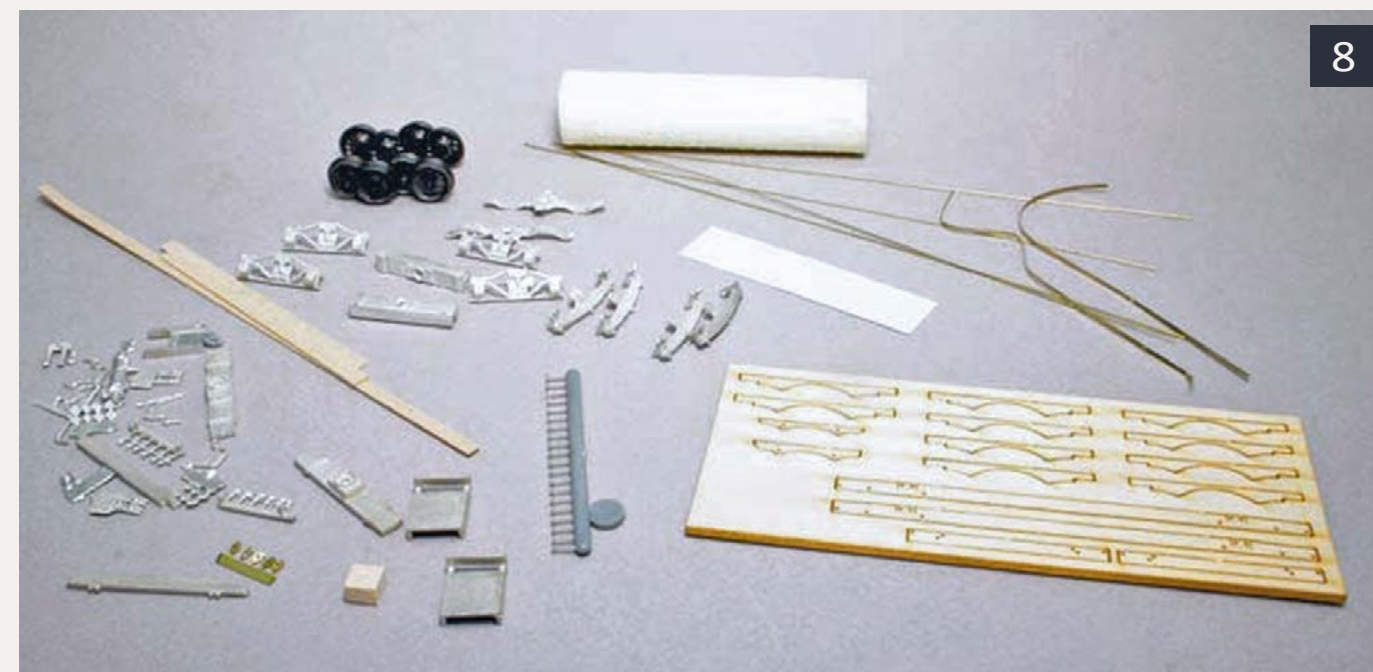
Funaro and Camerlengp

Rio Grande Models

Kits in this group are for the experienced car builder who wants a very exact model of a specific car, or is looking for less-common car types. Cars must be decaled and painted by the modeler. Sunshine, Westerfield, and Funaro & Camerlengo are some of the manufacturers of resin kits. Some of the resin parts need to be cleaned of flashing. Grabirons and stirrup steps may be supplied, or else must be fabricated by the modeler. Kits in this category can require the modeler to be ready for just about anything. If you aren't sure what skills are necessary to build a particular kit, try getting a look at the kit contents before you buy, or ask other modelers about a kit you are considering. This will help you avoid purchasing a kit you won't enjoy building, or at least will let you know what new skills you'll need. These kits produce unique and outstanding models, but require a certain amount of skill and patience to



7: These YV log bunks started out as a pile of castings, wire and wood but are worth the effort. The modeler must supply the trucks and couplers. The kits build up into super-detailed models of a specific prototype.



8: This Rio Grande Models Virginia and Truckee Railroad kit includes laser-cut wood, together with metal and resin castings. Couplers are not included. Notice that the trucks are white metal and need to be assembled by the modeler. The finished model is to be painted and decaled by the modeler.

come out right. If you are comfortable with highly detailed kits, try one from this category. Once you start building these kits, you can see that scratchbuilding rolling stock isn't that far away from this level.

Now that we have looked at various types of kits, let's check out some construction techniques for building kits in batches. These techniques work with any type of kit.

Building in batches – general approach

The most significant time saver in expanding a freight car roster is building kits in "batches." A "batch" for the purposes of this article is defined as four or more of the same kit. The idea is to employ economy-of-scale to save some time. To build in batches, you need to get multiple copies of the same

kit (hopefully with different car numbers) from your hobby shop or by searching on eBay. Highly detailed kits include Intermountain, Red Caboose, Proto 2000, Walthers Goldline, and Branchline Blueprint series kits. Most of these kits were/are sold in sets of up to 12 different car numbers.

To start, Proto 2000 (P2K) kits stand out as a good choice for batch-building. They are well-designed, highly detailed kits that flooded the market in the early runs. They build up into craftsman-quality models. They have great metal wheelsets, and the proper amount of weight is included in the kit. Look for tank cars, stock cars, boxcars, gondolas, flats, war-emergency hoppers and PS II CD hoppers from the early runs. A good starter batch might be a set of four P2K cars, or perhaps a set of four Branchline Yardmaster series boxcars if you want to start out with something easier. For the first attempt at batch-building, I recommend staying away from unpainted kits.



9: A few reefer body assemblies await roofs.

Batch-building steps

First I will outline the basic steps of a batch-build and then I'll take you through a build of four Proto 2000 Stock cars.

The steps can be summarized as follows:

1. Study the directions and identify the subassemblies
2. Assess the trucks, wheels trucks, and couplers
3. Sort and unpack
4. Cut out and assemble
5. Road test and adjust
6. Add a little weathering

Now for a closer look at the various construction steps:

Step one: Study directions and identify subassemblies

Study the instructions to familiarize yourself with the specifics of the kit construction. Typically kits are put together in subassemblies: The roof, the underbody, the car ends, and then usually the body. I generally build one kit first, or build up the subassemblies ahead of the batch, just to make sure there are no surprises. It's far better to make an error once, instead of four times (or 12 times, if the batch is big)! This also eliminates mistakes in the directions about the order of assembly. Plan to include weathering as part of the construction process, since it is easier to weather certain parts of the cars as they are put together as opposed to taking them apart after assembly (especially wheels and trucks).

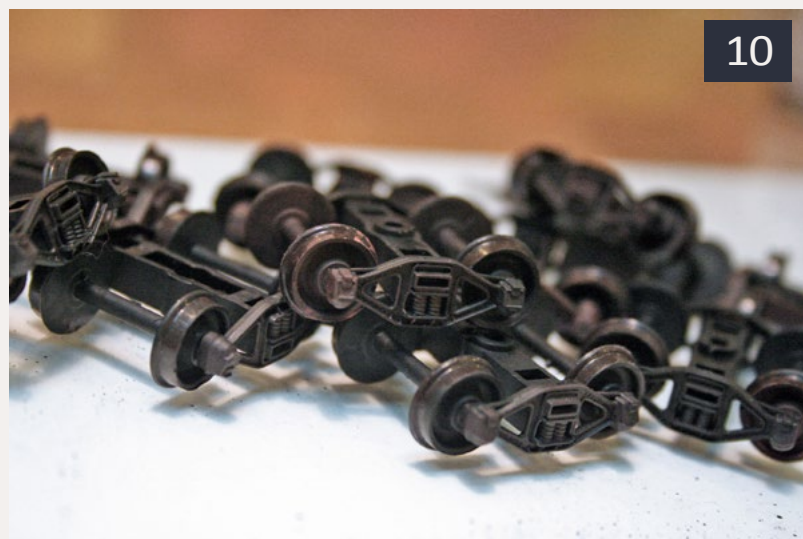
Step two: Trucks, wheels and couplers

Now is the time to assess the quality and reliability of the trucks and couplers, if they are supplied with the kit. Since the

goal is high-quality, operational cars, I use Kadee couplers and, if necessary, will change trucks and/or install metal wheelsets. Start by putting together a truck, and see how it rolls. Does it pass muster? If the answer is yes, plan to use the trucks supplied; if not, find some reliable replacements.

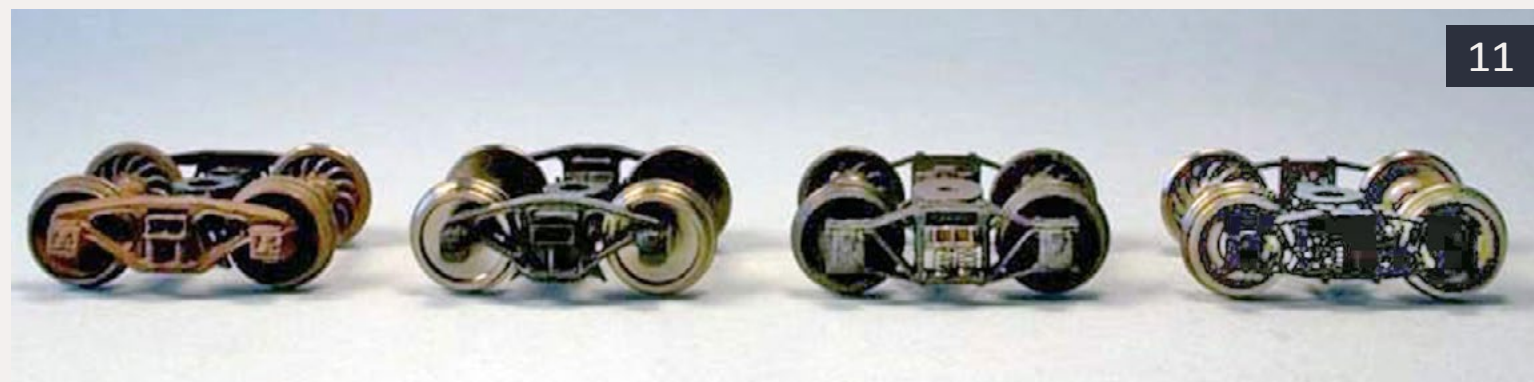
Some kits require quite a bit of skill to set up the couplers and trucks to run well. There are times when getting the materials supplied with the kits to operate well becomes more trouble than it is worth. An easy solution to this problem is buy high-quality replacement trucks and couplers pre-installed in pockets.

Everyone has their favorite couplers. If you are new to the hobby, I recommend Kadee 58s, due to their reliability, ease of installation, and better scale appearance. One option worth considering for difficult coupler installations is to buy couplers which are furnished installed in a box, such as the Kadee #78. Using these can often speed construction and produce a more reliable coupler setup.



10: These are trucks that were supplied with some PFE kits. Several wheelsets and trucks were replaced after they were found to operate unreliably.

I will generally use whatever wheelsets are supplied with the kit unless there is a problem with the wheels. When replacing wheelsets, the first decision is whether to use metal or plastic wheels. You will find lots of opinions on this issue. I use both plastic and metal wheels on my layout with equal success. If



11: Here are four different brands of trucks. From left-to-right are trucks by Proto 2000, Atlas, Kadee, and Tahoe Model Works. All of them operate well and look good. There are so many different types of prototype trucks that it is hard to make broad generalizations about which truck goes with which car. When I have to replace trucks, I try to find an authoritative source, or I'll go with the trucks that are the closest match to the ones that came with the kit.

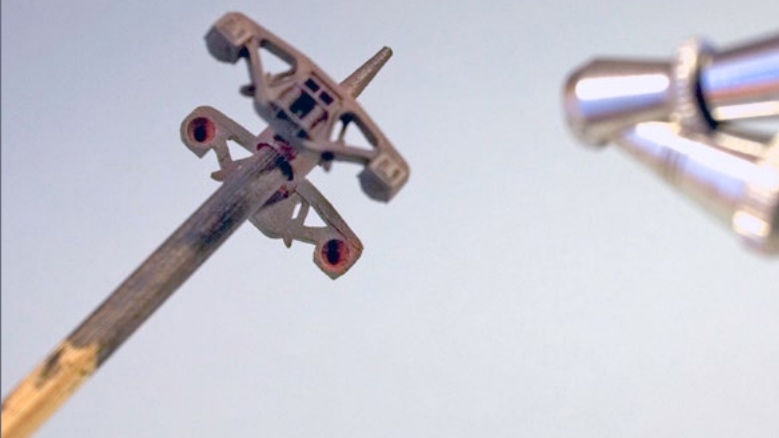
If I need to replace wheelsets, I choose metal. There are lots of options for replacements – Intermountain wheels bought in bulk are a popular option among many brands, including P2K, Kadee and others.

I don't replace the trucks that came with the kit unless there are problems. When considering replacement trucks, I usually am looking to match the prototype or the trucks that came with the kit. I prefer rigid frame trucks and tend to go with either P2K trucks or Tahoe Model Works if possible. There are lots of brands out there offering a wide variety of options and prototypes.

Painting trucks and wheels

Trucks and wheels look better when you kill the shine and muck things up a bit. I have done this by hand for years, and only recently started using an airbrush for the job. If you don't

12 a



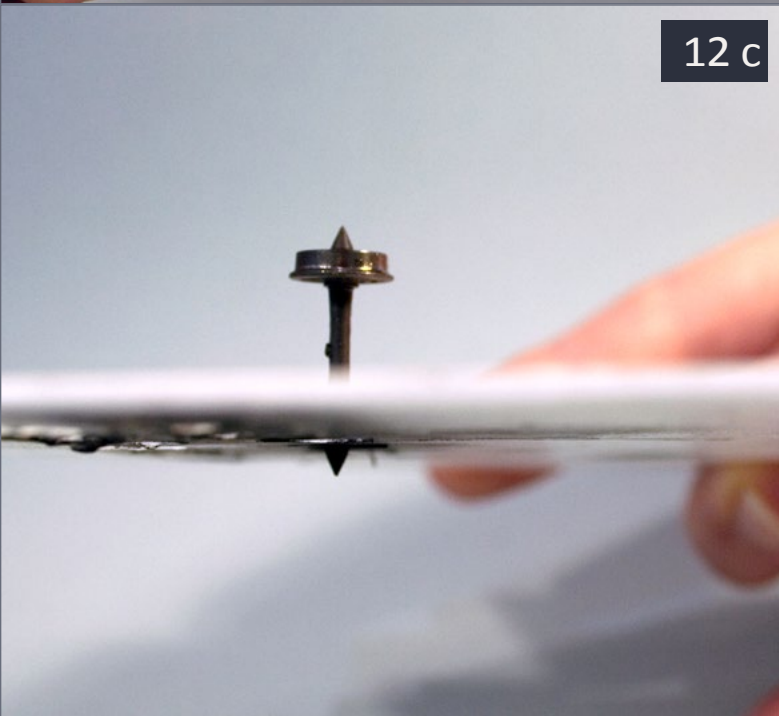
have an airbrush, painting by hand works well; it just takes longer to complete the job. My favorite paint combo is to start with engine black, and then dust over a second coat of rust (Testors "rust" is my favorite).

12 b



12a -12b - 12c: This is my approach to painting trucks. Left: A skewer through the hole of the side frame makes a good holding tool. Middle: A painting mask makes quick work of wheelset painting. While there are several commercial products available, I made a makeshift painting mask by drilling holes in some styrene scrap. The plastic protects the wheel tread while you spray the rest of the wheel and axle. A quick wipe of the paint off the axle point and you're done. A side view of a wheel in the mask.

12 c



13: Parts are sorted into boxes while awaiting assembly.

Step three: Sort and unpack:

After you are familiar with the kit, it's time to get to work. Unpack everything from the boxes, then group the car bodies and sprues of the same parts together. Be sure to keep like-numbered parts like car ends and sides together.

Group the parts together according to when they will be needed in construction. All the sprues for the underbody in one pile, roof parts in another, etc.

Put the stuff you won't be using right away in open boxes out on the workbench, but not in the construction zone. The boxes the cars came in work great for this. I also use lids from copy paper boxes to keep the parts organized while I build the batch.

Step four: Cut out and assemble

Next it's time to start construction. Starting with the first sub-assembly, locate all the parts needed. Then cut them off of the sprues and make little piles of each part. In many cases, cutting off the parts will take more time than gluing the parts together but don't rush this step. Total time to cut out parts in our stock car build was three hours. 38 minutes.

After you have cut out the parts for a particular subassembly, put the assemblies together one at a time until all of these particular assemblies are done.

For this stock car batch project, I built the underbodies, and then I applied weathering to the trucks, wheels and underbodies. Next I built the car bodies and applied the roofs. The last step was to attach the weathered trucks.

Some subassemblies will benefit from a bit of initial weathering. For example, in order to appear realistic, it is necessary to kill the shine on the wheels, trucks and underbody. On the prototype these parts usually have varying degrees of grime on them. When the underbody is done, but before mounting the trucks, paint it flat black (or the body color, if appropriate



14: This photo of the workbench shows all the subassemblies organized in boxes.



15: A recently assembled string of reefer cars is run through their paces to determine if adjustments need to be made. The train usually is run around the layout a few laps, and then run in reverse to find if any of the cars need adjustments.

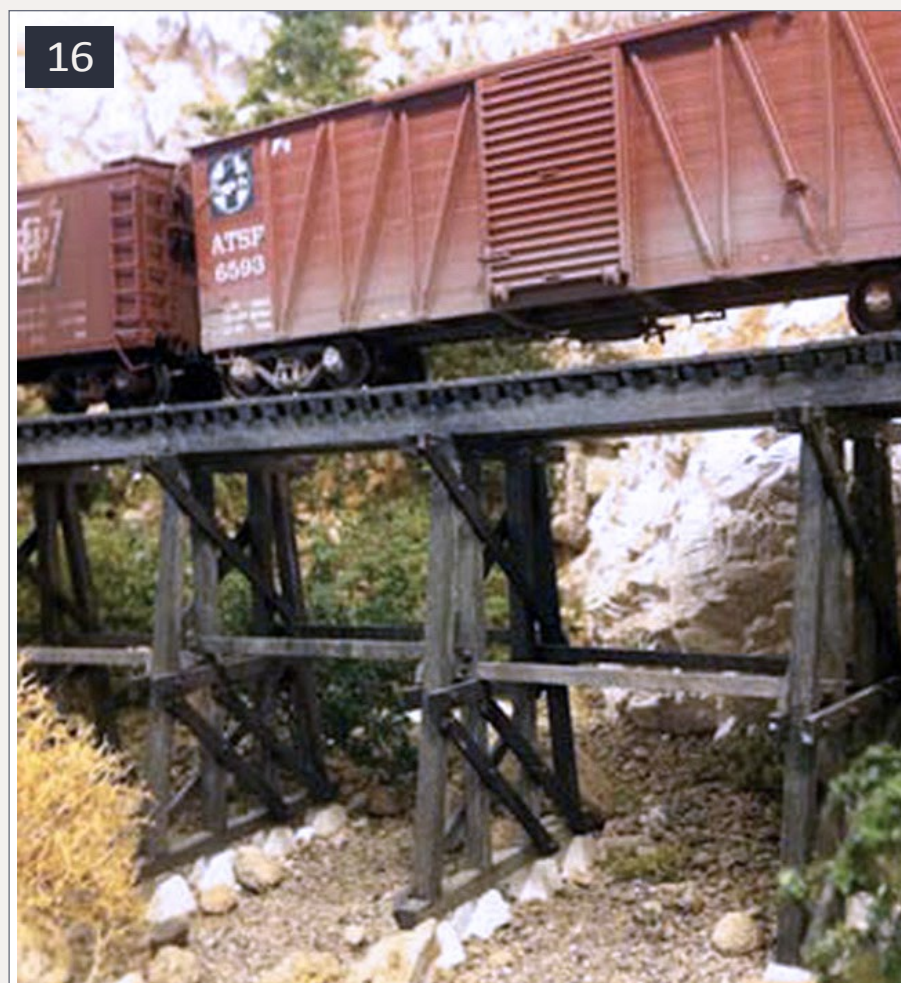
to the prototype) and apply some weathering. Do this even if the parts are already cast in black plastic, I have found that it is easier to weather tanks on tank cars before applying the railings and grabirons. Many modelers airbrush and weather car roofs before assembly as well. The rest of the weathering will come after the cars are completed.

Step five: Road test:

With construction complete, it is time to perform a road test. Check the coupler height with a gauge (you do have a gauge, right?), and adjust if necessary. Make up a string of the new cars and run them around the layout for a shakedown cruise. Watch for wobbles, and note if any cars derail (hopefully none). If the same car derails more than once, pull it off to the

bench to diagnose and fix the problems. Then put the car back on the layout and continue the test.

Most often, wobbly cars are the result of a couple of easily fixable problems such as out-of-true trucks/wheels and out-of-adjustment truck screws.



16: This boxcar, shown rolling through Briceburg, has been weathered with an airbrush. Car modeling and weathering by Dick Truesdale.

the car body can also cause running problems. Check to make sure that the trucks swivel freely on the screw. There should be a little vertical play as well. Often the problem is a truck screw

If a car moves in a seesaw motion or up-and-down in a regular pattern it is usually an indication of an out-of-true wheelset. Turn the car over and spin each set of wheels to find the culprit. Watch the edges of the wheels as they spin, and replace any wheelsets that are wobbling or oscillating. In rare instances, the truck may be out of square and must be replaced.

The screws that attach the trucks to

that is slightly too tight, or binding because the hole in the truck frame is too small or obstructed. Watch for parts of the underbody detail (such as brake rigging) that prevent the truck from swiveling freely. You may have to trim some parts.

There are, of course, other reasons why cars may run wobbly or derail in certain conditions. Some of the problems will call for more ingenious fixes on your part. There will be cars that test your resolve. If you get stuck, park the car on a display siding, and don't run it in regular service until the problem is fixed.



17: This boxcar has a typical weathering job applied with an airbrush using solvent-based paints. Light mud and gray were sprayed on the bottom edge of the body and on the trucks. Using an airbrush offers precise control over the amount of paint on the model, and makes it easy to apply a very light mist of paint that mimics dust and dirt blown up from the roadbed. Car modeling and weathering by Dick Truesdale.

Step Six: Add a little weathering:

At this point we now have some semi-weathered cars that run well and look pretty good. However, most master modelers don't consider a car complete until it has been weathered. Weathering is an area of the hobby that has really become more popular in the past decade or so.

There are a number of different techniques to try – some old and some new. A little research will turn up lots of weathering approaches to try. I recommend exploring as many techniques as possible, and then choosing a few that you like and hone those skills. While you shouldn't shy away from weathering a car, keep in mind that weathering is a skill that takes practice.

If you are new to weathering, test various techniques out on cars from the junk bin. As an alternative, if you have cars that are going to be replaced by better detailed models, practice weathering techniques on them. If the weathering comes out badly, it's no loss, since you were passing these cars along



18

18: This Red Caboose boxcar is weathered with fine layers of chalk powders. The chalk has been brushed down the side of the car in vertical stripes and then blended for an even coat.



19

19: This heavily weathered boxcar was brush-painted with acrylic washes and is right at my limit for acceptable weathering. The washes were applied in vertical streaks down the car and then blended. The trick with acrylic paint is to keep it from pooling or creating hard edges as it dries.

anyway. If they come out exceptionally well, then you can overlook the fact that they lack great detail and run them anyway because they look so cool.

Pick your favorite weathering techniques and go at the cars. Some of these might include: Chalks, powders, paints (airbrush and/or brush applied), washes, and products such as Rustall. Remember that you have spent a lot of time building your models, so take your time weathering them.

Let's take a look at some general weathering concepts, followed by a few examples of common techniques.

Weathering concepts:

Weather the opposite

Dark colors weather lighter, and light colors darken as they are exposed to the elements.

How much is too much?

How much weathering to apply depends on several factors, including the age of the equipment, era, location, railroad maintenance practices, etc. Personal taste also plays a part in this, since everyone has their own idea of the right amount of weathering. Start with a light weathering application. You can always add more weathering later if you decide a car doesn't have enough weathering.

Look to the prototype

Looking at some color photos of the prototype can give you a good idea as to how much weathering to apply, and where to apply it. Try to use photos of the cars in service, not builders' photos as your guide, since cars in builders' photos are brand-new. There are modelers who have developed a "hobby within the hobby" focused on weathering. These modelers will go to great lengths to replicate the exact weathering on a car, as seen in prototype photographs. By these modelers' definition, anything not weathered to a prototype photo is known as "fantasy weathering." While I don't go that far, I do follow the practice of looking to the prototype for inspiration.

Into the light

Weather in the same type of light you use on the layout because colors appear differently under different light sources. If you use incandescent bulbs, use the same light bulbs at the workbench to do your weathering, to keep the colors looking right.

Practice, practice, practice...

Work out the bugs in your technique by practicing on cars from the scrap bin. Keep at it until you can get reliable results. Always practice any new techniques on junk cars before tackling nice models.



20: This boxcar has a coat of chalk powder over acrylic washes. The rust spots were painted yellow-orange and then given a coat of Rustall over them to create a rough texture.

Take a chance

Don't worry about messing up a few cars by weathering them, every master modeler has some weathering jobs on cars that didn't turn out so well. Often the evidence is hidden on a back siding, or the cars were sold or given away years ago. Most of mine went to eBay.

Steady as she goes

Strive to keep the coat of weathering material as even as you can. Avoid blotchy, haphazardly applied weathering by applying a light even coat and then adding to it.

Three areas to weather

Car underbody, trucks and wheels

Kill the shine and dull any fake plastic-looking parts. Use dark and dirty colors to simulate grease and grime.

Car roof

This part of the car is very visible on most layouts. A light coat of dust and dirt will improve realism here if you don't want to do heavy weathering. By the way, dust from the layout is not weathering!!!

Car body sides and ends

Add a light dust on the top and darker grime along the running boards. Make sure to get the weathering material on the body under the ladders and grabs to avoid weathering shadows.

Some weathering examples

I am by no means a rolling stock weathering expert. These cars would no doubt get plenty of "helpful suggestions" if posted on the weathering forums around the web. I am sharing several of



18: This P2K tank was weathered before assembly with artist oils. Engine black and rust were applied to the frame and trucks. A final coat of weathering powder was then applied to the top of the tank after assembly.



22: Oops! This car has certainly seen better days and could be taken as a cautionary tale to those who might tend to get too carried away with weathering. While "rolling wrecks" were on the rosters of most railroads, they were often rusting away on sidings, and not in service. A Walther's C-30 wood caboose was painted with gray paint and then had brown applied, and scratched back to produce the rotting /wood peeling paint effect. It has been pointed out to me that the SP would have removed a car in this condition from service. Oddly, this caboose has been very popular with crews during operating sessions.

them here as average examples of what is possible with some easy-to-execute, common techniques.

Next month I will walk us through the batch building of four Proto 2000 stockcars.



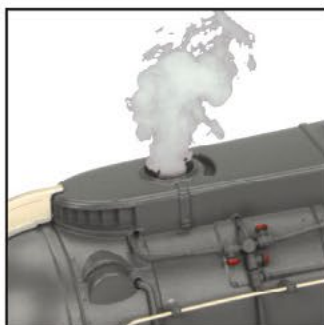
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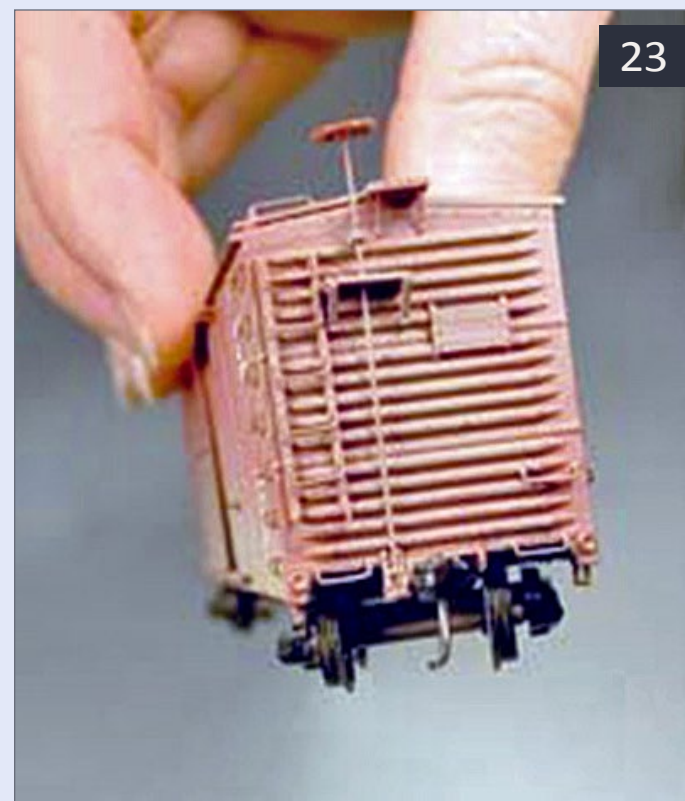
Car handling

There is no question that highly detailed cars are fragile. Parts will break or fall off if they are roughly handled. The best strategy is to avoid touching them at all – put them on the layout and leave them there. Move them in trains with locomotives like the real thing. Of course there are times when they must be removed from the layout for various reasons, but keeping handling to a minimum will cut down on repairs.

If you must handle a car – any car – pay close attention to where you grab it. Roof edges are a good spot (for HO scale), as they generally are pretty sturdy and don't have detail in the edge. Grabbing the car in the center of the body is likely to leave fingerprints, and picking it up anywhere along the bottom edge or ends will break off details. Tank cars and other stock may require different strategies.

Rolling stock should be kept upright at all times to avoid breaking small details. When working on a car, use caution when laying it on its side, as this can trash the details. If the trucks must come off,

support the car across an open model box as shown in the photos. The box will support the car without fouling the end or center stirrups. A piece of foam on the workbench can be



23: This boxcar is being handled by the roof edge. While there are no ideal spots, this one seems to cause the least damage to the grabirons, ladders and stirrups





24a -24b: This tank car presents a greater challenge, as there is no roof edge to grab, and the tank has a delicate handrail. Here the edge of the frame is a reasonably safe place to hold the car. While it appears there are fingers everywhere in this shot, the car is unscathed. Cars without trucks are supported on an open model box to minimize damage. Note that the end stirrups and couplers are resting unencumbered. To lay this car on its side, bottom side down, or upside-down on a solid surface, is to invite damage.

useful in preventing damage when the car must be laid on delicate details for maintenance or repair.

Details can break off the cars even if they are only run on a layout. All of the layouts that I operate on feature highly detailed rolling stock. We do sometimes break stuff, but not often. Some modelers have a “don’t touch” policy for operators, I figure that I wouldn’t invite someone to operate on my layout if I didn’t trust them to be

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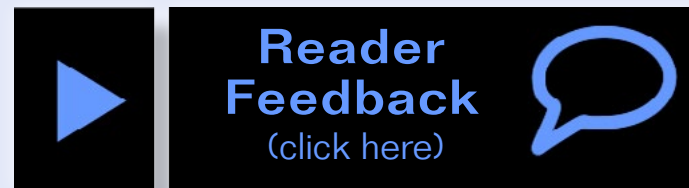
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careful with the equipment. Others may object to running delicate models during sessions, but my feelings are, why hide the good stuff from people who will appreciate it? Most of the guys in our operating group really enjoy building and running detailed rolling stock. If something breaks, the joke among the locals is, "don't worry, he's a good modeler, he can fix it." Admittedly, not something you like to hear in your own layout room.



Guy Cantwell has been involved in the local music scene in the San Francisco Bay Area for the last 25 years as an educator, performer, arranger and composer. He also maintains a private teaching studio, providing guitar instruction in a variety of styles from classical to jazz and rock. He and his wife Nancy live in the Santa Cruz area.

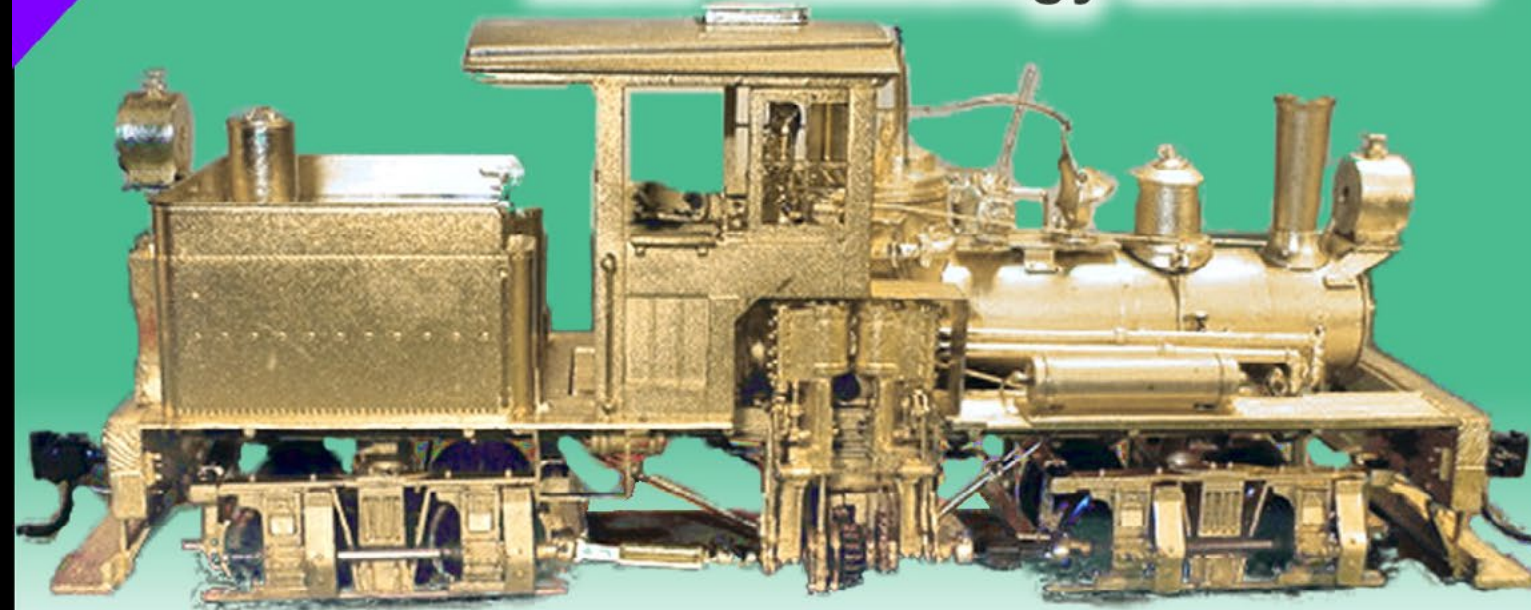
Guy's layout was featured in the [June 2011 MRH](#) and was one

of many layouts open for the 2011 NMRA National Convention in Sacramento, California.

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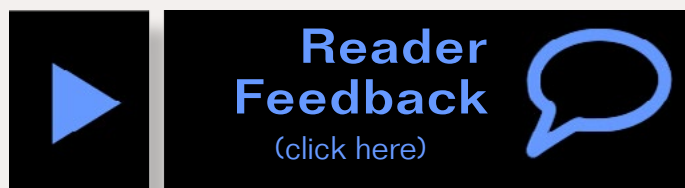


1



1 - 2: A PS 5344 is not available as ready-to-run model in O scale, so Kurt Matthey decided to scratchbuild it. With the help of drawings he found on trainiax.com, it was easy to figure out the dimensions. He used sheet styrene and styrene profiles to build the body, and brass wire for grab irons, ladders and door tracks. The doors are from an Atlas Trainman car, brake gear is from Selley and couplers are Kadee #740. After shooting Tamiya Fine Surface Primer from a rattle can, he applied PollyScale paint with an airbrush. Weathering was done with acrylic artist paints.

We on staff have to say, very nice work Kurt.



2



3



3: Scott Atchison posted this photo on the photo fun forum recently. The car is a standard Walthers B60b. The car is based on a photo he saw that was taken in 1978 towards the end of its life. Weathering was done with washes, weathering powders and oils. Scott also added Sergeant couplers and Hi-Tech rubber air hoses. Scott has captured that well worn look on this baggage car.





4: Preceding spread: "Departure time nears as the group of soldiers stand visiting with a local MP on the platform. The Korean war has finally calmed down, and they are anxious to make the next leg of their trip home on leave. It looks like the Yellow Cab just dropped off a local business man, but he is going to make the train despite not getting away from the office on time."

Darrell Cowles took this shot on the now dismantled Texas Western Model RR Club. The depot is a Walthers' kit that was built by fellow club member, and structure expert, Ken Marcoux, with shingles help from Mike Corley.

Most of the figures are Preiser, the vehicles are Classic Metal Works, the surrounding scenery by various club members. Darrell custom painted the two E8 Proto 2000 locomotives in Texas & Pacific livery and added details specific to the prototype engines. He also painted several of the passenger cars you see in the train.



5: The Estrella & Sonora Grande Railroad 0-4-2T Porter has seen better days. Vern Niner began with a Bachmann On30 model that he weathered with rattle can spray paint, acrylics and chalk. The cab is original to the model but weathered with acrylics and distressed with a wire brush to simulate wood grain. The tarpaper roof was made with tissue paper soaked with Polly S Oily Black acrylic paint. The stack is a brass part from Precision Scale and cab details are from Grandt Line.

Vern uses operating link and pin couplers on his equipment.

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6

6: Some more of Vern's work, a side-dump car loaded with coke is sitting at the Apache Wells coke plant on the On30 Estrella & Sonora Grande Railroad.



7

7: It has to be here somewhere. You think you found a safe place to bury your bone and the next thing you know they go and build a railroad over it. Forum member Skiloff posted this on Weekend Photo Fun

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The car is a Bachmann model that was weathered with acrylics, chalk and an airbrush. This cut of cars is connected with operating link and pin couplers, which are fitted to all E&SG equipment.

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Kitbashing a BQ23-7 in HO scale



– Michael Kreiser
Model Photos by the author



Some people call it “a face only a mother could love”, while others say it's one of the most beautiful locomotive designs ...

The BQ23-7, offered by General Electric from 1978 on, was a failed innovation. The large

“quarters cab” (thus the Q in the designation), was designed to offer space for the caboose crew, eliminating the caboose at the end of the train. Probably a profitable idea on the economic side, the design failed primarily due to safety concerns of the crews, who missed the extra space in the front, giving them more collapsible zone in the case of a frontal crash.

Just 10 locomotives left the factory and all went to Seaboard Coast Line.

A model of this locomotive was offered by Bachmann in the 1970s but is not suitable for today's modelers' needs. Nevertheless, we need one for the cab, and since they show up on eBay often, it's not a problem to get one. We also need an Atlas B23-7, ideally a version with Blomberg trucks, but they can also be ordered directly at Atlas.

Let's start with the shells. The Atlas cab has to be removed, and the nose with the cab area must be cut at the connection to the long hood. Additionally, the corrugated platings on the front battery boxes has to be removed, here is later the connection with the new cab. The Bachmann shell will be cut just behind the cab, then the front pilot must be removed carefully. Remove as much of the lower part of the cab, until it fits the Atlas frame. See picture 1 to have an idea.

When you put the cab on the frame, you will see that the cab is around 1/3 scale feet too wide. This means the shell must



1. A first test how everything fits.

be cut in the middle with a thin saw, and put together again after that. If you work carefully, you won't even need any putty to mask the cut. A thin piece of 1/32" styrene forms the new front door. In this step, you can remove all the cast-on details like handrails, class lights, etc. If you work carefully, the joint between the cab and the long hood will need no modification. When the cab fits the shell, it can be attached with glue, i used a special plastic glue that also fills little gaps. When the glue is hard, use some putty to mask the joints between the cab and shell. Putty also closes the holes of the snow plow that was attached to the pilot, since the BQ has no snow plows. The hard work is done now. Next is detailing. I installed grab irons, a new horn, and a headlight, the cab handrails were formed out of 1/32" steel wire.



2. The new smaller cab with new door. The cut is barely visible.



3. Detailing of the front is complete – beside the headlight casting.



4. Paint and decals are done.

You can now paint and decal the model, i mixed the gray color from pictures to match Seaboard's gray. The decals are from Microscale. Some of the BQ23-7s have seen several paint schemes in their life. You even can paint it in CSX's bright future scheme. After you apply some coating to protect the decals, there is one last challenging project – the windows. The Bachmann cab had just glass plates added from behind, but due to the thickness of the cab, that doesn't look good. I used a thin sheet of clear acrylic, 0.8 mm thick, and cut out every window individually. This takes some time, but the result looks great. I attached the windows with Micro Crystal Clear from Microscale. The prototype has silver gaskets around the front



5. A close up of the front with the new handmade windows. Silver gaskets to be done...



6. Finished, with a slight weathering.

windshields. i was thinking about making a decal for that, but a different way is to paint them with a thin silver pencil from a craft shop. Fortunately, the light bar set from the B23-7 fits the Bachmann cab with little to no modification, you just have to cut the light shield a bit to prevent light from shining into the cab. From Atlas' AEM-7 are the two strobe lights on the cab – just drill two holes and glue them into place.

You have now an unusual model.

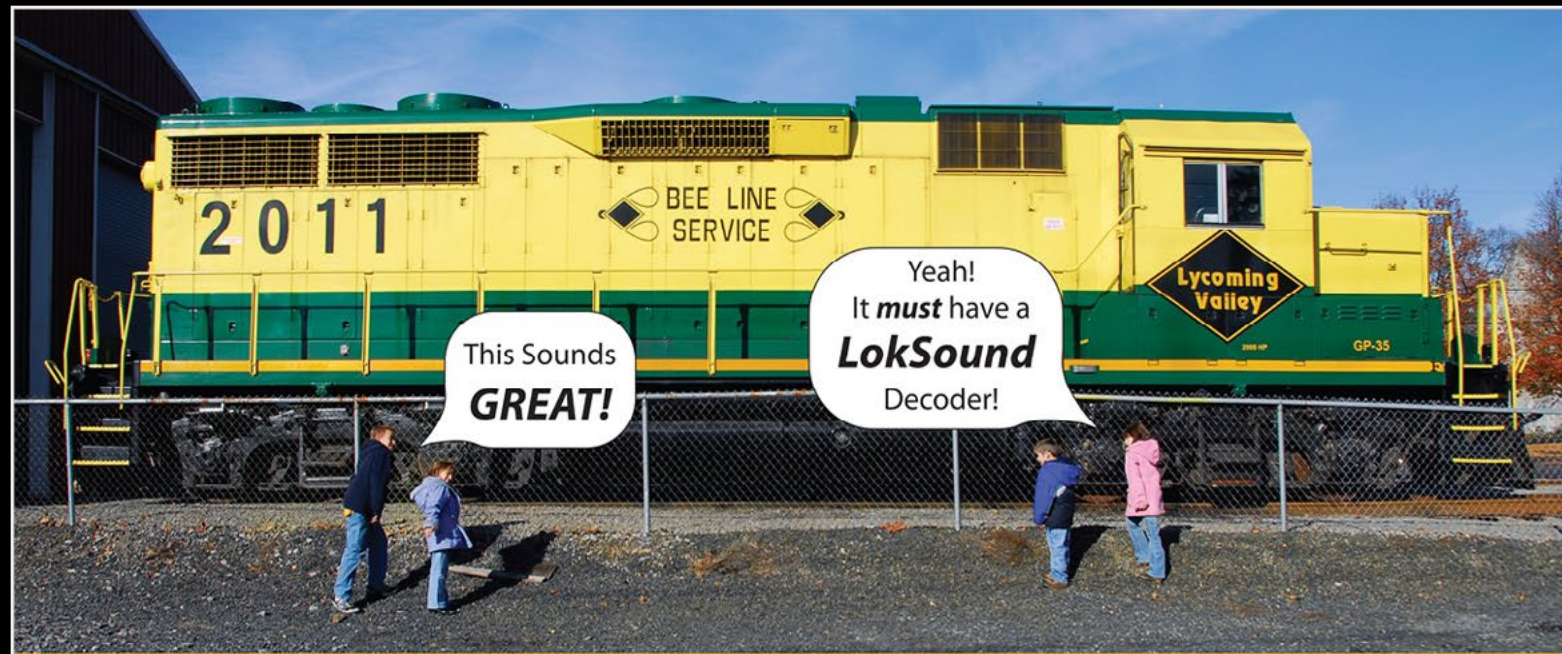




Michael Kreiser lives in Dresden, Germany with his wife and daughter. Born in 1982, his first contact with model trains was a S scale layout under the Christmas tree at the age of 4. At 6 he switched over to TT scale, followed by HO, with American prototypes at the age of 16. He works as an aircraft mechanic for Airbus and besides modeling the Milwaukee Road, he also owns a small custom painting business.

Contact him at info@modelrailroadworks.de or [facebook.com/modelrailroadworks](https://www.facebook.com/modelrailroadworks).

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The Pennsylvania and Western RR

– Bob Bartizek
Model photos by
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It's a pleasant late spring day in western Pennsylvania of the early 1950s. You're the engineer of an old PRR class N1s 2-10-2 number 9860, headed westbound. Behind you stretches train EC-11, a long consist of general freight mostly bound for recently opened Conway Yard in Pittsburgh. At the rear of your train is an N8 cabin car (caboose, to you non-Pennsy fans) occupied by your conductor and rear brakeman. You've been routed over the Pennsylvania & Western subdivision today and that will make for a scenic yet challenging journey.

You pass through tiny Gap Junction, the connecting point for the branch line to Cumberland, Maryland, and connections with the B&O and Western Maryland. The signal in the one-sided town of Rockview is clear, so you pass through without stopping. On your way to East Valley, the signal drops as you pass. You slow down as you pass the station in East Valley, and notice crews getting ready on the snapper (the PRR term for a helper engine) track. You ease the train to a stop so that a snapper can be added behind the cabin.



Ahead is a 3.5% grade from West Valley to Kitt Point station, (photo 4) then 1.8% up and around the Pennsylvania & Western's version of Horseshoe Curve. Even though your big 2-10-2 packs 85,000 pounds of tractive effort, it wouldn't be enough! A class I1sa decapod (2-10-0) will add 96,000 pounds of pushing power behind your cabin car. Your conductor is glad to be riding in the N8 with its strong steel underframe!

After allowing time for the snapper to get coupled and ready to go, you signal with two short whistle blasts that you are ready to go. The snapper engineer answers with two short whistle blasts, and the two monster locomotives begin their coordinated assault of the hill. Before entering the grade, your train gathers pace as it passes Val Tower in West Valley.



1: Westbound freight EC-11 with PRR N1s 2-10-2 #9860 on the point has just emerged from the tunnel leading from Harrisburg staging and is grinding through Gap Junction.



2: EC-11 is passing by the signal maintainer's shack in Rockview. Next stop is East Valley.

Your train slugs its way up the slope, past the closed Kitt Point station and its signal bridge, and around the curve past the massive rock face at the apex of Horseshoe Curve.

Your fireman waves to some onlookers, but you must concentrate on keeping those 85,000 pounds of effort working. A little wheel slip could cause the train to stall.

Finally you crest the hill, pass through a short tunnel, and wave to the tower operator at AE (Annville East) tower as you go by. He has seen you on the hill, and has alerted the Annville yardmaster of your impending arrival. You pass the Yard Limit sign, and stop at the signal bridge controlling entrance to Annville Yard.

After the yardmaster clears your signal and lines you into arrival/departure track #2, you ease into the yard with your bell sounding, and drift to a stop. The snapper engineer has uncoupled from the cabin car “on the fly” as you entered the yard. The snapper will head for the coaling tower and water plug prior to returning to the East Valley snapper track.

Slogging up the hill has consumed much of your water supply, so you uncouple from your train and pull forward to the freight water plug. The yardmaster throws a crossover behind you so that the yard switcher can cross over from the yard lead to the arrival/departure tracks.

There are five cars on the front of your train that are to be routed to local trains originating in Annville. The UP boxcar on the head end has some dragging equipment, and will be routed to the Annville RIP track prior to being classified into a local



4: East Valley is compact but busy.Left to right are a team track, the helper track, a coal supply track, EC-11 on the main line, and the freight house track.Locomotive 9860 is sitting on the turnout to the secondary main.The main line is double track from East Valley to Annville.

train. The switcher removes these cars and replaces them with three cars bound for Pittsburgh and points west.

You back onto your train and pump up the air. As you leave Annville, you observe coal drag SE-32 on the trestle above, running eastbound headed for Lebanon. This train originated in the coal marshalling yard at Shire Oaks, and most of the coal is bound for the port of Philadelphia.

You proceed on to Lebanon and hold the main. The LW (Lebanon West) tower operator has set the signal ahead to a stop indication in preparation for a meet with SE-32. Once



3

3: EC-11 is seen drifting into East Valley past the PRR freight house.The 2-10-0 on the left will shove the train over the hill to Annville Yard.

SE-32 is safely in the siding, you are cleared all the way to Conway Yard, so you can pass through the town of Summit without stopping.

The Summit stationmaster waves as your locomotive thunders past. After more open-country running, you complete your run over the Pennsylvania & Western, and tie up in Conway Yard, having negotiated three long Warren truss bridges, two plate girder bridges, a steel trestle, a curved wooden trestle, and several tunnels in about five scale miles of main line.

This kind of action happens regularly in my basement. My Pennsylvania & Western RR is a large layout, measuring 28 by 52 feet, with a 10' by 12' extension that houses my version of Horseshoe Curve. The overall dimensions of the visible layout are thus 40 by 52 feet.



6: EC-11 is passing Val Tower in West Valley. West Valley is home to a farm and fuel supply company, a metal drum company, a team track, REA track and a creamery.



5: EC-11 has come to a stop and Decapod #4668 will be added behind the cabin car.

Staging yards representing Harrisburg, Enola Yard, the Petersburg branch, Pittsburgh, Conway Yard and Shire Oaks Yard are housed in an adjoining 8' by 18' room. Harrisburg/Enola/Petersburg consists of six staging return loops (each longer than the longest passing siding on the railroad) and three shorter stub-end tracks. Pittsburgh/Conway/Shire Oaks has a nearly identical arrangement, except with two stub-end tracks, and is stacked directly on top of Harrisburg with 16 inches between levels.

The mainline from Harrisburg to Pittsburgh is three times around the basement for a total run of 550 feet, which is five miles in O scale. The Cumberland branch terminates in six more staging tracks located under the scenery. In total, there are about 1800 feet of track on the layout, and over 125 turnouts.



7

7: EC-11 uses all of the power in those locomotives to best the 3.5% grade up to Kitt Point.

There are six main towns along the line, and a couple of minor ones. Currently there are 47 industries on the railroad, with a total capacity of 123 cars. East to west, the towns on the layout are Harrisburg/Enola/Petersburg staging, Gap Junction, Rockview, East Valley, West Valley, Annville (named for my wife Ann), Lebanon, Summit, and Pittsburgh/Conway/Shire Oaks staging. The town of Franklin is on the Cumberland branch, and is home to the Altoona Brewing Company.

Design and Construction

In 1992 my family and I relocated from the east coast to the midwest, which was favorable from a housing cost standpoint. I

decided to use this move as a way to get the full-basement layout I'd always wanted. Unfortunately, I found that most of the misguided owners of existing houses had wasted their basements on family rooms, exercise rooms, and such.

I decided that I would need to build a basement, and it would be one designed for a railroad. I specified nine-foot ceilings and no support columns in the main room (this meant a HEAVY steel beam). The stairs would descend into the center of the room, and the layout would be around the walls. The laundry room was designed on the first floor of the house, and we added a full attic for storage.

The basement would be mine, all mine! I wanted to design a layout for prototypical operation, that would run point-to-point (or staging-to-staging) with a nice long run in between,



8

8: EC-11 is at the apex of Horseshoe Curve and the locomotive has just passed the park area. The gift shop and snack trailer at the base of the curve are seeing a little business today.

passing sidings for trains to meet and pass each other, and lots of places to switch cars.

I chose to build it in 3-rail O scale. What?!? You mean like the old trains around the Christmas tree? No, not exactly. See the sidebar titled “Why 3-Rail O scale” for my reasons.

I spent the six months it took to build the house with pencil, compass, and paper, developing and refining the track plan. I wanted to have a large layout with a long main line and plenty of distance between towns, but with wide aisles to accommodate what would hopefully be many visitors to open houses, and with a lounge area for the operating crew.



10: EC-11 stops at the signal bridge controlling the entrance to Anville Yard. That's the town of Franklin down in the valley.

In order to take maximum advantage of the size of O scale, I wanted the layout fairly high, with mountains and buildings that would tower over visitors in the aisles. I finally settled on a relatively simple and linear plan that met all my requirements. See the track plan and the linear schematic.

Basically, the plan is a room-sized three-turn helix from one staging yard to the other. Using scenic-separation techniques, I was able to have trains only pass through each scene once over most of the railroad. I brought the three lines together where they pass through my model of Horseshoe Curve.

I really wanted to include this scene on the railroad, and to have a high traffic density through it. Bringing the lines together accomplished that goal, since a train running the entire railroad will pass over the Curve three times (on



9: With the hill behind us, EC-11 drifts past AE (Anville East) Tower. Anville yard limits are just ahead.

different tracks). My operating crews do not complain about enjoying the scenery there multiple times on their trip, and meeting other trains on the Curve is always fun.

I was able to achieve the goal of towering mountains and buildings. Looking back to (11), the track is 52" off the floor, to top of the street guard rail is 60 ½", and it is 75-78" to the tops of the buildings. Visitors look up at the city. I followed the plan almost exactly while building the railroad. The only differences are where I found room for a few more industrial sidings. In



11: EC-11 comes to a stop on Arrival/Departure Track 2 in Anville. That's Main St. up above. The lights illuminating the passenger station platform can be seen above the train. Anville has the main line, a station track, two short coach tracks and A/D Track 1 underneath the street supports. A/D 2, five classification tracks, the yard lead, cabin car track and thoroughfare track are outside.

12: The snapper locomotive has just cut off as EC-11's cabin car passes the REA in Anville.

fact, the search for additional switching locations remains an ongoing quest.

Prior to beginning layout construction, I spent two years (yes, two years) preparing the room. The basement was completely unfinished when I started. After hiring someone to install 2x4 stud walls around the perimeter and between the main room and my future shop and staging rooms, I installed electrical boxes for layout power, shop and tool power, and for overhead track lighting. The track light strips are parallel to the layout edge and are set one foot into the aisles.

The result is that the layout and backdrop are well-lit, while the aisles are relatively dark. The entire ceiling, wires, ductwork, drain, and water pipes were sprayed with flat black paint to create a museum diorama effect for the layout. For dust control, I installed plastic sheet vapor barriers inside the wall studs and acid-etched and stained the concrete floor.

The ceiling paint helps keep dust from sifting down from above, the plastic sheets keep dust from the concrete basement walls out of the layout space, and the stain on the floor sealed it. The layout accumulates very little dust thanks to these construction precautions. Next I installed the electrical outlets and track lights, and hung drywall in the staging room, workshop, and around the walls of the layout room. All layout room corners were coved (curved) using 1/8" Masonite.

The track lights originally used small 60-watt "fan bulbs" in the cans. I have 100 cans, for a total of 6000 watts of light (all

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13: Your 2-10-2 has uncoupled from the train and prepares to take water in the shadows of the Annville industrial district. The yard switcher will pull forward and take the crossover in the foreground to work your train. The Annville yard office is on the left.

Why 3-rail O scale?

So I have this really nice model railroad with an interesting operating scheme, realistic scenery, and structures, and with nicely weathered trains. Why the heck did I build it in 3-rail? Well, like many in my age group, I had Lionel toy trains as a boy. After college came a few years living in small apartments. For our first Christmas together, my wife surprised me with an Atlas N scale PRR train set. Yes, she's definitely a keeper!

I built a series of three N layouts over 10 years, the last of which was to have all handlaid code 40 rail on wooden ties for all exposed track. I got about 80% of the main line laid, but that layout never got beyond the benchwork with roadbed and track. All the N scale layouts were based on the Pennsy. While I was working on the third layout, my son turned three years old. We got my old Lionel trains from my folks' house and set them up. He and I had two 3-rail toy train layouts in that house, and I found myself spending more time on those and less on the N scale. A job transfer to Ohio in 1992 provided the opportunity to get a full basement for a layout.

Once I realized that I was going to build a basement, and thus would have the whole thing for a railroad, I thought about scale. Believe it or not, I've never really been interested in HO. I think that's because it is the "majority" scale with many really fine layouts of all sizes. If I built a really nice HO layout, it would just be another one of many. I thought VERY briefly about returning to N, but discarded this because of questionable running reliability (although N runs really well today, compared to when I was in it), and because I didn't want to keep a basement full of track clean to the degree required in N scale.

That left O scale. I had some experience with 3-rail toy-train layouts at the time, but not with any scale modeling in O. There were some scale brass 3-rail PRR steam locomotives that had been released.

Between them, Williams and Weaver Models had imported Sam-hongsa-built L1s 2-8-2, K4s 4-6-2, E6s 4-4-2, B6sb 0-6-0, H10s 2-8-0, G5 4-6-0, and T1 4-4-4-4 models. The 3rd Rail division of Sunset Models had just released the I1s 2-10-0. All of these 3-rail locomotives would run on 36" radius curves or smaller. I knew that 2-rail O scale would require more like 60" radius minimum.

I wanted to design and build a layout for prototypical operation. The choice of 3-rail was made for two main reasons:

1) As far as I knew, nobody had attempted such a layout in 3-rail. I hate to follow the crowd (see my HO comment above) and I like to be different. It was a challenge to see if it could be done.

2) I wanted to run big steam, and you can get a lot more railroad in the space with 36" radius curves than you can with 60". As I was designing, Sunset/3rd Rail released the J1a 2-10-4, which also was designed for 36" curves, reinforcing my choice.

A third reason was the reliability of 3-rail trains. The flanges and couplers may be larger than scale, but the trains stay on the track and the couplers work well. I have reworked most of the couplers so that they operate nearly as well as Kadees. Like most of the hard-core operators I know, I will trade exact scale appearance for reliable function every time. The best looking locomotive won't be on the layout if it doesn't run right. Derailments on my railroad are very rare. I've installed couplers on all of my locomotives that can be opened remotely using the TMCC hand-held controller. My freight yard is designed with the arrival/departure tracks a long reach from the aisle, but reach is not a problem because arriving trains can cut off the locomotive using these remote couplers. They are also very handy for local switching.

My rolling stock is all scale and much of it comes from names familiar to HO modelers: Atlas, Intermountain, Walthers and Athearn. Besides the mostly brass steam fleet, diesel locomotives are predominantly Atlas and MTH. ■



14

14: The B6sb yard switcher is on A/D 2 and is in the process of pulling five cars off the head end of train EC-11.

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originally on heavy-duty dimmers). Now 6000 watts of incandescent bulbs generates a fair bit of heat. The basement height (nine feet to the bottom of the floor joists) helped to give the heat a place to go, but with the lights on during a four-hour operating session (and 12 or so operators in the room), it did tend to get uncomfortably warm.

A few years ago I changed from the 60-watt incandescent bulbs to 9-watt compact fluorescent lamps (CFLs). These are marketed as replacements for 45-watt incandescent bulbs. I tested and found that 13 watt CFLs (60-watt replacements) were too bright compared to the old "fan bulbs." Operating sessions are much more pleasant with the new lights.

Construction of the layout itself began in October 1996. Benchwork is open-grid design, using 1x4 pine, with 2x4 legs scrounged from home construction sites. The layout is built fairly high. The towns of Annville and Lebanon are both about 52" off the floor. The low point is East/West Valley at 40" and the high point is on a trestle approaching Summit at 61".

Roadbed is ½" plywood in most places, with ¾" plywood used where the roadbed is narrow. All plywood has ½" Homasote glued on top. Yard and siding tracks are laid directly on the Homasote, while mainline tracks are elevated on cork roadbed.

Gargraves flex track (which has been around since the 1940s) is used throughout, while turnouts are from Curtis Hi Rail (no longer in business) and Ross Custom Switches. I salvaged



16: EC-11 is departing Annville and headed toward Lebanon. At Lebanon, EC-11 will hold the main for a meet with east-bound coal drag SE-32 seen passing overhead. SE-32 originated in Shire Oaks Yard outside Pittsburgh and is bound for Enola Yard outside Harrisburg.

old Lionel uncoupling magnets, and installed them into the Gargraves track where needed.

The sides of all rails are hand-painted using a mix of Floquil Rail Brown and Grimy Black. I used four colors of ballast: light gray for the mainline tracks, dark gray for sidings and passing sidings, black for the coal mine and yard, and cinders lightly sprinkled over all areas, so the color wouldn't be too uniform. The different color ballast for mainline and passing siding tracks is a technique many operating model railroads use so the train crews can tell at a glance which track is the main.

I painted the sky backdrop using methods described by Dave Frary in several of his scenery books. It took several ugly



15: After the five cars with local destinations have been removed, the switcher picks up three westbound cars to be added to EC-11.

attempts before I learned to do it right. One section of wall has about eight alternating coats of white primer and bad sky paint!

A friend and I made all of the hardshell scenery and rocks using two-part resin products from Bragdon Enterprises in California. In my opinion, these products are greatly superior to plaster, since they make no mess on the layout at all. There is nothing to drip (and no odor), the rocks and hardshell are flexible for about 20 minutes of working time, they can be cut to shape with scissors, and everything attaches with hot-melt glue. The ground cover is primarily Woodland Scenics ground foam of various textures. Trees are from a variety of sources including Scenic Express Supertrees and a couple of local Midwest suppliers.

18



18: Here is the action in Lebanon with EC-11 holding the main while SE-32 takes the siding. Lebanon is home to several rail customers including Lebanon Lumber and Coal which is on the left.

Most of the buildings are kitbashed from Ameritown, Design Preservation Models, Korber and Lionel kits. The Furnace Hill coal mine, mine office and supply building, some factories and all of the yard service structure except the engine houses are scratchbuilt.

Signal bridges are old Plasticville kits from the 50s with PRR-style signal heads added. I used three of the Plasticville kits to kitbash the four-track signal bridge at Kitt Point on Horseshoe Curve. I used Walther's Cornerstone buildings for most of the signal towers and passenger stations, and built most of the freight houses using Design Preservation Models parts.

In order to increase the Pennsy look, all structures owned by the railroad are painted in authentic PRR station colors (called

17



17: EC-11 continues toward Lebanon while the rear of SE-32 passes above.

Structure Light and Structure Dark by the Pennsy — what imagination!) that I custom-mixed using formulas available from the Pennsylvania Railroad Technical and Historical Society.

Electrical

All of the locomotives are equipped with command control (TMCC, or TrainMaster Command Control from Lionel), which is what makes my style of operation possible. I did operate briefly with conventional control prior to the commercial availability of kits to convert the locomotives to TMCC. Starting in July 2001, the layout switched to 100% TMCC operation. I like to joke that all of my locomotives have Lionel's control system in them, even though almost none of them were made by Lionel!



20: The cabin car on EC-11 is about to enter the tunnel leading to Pittsburgh and Conway Yard staging.

There is no central control panel. Rather, I built small panels into the layout fascia wherever they are needed (mostly for switch and electromagnetic uncoupler control in local switching areas, and to control the staging yards).

There are five power districts on the railroad, each supplied with 16 volts AC at 10 amps. The main power bus wires are 10 gauge solid copper house wires. Track block connections use stranded wire from 12 to 16 gauge, depending on the length of the run. There are transformers under that layout that supply power for switch machines, uncoupling electromagnets, accessories, lights, signals, and relays.

The switch machines in Annville Yard are all Tortoises with LED indicators on the yard control panels. Some other hard-to-reach turnouts have twin-coil machines, but turnouts

19



19: EC-11 has a clear signal ahead in Summit as it passes the station. That's the business district of Summit on the far left. The buildings there are HO, creating a nice forced perspective.

within reach of the aisles are manually operated by Caboose Industries ground throws.

The railroad has an operating signal system with PRR-style position-light signals. I designed the detection circuits myself, and there are 45 relays that drive 26 signal heads. Occupancy detection in 3-rail is really easy, by the way. The three rails are all electrically isolated from each other. The middle rail is “AC hot” and one of the outside rails is “AC common.” The other outside rail is available for the signal system to use.

On 3-rail cars and locomotives, the wheels are not insulated from each other. Whenever any piece of rolling stock is in a block, the wheels and axle make an electrical connection between the “AC common” rail and the signal system’s rail.



22: An E6s 4-4-2 is preparing to make a station stop at Franklin on the Cumberland branch with train 52. Trains on the branch are assigned smaller motive power than those on the main line due to weight restrictions on a bridge entering Cumberland. The Franklin freight house is on the right.

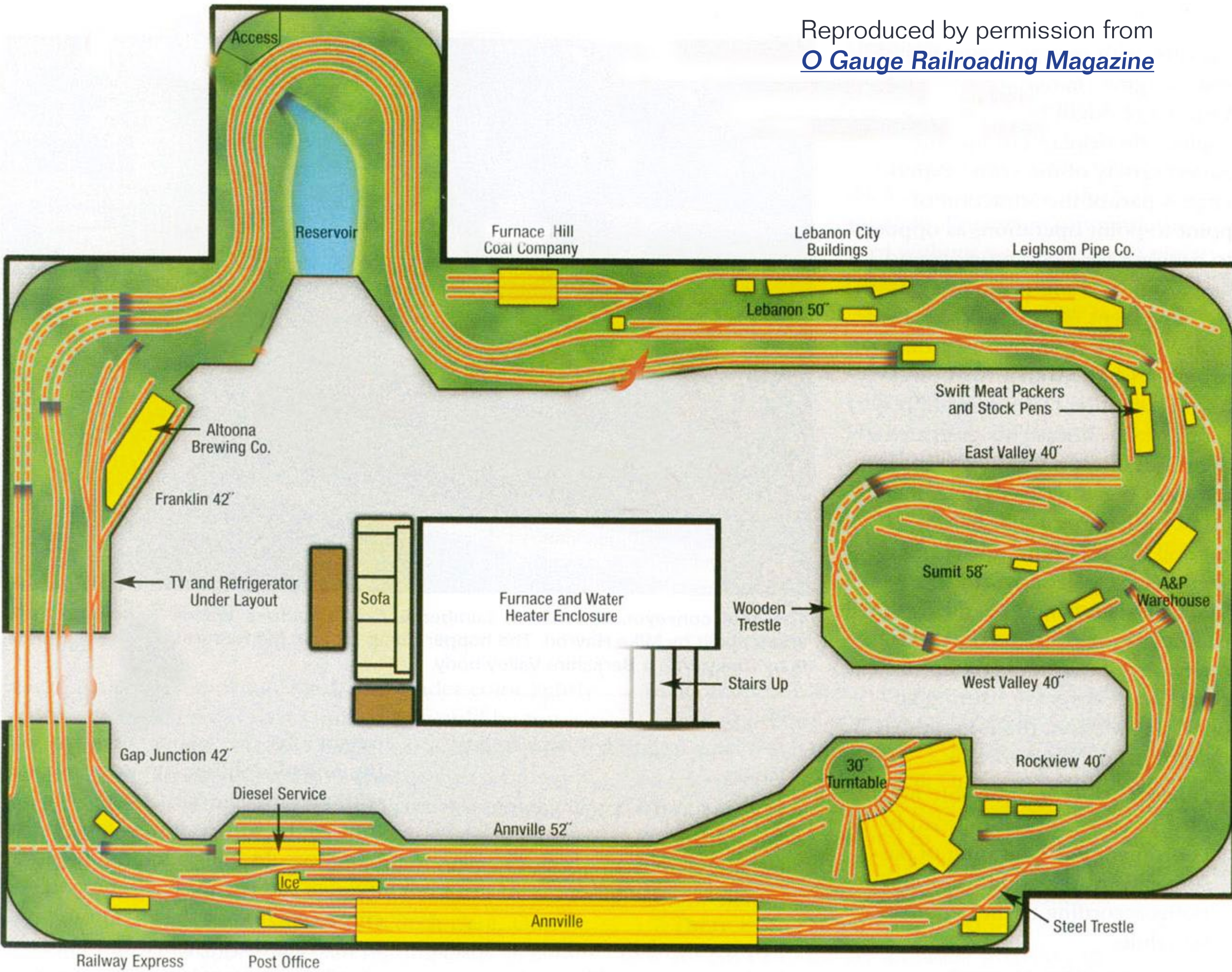
Adding a relay is all that’s needed for detection; no current sensing is required.

In addition to occupancy detection, the system incorporates some toggle switches to override signal aspects. The Anville yardmaster has fascia-mounted toggles to control the east and west approach signals entering the yard. Towns on the main line have toggles that control approach signals to the town. When the dispatcher gives a local train permission to work, he instructs them to set the approach signals. The toggles set the signal aspects to “stop” and also display a red LED on the fascia.

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21: A Pennsy T1 4-4-4-4 drifts into Lebanon station with a passenger train. The passenger station is on the left and the freight house is across the tracks in this photo.



Industry size in O scale

For me, the best thing about O scale is that it is BIG. The trains are big and heavy, which lets them represent the mass of the real thing in ways the smaller scales can't. A nine- or 10-pound locomotive and a string of 16 - 18-ounce freight cars crossing a set of diamonds or even some rail joints results in great sound. Structures can also be large and imposing. Large buildings and mountaintops can rise well above eye level. A typical mountain on my layout is Mount Chapman which tops out at 77" above the floor. Thirty-inch-tall Summit Trestle curves in front of Mount Chapman.

On the other hand, the worst thing about O scale is that it is big. Track planning must be done carefully, since everything takes up so much space. Those large industrial structures also are real space-eaters. Altoona Brewing Company is 46" long, 12" tall and 13" deep. The strategy I've used to maximize the number of industrial switching areas on the railroad is to include a very few large complete structures (such as the brewery), but to place most of the

large industries either along the backdrop or in the aisle space. The Pennsylvania House furniture factory is a large structure with two doors leading to interior unloading docks and a third shipping dock tucked under the structure. The factory is set back as a semi-flat

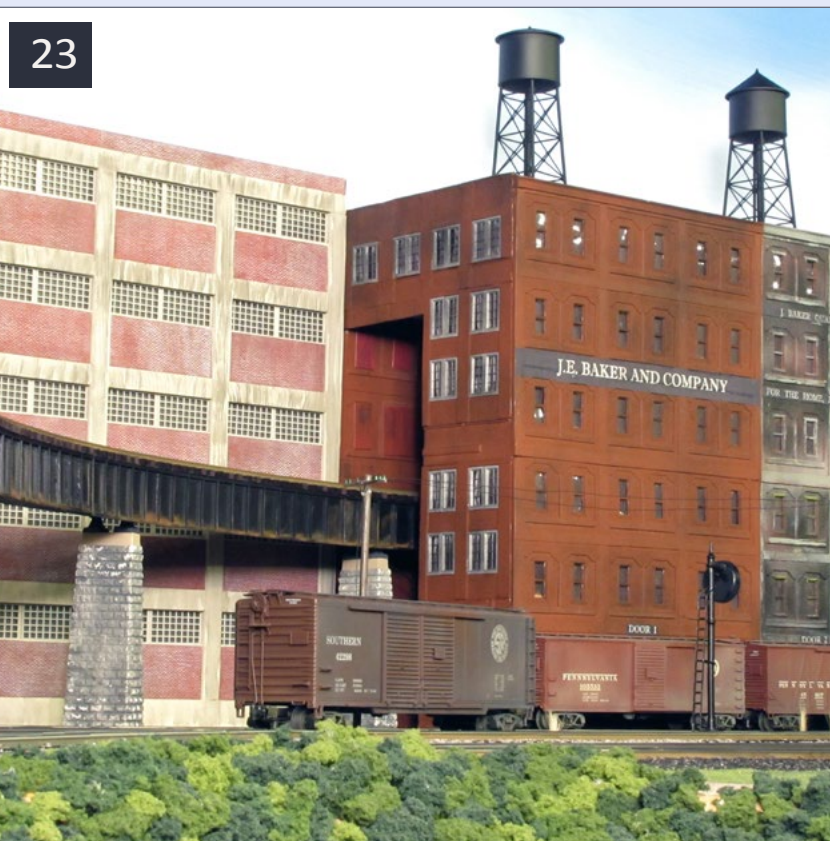
23: J.E. Baker is one of the larger industries towering above the trains.

against the backdrop so as not to take up too much real estate on the layout. It wraps around a corner, and is 90" wide overall. The tops of the water tanks are 79" off the floor. Including the cleanout track, the factory has a capacity of seven cars. Other large industries nearby (such as J.E.Baker) combine to tower above the trains.

Some of my industries have their loading docks or the spur servicing them modeled on the layout, while the industry itself is "in the aisle." For example, the Hood's Creamery in the town of West Valley receives reefers with 40-quart cans of milk from the farms on one dock, processes the milk (Pasteurized, homogenized, and cooled), then pumps the milk into special reefers with glass-lined tanks for shipment to the bottler. Photo 24 show how I've modeled these two docks. One dock is for receiving milk in cans [while the other has hoses to pump the milk into cars with tanks, but the creamery structure itself is "in the aisle." If it were modeled on the layout, the creamery structure would have a footprint of about 24" x30". Penn Metal Salvage Co. is a scrap yard in Franklin that is also "in the aisle." All that is present on the layout are a fence, sign, track, and a few weed-grown piles of junk. ■



24: To provide more switching, industries like Hood's Creamery have had only their loading docks modeled. The remaining portion of the industry is in the aisle.



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Operation

I designed the layout with future operating sessions in mind. The purpose of the trains is to move freight and passengers in a prototypical manner. During an operating session, through trains traverse the mainline from staging to staging. Local trains might originate in Annville Yard, run to one or more of the other towns for some switching work, then return to Annville.

Over the course of a four-hour session, about 20 different main line trains are run, along with three switching jobs within yard limits. Including helper operation and a few locomotive changes at Annville Yard, there are usually about 25 different locomotives that are run during a session.

The movement of cars is determined using a commercial car-forwarding program (RailOp) that runs on my home computer.



26: The hopper spot at Lebanon Lumber and Coal is empty at the moment. This is a good time to get a photo of the tipple and office/supply (the green building) of Furnace Hill Coal Co. The coal loader and all structures were scratchbuilt.

The software determines car routings, assigns cars to the trains, and prints switch lists and instructions for the train crews to use. During an operating session, the railroad has the following “employees:”

Dispatcher – Responsible for the flow of traffic on the railroad, by coordinating the running of passenger, through, and local freight trains according to the published sequence. The railroad uses a sequential schedule of trains with no fast clock.

Annville Yard Master – Responsible for ensuring a smooth flow of traffic into and out of the freight and passenger yards at Annville. Access to the yard is under the Yard Master's authority, as are all movements within the yard limits. The YM also prioritizes switching moves for the yard switcher as needed.



25

25: M1a 4-8-2 #6738 shows off some superelevated track as she passes some railfans at Horseshoe Curve Park.

Annville Yard Switcher – Responsible for classifying inbound freight cars, making up, and breaking down local freights. Also coordinates with the hostler/second switcher to service the Annville industrial district, and to switch the locomotive service tracks (sand, coal, ash, diesel fuel).

Annville Hostler/Second Switcher – Responsible for moving locomotives between the steam and diesel service areas, and the Annville yard office (which is the crew change point). This job also involves switching baggage/mail and express head-end cars from passenger trains, as well as switching the Annville industrial district and locomotive service tracks.

Train Crews (Engineer and Conductor) – There are typically five trains active on the railroad at any point in time, thus a



27: There is #5985 preparing to pull a mail storage car from the Post Office in Annville. This car will depart westbound when it is picked up by passenger train number 13.

minimum of five train crews are needed. Crews pick up a manifest/switch list for their train from a stack in the crew lounge. There is a good mix of through and local passenger trains (all with at least some head-end switching), coal drags, through freight, and local freight trains, so everyone will operate some interesting trains in each session. The locals work best with two-person crews. Crews keep in contact with the dispatcher using radios which simulate the prototype's "trainphone" induction radio system that was used in the 1950s.

As the designer and builder of the Pennsylvania & Western, it is very rewarding to see the layout come alive with the coordinated movements of the various operators. As the "walk-around superintendent" during operating sessions, I enjoy being a railfan seeing several simultaneous train movements at once. I also enjoy being able to share the layout with a group of friends, which is part of what this hobby is all about. It must be fun for the operators as well, since I never have trouble assembling an operating crew of 12.

I haven't seen much written on the subject of how prototypical operating sessions can add to the social aspect of the model railroading hobby. I've made close friends of operators on my layout, and also of operators that I've met while operating on other layouts in town.

In fact, I currently host sessions for three mostly different groups of operators. There is my regular monthly crew for sessions held on Saturday afternoons. This group has been operating here since September 2004. I'm also part of a group of retired guys from the Cincinnati/Dayton area who operate every Wednesday morning. There are 18 in the group, and we have eight layouts that we operate round-robin style. This group has existed for many years; in fact a few of the

operators were part of the regular crew on Allen McClelland's Virginian & Ohio RR.

The third group is based around five operating layouts and we host monthly round-robin sessions on Saturdays. Several of the operators in this group come from out of town. It's great to have so many people enjoying the Pennsylvania & Western, and their frequent visits also keep me motivated to work on new scenery, weathering, or whatever to show them.

Work Ethic and Help

I've done the majority of the layout building, wiring and detailing work myself. I try to spend an hour a day working on the layout. Many days I feel like nothing was accomplished, but gradually progress is made. Others have helped in various stages of construction.

My late father helped me with the benchwork, and a local round-robin work group has helped with some ballasting, scenery work, and pulling long wire runs. Another friend, Bob Chapman, helped me install the hardshell, and has also helped out with scenery work and structure kitbashing.

Bob's wife Sharlain taught me how to make trees and paint realistic rocks using inexpensive craft paints. My wife Ann painted most of the figures in Anville.

Mike Havron has provided a wealth of PRR prototype information, and also built several of the PRR-owned structures. Two members of my operating crew, Paul Miklos and Ed Swain, also have done some nice work on structures.

Future Plans

My current staging and train schedule supports an operating session that lasts about four hours. Many of my operators



28: A Fairbanks-Morse H10-44 switcher (PRR class FS10) #5985 is preparing to leave the diesel engine house in Anville.

prefer shorter sessions in the neighborhood of three hours. My big plan for 2014 is to essentially double the amount of staging on the railroad, and expand the train schedule so that one computer-generated "session" will last for about nine hours. I will be able to host three of the shorter sessions before needing to generate a new set of sessions on the computer. I also plan to add a few industrial spurs and a new small coal mine for even more switching fun. Finally, I'm working on changing from RailOp to JMRI Operations software to generate my switch lists. That conversion will be completed in 2014.

Interested readers can visit my website at pennwestrr.com for layout construction updates, lots of photos and much more layout information on design, construction and operation of my railroad. ✓



Bob Bartizek has been a model railroader for most of his life. He's built layouts using Lionel toy trains, N-scale with commercial flex track and turnouts, N-scale with hand laid code 40 rail, and his current effort in 3-rail O-scale. Bob is a huge fan of prototypical operating sessions and has reworked his 3-rail couplers, re-motored some

locomotives, and re-g geared others so that his equipment operates flawlessly. This is his eighth article for the model railroad press.

Bob is retired and lives with his lovely and supportive wife Ann outside Cincinnati. He has begun cultivating the next generation of model railroaders by already sharing his layout with his one year-old grandson.

Bob's layout is coming to TrainMasters TV in March!



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Railroading Merit Badge and Merit Badge Academy



– By James Eager
Photos by Judy Eager

Training Scouts to be the next generation of model railroaders ...



After getting my first article published by MRH magazine, and earning an AP certificate as a result of it, I started looking at the AP program and the path to Master Model Railroader (MMR). I realized that for me, there was another AP certificate that was “low hanging fruit.”

This is the AP Certificate for Volunteer. There are many ways to get there (60 points). Some require years of work, but I saw a path there that is for me. For each month as a merit badge counselor for Railroading merit badge (and presumably an

NMRA member at the same time) you earn a point. For each Boy Scout you work with that earns the merit badge, you get a point. 60 months is five years, but there are ways to shorten that span.

The first thing to do was to sign up as a merit badge counselor. As a long time scouter (40+ years), I signed up and the request was immediately approved. It just so happens that my primary position in scouting right now (District Advancement Chairman) includes approving merit badge counselors for my district as 1 of its responsibilities. So I said, self, you are approved. Don't be shy. There is always a shortage of qualified counselors. In many years of approving counselors, I have only turned them down for three reasons:

1. Completely unprepared to teach the subject matter for a particular merit badge (in one case, Dentistry).
2. Wanting to make a business out of it and stating in the application that he was going to do so (once).
3. A criminal record.

Merit Badge Academy

The next step is attracting Scouts to earn the merit badge. I've been signed up for Railroading before, and you can go years between Scouts coming and asking. The answer to this is Merit Badge Academy, a program the local council holds twice a year. Scouts pay a fee which includes lunch and facilities etc. – all handled by the council, and counselors offer sign-ups for merit badge help.

Before you jump in, you have to either have prerequisites or be able to teach the whole merit badge, in about 3 hours, in a classroom. Railroading can mostly be done with “death

by PowerPoint,” until you get to the last requirement. As an answer, I looked at the requirement to construct a car or engine from a kit.

30 Scouts = 30 kits. Hmm. I approached Accurail (accurail.com) about doing a custom boxcar with a Scout logo and BSA-significant dates for road numbers as a custom car. Ouch – about \$800, and three months lead time. There was no way I could foot that bill and the Council would not sit still for that either, plus a three-month lead wasn't available.



1. The Merit Badge Counselor.



2. The kits lined up, waiting to be built.

So, I went back to Eric Cote of Accurail with another idea. 30 different kits from the tag ends of 30 different Accurail offerings they had made over the years. Eric came back with a quote of a 40% discount for the Scouts. I took that price to the council and it was approved. I put up the money for the kits to allow the council to reimburse me from entry fees after the fact.

I requested that the Railroading Merit Badge be an afternoon class. Because I was teaching a different merit badge in an alternate session that day, I thought that having Scouts carrying a finished car around during the afternoon class would end up with damaged cars and disappointed Scouts.

Presenting the basics

On the Internet I found partial PowerPoint presentations for most of the first six requirements for the Merit Badge. I melded them together and added a few more pieces to complete a full presentation. (This presentation is available to anyone requesting it.)

For requirement 7, I put together a handout list of publications, starting with the list on the Boy Scouts national website and added MRH. (I took the extra time to forward a request to National to add MRH to the list). I borrowed from my club cars in various scales to demonstrate the different scales of model trains.

Note that I chose to avoid the whole railfanning requirement set. Other counselors may make other choices; this was mine.

Preparations complete!

The 30 kits arrived. Eric Cote of Accurail threw in two more as “parts birds,” which was a prophetic decision. I had recently converted a series of cars from McHenry couplers to Kadees, so I contributed the McHenrys to the project to replace the Accumate couplers.

I also had laser-cut wooden decks for the Accurail gondolas from Modeler’s Choice (modelerschoice.com). These are



3. The other three scales I brought along to demonstrate model railroading.

prototypes I worked on with Randy from Modeler’s Choice and I had some extras. I pre-stained these with Flo-Stain and taped each down to a piece of cardboard before class.

The last part of preparation is to put all the documents and the presentation on CDs, one per Scout. To make life easier, I burn several such presentations all on the same CD, so I don’t have to have separate piles for morning and afternoon sessions.

Finally comes the day of Merit Badge Academy. I had set a limit of 30 Scouts, and 27 signed up. One thing I have learned is that trying to teach teenagers is not easy, and they don’t want more school, especially on a Saturday. I burn CDs so the Scouts do NOT have to sit and take notes on a worksheet for an hour. When I make that announcement at the beginning of class, I typically get a cheer!

The presentation covers Class 1 railroads, Amtrak, how engines work, parts of a railroad company, careers, and a big hunk on safety. That part doesn’t take too long – maybe an hour. Then it is time.

Building freight cars

I arranged the kits on the top of a piano at the side of the room, from left to right in my estimate of difficulty of the kits. I asked who had modeling experience, and asked them to take the more difficult kits on the right-hand side.

And we are off! I had previously spoken with the four dads who were watching in the room. I spaced them at four separate tables where I had spread out my modeling tools. Some Scouts had read the prerequisite list where I asked them to bring tools with them; most had not. I was roving, helping

the Scouts who were not at the tables, and checking the final product.

Surprisingly, we only had two glue incidents and NO knife incidents. Both glue incidents were caught early enough that no lasting damage was done. Two kits were used as parts birds, and a couple were left over due to the slots not used. Seven or eight different Scouts offered to take the extra kits home to work on.

I had to help with a couple of upside down couplers and other problems, but in an hour and a half we had about 27 runnable cars ready to go.

Early on, I told the Scouts that my train club invited each Scout to come run their car on the club layout, and handed out a location and hours page. What makes your day is the one Scout



5. Keeping those dads busy, too.



4. Fitting in a floor.



6. One Scout's finished car.

who comes to you at the end of the session with his car, and says "I didn't think I was going to be that interested in this, but now I am and I think I will come run this car." Even if it is only one out of 27, that's one more addition to the hobby, and possibly to the club.

At the end of day, I asked the Merit Badge Academy staff for a copy of the roster, beyond the one I turn in for processing. This has the list of the 27 Scouts on it. That's 27 volunteer points towards AP Volunteer. I think 20 Scouts might be a better number for the next Merit Badge Academy, but either way will put me over the top. ☑

 **Reader Feedback**
(click here) 

James has spent the last 30+ years working in the IT field as a programmer and database administrator for a variety of companies. He also holds the rank of Eagle Scout.



His first HO train was a Tyco Illinois Central Gulf Alco 430 with matching caboose. This led to a father and son layout in the basement, Model Railroading Merit Badge, and a long term interest in Model Railroading.

In 1997, one of his structures was shown as part of the TV commercial for the Ronald McDonald House Christmas charity layout at the mall. He is currently a member of the H. B. Plant Railroad Historical Society, home to the Mineral Valley Railroad.

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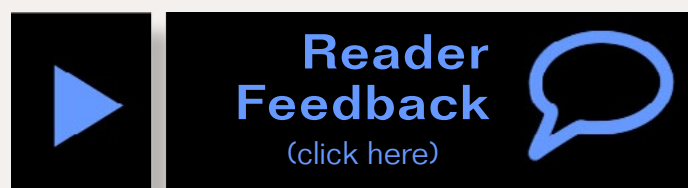
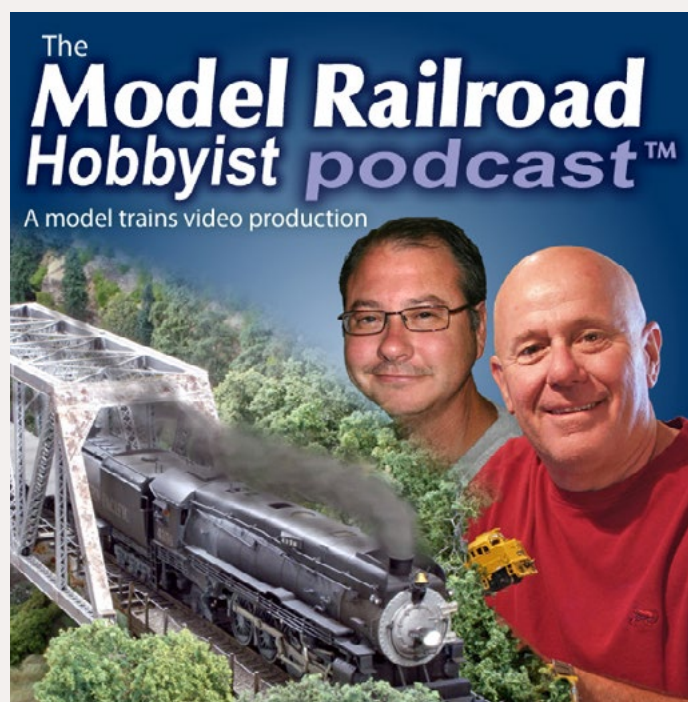
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MRH podcast

Accessing the MRH podcast

by Don Hanley

The MRH podcast has been around for some time, but we are not sure that many of our readers are aware of Paul Gillette and the gang. The MRH podcast is one of the top rated podcasts in the model railroading space on iTunes. However we believe that there is likely a vast audience of less-than-tech-savvy readers who don't listen to the podcast or don't know how to access them on iTunes or in some other format.



There are several ways you can access the podcast. From your computer you can simply go to the MRH home page model-railroad-hobbyist.com and click on Goodies at the top of the page. On the drop down menu you will see MRH podcast. Just click on it and you will be taken to a menu that will allow you to choose the podcast of your choice. Just be aware that you can also access the magazine from there also, if you click on a PDF Magazine. The podcast is in MP3 format, so if you have a MP3 player you are all set to go.

Most of us don't have the computer at the layout, but we do have a smartphone or notepad. If you have an Apple product you can just click and go. But what if you are not an Apple

person? There are several options for the Android crowd. The first is jrtstudio.com. This program allows you to Sync your Android device with iTunes. The in iSyncr has two parts: one for your PC or Mac and one for your Android device.

The second way to access it, go to podbay.fm/show/375253882. Again you will be able to access the Podcast as well as the magazine. So make sure you click on the the Podcast and not the magazine pdf. If you are at your computer, just click on listen, and the Podcast will begin.

If you are on a smart phone you will be presented with a choice of Listen on Android or Listen on iPhone. I have an Android phone, and downloaded the free app, Podbay and in a few minutes was able to listen to the podcast on my smart phone.

So there you have it. There are numerous ways to listen to the MRH Podcast. We encourage you join Paul Gillette, Chris Palomarez, and Jim Lincoln and listen to the podcast. We think

you'll enjoy our lively discussion of the hobby.

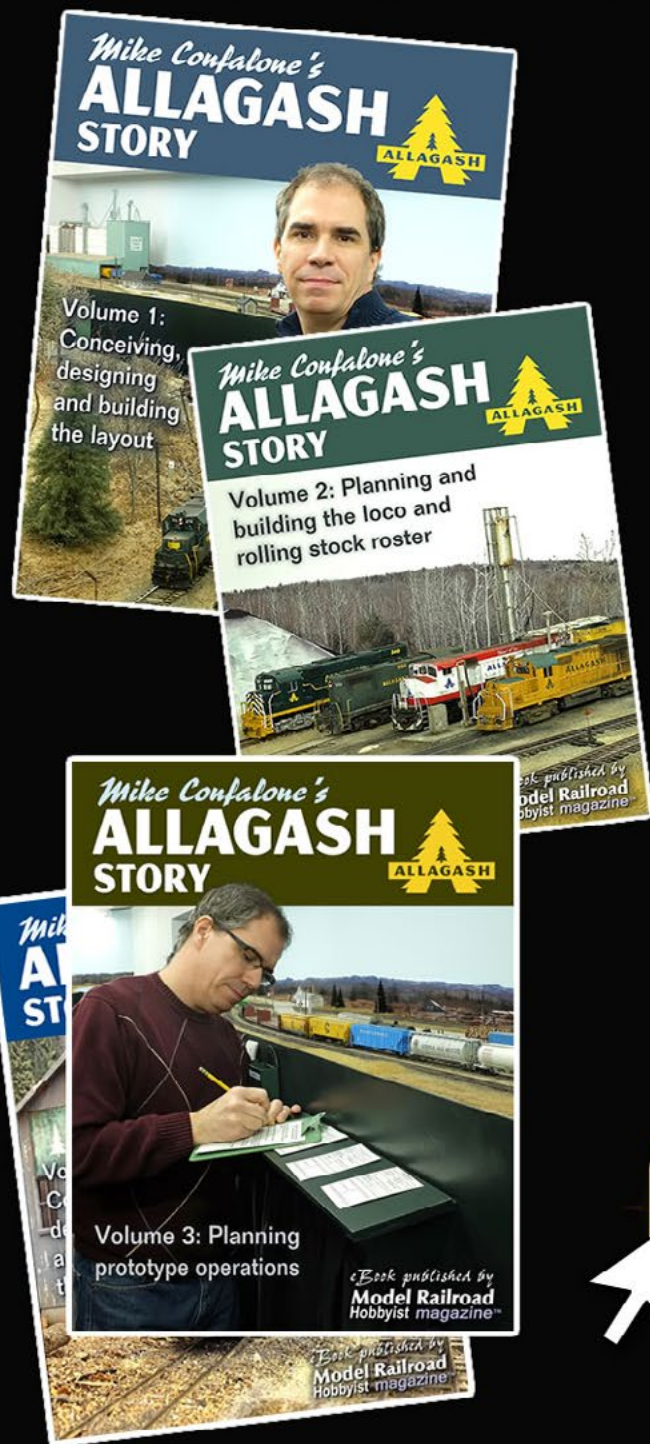
Advertisement

The advertisement features a photograph of a model train layout with a servo motor being mounted on a track. Below the photo, the text reads: 'Mount a servo on your layout with just a drill?'. It includes images of a servo motor, a drill, and a small model train. The text continues: 'Hide with scenery - Mount from the top - No bending over!'. The Berrett Hill Trains logo is present, along with the website 'www.berretthillshop.com'. At the bottom, it says 'What will they think of next?'.

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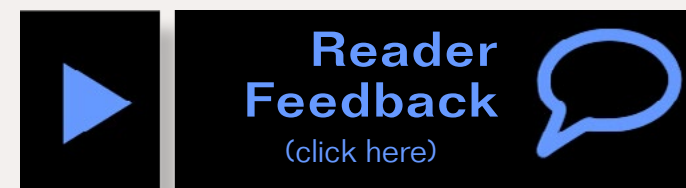
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Micro-Mark MicroLux Paint

A new paint for model railroaders

by Pete Steinmetz



1: A selection of 2-ounce MicroLux Paint colors.

The demise of Floquil and PollyScale paint has left a void in the paint and color selection options for model railroaders. Luckily, Micro-Mark (among others) has stepped up to help fill the void, at least as far as the PollyScale line is concerned.

Micro-Mark commissioned Acrylicos Vallejo of Spain to formulate the colors in their new MicroLux line. The MicroLux paints and Vallejo Model Air provide a direct cross-reference to many of the popular PollyScale Colors.



MicroLux is sold in 2-ounce bottles that are thin enough to be airbrush-ready, but can also be brushed easily.

The colors available are Roof Brown, Roof Red, Engine Black, Grimy Black, Aged Concrete, Rust, Reefer White, Railroad Tie Brown, Rail Brown, and Clear Flat Finish. Price is \$7.75 each.

The Vallejo paint line contains 20 more colors Micro-Mark has matched to PollyScale. These colors are packed in ½-ounce bottles with a dropper style tip.

The colors are Light Sea Blue, Steel Blue, Reefer Yellow, Depot Buff, Flat Aluminum, Dirt, Reefer Gray, Earth, Tarnished Black, Signal Green, Signal Red, Caboose Red, Clear Satin Finish, Dark Green, Aged White, Boxcar Red, Clear Gloss Finish, Undercoat Light Gray, Steam Power Black, and Concrete.

I am not a stranger to the Vallejo brand of paints, having moved to Vallejo as my primary paint almost two years ago. I was trying to change from Floquil enamel to acrylic paint without a lot of success. With Floquil, I was not comfortable with the toxic vapors and the safety precautions that had to be taken.



2: More PollyScale cross-referenced MicroLux colors.



3: Small Vallejo Model Air bottles labeled as PollyScale colors.

On the other hand, I had problems spraying PollyScale. After I opened a bottle, the consistency seemed to change the next time I went back to use the paint. The paint-to-thinner ratio had to be changed every time I used PollyScale.

I always made sure to clean the top of the bottle to get a good seal, but that made little difference. Other brands in plastic bottles had evaporation issues that made the paint either lumpy or allowed it to dry out, and storage was an issue. I disposed of too many dried out bottles of paint that came in plastic bottles.

I found Vallejo while lurking on some military painting and weathering groups – modelers seemed to really like it. I found some at a local hobby shop that sells plastic model kits and radio control.

I bought a couple of bottles of Vallejo's Model Air line and found it easy to airbrush right out of the bottle.

I should note that Vallejo packages their paint in plastic bottles. I have had some for over two years and have not found any

issues with change in consistency or drying out with Vallejo's plastic bottles. After my successful tests, I bought more.

Most Vallejo paint comes in ½-ounce (17ml) bottles. I did my color matching by taking PollyScale boxcar red and grimy black to my local military/RC shop and holding up my bottles to the Vallejo rack until I found a match.

Micro-Mark's MicroLux line takes the guesswork out of this process.

I found the pigments used in the Vallejo line (and MicroLux, since they're made by Vallejo) seem to be a much finer grind than what has been used in other model train paints.

The paint flows on very smooth and it "settles down" over details very well. This, combined with a modern water based acrylic resin, gives these paints a hardness and covering power that is superior to other acrylic paints I've used.

MicroLux paint can be airbrushed without thinning. Vallejo states in their literature that their paint dries in seconds, and the next coat of paint can be applied right away. Non-porous surfaces, such as plastic or metal, may take longer to dry. This can be a real time-saver for us modelers.

Micro-Mark MicroLux paint adheres well to a variety of surfaces. I have used it on resin, plastic, wood, and metal. There were no issues with the paint not sticking well, obscuring details, or not covering properly.

I did not use primer when painting the lighter colors, even though MicroLux suggests using a white or light grey primer if the surface to be painted is very dark.

Colors can be mixed with one another and diluted with water – distilled water is always best to avoid getting any other particulates into the paint.

[... On to next page of text →](#)



2: The barrels are an O Scale resin casting from [Rusty Rail rustyrail.com](http://RustyRailrustyrail.com) Part Number RRJP-O-13 I started by airbrushing MicroLux Rust 29005 as a

primer. It stuck very well and gave some "tooth" for the rest of the colors. I then brushed the barrels with Roof Red 29010, Dark Green 29017, Boxcar Red 29015, and Rail Brown 29001. The gas can was painted with Signal Red 29020. The sledge hammer handle was painted with Dirt 29025, with the handle done in Flat Aluminum 29026. The barrel openings were painted with Rust 29005. I varied the coverage of paint on the barrels. Some was brushed very lightly to allow the rust undercoat to show through. It was easy to vary the amount of paint applied. When I needed the paint a little thinner, I dipped the tip of the brush in water and wiped most of it off on a paper towel. This left the brush tip slightly moist. I then dipped the tip of the brush in the paint. The paint was just thin enough to allow for light coverage. It was a little thicker than a wash. This feature makes MicroLux paint very versatile.

I would usually continue finishing the barrels with a combination of washes, pigments, and pastel pencils. For this article on the basic coatings, I stopped at the painting step.



5-6: This building is a kit from Sidetrack Laser, the Desperation Pass Foreman's Cabin. I built this structure for a clinic on lighting buildings with LEDs.

I started by using a wash of alcohol and India ink on the whole building. I then used the hairspray technique to simulate peeling paint (monstermodelworks.com/Jimmy-s-Tips.html). I wanted the look of a building that was old, and starting to need repair.

I sprayed it with MicroLux Reefer White 29004. I then scraped off some of the paint to reveal the stained boards underneath. I used a combination of Mig Productions and AK Interactive pigments to darken the Reefer White slightly. Remember, less is more, I was careful to not use too much pigment. I also used some Carb Othello Pastel Pencils to add a little decay to some boards.

Weathered the porch in a similar way. All the building trim was painted with MicroLux Roof Brown 29009. I distressed the doors more than the sides to show heavy wear. I scratchbuilt the box on the porch to have a base for the scratchbuilt lantern. The lantern is a 3mm clear red LED that I sanded to diffuse the light. The top is 20 lb. paper painted with MicroLux Engine Black 29008. The box is painted with MicroLux Roof Red 29010. I then sanded some of the paint off to give that worn and used look.

This building started out as a prop for a lighting clinic, and turned into a learning experience on weathering and painting, which added to the enjoyment of constructing the building. In this case, the learning was not part of the original plan, but that's just as well since I am always looking for new techniques and materials to enhance my modeling skills and to help me create better models.

[← back to previous page of text ...](#)

The directions state to shake the bottle well before use, after which point the paint can then be dispensed directly into an airbrush color cup. Recommended starting airbrush pressure is 25 psi; adjust up or down from there.

MicroLux has three clear coats available. Clear Gloss, Satin, and Flat coatings are all made to be airbrush ready. They dry in five to ten minutes without leaving a sticky film. I find one coat is usually sufficient, but a number of light coats will produce a finish that is smoother and has more “gloss” to it. All three clear coats can be mixed with other colors to achieve various textures and tones.


Once dry, MicroLux can be over-painted with solvent-based enamels or oils. The paint, when dry, will withstand turpentine or a light wash with alcohol. In addition, I find the resistance to abrasion to be superior to other water-based acrylics.

Cleanup should be done within five minutes of painting; the sooner the better. Water or Windex is the preferred clean up solvent.

Acrylicos Vallejo started in 1970 manufacturing acrylic colors for fine arts at their factory near Barcelona, Spain. Their paint is manufactured to European standards CE, EN71/3 and REACH, and to the USA certification ASTM, which guarantee compliance with these norms established for the safety of the user, as well as that of the environment. Their extensive website lists not only the colors available, but extensive safety information. Vallejo paint is exported world-wide.

I am happy that Micro-Mark has been proactive in supplying a new and in my opinion, better paint for model railroaders. The choice of Vallejo to be their supplier is very good for the model

railroad community. I’m sure that after trying MicroLux Paint, modelers will be very satisfied.

MicroLux paint is available exclusively from Micro-Mark at: micromark.com. 



Pete Steinmetz is a member of Short Track Railroad in Vista, California, which is an N scale club modeling Donner Pass. Pete is also a member of the California South Coast Modular On30 Club in Southern California, and is one of the founding members of the Dead Rail Society.

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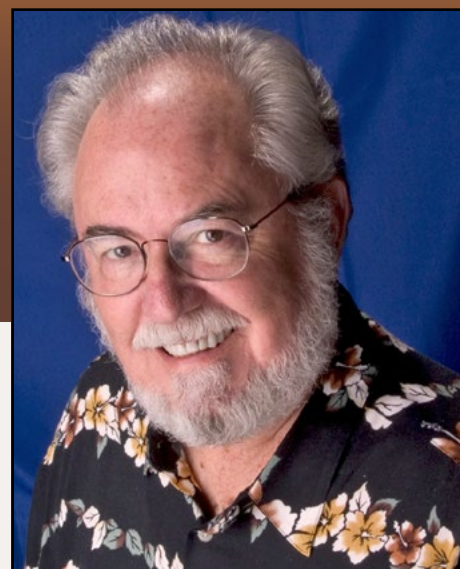
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March 2014: The latest model railroad products, news & events

by Richard Bale and Jeff Shultz



New Electric Locos for Amtrak

The first of 70 Siemens-built electric locomotives entered service on Amtrak's Northeast Regional district early last month. The

new state-of-the-art locomotives will serve Amtrak's Northeast Corridor at speeds up to 125 mph. Eventually they will also be assigned to Keystone Service between New York, Philadelphia, and Harrisburg PA. The locomotives will be assembled in Sacramento, CA.

The locomotives are designed for improved reliability and easier maintenance leading to faster turn-around times and increased availability for service. A microprocessor system performs self-diagnoses of technical issues, takes self-corrective action and notifies the locomotive engineer. In addition, there are redundant systems to ensure power is maintained to the passenger



contents



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cars to keep heating and cooling systems working, the lights on and the doors operational. Furthermore, the locomotives are energy efficient and use a form of dynamic braking to feed energy back into the power grid ...

Amherst Society Awards \$40,000 in Grants

The Amherst Railway Society awarded more than \$40,000 in grants to 19 charitable organizations that work to preserve rail heritage. The 2014 awards were made at the society's annual Railroad Hobby Show held in January at the Eastern State's Exposition in West Springfield, MA.

The two-day show, one of the largest in the nation, attracts about 25,000 railroad enthusiasts each year.

The Society's \$10,000 Founders' Award went to the Shelburne Falls Trolley Museum in Shelburne Falls, Mass. The museum is raising money to build a fire-resistant metal two-car car barn to house part of its collection. The Robert A. Buck Award, totaling \$2,000 and named in honor of the long-time director of the Railroad Hobby Show, went to the Chester Foundation in Chester, MA for restoration of a 1919 wooden caboose displayed at the Chester Depot. The President's Award, totaling \$3,125, went to Branford Electric Railway Association/Shoreline Trolley Museum in East Haven, Conn. for restoration of Connecticut Company Car No. 865. Since 1991, the non-profit

Amherst Railway Society has given away about \$750,000 in grants. A complete list of grants for 2014 can be viewed at amherstrail.org/news.htm ...

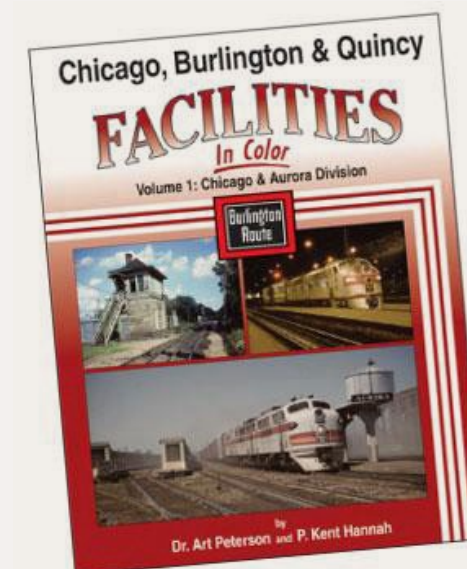
Oxford Enters North American Market

Oxford Diecast, a UK firm that manufactures a wide range of diecast vehicles, has established a facility in Minnesota to serve dealers and consumers in North America. The company's current selection of HO scale vehicles includes Ford,

Lincoln, and Mercury automobiles from the 1940s and 50s. A selection of 1:43 models (close to O scale) is also available. Additional models of American prototypes are expected in the near future. Lyndon Davies, president of Oxford Diecast, said "Coming to the United States means more than setting up an office and having domestic inventory, though that is certainly part of it. Another important step is the creation of product designed specifically for the American market." Dealers looking for more information are encouraged to send an email inquiry to sales@oxforddiecastusa.com ...

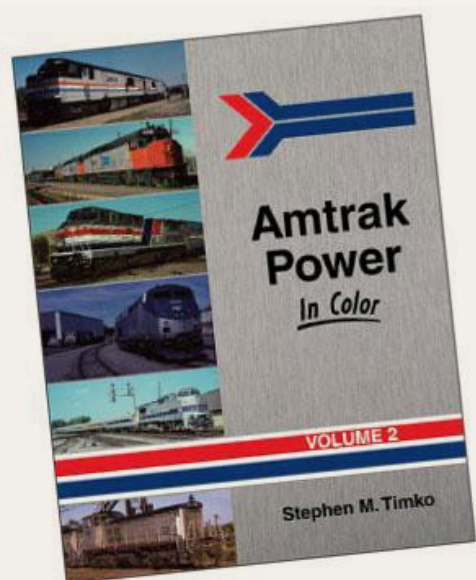
NEW PRODUCTS FOR ALL SCALES

Korber Models, based in Milford, Ohio, has launched a new service that provides assembled versions of selected models from its extensive line of HO, O, and G scale structures. Called Korber Komplete, the new service includes several options such as adding lighting and weathering to the built-up structures. Details are available at korbermodels.com.



Morning Sun Books (morningsun-books.com) has scheduled the release of three new all-color publications this month. They include "Chicago, Burlington & Quincy Facilities In Color, Volume 1: Chicago and Aurora Division" by Dr. Art Peterson and P. Kent Hannah. The authors examine stations, towers, shops and other facilities in detail on the eastern end of the system during both CB&Q and BN years.

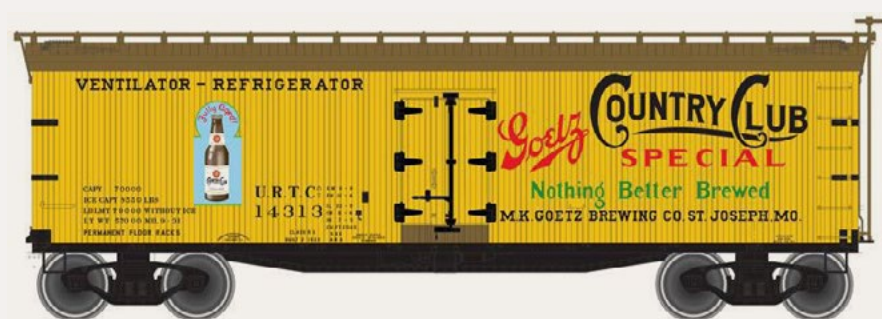
Also due in March from Morning Sun is “*Conrail Atlantic Region In Color, Volume 2: 1979-1981*” by Arthur J. Erdman. The author completes his informative and often amusing perspective of the short-lived Atlantic Region established on the east end of Conrail territory.



Morning Sun’s third release this month is “*Amtrak Power In Color, Volume 2*” by Stephen M. Timko. Diesels numbered 500 and higher are the subject of the second in a three book series. This volume covers models SDP40F, P32-8, GP38H-3, MP15, SW1500, SSB1200, SW1001, GP17, CF7, MP14B/MP21B, GP40, P30CH, SW1000R, P32ACDM, GP38, SW8, GP7, GP9, P40(DC), F59PHI, and S2.

Other titles recently released by Morning Sun include “*Ohio Central In Color, Volume 1: Southern Lines*”, “*Milwaukee Road Power In Color, Volume 1: The Final 25 Years 1961-1986*” and “*Penn Central Power In Color, Volume 4.*” Visit morningsunbooks.com for pricing and ordering information.

O SCALE PRODUCT NEWS



Atlas O (atlaso.com) has announced road names for a new production run of 40’ wood reefers. In

addition to the Goetz Country Club car shown above, decorating schemes will be Brinks & Sons, Genesee Brewing,

Marshall Canning, and Wisconsin Cannery. Availability is expected some time during the second quarter of 2014. Three-rail versions of the car will have an MSRP of \$74.95 with two-rail cars listing at \$84.95.



Boulder Valley Models (bouldervalleymodels.com) has added two new kits to its “Hunkered Down” series of On30 scale

models. They are an 18’ flat car and an 18’ pulpwood car with see-through bulkheads and bracing. The wood kits include cast detail items such as queenposts brake rigging, and truss rods. The flat car lists for \$30.00. The pulpwood car is \$32.00. Trucks and couplers are sold separately. Visit the above website for pricing and information on discounts for purchasing multiple kits.



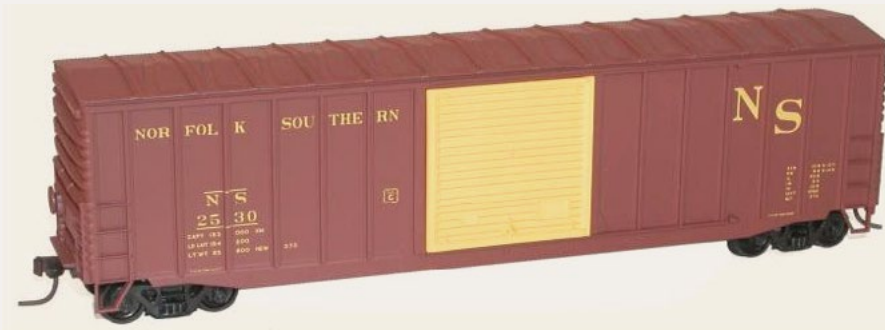
Morgan Hill Models (morganhillmodels.com) is selling a kit for an On30 scale 15’ two-truck ore car. The craftsman-style kit consists of a cast resin under-

frame, wood sides and decking, cast resin stakes, and Grandt Line brake wheel. The kit is priced at \$19.95 each or \$36.95 for



a two-pack. Note that trucks and couplers are not included.

HO SCALE PRODUCT NEWS



decorated for Norfolk Southern. The kit has an MSRP of \$16.

Accurail (accurail.com) has released several new kits for HO scale rolling stock, including a modern 50' exterior post boxcar



A three-pack of Accurail kits for Lehigh New England 50-ton offset side twin-bay hopper cars has a list price of \$49.98.



Accurail is selling two kits for HO scale D&RGW 40' double-sheathed wood boxcars, with two different lettering schemes. One car has the flying Rio Grande lettering while the second car has the Scenic Line logo. A two-pack has an MSRP of \$32.98.

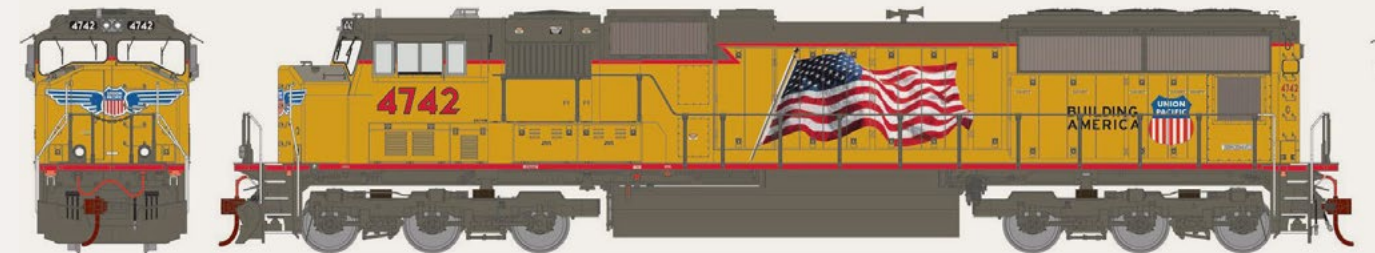
Data-only kits are available for USRA twin-bay rib-side hopper cars in both black and oxide red. The kits have a list price of \$15.98 each.



San Francisco. It has an MSRP of \$16.98 and like all Accurail kits includes appropriate trucks and Accumate couplers.

Completing Accurail's list of new HO scale car kits this month is a 40' AAR steel boxcar built in 1959 and decorated for Frisco – St. Louis &

Athearn, Division of Horizon Hobby (athearn.com) has released additional information on the Genesis series SD70M/SD701/SD751 locomotives it unveiled at the recent show in Amherst, MA.



In addition to the obvious flared radiators, Athearn's version of the Union Pacific SD70M features a North American safety cab, round operating ditch lights, two offset turbocharger doors, dual intake radiator grilles, and an EMD-style low snowplow.



The Norfolk Southern version of the SD70M has the same flared intake radiator panels as the UP

unit, as well as numerous other unique features including a FIRE cab, operating deck-mounted ditch lights, and three access doors to the turbo charger.

BNSF continues to utilize the famous Santa Fe warbonnet scheme on its SD75I that features an isolated cab, a nose door on the engineer's side with window and angled top, and a new long hood with electrical compartment to compensate for the shortened cab. A Canadian National SD70 is also in this production release which is scheduled for late September. Standard DC non-sound models, priced at \$199.99 each, will be DCC-ready using Quick Plug™ technology. Sound-equipped versions have Soundtraxx® Tsunami® DCC decoders and are priced at \$299.98 each.



Also due from Athearn in September is another run of SD40-2 locomotives. The HO scale ready-to-run series models will have an MSRP of \$134.95 each. Road names will include FEC (Champion Heritage repaint of ex-UP units) with 116" nose, corrugated radiator grilles, 48" fans, and HT-C trucks with Timken bearings. A BNSF version has an 88" low short nose with ATSF-style lowered nose lights, and HT-C trucks with Hyatt bearings. Completing the trio is a Conrail model with an 88" nose and Flexicoil-C trucks.

Athearn has scheduled the next release of its Thrall high-side steel gondolas for September. The mix includes two EAMX Sullivan Scrap cars paying tribute to the fight against cancer with both a pink and light blue scheme being offered. Other road names will be HZGX-Herzog Contracting Corp., DLWR-Depew



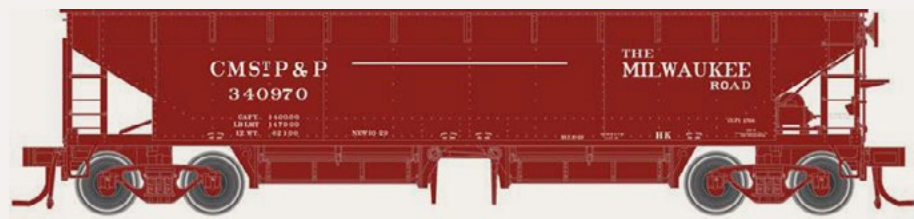
Lancaster & Western, CRBX-Omni Source, and DJJX-David Joseph Co. The HO scale ready-to-run models will be available at a list price of \$24.98 each or \$71.98 for a three-pack.



Atlas Model Railroad Company (atlasrr.com) has scheduled new paint on a series of HO scale 40' wood refrigerator cars for release in the second quarter of 2014. In addition to the CN car shown here, decorating schemes will include Schmidt Brewing, Lehigh Valley, American Refrigerator Transit, SFRD-Santa Fe, Karlsbräu Beer, and Ladoga Canning. The ready-to-run models will have an MSRP of \$33.95 each. An undecorated version will list at \$27.95.



Atlas has introduced a new HO scale model of an NSC 50' 6" box car with a single plug door. The model is based on a prototype built by National Steel Car during the late 1970s. Most of the cars were used for paper service on Canadian lines, with about 200 going to Grand Truck Western for food service. Road names include British Columbia Railway, Canadian National, and GTW. The ready-to-run model has an MSRP of \$36.95 with an undecorated version listing at \$31.95 each.



Atlas has scheduled a new run of 70-ton Hart ballast cars with delivery expected

some time during the second quarter of 2014. Road names will include Canadian National, Canadian Pacific, Rock Island, Southern, Santa Fe, Union Pacific, and CMStP&P/Milwaukee Road. The HO scale ready-to-run model will have an MSRP of \$29.95 or \$89.95 for a three-pack. Individual undecorated models will list at \$23.95 each.

Atlas is reviving its AEM-7 electric locomotive that was last released in 2001. Features of the Master Line series model will include operating pantographs, directional headlights and operating marker lights, cab interior with painted crew members, wire grab irons, and Accumate knuckle couplers. Road names will include Amtrak, Amtrak (Acela scheme), and NJ Transit. Fantasy road names being applied to the new AEM-7 will be Great Northern (Empire Builder scheme), Lackawanna, Milwaukee Road, Pennsylvania, and Reading. Standard DC and DCC models with factory-installed sound will both be offered. Delivery will be late this year. Pricing is TBA.



Bowser (bowser-trains.com) plans to deliver a new group of class H30 three-bay covered hopper cars in September.

Spotting features on the newly-tooled model include the unique outside frame, ten square roof hatches, and hopper shakers. In addition to the PRR shadow keystone version shown here, decorating schemes will include PRR (gray with circle keystone), PRR (gray with plain keystone), PRR (oxide red with

circle keystone), PRR (oxide red with plain keystone and S designator), PRR (yellow), PC (green), PC (green with S designator), Norfolk & Western (gray), and Conrail (gray). The HO scale ready-to-run model will have an MSRP of \$29.95.



Centralia Car Shops has released four versions of a Southern Pacific class C-40-4 Bay Window

Caboose. The group includes SP 1400-1499 series with orange bay and ends as shown above. Other versions have mounted markers, window screens, and orange steps. Special features include interior details, wire grab irons, etched-metal running boards, swing-motion roller bearing trucks, and Kadee® couplers. The HO scale models have an MSRP of \$49.95 each. InterMountain Railway is responsible for marketing Centralia Car Shops products. For additional information visit intermountain-railway.com.



Classic Metal Works (buy-hobbies.com) has several new vehicles available including this 1941/1946 Chevrolet pickup truck decorated for Texaco service. Additional HO scale models avail-

able now include a GMC PD4501 Gold Stripe SceniCruiser bus, a 1941/1946 Chevrolet box delivery truck decorated for Seagram's 7, and several 1953 Ford Couriers decorated as service vehicles for TV repair, plumber, pharmacy, and dry cleaner.

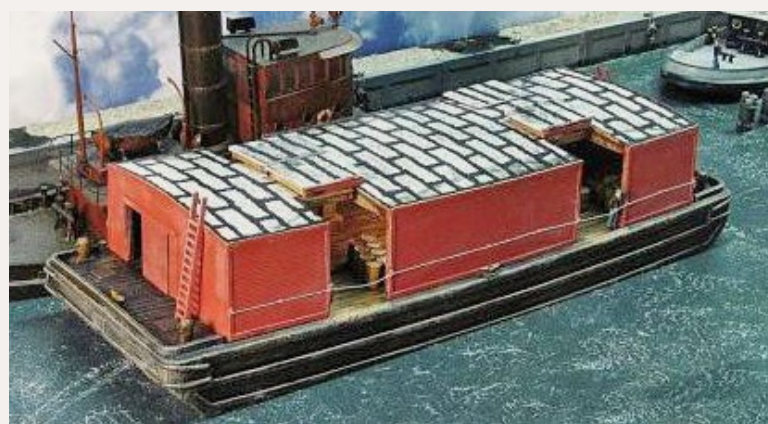
Check your favorite retailer for pricing or order direct from CMW at the above website.



ExactRail (exactrail.com) has released an HO scale model of a Bethlehem

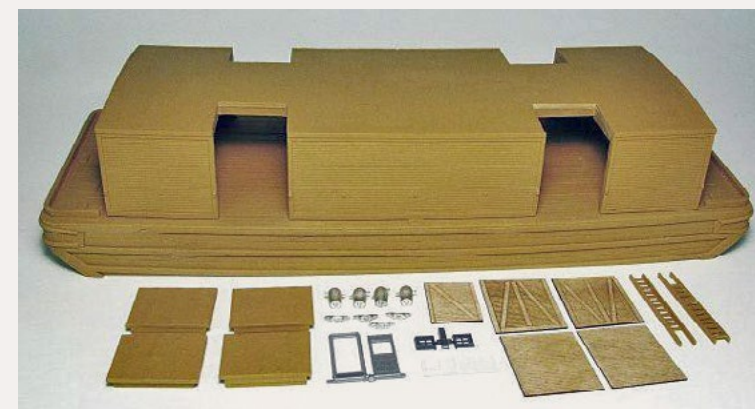
3737/3716 open-top hopper car. Modelers have been anticipating this model since a pre-production sample was shown at the prototype modelers meets in St. Louis last summer and in Monroe, WA in October. Bethlehem built over 10,000 of the prototype cars beginning in 1973 with the initial production release going to Chicago & Eastern Illinois. Subsequent orders went to the Texas & Pacific, Missouri Pacific, and Chicago & North Western. Many are still in service today with some cars rebuilt to 4000 cu ft capacity.

Spotting features replicated by ExactRail include single-door Wine locks, and welded top cord gussets. The ready-to-run Platinum series model features interior details, Kadee® #58 couplers, and ASF 100-ton Ride Control trucks with 36" machined wheels. ExactRail is offering multiple road numbers for CEI, TP, MP, and CNW. The model is priced at \$38.95 each. For a detailed overview of both the prototype and the model go to youtube.com/watch?v=bsgnBLbIJ8Y.



Frenchman River Model Works (frenchmanriver.com) is selling a kit for an HO scale covered wooden barge. The model represents a barge with a captain's

cabin built into the end of the enclosure. This type of harbor barge was in common use until the 1950s.



The kit has a one-piece cast resin hull (hollow on the underside) and a resin cover that includes cast-in interior wall and ceiling details. Additional resin cast components include hatch covers and

ladders. Cleats and bollards are cast in lead-free pewter. Five laser-cut wood doors and window glazing material, plus Grandt Line door and window castings, make up the balance of the kit. Visit the above website for pricing and ordering information.



Imperial Hobby Productions (ihphobby.tripod.com) is selling an HO scale model of a Kawasaki single-ended light rail vehicle decorated for SEPTA – Southeastern Pennsylvania Transportation Authority. This is a non-powered display model with SEPTA broad-gauge wheels. The model will not fit on standard HO track. The fully assembled models faithfully represent

the 50' passenger cars delivered to SEPTA in the early 1980s. They are still in service today. The models have an MSRP of \$90.00 each. The model can be converted to HO scale two-rail DC operation using a 3D-printed frame and a Bowser traction mechanism. For more details visit [facebook.com/photo.php?v=642908112436897](https://www.facebook.com/photo.php?v=642908112436897).



InterMountain Railway (intermountain-railway.com) has made the first release of HO scale FP7 and

matching F7B units in more than three years. Road names include Wabash, Denver & Rio Grande Western, Kansas City Southern (freight scheme), Baltimore & Ohio, Canadian National (stripe scheme), and New York Central. Additional road names scheduled for release in June are Southern Pacific (black widow), SP (gray & scarlet), Santa Fe (cats whiskers in blue and yellow), B&LE, RF&P, Penn Central, Milwaukee Road, and NJ Transit. A units for standard DC operation have an MSRP of \$159.95 or \$239.95 with DCC and SoundTraxx® Tsunami® sound. Comparable B units will list at \$139.95 and \$219.95.



InterMountain is taking advance reservations for a new run of HO scale cylindrical covered hopper cars

with eight round hatches. The ready-to-run models feature etched metal roof walks, Kadee® couplers and metal wheelsets. New road names will be Cominco Fertilizers, Anahuac del Golfo, CNIS-North American, CPLX (CP Rail paint outs), and Warrenton Railroad. Road

names being rerun are CSX, Canadian National (wet noodle), and Canadian National (rainbow scheme). The ready-to-run models will have an MSRP of \$39.95. An undecorated kit will be offered at \$11.95. Availability is expected in September or October.

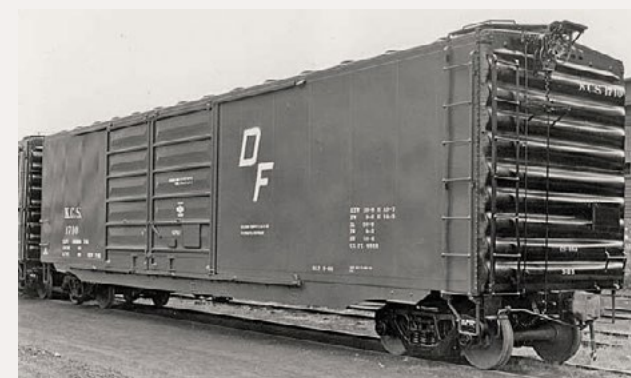
Also due from InterMountain this fall is another run of 60' PS-1 boxcars. New road names will be Grand Trunk Western (boxcar red), GTW (blue), and Rock Island. Re-releases with new road numbers will be Detroit, Toledo & Ironton; Santa Fe; Canadian Pacific (script); Chicago & North Western; Union Pacific; and Burlington. The HO scale ready-to-run models will have an MSRP of \$34.95. An undecorated kit without couplers will be available at \$19.95.



Kadee (kadee.com) May releases will include a 40' PS-1 boxcar decorated for CIL-Monon. Like the 1952-built prototype, the HO scale ready-to-run model is equipped with Youngstown doors and Bettendorf-type trucks. The MSRP will be \$36.95.



A second 40' PS-1 boxcar coming in May will be lettered for Soo Line. It has 8' six-panel Pullman-Standard doors. The MSRP will be \$37.95.



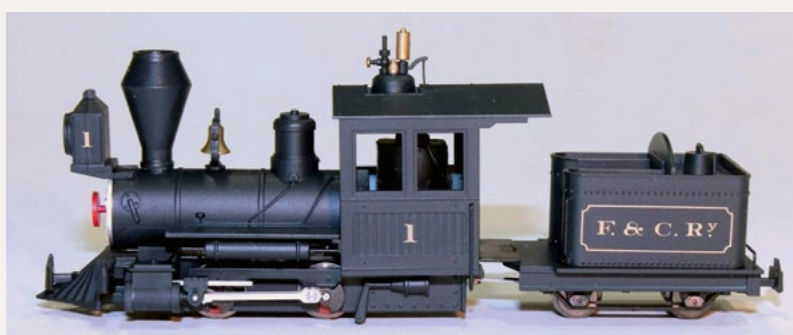
The final model in Kadee's May release is a Kansas City Southern 50' PS-1 boxcar with a pair of Pullman-Standard doors filling the 15'

opening in the 12-panel welded sides. Note the 4/5 Pullman-Standard “dartnaught” ends and low tack board on the prototype photo. The HO scale ready-to-run model will have an MSRP of \$34.95.



Mike Rose Hobbies (mrhobby.com) is selling concrete phone booths based on an early Lehigh Valley prototype that is still standing on an abandoned branch line near Bernice, Penn. The model is similar to phone booths used by other railroads including DL&W, Erie, CNJ, and O&W. The structure is a 3D-printed model and is offered both with and without a smoke jack. It is available in HO, S, and O scales. For pricing and additional information on both the models and the prototype visit mrhobby.com/store.php/MikeRoseHobbies/pg12191/concrete_phone_booths.

MikeRoseHobbies/pg12191/concrete_phone_booths.



Minitrains EU (minitrains.eu/us/minitrainsus2.html) has introduced an HOn30 scale 0-4-0 steam locomotive and four passenger cars, all based

on the fictional Fiddletown & Copperopolis cartoon series. The locomotive is an 0-4-0 with a four-wheel tender.

The passenger car set includes a coach, combine, RPO-baggage, and a baggage car. Minitrains EU does not currently



have an outlet in the US but will sell directly to consumers in North America. For pricing and ordering instructions visit the above

website or send an inquiry to mail@minitrains.eu.

Note that in Europe, HOn30 gauge equipment is identified as HOe. Trains run on standard 9mm gauge N scale track.



The newest item from **Nick & Nora Designs** is an HO scale kit for Annie's Lunch Counter. The HO scale kit features laser-cut walls and front window. The foundation is cast. The doors and windows are from Tichy. The completed structure has a foot-

print of 2.625" x 5.375". For pricing and ordering information visit nickandnoradesigns.com.



Rapido Trains (rapidotrains.com) and Canada's national passenger railway (VIA Rail Canada) have teamed up to produce an accurate

HO scale model of a VIA F40PH-2D locomotive. Among the features of the ready-to-run model are etched-metal radiator grilles, accurate Canadian roof fans with the correct number of blades, unique panel and door arrangements on the body, extensive interior detail including a desktop control

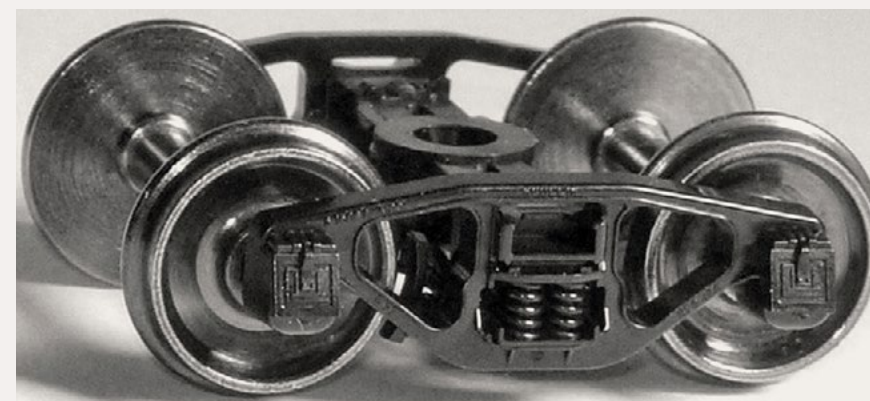
stand (hence the "D" in the locomotive designation), and full underframe detail with all of the piping and conduit found on the prototype.

The model shown here is a preproduction sample and lacks several details that will be included on the final version. Ten road numbers will be available for each of two decorating schemes: VIA's original (1986-2000) livery and the revised "Canada" scheme (1998-2012). The HO scale F40PH-2D will be available for standard DC operation at \$249.95, as well as DCC operation with a factory installed ESU Loksound sound decoder at \$349.95. Delivery is expected late this year.

The HO scale F40PH-2D is being produced exclusively for VIA Rail Canada, and all orders must be placed with VIA. VIA will establish an on line ordering system within a few weeks. Until then, orders may be placed by sending an inquiry to info@souvenirs.viarail.ca. The order deadline is Monday 28 April 2014.



State Tool & Die (industrialmodelshop.com/?page_id=124) is an old-line company that specializes in rolling stock and details for modelers of steel mills. The company has revised its recently introduced HO scale composite 200-ton four-truck bottle car that was loosely based on a Treadwell prototype. The taper of the body on the revised model, shown here, has been modified. The new kit and other ST&D products are available through specialty dealers including Peach Creek Shops (peachcreekshops.com).



The newest HO scale truck from **Tahoe Model Works** is a 40-ton ARA truck with a spring plank and Barber Lateral Motion device*. The prototype truck was

made by the Scullin Steel Co. for the Illinois Central Railroad in 1927 and is now at the Illinois Railway Museum. As with all Tahoe trucks, this new model is a one-piece black acetate plastic molding with separate brake shoe detail. It comes with InterMountain non-magnetic, insulated metal RP-25 contour wheelsets. A choice of standard width (item TMW-114) or .088" wide (TMW-214) semi-scale wheelsets is available. The trucks are priced at \$8.35 a pair. Tahoe does not have a website. When ordering direct add \$3.00 shipping and handling. Nevada residents please add 7.475% tax. Send orders to Tahoe Model Works, 5801 Sheep Drive #7, Carson City, NV 89701-1420. *For information about the Barber Lateral Motion device go to mrhpub.com/2013-05-may/land/#/78.



Tangent Scale Models (tangentscalemodels.com) has released a new run of its highly-regarded Bethlehem Steel 3600 cu ft hopper cars. The HO scale models replicate the distinctive 100-ton quad hoppers built in the 1970s by Bethlehem

Steel for the Union Pacific. Twelve authentically decorated road names are now available. They include four UP schemes, two Bessemer & Lake Erie schemes, two each of L&N and Illinois Central Gulf schemes, plus CSX and Clinchfield. An undecorated version is also available. The ready-to-run models have an MSRP of \$34.95 each. Tangent allows mixing for multiple car discounts on quantity purchases in increments of 6, 12, 36 and 48. Visit the above website for ordering information and complete details on each scheme.



Tangent has scheduled another production run of its General American triple-dome tank car. The first run, released last October, quickly sold out. An availability

date has not been announced, but Tangent generally does not announce a product until it is in stock and ready to ship.



The TrainMaster (trainmastermodels.com) has introduced an HO scale kit that builds into a Caboose Services facility with five structures. They include a flag & lantern stand, supply shed, coal bunker, fuel tank, and ice house. The kit is composed of scale stripwood and laser-cut walls and roofs. More than 50 details such as oil tank with spigot, barrels, storage shelf with

supplies, ice blocks, oil can, hand lantern, nut/bolt castings, coal scoop, coal bucket, pallet, hinges, ladder, junk shelf, trash cans, and precision doors and windows are included in the kit. Photos and templates to aid construction are included and a how-to video is available on The Train Master website. The kit is priced at \$89.00.



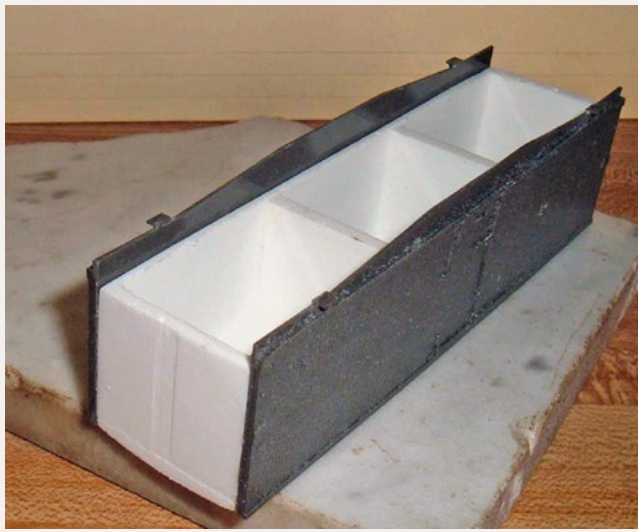
Model Works has introduced an HO scale cast resin kit for an American Ballast Co. boxcar circa 1895. Development of the kit is based on the only known photo of the prototype (above). Note

that the truss rods are located at the extreme outside edge of the frame suggesting that there are doors in the center of the floor to drop ballast. Also note the lift rings along the top of the sides indicating that the roof was removable to facilitate loading. The interesting door arrangements suggest there were several different bins inside the car for different grades of ballast.



The kit consists of a one-piece resin body casting including all door details with separate resin castings for the floor, side and end beams, roof walk, and bolsters. Grab irons, queen posts, brake platform, turn-

buckles, corner steps, lift rings, Kadee #501 archbar trucks and #5 couplers are all



included, along with decals custom designed for this kit by Art Griffin. The kit is priced at \$40.00 each. This is a very limited production kit. To reserve kits contact John Canfield at jcan2x@hotmail.com.

Virginia Foundry and Model Works has developed an inexpensive fixture that greatly simplifies assembling some Westerfield kits that have separate flat castings for the sides, ends, floor and roof. The fixture is specifically designed for Westerfield's PRR 1301-1309 and 1311-1319 series boxcars. For availability and pricing contact John Canfield at jcan2x@hotmail.com.



Walthers (walthers.com) is selling a kit for a single track pony truss bridge. It is based on an ATSF prototype. The HO scale kit is composed of laser-cut architectural-grade board with raised gusset and rivet detail.

The finished model measures 15" x 3" x 2.125". The kit has an MSRP of \$59.98. Compatible abutments, abutment wings, and code 83 bridge track are available separately.



Walthers has an HO scale kit that assembles into four separate modern loading racks suitable for top-loaded rolling stock. The prototype provides access for loading and unloading covered hoppers, tank cars, and semi-trailer

trucks. Similar equipment is used in a variety of industries including refineries, chemical plants, cement plants, and grain handling facilities. Composed of molded plastic parts, the kit has an MSRP of \$29.98.



Walthers is expecting arrival this month of another run of its Proto® series ACF type-21 8,000 gallon tank car. In addition to the COSX-Mid Continent Diamond

brand car shown here, the HO scale tanker will also be available decorated for EDCX-Everett Distilling, LCGX-L. C. Gillespie & Sons, and RPX-Roxana (Shell) Petroleum. The ready-to-run model has an MSRP of \$37.98.



Another run of the Walthers HO scale Difco pneumatic dump car has been scheduled for

release next month. Road names on the Proto series ready-to-run model will be BNSF, CP, CSX, UP, and D&RGW as shown here. The model will have an MSRP of \$37.98.



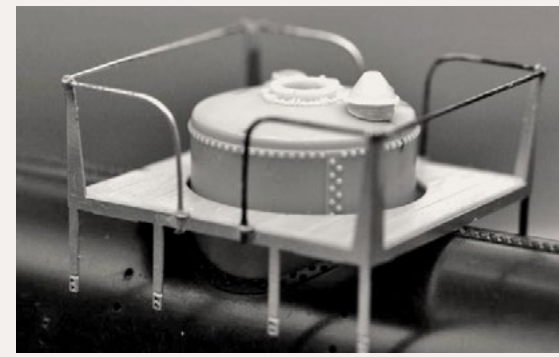
Westerfield Models (westerfield.com) has re-released its 4900 series of HO scale resin kits for PFE reefers.

Kits now available include class R-30-6 PFE reefer (as built by ACF, operated 1912-1920's, kit #4901); class R-30-4 PFE reefer (as built by Pullman, operated 1909-1911, kit #4902); class R-30-5 PFE reefer (as built by Pullman, operated 1909-1911, kit #4903); class R-30-4 PFE reefer (above with safety appliances, operated 1911-1920's, kit #4952); and class R-30-5 PFE reefer (with safety appliances, operated 1911-1920's, kit #4953). All three classes were rebuilt again in the mid 1920s. Westerfield kits include appropriate decals. Trucks and couplers are not included. The kits listed above are priced at \$34.00 each.



Yarmouth Model Works (yarmouth-modelworks.com) is developing an HO scale cast resin kit for a Semet-Solvay tank car as built by

AC&F in the summer of 1938. Among the more challenging details on the model are the delicate platform supports which will be made of etched metal, according to Yarmouth owner Pierre Oliver. Bill Welch, who is working on some of the patterns for the kit, provided a photo of the dome and wood-decked loading platform. Additional details such as ladders are still under development.

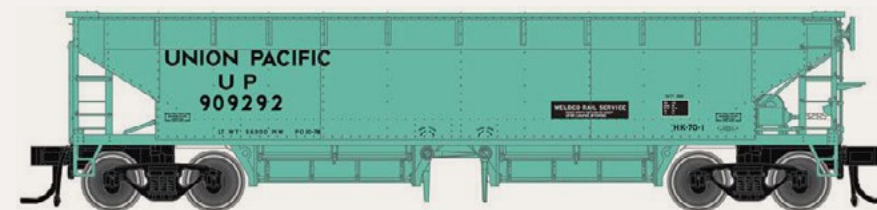


While availability is probably a year away, anyone interested in this kit should contact Pierre (pierre.oliver@start.ca) as soon as possible because he plans to produce only enough kits to fill firm orders.

N SCALE PRODUCT NEWS



Athearn Division of Horizon Hobby (athearn.com) has scheduled the next release of its Thrall high-side steel gondolas for September. The mix includes two EAMX Sullivan Scrap cars paying tribute to the fight against cancer with both a pink and light blue scheme being offered. Other road names will be HZGX-Herzog Contracting Corp., DLWR-Depew Lancaster & Western, CRBX-Omni Source, and DJJX-David Joseph Co. The N scale ready-to-run models will be available at a list price of \$18.98 each or \$54.98 for a three-pack.



Atlas Model Railroad Company (atlasrr.com) has scheduled a new run of a 70' Hart ballast cars for delivery during the second quarter of this year. Road names will include Canadian National, Canadian Pacific, Milwaukee

Road, Rock Island, Southern, Santa Fe, and Union Pacific. The N scale ready-to-run model will have an MSRP of \$24.95 or \$74.95 for a three-pack. Individual undecorated models will list at \$19.95 each.

Also due in the second quarter is a new run of P-S 2750 cu. ft. 15-panel triple-bay hopper cars. Road names will be Detroit, Toledo & Ironton; Boston & Maine; Clinchfield; and Great Northern. The MSRP will be \$21.95. An undecorated version will list at \$17.95.



InterMountain Railway (intermountain-railway.com) reports that tooling is under development for a new N scale SD40-2 locomotive. The model will be available for DC, DCC, and DCC with sound. This will be InterMountain's first N scale locomotive with diesel sound. Road names will be Iowa, Chicago & Eastern; Burlington Northern (green and black); MEC-Pan Am Railways; CSX; Norfolk Southern; GATX (powder blue scheme); Union Pacific; and ATSF.

DC models will have an MSRP of \$139.95. Non-sound DCC models will list at \$189.95 and will come with ESU LokPilot® Micro with Next18 Plug. DCC sound units will have an MSRP of \$249.95. They will be equipped with ESU LokSound® Select Micro with Next18 plug. Availability is expected this fall.

InterMountain is taking advance reservations for a new run of cylindrical covered hopper cars with eight round hatches.



The ready-to-run N scale models feature etched metal roofwalks and metal wheelsets. New

road names will be Cominco Fertilizers, Anahuac del Golfo, CNIS-North American, CPLX (CP Rail paint outs), and Warrenton Railroad. Road names being rerun are CSX, Canadian National (wet noodle), and Canadian National (rainbow scheme). The ready-to-run models will have an MSRP of \$24.95. An undecorated kit will also be available for \$11.50.



Kato USA (katousa.com) has N scale ready-to-run EMD F7A and F7B units decorated in Santa Fe's yellow bonnet scheme. The A unit, which has an MSRP of \$90.00, comes with optional number boards for renumbering the locomotive from 304 to 315. The B unit lists at \$85.00.



New N scale ready-to-run models announced recently by

Micro-Trains (micro-trains.com) include a Soo Line 50' rib side boxcar with plug doors at \$25.30.



Micro-Trains 39' single-dome 10,000 gallon tank car decorated for Imperial Oil Limited is available now at \$26.95.



This NIRX-Magcobar 50' plug-door boxcar from Micro-Trains is priced at \$27.80.



Also new is a 50' Union Pacific 15-panel covered gondola. It is priced at \$23.60.

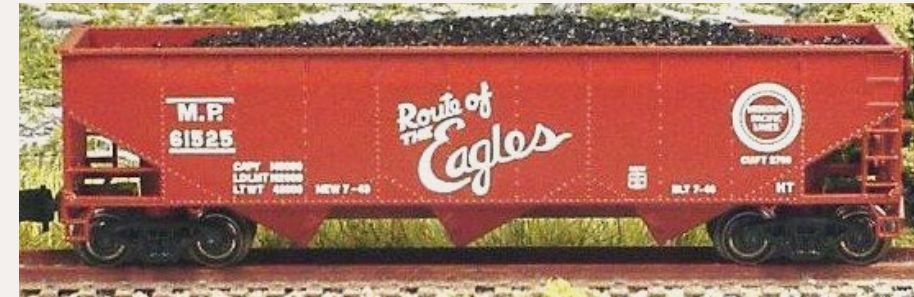
All prices listed for Micro-Trains N scale ready-to-run models are MSRP. Visit the above website for additional new items.

NEW PRODUCTS FOR Z SCALE

Full Throttle (wdwfullthrottle.com) has released three new Z scale cars. They include a 51' ACF cylindrical hopper decorated for

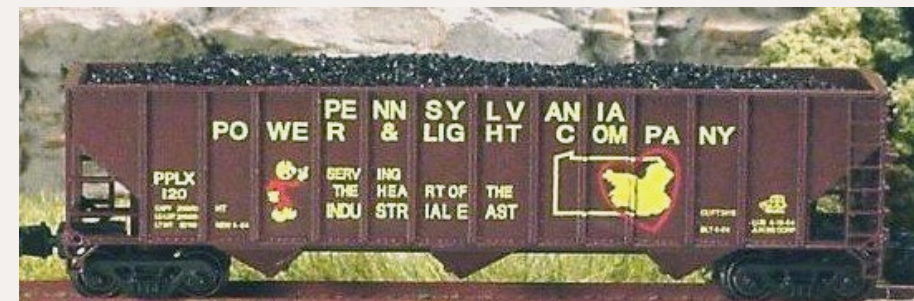


SSW-Cotton Belt, available in a two-pack at \$54.00.



Also new, a Missouri Pacific 40' triple-bay 70-ton hopper car with offset sides in a two-pack at

\$44.00, and a 45' triple-bay 100-ton hopper decorated for Pennsylvania Power & Light in a two-pack at \$46.00. Full Throttle's ready-to-run models are produced by Bowser and come with blackened metal wheels.



NEW DECALS, SIGNS AND FINISHING PRODUCTS

Custom Traxx (decals@customtraxx.com), the HO scale traction specialist, has discontinued decal set CN-3300 which contained some Boston PCC material. The company is preparing an upgraded version of decal set CN-3172 that will include all of the Boston PCC material previously contained in both the earlier

CN-3172 and the now discontinued CN-3300 set. A limited number of the new CN-3172 decal set will be available soon at \$19.95. Hobbyists interested should enter a reservation through the above website without delay.



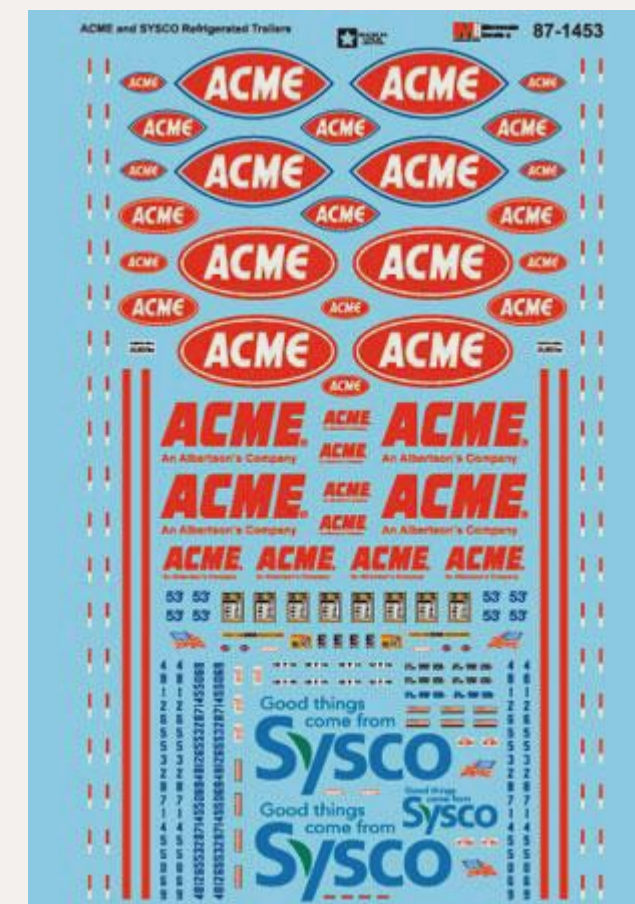
Works (smokymountainmodelworks.com) is booking orders for a decal set to letter an S scale Tennessee Central 6000-6009 series 70-ton PS-2

covered hopper car. The model represents a prototype built in 1957 by Greenville Steel Car Co. Rail Graphics is producing the silk-screened lettering sets in both black and white. The decal set is priced at \$9.00 and includes sufficient material to letter one car plus some spares for smaller lettering. Each set will include a line drawing and a prototype photo. Modelers interested in this item should order now as no additional sets will be produced for inventory. For pricing and additional information visit the above website and click on S scale decals.

Several new HO scale lettering sets have been released by **Mask Island Decals (maskislanddecals.com)**. New are Rock Island Geeps (maroon and yellow block lettering #237), La Salle & Bureau County acid tank cars (#238), Rock Island 27000 series 40' boxcars (#239), NAHX Reynolds Metals Pullman-built triple-bay hopper cars (#245), and Milwaukee Road wood caboose with high cupola (#246).

Also new from Mask Island are five lettering sets for Union Pacific: UP PS-1 RBL boxcar Automated Railway (#240), UP PS-1 Combo door Automated Railway (#241), UP PS-1 50' DF

Automated Railway (#242), UP 50' Omaha RBL Automated Railway (#243), and UP 53' Omaha bulkhead flat car (#244).



Three new HO and N scale railroad decal sets now available from Microscale Industries (www.microscale.com) include ACME and Sysco refrigerated trailers, modern hood diesels for Alaska Railroad (ARR), and Frisco (SLSF) gondolas and open hopper cars. Visit the above website for pricing and ordering information.

New lettering sets recently introduced by **San Juan Decals (sanjuandecals.com)** include 15mm, On3, Sn3, and HOn3 scale decals for Nevada County Narrow Gauge freight cars. Also new is a 1:20.3 (15mm, Fn3 scale) decal set for D&RGW maintenance-of-way boxcars and outfit cars. For pricing and information on additional narrow gauge decals visit the above website.

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Selected Events



March 2014

CANADA, ONTARIO, CAMBRIDGE, March 29-30, 31st Annual Double-Headers Model Railroad Self-Guided Layout Tour in Kitchener, Waterloo, Cambridge, and Guelph. Includes Feemo set-up at Hespeler Arena. For details

send inquiry to dhtour@gmail.com.

CANADA, ONTARIO, TORONTO, March 15, Toronto Railway Prototype Modellers Meet, at Humber College, North Campus, Building B, rooms B201& B202. \$10.00 admission. Info at torontoprototypemodellers.wordpress.com or contact Brian Gauer at bdgauer@rogers.com.

CANADA, SASKATCHEWAN, MOOSE JAW, March 22-23, 19th Annual Moose Jaw Model Train Show, sponsored by Thunder Creek Model Railroad Club, at Western Development Museum. Info at tcmrc.org.

CALIFORNIA, BAKERSFIELD, March 8-9, Annual Bakersfield Model Train Show & Sale, hosted by Golden Empire Historical and Modeling Society of Bakersfield, at the Kern County Fairgrounds, 1142 South 'P' Street. Info at gehams.net.

CALIFORNIA, SAN BERNARDINO, March 29, Western Prototype Modelers Meet with clinics, model displays (including WIP), door prizes, and RPM swap meet (new this year), at historical Santa Fe Depot (on BNSF mainline), 1170 W. Third Street. Info at railroadprototypemodelers.org/sbdmeet.htm. Exhibitor information available from Joe Delia, PO Box 2701, Carlsbad, CA 92018, or phone (760) 721-3393.

GEORGIA, PORT WENTWORTH, March 28-29, Savannah RPM Meet, at Port Wentworth Recreation Center, 101 Turnberry Street, with clinics, model displays, camaraderie, and participation by the ACL-SAL-SCL Historical Society, Central Of Georgia Historical Society, and the Southern Railway Historical Association. HQ hotel is Holiday Inn Express, 7210 Highway 21N. Additional information available from meet coordinator Bob Harpe at rharpe@comcast.net or phone (912) 713-3618.

ILLINOIS, LOMBARD, March 14-16, Chicago O Scale Meet, at Westin Lombard Yorktown Center. Info at marchmeet.net.

MASSACHUSETTS, ROSLINDALE, March 1-2, Spring Open House at Bay State Model Railroad Museum, 760 South Street. Info at bsmrm.org.

MICHIGAN, TAYLOR, March 9, Railroad Memorabilia & Model Train Show sponsored by Bluewater Chapter of NRHS and the Society of N Scalers, at Gibraltar Trade Center, 15525 Racho Road. Info at bluewaternrhs.com.

MISSOURI, SPRINGFIELD, March 15, 36th Annual Train/Swap Meet with operating layouts, kids activities, track laying contest, switching challenge, and appraisals/diagnostics for pre-1970 trains. At Remington's, 1655 W. Republic Road. Info at omraspringfield.org.

OHIO, GREENFIELD, March 20-22, 21st Annual Midwest Narrow Gauge Railroad Show, cosponsored by the Cleveland Narrow Gauge Society and the Mini Bunch. With clinics, vendor tables, and tour of Baird Brothers Sawmill. At Greenfield Space Center and Smokehouse Restaurant, Route 165. Info at maine-2footquarterly.com/midwest.htm or midwestnarrowgauge-show@yahoogroups.com.

OHIO, WEST CHESTER, March 8, 22ND Annual Swap Meet hosted by NMRA Cincinnati Division 7 of the Mid Central Region, at Lakota West Freshman Campus, 5050 Tylersville Road. Info at cincy-div7.org.

OKLAHOMA, TULSA, March 21-23, 5th Annual Layout Design & Operations Weekend, sponsored by NMRA Indian Nations Division in conjunction with the Layout Design and Operations SIGs. At Shriner's Temple, 28th and Sheridan. Info at ldopsig-meet.tulsanmra.org.

OREGON, ELSIE, March 1, 10th Annual Pacific Model Loggers' Congress, hosted by Lon Wall and Jeff Johnston. At Camp 18 Restaurant & Logging Museum, 42362 Highway 26. Info at pacificmodelloggerscongress.com.

OREGON, PORTLAND, March 15, 29th Annual Model Railroad Swap Meet, sponsored by Willamette Model Railroad Club, Kliever Memorial Armory, 10000 NE 33rd Drive. Info from Keith Kieres at wmrswapmeet@yahoo.com.

PENNSYLVANIA, MALVERN, March 28-30, 6th Railroad Prototype Modelers Valley Forge Meet, at Desmond Great Valley Hotel. Info at phillynmra.org/rpmmeet.html.

VIRGINIA, MANASSAS, March 8-9, Boy Scout Troop 964 Train Show, at Saunders Middle School, 13557 Spriggs Road. Info at troop964.org.

April 2014

CANADA, ONTARIO, OTTAWA, April 26-27, 2014, Ottawa Train Expo sponsored by Bytown Railway Society. At Ernst & Young Centre, 4899 Uplands Drive. Info at ottawatrainexpo.com.

ARKANSAS, PINE BLUFF, April 5, 19th Annual Railroadiana Show, at Arkansas Railroad Museum, 1700 Port Road. Info at arkansasrailroadmuseum.org.

CALIFORNIA, SAN LUIS OBISPO, April 30-May 4, 2014, NMRA/PCR Pacific Coast Region Convention, Sands Inn & Suites, 1930 Monterey Street. Info at pcrnmra.org/conv2014.

FLORIDA, LARGO, April 5-6, Train Show and Open House sponsored by Suncoast Model Railroad Club, MINNREG Hall, 6340 126th Ave. N. Info at suncoastmrrc.com.

INDIANA, NOBLESVILLE, April 26, 7th Annual Hoosier On30 Meet, at Noblesville Township Community Center, 372 S. Eighth St.

MASSACHUSETTS, HYANNIS, April 26, The Cape Cod Train Show, with dealer tables, operating layouts and models in all scales, at Barnstable High School Field House, 744 West Main Street. Info at ccmrrcam.com.

NEBRASKA, NORTH PLATTE, April 12-13, 20th Annual Railroad Show, sponsored by NMRA Nebraska West – Central Division, at D&N Event Center, 501 East Walker Road.

OHIO, MARION, April 24-26, Central Ohio RPM Meet, at the Marion Union Station, 532 West Center St., featuring the usual RPM activities plus plenty of train watching as both CSX and NS mainlines adjacent to the restored depot. Info at [facebook.com/groups/438383252883060](https://www.facebook.com/groups/438383252883060) or contact Denis Blake at dblake7@columbus.rr.com.

PENNSYLVANIA, MONACA, April 13, 2014, Beaver County Spring Model Train Show, at Center Stage, 1495 Old Brodhead Road. Info at bcmrr.railfan.net or contact Walt Steiner at 724-843-3783.

Future (By location)

AUSTRALIA, NSW, ALBURY, May 24-25, 2014, Annual Train Show sponsored by the Murray Railway Modellers Inc., at Mirambeena Community Centre, 19 Martha Mews, Lavington. Info at murrayrailwaymodellers.com.

NEW ZEALAND, DUNEDIN, May 10-11, 2014, Dunedin Model Train Show at Forbury Park, 146 Victoria Road. Info at dunedin-modeltrainshow@vodafone.co.nz.

ARIZONA, TUCSON, May 30-31, Gadsden Pacific Toy Train Operating Museum, as Tucson EXPO Center, 3750 E Irvington Road. Info at gpdtoytrainmuseum.com.

CONNECTICUT, COLLINSVILLE, May 30-31, 2014, New England/Northeast Prototype Modelers Meet. Info at neprototypemeet.com.

GEORGIA, KENNESAW, September 19-20, 2014, Atlanta Railroads Prototype Modelers Meet, 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 St. Info at srha.net or contact Frank Greene at frgreene290@comcast.net.

ILLINOIS, COLLINSVILLE (Metro St. Louis, Missouri), August 8-9, 2014, St. Louis Railroad Prototype Modeler's Meet, with clinics, displays, manufacturer's exhibits, layout visits and operating sessions. At Gateway Convention Center. Info at icg.home.mindspring.com/rpm/stlrpm.htm.

INDIANA, INDIANAPOLIS, July 3-10, 2016, NMRA National Convention and National Train Show. Info at nmra2016.org. ■

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Copycats

Reverse Running: Stepping outside the box with a contrary view

by Joe Fugate

I recently read a modeler's blog where he was lamenting that there were just too many copycats in the hobby and few original thinkers left. Gone are the days of the hobby original thinkers like Frank Ellison and John Allen.



The implication of this copycat line of thinking is that being "original" in your modeling is a higher ideal than being a "copycat".

Well, hold on a second.

Isn't the hobby of model railroading about copying a full-sized original in miniature? Even the proto-freelancers generally take a full-sized original and just alter it slightly with a different paint scheme or a few minor detail differences.

What if a modeler really took this lament to heart and tried to be totally original? What would we end up with? Fantasy model railroading, that's what.

Trains on Mars, or Trains on Middle Earth – now that's certainly less of a copycat! But I don't see that being any higher of a modeling ideal than prototype or proto-freelance modeling.

So what about the other extreme – modelers like Tom Hokel? Tom, if you may recall, is among a handful of modelers who model other modeler's layouts, in this case a very convincing

interpretation of John Allen's now defunct Gorre & Daphetid. See the July 2012 MRH for more on Tom's efforts.

Is Tom any less of a modeler because he copies someone else's layout look and feel? Doesn't it still take good track laying skill, good scenery modeling skill, and good skill with locos and rolling stock? Or maybe even *more* skill to pull it off well?

And isn't prototype modeling popular these days? Aren't the best prototype modelers better *copycats*?

By definition, model railroading is making a miniature copy of (aka, copycatting) a full-sized train, is it not?

After all, how many ways can you model steel wheels running on steel rail? Who says "being original" is some kind of holy grail? Or why is being "a copycat" so terrible?

I mean come on – it's a hobby for crying out loud, it's not a competition for the next Nobel Prize!

So where's the problem? Frankly, I don't see it.

Oh, I agree the hobby could use more good role models, and that's one reason MRH has been doing the Allagash Bash and promoting Mike Confalone's Allagash Railway so much lately.

Mike's approach to the hobby is so much more than just modeling 1980 Maine in April. Mike's methods include a lot of great insight we believe all model railroaders can benefit from, if you will truly look beyond his locale and season.

But here again, we're recommending Mike's hobby philosophy and techniques are worth imitating – worth *copying*, if you will.

As far as I'm concerned, as long as you're having fun, you're doing the hobby right.

Copying or not copying has nothing to do with it.



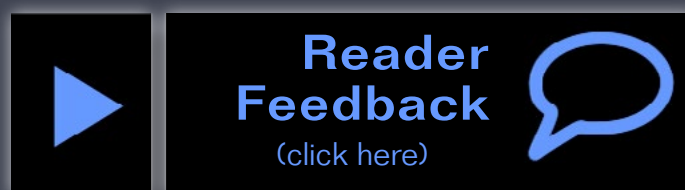
Deraillments

humor (allegedly)



Ray and Renee Grosser submitted this for our non-railroad spouses. It should help them understand the ultimate plans for our model railroad. (But be forewarned, you may end up sleeping in the doghouse!)

If you're the first to [submit a bit of good humor](#) and we use it, it's worth \$25!



For the love of model trains

April issue, coming Mar 24th

- The Bear Creek & South Jackson 10th anniversary
- Batch building freight cars, part 2
- Building a 19th century sandhouse
- Gatorfoam for control panels
- Steam locomotive headlights
- Battery Powered DCC system review ...and lots more!



More Derailments humor ...



The Rio not-so Grande! We found this posted on [Christopher King's](#) Facebook page. Check out his album of Rio Grande photos ...