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Model Railroad Hobbyist March 2019 | #109
(Updated 03/03/19)

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ISSN 2152-7423

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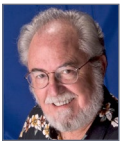
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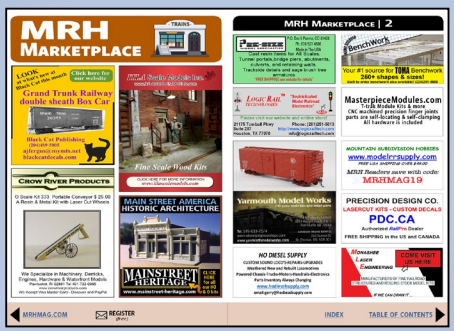

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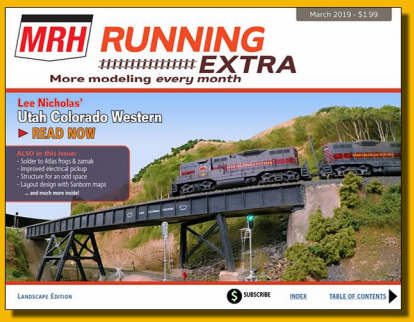

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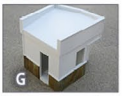

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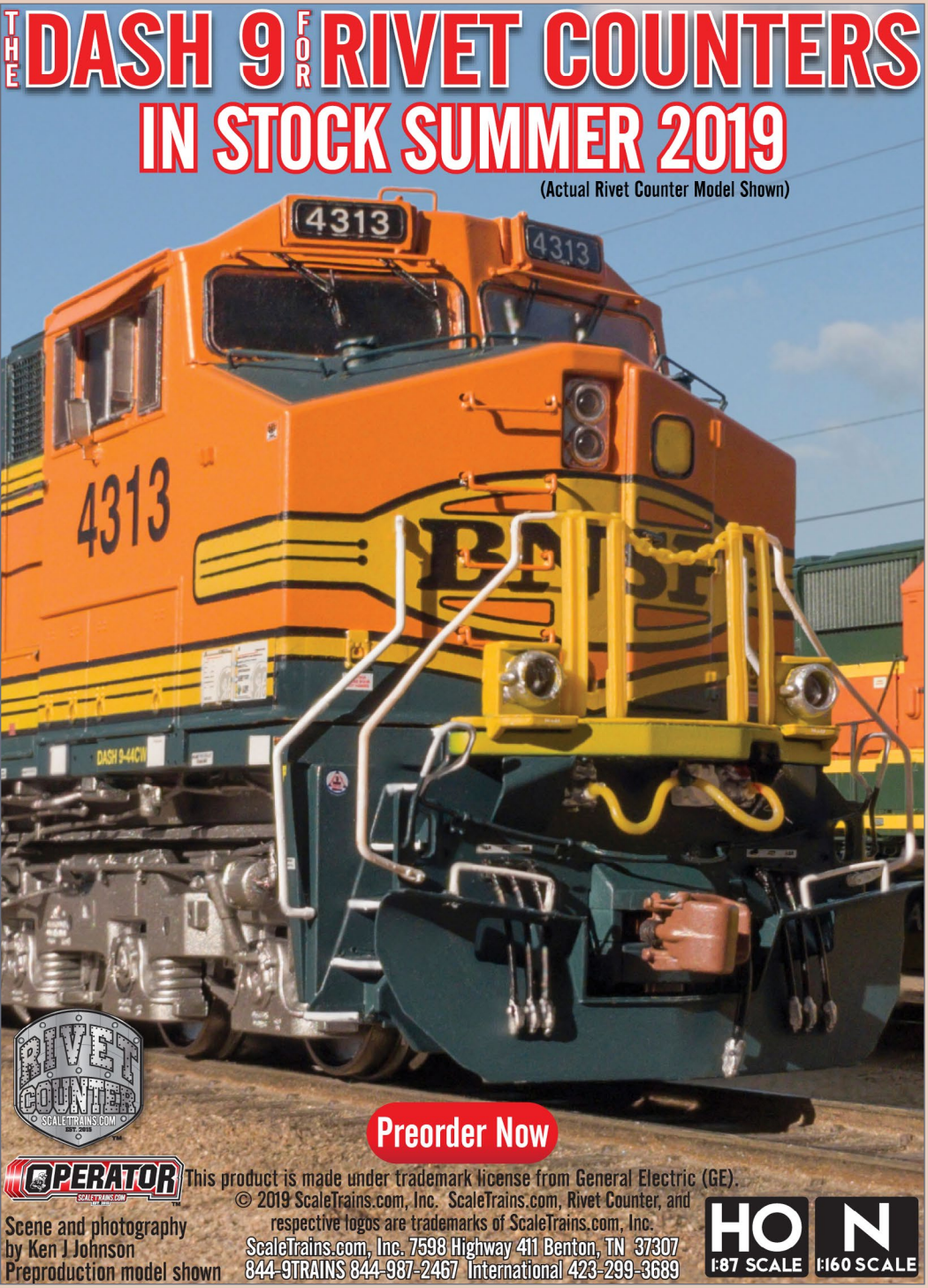

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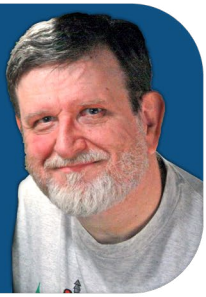

Model Railroad Hobbyist | March 2019 | #109

Joe Fugate: Update on the *Run like a Dream* series, plus feedback from a notable customer on what they think ...

Rate this article

In late 2015, I launched a new book series I called *Make it run like a Dream.* Much of the hobby publishing business tends to be about making the trains look superb, but with this new series I wanted to delve deeply into how to *make the trains run superbly.*

It's actually been rather self-serving of us hobby publishers to focus so much on models that *look better.* Great-looking models in our pages pull in more modelers, so why not focus on that?

In my travels in the hobby, I have seen a lot of layouts. I've seen some fabulous looking layouts. But more often than not, those great looking layouts don't run so well. If the operation gets frustrating enough, people leave the hobby.

I don't recall hearing about people leaving the hobby because the trains don't look nicer. But I've heard of several people leaving the hobby because the trains don't run better!

I organized the *Run like a Dream* series into three volumes: 1) Trackwork; 2) Rolling Stock, and 3) Locomotives. These three subject areas form a kind of operations "holy triad."

Run like a Dream series goal

In this series, I go over what I've learned from trying to get my HO Siskiyou Line to run as flawlessly as possible. I cover real life issues I've encountered and show solutions that have solved these issues. But even better is preventing issues from ever happening, so I spend a lot of pages on preventive measures.

I also include the best recommendations from other hobby books and past magazine articles, as well as the best advice from online sources. Finally, it's all in one place!

Even though I model the 1980s SP in HO, I try to cover all eras and all scales as much as possible, as well as discussing methods I don't personally use much but still come highly recommended. Admittedly,

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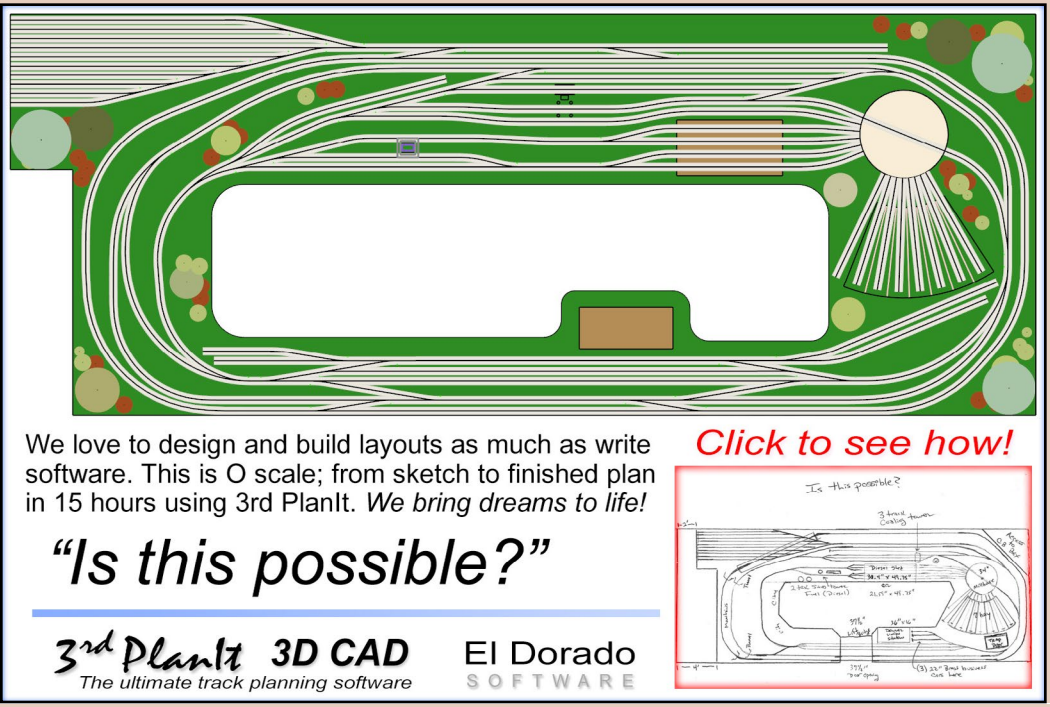

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some of the insights I give might be a bit HO-centric. Because my grandson models in N scale, I do have some first hand experience with N scale equipment as well, and I bring that into the discussion.

In short, I'm very aware of the other eras, scales, and gauges throughout this book series, and I do my best to make the tips/techniques as broadly applicable as possible.

At this point, the *Trackwork* and the *Rolling Stock* books are done and I'm starting on the final volume on *Locomotives*.

Run like a Dream customer feedback

So is this series meeting its goal – is this information helpful and eye-opening, even for seasoned modelers?

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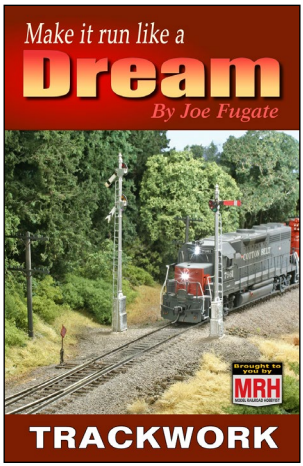

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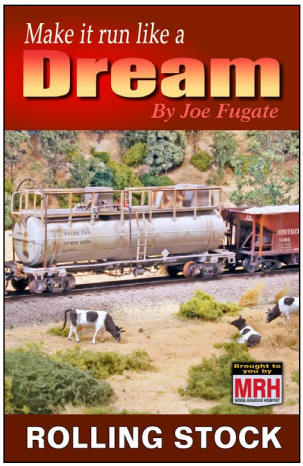

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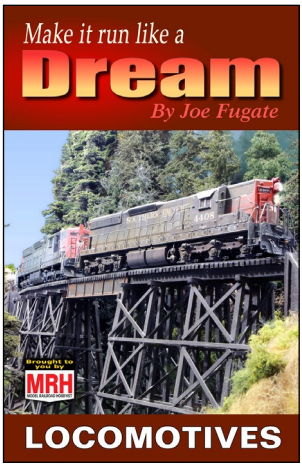

Expected Jan/Feb 2020 ...

1. The three volumes of the Run like a Dream book series. *Trackwork* and *Rolling Stock* books are out, the *Locomotives* book is expected next winter.

There is perhaps no better way to answer this question than to look at customer feedback. Recently, I got this email from J. Mark Juett, the *Pulse of DCC* columnist for NMRA magazine (quoted below with Mark's permission):

"This is fantastic! A couple of years ago I ordered and read your book on trackwork. It was excellent and I picked up several things that I implemented. I recommended that book to several friends who purchased and read it. I looked forward to the book on rolling stock and it exceeded my high expectations."

"I am an engineer by training – mechanical and electrical systems truly fascinate me. My childhood train hobby is what directed me towards engineering school. I am also a student of Deming and was involved heavily in the company's Total Quality Management process."

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"Your section on wheels and trucks was particularly informative. Long ago I started using Kadee couplers and wheels. My Kadee wheels are being replaced by Intermountain as cars are in for service and inspection. I'm making my own resistor wheel sets and airbrush painting and weathering wheels in a painting jig. Occasionally some paint gets on the tread: I found that polishing the tread and axle point after painting with a wine cork brings them to a bright luster without scratching."

"This old dog learned new tricks from your book. You truly assembled a wealth of information in one place on the subject."

2. J. Mark Juett, the *Pulse of DCC* columnist for NMRA magazine, recently commented on my *Run like a Dream* series: see the text for what he said.

And Mark was kind enough to forward me a copy of this email he sent to his friends:

"I have a book recommendation. Several weeks ago I ordered *Make it Run Like a Dream: Rolling Stock*. Although I've been a model railroader many years, there were new tips and techniques making it well worth the time. Joe Fugate has assembled a lot of good info in one place. It is as good or better than his *Run Like a Dream: Trackwork* book that I know many of you have. You can find it at: **store.mrhmag.com** ..."

Thanks for the kind words, Mark!

So two of the planned three books are out. What is the status of the final volume on locomotives?

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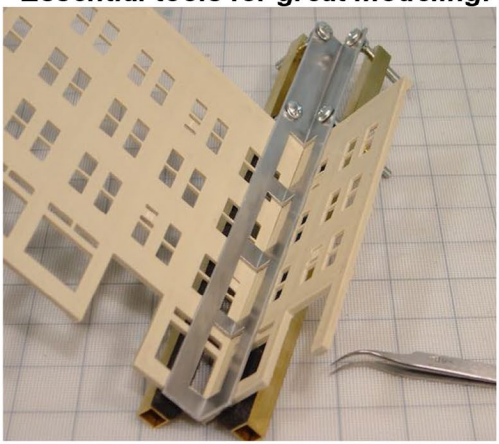

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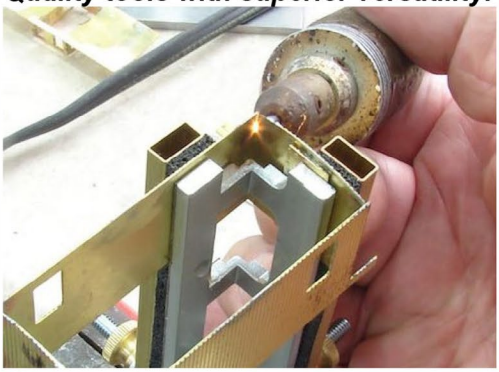

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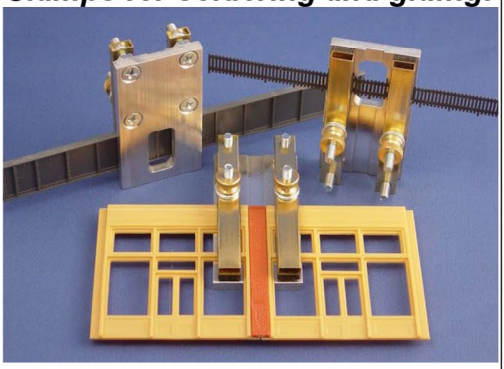

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Locomotives book

I'm starting on the Run like a Dream: Locomotives volume as of this writing.

I have an outline I made when I started the series and I keep adding to it, and now I'm wading into the actual writing process. This process includes not only digging up everything I've ever learned and putting it down, I'm also researching what many others have recommended and capturing that too.

All along in this series, pre-order customers have gotten what I call "sneak peeks" of the draft book while it's being written. Not only does that give you, the customer, a chance to see constant progress while you wait, it also give me a chance to take your feedback and topic requests and work them into each book.

I'm expecting the first sneak peek of the Locomotives book to be out sometime in April. And I'm targeting Jan-Feb 2020 for

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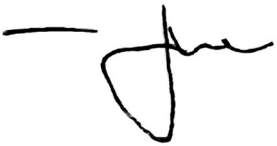
the delivery of the final Locomotives book. Like the other volumes, I intend to cover multiple scales and eras. Even though I model diesels, I'm going to include a chapter specifically on steam locomotives.

If you've not yet seen the books in this series, do check them out on the MRH Store. Anyone I introduce to this series comes back to me thilled to finally have all this info at their fingertips. ☑



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The three top-rated articles in the February 2019 issue of *Model Railroad Hobbyist* are:

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4.3 What's Neat: Basement-filling HOn3 layout, ...
4.2 Passenger car lighting enhancements

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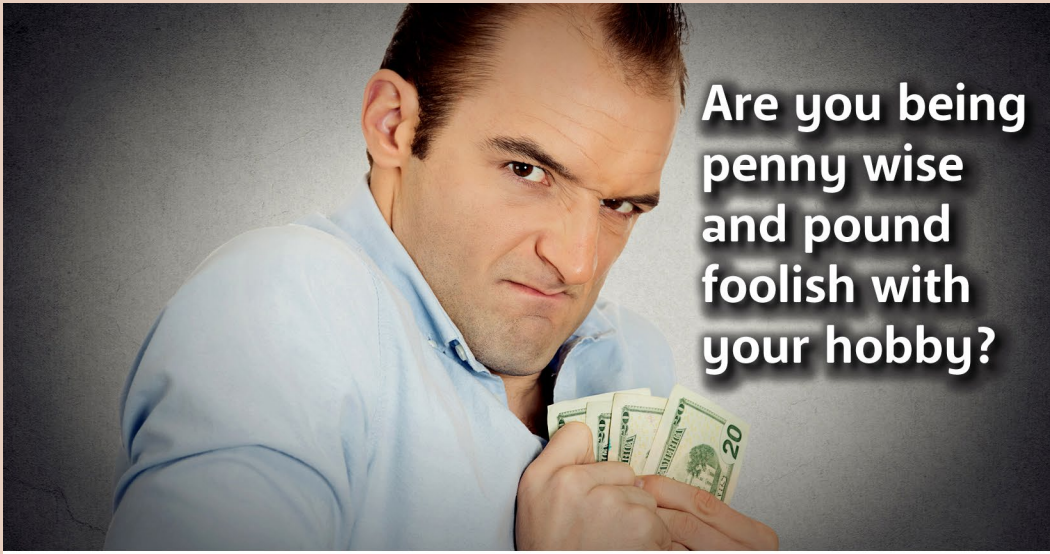

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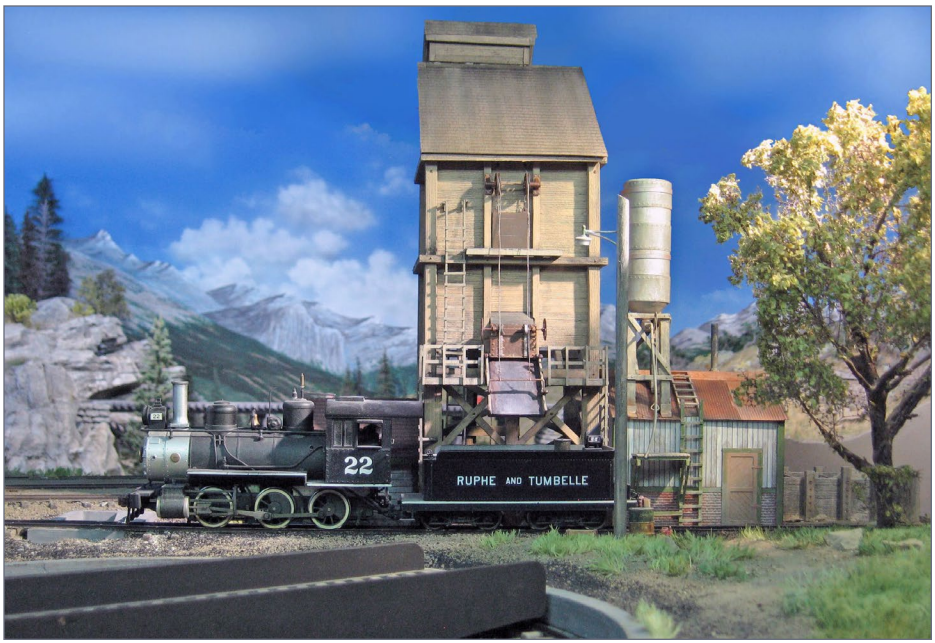

1. This is a shot of the "new" coaling tower in Coronita Creek Rick Reimer started nine years ago! After recently getting an Anycubic Photon 3D printer, Rick decided to print detail parts and to finally finish the tower. Everything else in the photo is scratchbuilt except the loco, which is a modified Bachmann On30 Mogul.

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2. In early summer of 1985, a westbound Denver and Rio Grande We headwaters of the Eagle River as it descends Tennessee Pass on Fran Grande layout.

Franz kitbashed the lead SD50 many years ago from an Athearn GP5 Products SD60 shell, then powered it with a stretched Kato SD40 cha Rail Power Products body also on a Kato SD40 chassis.

Franz modeled the water with several layers of Woodland Scenics Re cover from a combination of real dirt, patches of various Walthers sta Bachmann pull-apart static grass mat.

Franz took the photo with an iPad Mini.

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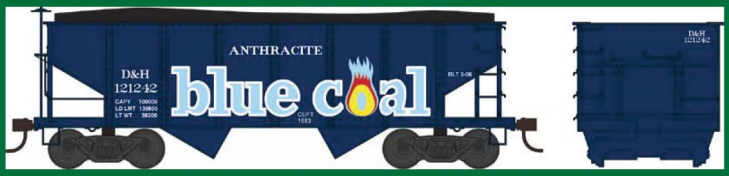

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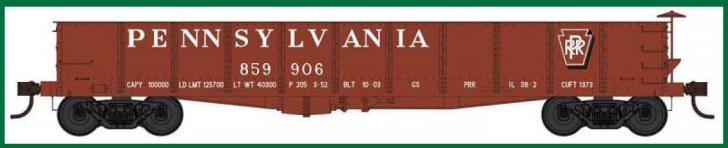

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MRH ... Questions, Answers, Tips

Conversations from the MRH online forums

Model Railroad Hobbyist | March 2019 | #109

compiled by Joe Brugger

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TIPS: Make your own custom grab irons

If you need grab irons in a size that you don't have, particularly a straight one, here's an easy way to make them:

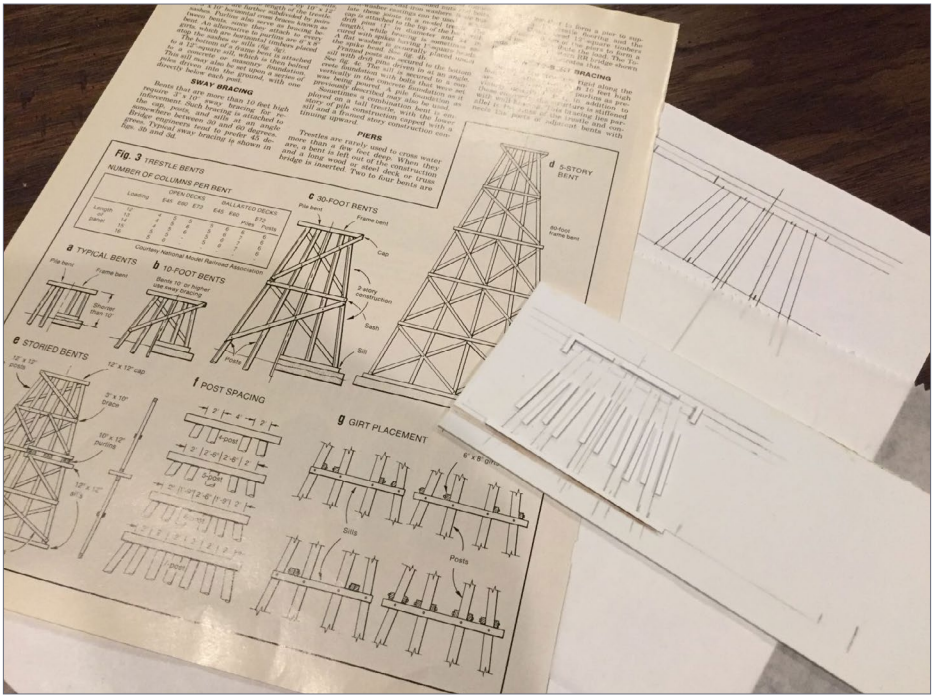
On a thin piece of material – I used a Popsicle stick – measure in from the edge the length of the grab iron. Draw a line from the hole to the edge. Drill a clearance hole for the grab iron wire at the mark. Take a piece of wire for the grab iron, bend a small right angle in one end, put the short piece into the hole and, holding the wire along the line, bend it over the edge of the material. Trim to length. Two or three minutes to make the jig, and seconds to make each grab iron.

How long will this softwood jig last? Generally, long enough for the car or cars I'm building. Normally that's maybe a dozen or more grab irons. Never really wore one out. It's such a simple tool, if I need one I just drill a hole in something and make a new

jig. It can be a Popsicle stick, a scrap of 00.040" or 0.060" plastic, whatever. If it does wear out, drill a new hole down 1/4" or so. If you are installing wire grabs, you are drilling dozens of little holes in the model. What's one more in a scrap of wood? If I need custom grabs for a scratchbuilt car, it's just as easy.

—David Husman

1. Measure and drill. David Husman saves time and money by fabricating his own grab irons using a Popsicle stick and brass wire. *David Husman photo*



2. Here's a jig I made for bridge trestle bents, I needed six to start and will need three or four more at least.

Dave Branum: I've made similar tooling for drop grabs by sawing a slot in the edge of the jig and moving the hole over a bit. I use needle-nose pliers and clamp the wire at the spot along the jaws that gives the desired width. After bending the wire down, turn it 90 degrees and bend the drop grab with the edge of the pliers.

Patrick Flynn: I generally don't think of making jigs for things. I think the only jig/pattern I have made in the past 20 years was for drilling holes for pre-made grabs for the rear of an SD40-2! This is so easy … This will be MADE!

David Husman: I am a bit of the opposite, I like jigs when I can use them, especially if I am going to make more than three or four of an item. Most of the time the jigs are simple and quick to make, so overall I save more time than I spend making the jig.

I also use jigs to cut the pieces for my switches when I hand-lay them. A simple wood jig guarantees all the pieces are the same length. One method I use involves making the frogs on the bench and then laying them much like the prototype does, using a "kit" of prefabricated pieces.

I had a real simple jig to make the #5 and #6 frogs. The wood block is used with virtually every switch to cut the pieces, so I have used it for almost 100 switches. It is also the most expensive jig I have since I spent about $2 on a basswood strip to make the stops.

Find more about making and using jigs at mrhmag.com/node/34779.

3. Jigs for cutting rail allow all pieces to be cut to the same length and create a “kit” of prefabricated pieces.

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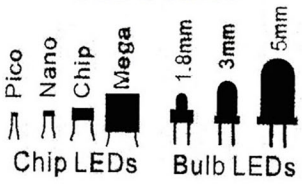

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Do I need to solder all my track joints?

Q. If I have at least a pair of power feed wires soldered to each length of flex track on my N-scale layout, is it necessary that I solder the joints between the lengths? I am looking to have the sections butted next to each other firmly (not tight) with rail joiners, but I'm afraid that if I solder the joints, there is a greater risk of the track buckling. Thoughts?

A. Joe Fugate: Soldered joints will make your railroad and its control system more efficient. Copper wire has a much lower resistance than nickel silver rail.

Mike D.: Solder pairs of flex track together for good electrical conductivity, but leave other joints unsoldered so the rails can expand or contract. Solder feeder wires near the soldered joint between two sections, or to EVERY section if you want absolute minimum voltage drop.

Graham L.: We leave a fingernail-thickness gap between sections of rail. That small gap is enough to accommodate rail expansion and movement under normal circumstances.

Nickel Silver Rail Resistance by Code, and AWG Equivalent Wire Gauge			
Code		Resistance, Ohms per thousand feet	Equivalent Wire Size (**AWG**)
100	**Atlas Shinohara**	38	26
83	**Walthers Shinohara**	52	27
83	**Atlas Micro Engineering**	78	28
70	**Shinohara**	77	28
70	**Micro Engineering**	116	30

Table: Resistance of nickel silver rail and AWG wire equivalents.

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Applying glue to plastic

Q. I am in the process of putting together an old Red Caboose reefer kit. I have a bottle of Faller Expert plastic glue with a needle-like dispenser. A bit too much glue comes out. What else can I can use? Tried toothpicks and have heard about using a 000 (3/0) paint brush. The brush seems like a good way to spend a lot of money for a one-time use.

—Jack H

A. GregW: I use a brush to apply liquid plastic cement. It will make the brush hard but a quick spin between my fingers breaks up the residue and it's ready to use again. I replace brushes occasionally when one gets beat-up but otherwise they last a pretty long time.

Something I am interested in using is the Touch-N-Flow Applicator as seen at Micro Mark: www.micromark.com/Touch-N-Flow-Applicator.

Rick Sutton: I've used two brushes for glue over quite a few years. The first one just plain wore out. I only use a brush with Tenax 7R or the replacement Styrene Tack It. If the brush stiffens up from the melted styrene it picks up, put it in the glue bottle for maybe 30 seconds. Then wipe it on a paper towel and it's good to go again for another project.

Dave B.: I use Testors Model Master Liquid Cement for most things. It has a very thin tip so can be controlled quite well. For more delicate things I use a thinner liquid cement like Tenax or Plastruct and apply it with the point of a straight pin which holds less glue and is easier to control than a toothpick.

Don Mitchell: Here's a hack that may work for you. Try crushing the tip of the Faller needle flat with pliers. Then file or sand the flattened tip back towards the unflattened base of the needle

until the desired rate of flow is achieved. A motor tool with a cutoff disk works fine; a file needs a very fine cut to work the best. For less of a hack, search Google and/or Amazon for smaller needles to use as replacements.

GN-NP Nut: I am a big fan of the Micro-Mark Touch and Flow applicator. I found that only Tenax and Ambroid Pro-Weld will work with it. Plastruct cement clogs it after one use. Micro-Mark offers their Same Stuff plastic weld, which is methylene chloride like Pro-Weld, and according to the M-M site, Tenax. It's much easier to control the amount. I also drill the paint out of the mounting holes on painted Intermountain and Red Caboose kits to get better adhesion.

Jim Fitch: I use a toothpick, as it seems to be the most reliable way for me to apply a small amount of glue. Like the OP, I find it nearly impossible to control the amount of glue when squeezing from a bottle, even with a needle-like dispenser. In some cases, I have used small brushes for Tenax 7R, joining building walls together and applying from the inside so the finish won't be marred.

Shortliner: Take a sewing needle and fit the point into an old paintbrush or a BBQ skewer. Then take a Dremel cutting disk (the maroon ones) and cut horizontally across the eye – it will then hold a perfect small glue blob.

Tim Holmes: I use one of three kinds of Testors glue, depending on the application. The thick stuff in the tube, I just use as is – maybe with a scrap piece of wood or wire or styrene to spread it. The stuff in the funny-looking sort of triangular black bottle is a bit thinner and flows well. The stuff in the glass bottle – which is mostly MEK – I apply either with the included brush or use

a 31-gauge diabetic needle (Warning: Be careful. Those stupid things are sharp – saw a guy put one all the way through his thumb one day. Use at your own risk.) I was surprised that the plastic syringe stood up to the MEK just fine. It allows me to dispense with pinpoint accuracy.

Dark2Star: I'm quite happy with the Faller Expert glue and its needle applicator. I found that I can control the flow somewhat by tipping it less or more. Or by pressing harder. However, I've had several bottles clog the needle over time even with the bottle still half full. I'm still trying to re-open it. In the meantime, dipping a toothpick into the bottle and "painting" the glue on the surfaces works fine.

[Ed.: Faller uses a reverse-threaded cap. Instead of 'righty-tighty, lefty-loosey,' it's 'righty-loosey, lefty-tighty.']

DrJolS: I hold the clogged needle so it is horizontal, and massage it with flame of a match . When a little flame appears at the tip, the needle is ready to use.

Jack Shall: I found a piece of wire in my stash that happens to fit inside the Faller needle. Simply sticking it into the needle

4. Fine-pointed tips allow greater control over fast-flowing solvents like MEK.

clears it. I cut a short length a bit longer than the needle and put a short 90-degree bend on one end (to keep it from falling into the bottle).

Ken K.: I have used brushes for many years, and find with proper care they will last for almost a lifetime. If you go the brush route purchase brushes that will handle the solvents used in the glue. I have used acetone to clean up Faller glue before it hardens.

I also use a bunch of dispensing needles (not sharpened) which are cheap and therefore essentially disposable. Just like the Touch-N-Flow, many solvent-based glues will be drawn into the needles by capillary action, and various sizes and lengths are available to handle glue, oil, flux, solder paste or other liquids. I use syringes as handles but for those areas where syringes are verboten you can easily taper a skewer to use as a handle.

If you want to stick with bottles you can also transfer your bulk glue to inexpensive needle dispenser bottles which can be purchased with fixed or replaceable (Luer Lock) needles. Again, you need to make sure that the plastic bottles are compatible with any solvents used.

I tend to buy in bulk (100+) and resell those I do not need to friends and club members.

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Jack H.: I made it to the local hobby shop which happened to have a set of three paint brushes, of which one is a 5/0. That turns out to be pretty good at dispensing glue. All the ideas posted were helpful. As for plugged-up dispensers, I had the same problem and dug through my scrap boxes looking for any bits of wire that would fit. Found one about an inch long and put a bend in it about 1/4-inch from one end. Works like a charm whenever it clogs up.

Read the whole thread at mrhmag.com/node/33892.

5. Dispensing bottles and tips are available in hobby craft stores and online in a variety of materials and sizes. Check the bottle material for compatibility with the solvent you plan to use.

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WHAT'S NEAT column

Model Railroad Hobbyist | March 2019 | #109

Ken Patterson demonstrates a saw sled, visits Stephen Priest's ATSF railroad, checks out a Kentucky museum, and much more ...

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This month, I show you a saw sled – a tool to hold your work piece steady as you cut. We look at Stephen Priest's wonderful ATSF layout in HO scale. Michelle Kempema takes us to the Historic Rail Park and Train Museum in Bowling Green, KY. We look at Bachmann Trains' new K4 streamlined locomotive in HO scale and a photo shoot for the Bachmann Trains 2019 catalog cover. ☑

View reader comments

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PHOTOS AND VIDEO OF SUPERB MODELING

Railroading with Stephen Priest

1. (Above) Stephen Priest and his son Joel open up this month's video with a tour of their very large Santa Fe layout in HO scale. This is a double-deck layout built for serious operation. The scenery is equally impressive. Stephen says "I am not really a model railroader as much as I am a railroad modeler." Every detail is based on prototype standards.

2. (Top right) The layout is six years old and took six months to design before construction ever began. The layout era is 1978 and has a cohesive theme of mainline railroading through Kansas. The scenery flows from prairie to towns to large yards and on to even bigger cities. The night time lighting is a remarkable sight as every structure and street is lit with LEDs. The intermodal yard, a representation of Argentine yard, is amazing with straddle cranes and acres of intermodal vehicles.

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3. (Above) The CTC dispatchers panel is fully functional, with a TV monitor representing the view looking out of the tower and over the tracks. Joel enjoys working with the DCC systems. JMRI with the NCE DCC system controls the layout. He also loves scratchbuilding and kitbashing structures. Stephen has built 16 layouts over his years of modeling and plans to build #17 very soon. He and his wonderful wife Cinthia are moving to a new home and a new basement in the coming months. In this month's video, Stephen shows us his model-building work space along with specific areas on the layout that represent prototype locations.

4. (Top right) As I got a high five at the end of the interview, Cinthia said, "If you stay still too long you can miss out on life's adventures."

5. (Bottom right) Stephen runs a train in a local yard. LED strips supply 3500K lighting.

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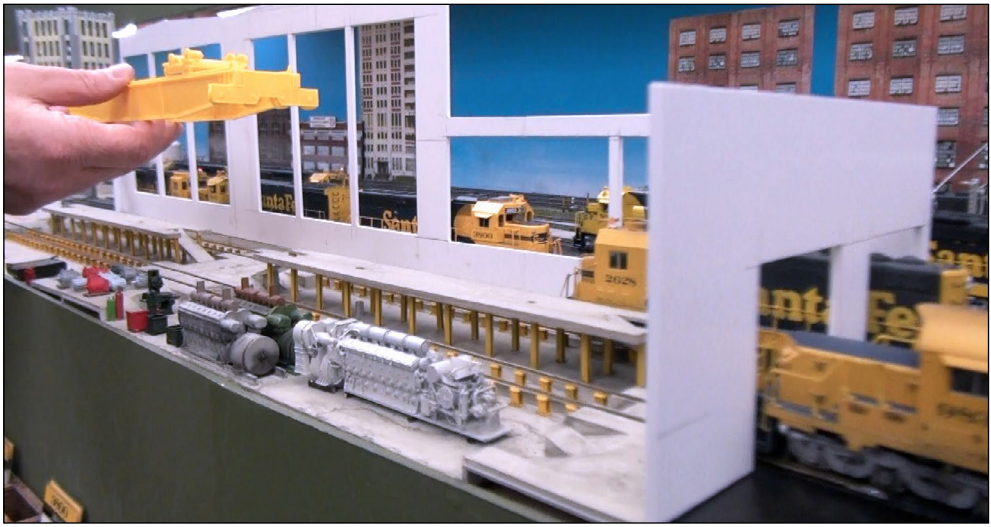


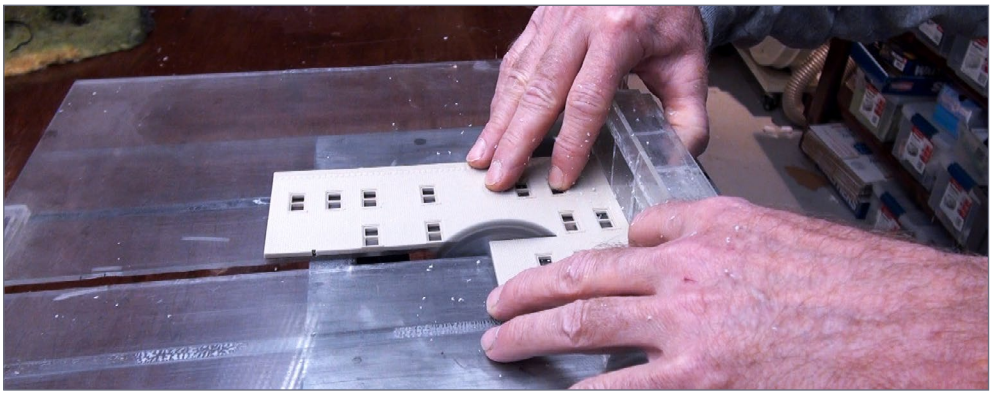
6. (Top) This building represents a locomotive rebuild shop. The crane and prototype details are amazing. Stephen may use many of these buildings on the new layout he is planning.

7. (Bottom) Joel Priest kitbashed this building, lit it with LEDs, and covered it with realistic details.

8. (Top) This view looks up one of the many aisles of the Priests' double deck layout. it's amazing that this much layout can be built in only six years.

9. (Bottom) One of Stephen's favorite scenes is the locomotive service area. It is alive with sound and lighting in every locomotive. The layout height is perfect for easy reach. The sanding towers have beautiful lights that light the entire yard at night.

Saw sled



10, 11. A saw sled is a movable table that slides atop your table saw. I made one to fit my 4-inch Micro-Mark table saw. It holds the work in place as you slide it through the blade. With this simple sled, you can cut off a single row of bricks during a kitbashing project. The sled has a square end that acts as a handle to keep your fingers away from the spinning saw blade. I built this device out of Plexiglas but you can make one from plywood. They can be built for this small saw, or a full-size table saw.

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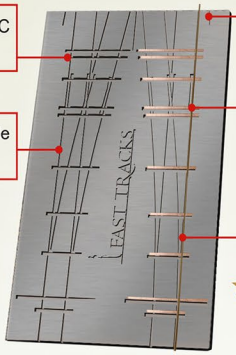

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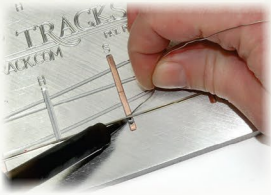

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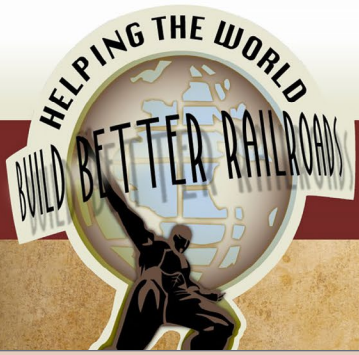

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Bachmann K4 shoot

12-14. This month I present the new streamlined Bachmann K4 locomotive in HO scale and talk about the scene that I built to produce the Bachmann Trains 2019 catalog cover shot. The locomotive is a work of art and one of the most beautiful HO scale models Bachmann has produced. The Pennsylvania green on the streamlined boiler and the main

drivers is stunning in sunlight, with the Pennsy stripes running the length of the model. I built a tunnel scene from 2-inch thick sheets of foam and carved the tunnel portal with a saw. I used Micro Engineering code 83 flex track with Woodland Scenics ballast and green ground foam. The trees are sagebrush forms covered with Bachmann polyfiber.

What's Neat on the Road with Michelle Kempema

15-19. This month, Michelle Kempema starts a new segment in the What's Neat Video called "What's Neat on the Road with Michelle Kempema." As Michelle travels across the United States, she will visit rail attractions with her video equipment documenting, sharing, and conducting interviews exposing great places we can visit.

This month, Michelle interviews Jamie Johnson, the executive director of the Historic Rail Park and Train Museum. The museum is in Bowling Green, KY and is about 12 years old. It's in a two-story train depot built in 1925 which has been restored to its original condition. The museum has eight passenger cars on hand and five have been fully restored to show the Golden Age of rail travel.

Volunteers and club members spend countless hours detailing and maintaining a model railroad layout in the depot. Jamie says folks see the model railroad, and then tend to go home and start building something for themselves. That's a great way to promote the hobby of model railroading. The museum is full of railroad history, stories, and artifacts.

Visit online at www.historicrailpark.com.

The museum is at: 401 Kentucky St., Bowling Green, KY 42101.

See the final photos on the following page ...

Also see the new "What's neat this week" weekly video podcast!

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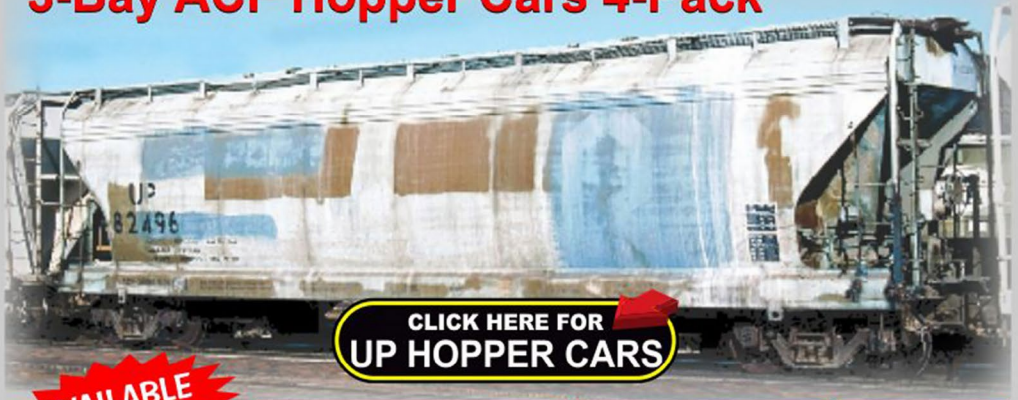

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Raspberry Pi

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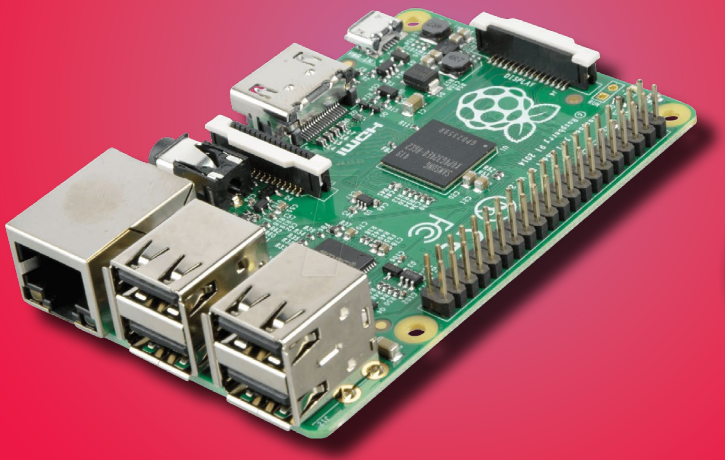


Electrical Impulses

Model Railroad Hobbyist | March 2019 | #109

Dr. Geoff Bunza shows how to put this new highly affordable tiny computer to good use on your layout ...

Model railroaders use computers more and more in their hobby to research topics, view magazines, program their DCC decoders, schedule operations, and control their layouts. Often modelers may use an older, hand-me-down PC or laptop for such activities.

A new, low-cost, tiny computer that's starting to gain ground as an attractive option is the "Raspberry Pi" or "RPi" for short.

Just a bit larger than a credit card, the RPi consumes little power, and often exceeds the capabilities of personal computers from several years back. The RPi also offers some additional capabilities which open new possibilities for modelers.

Rate this article

There are several things a Raspberry Pi offers modelers that make it a winner:

- It can run the full JMRI configuration including its DCC command station interfaces
- It can power up managing its own, independent, WiFi network supporting wireless throttles
- It is low-cost ($39), small-sized (3.35”x2.2”), and uses little power
- It can run with or *without* a monitor, keyboard, and mouse
- You don’t need to program it!

Unlike the small Arduino controllers I have discussed before (MRH December 2016 and MRH March 2017), the RPi offers much more capability. Like your laptop, it runs an operating system (OS). Its

1. Arduino Uno (left) and Raspberry Pi 3B (right).

G. Bunza

Learning more about JMRI

The Java Model Railroad Interface (JMRI) is free, widely used, and growing in support. JMRI has free software applications that run on Windows, Linux, or a Mac that can perform a multitude of useful model railroading functions.

JMRI makes programming complex DCC decoders much easier. It can also be used for dispatching, signaling, switching, route control, train control, and more.

If you need more info about JMRI, just visit the web link below.

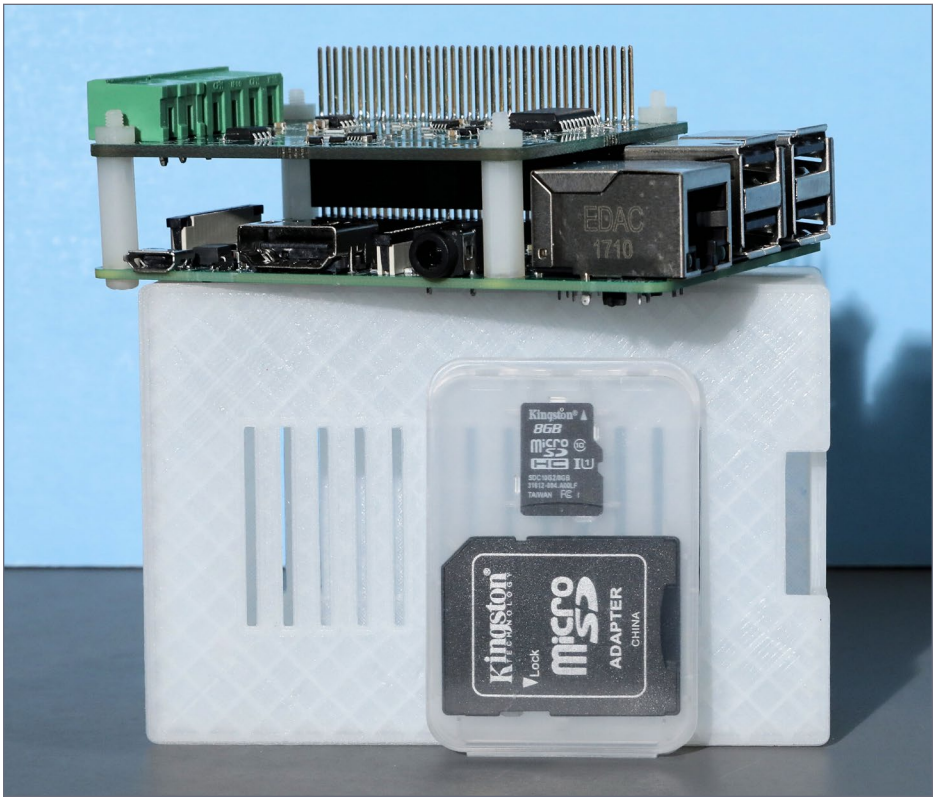
WEB: jmri.sourceforge.net/help/en/webtoc.shtml

OS, called "Linux," supports displays, keyboards, mice, USB interfaces, SD memory cards, and best of all: the Java Model Railroad Interface (JMRI).

I will assume the reader has a basic acquaintance with JMRI. If not, see my side note on where to learn more about JMRI.

This article is not focused on the technical intricacies of the RPi or JMRI. Instead it provides a step-by-step process for a modeler to set up an RPi and get it going nearly instantly. I provide some different variations, including one with its own WiFi network for wireless throttles.

Later, I'll suggest some additional customization modelers might like to consider.



2. Pi-SPROG components.

From off-the-shelf to do-it-yourself solutions

A year or two ago, I saw a demonstration at our local NMRA divisional meet of a new product called the Pi-SPROG given by Bill Chown of the BBM Group (sprog@bbmgroup.com). I was impressed with its compact size and performance.

When I later needed a compact solution for a JMRI operating demo, Bill was incredibly helpful answering questions, and I quickly got up and running. The Pi-SPROG is a complete, commercial package consisting of an RPi Model B, a special SPROG

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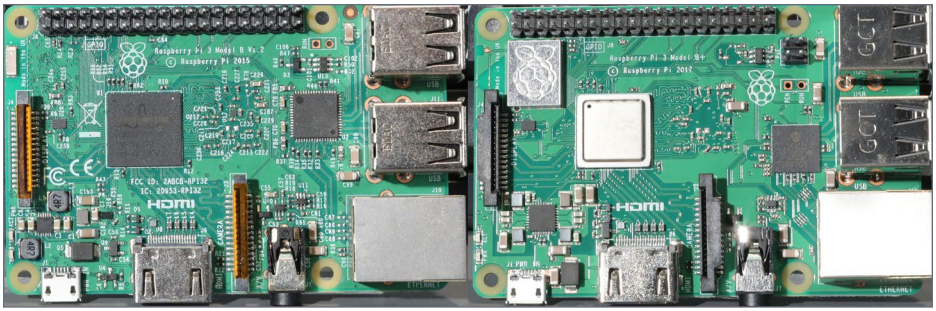


4. Raspberry Pi 3B (left) and Raspberry Pi 3B+ (right).

plug-in board, a pre-configured and pre-loaded micro SD memory card (like the ones used in some cameras), a power supply, and a small enclosure for the boards.

The micro SD card acts as the hard disk drive found in your laptop or personal computer. I think it took me longer to read the documentation than it did for me to connect everything and get a train running for my demo!

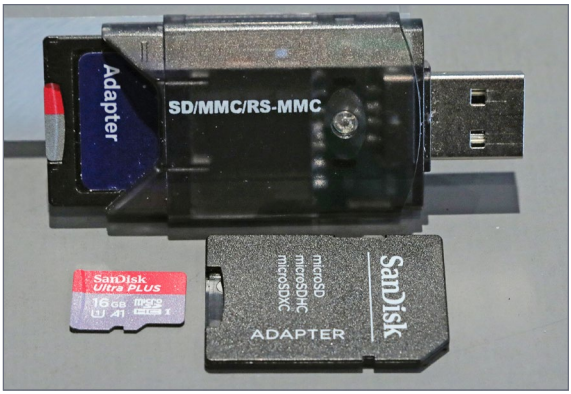
Later, I will step through creating your own RPi setup from scratch.

The Pi-SPROG memory card comes pre-loaded with the correct version of Linux and JMRI, and default configuration setup for the Pi-SPROG DCC board to form a complete DCC command station.

The SPROG board that easily plugs into the RPi is the equivalent of a separate SPROG DCC interface with which you may already be familiar. The RPi runs JMRI, just as it would run on your PC or laptop.

The very best part is that the Model 3 B (and 3 B+) of RPi can also act as a self-contained WiFi network. The RPi has the WiFi hardware, and JMRI provides the wireless throttle protocol. So after a quick setup of my cell phone and its WiThrottle (or Engine Driver) app, I was running a loco via wireless control.

5. R5V Power Adapter with micro USB plug.



6. Micro SD memory card [top] plugged into an adapter that goes into a USB socket on the computer. Below is a 16 GB MicroSD memory card adapter that plugs into a larger SD card socket.

If you want an off-the-shelf solution for using an RPi, the Pi-SPROG is a solid solution.

WiFi throttles need locos defined in JMRI with their respective decoders before use. Once I added a USB keyboard, a USB mouse,

7. USB Keyboard and USB Mouse.

and a small computer display with an HDMI interface to the RPi, I could use JMRI directly to add the appropriate roster information in JMRI.

These devices can be left disconnected once everything is setup. I also have an alternative to adding these, which I will cover later.

8. Displays with HDMI Interface (24-Inch & two 7-inch).

9. VGA to HDMI Adapter & HDMI Cable.

More slices of Raspberry Pi – Variations on a great application

As an electronics-centric modeler, once I realized the capabilities of the RPi-SPROG, I now wanted build an RPi setup from the ground up.

The component parts can be obtained from a multitude of sources worldwide including: adafruit.com, amazon.com, frys.com, and sparkfun.com.

Unlike many of my other projects, I am not recommending the cheapest or smallest components. Instead, go for quality parts.

Since the RPi is so powerful, these may well become the backbone of your DCC system.

The essential components include:

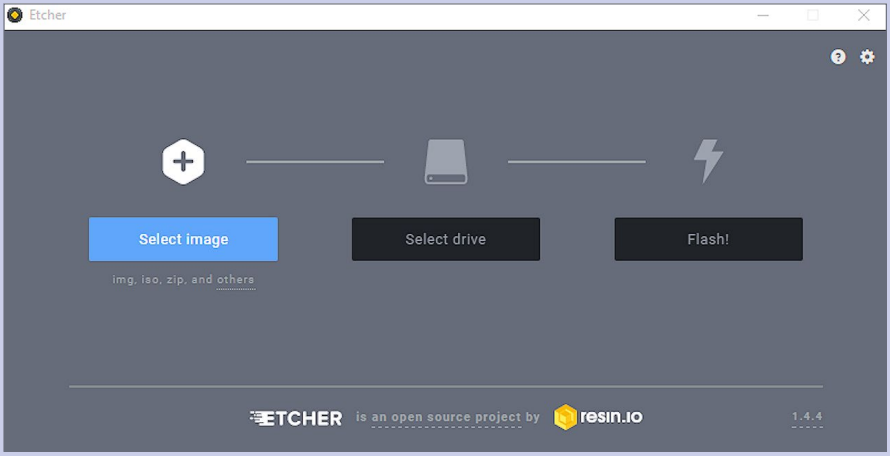
1. A Raspberry pi 3B or Raspberry Pi 3B+ module (stick to these, they are the newer and more capable models)
2. Wall adapter power supply 5.0 volts DC, 2 amps (with USB Micro-B connector)
3. An 8 GB (8 GB-32GB will work) micro SD memory card (I recommend the faster "HC" versions)
4. And (temporarily, which means you do not have to dedicate these to your RPi system after setup is completed):
   - USB keyboard
   - USB mouse
   - Display (HDMI or VGA display with VGA-to-HDMI adapter)

STEP 1: All the software you will need

Next I wanted to see if I could build a new RPi SD card image with multiple configurations and applications. There is some early documentation showing difficulties creating the SD image for the RPi.

Indeed, I did have some difficulties at first, but I have put everything you need to easily build a working SD card image in the additional materials accompanying this article [bonus download link].

You can download the entire disk image and put it on your own SD card, which is the main "disk" for the RPi. I recommend a 16 GB Micro HC Memory card, but an 8 GB card and/or slower speed card will do if necessary.



10. The Etcher program loads your micro SD card.

CONTINUED ... STEP 1: ALL THE SOFTWARE ...

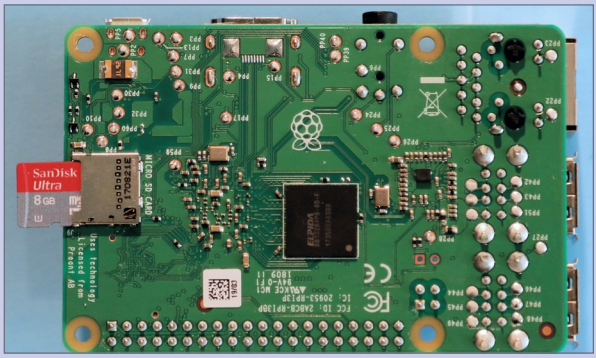
Insert the micro SD memory card into your SD-USB adapter [6]. Download and extract **Etcher-Portable-1.4.4-x86.exe** and **rpisdcard.img** files from this article's bonus materials.

When you run **Etcher**, the window in [10] should appear. Select the **rpisdcard.img file** and your micro SD card, and hit Flash. This will take a while.

Once complete, your SD card will have the most current software, updated at the time of this writing, including JMRI, Java, and the current Arduino software too. This disk image is a derivative version I compiled based on the fine work of Steve Todd.

NOTE: If you're interested, Steve Todd offers his own RPi image and excellent information about customizing it for your needs: mstevetodd.com/jmri-raspberrypi-access-point – I highly recommend it for further reading.

Once the load is done, place the micro SD card into the socket on the back of your Raspberry Pi Board [11].



11. Micro SD memory card inserted into RPi socket.

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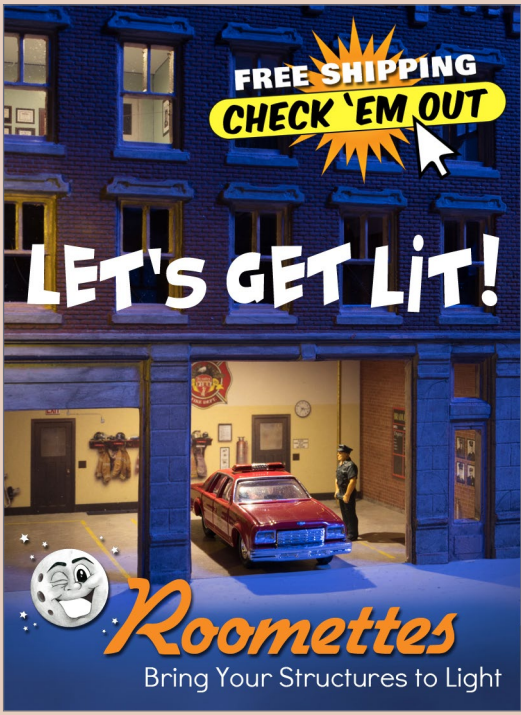

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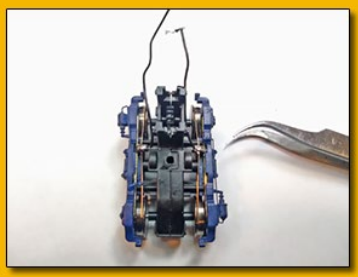

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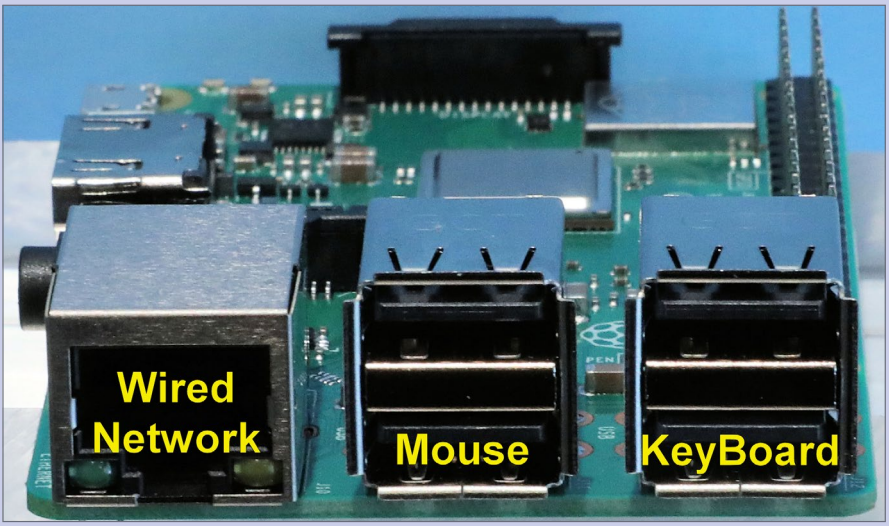
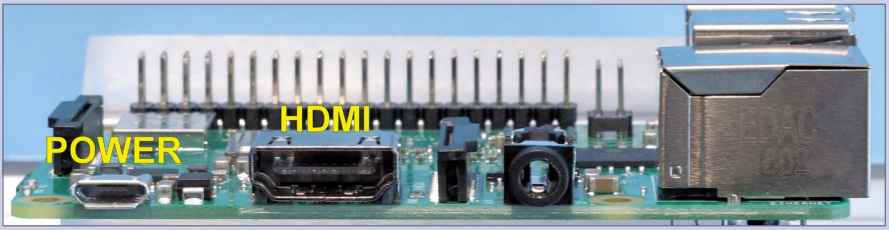
STEP 2: Assemble the components



12. USB sockets and Wired Network (LAN) connectors.



13. Raspberry Pi power and HDMI connectors.

Plug your USB mouse and keyboard [7] into any two of the USB sockets on the end of the RPi card [12]. Leave the wired network connection alone for now.

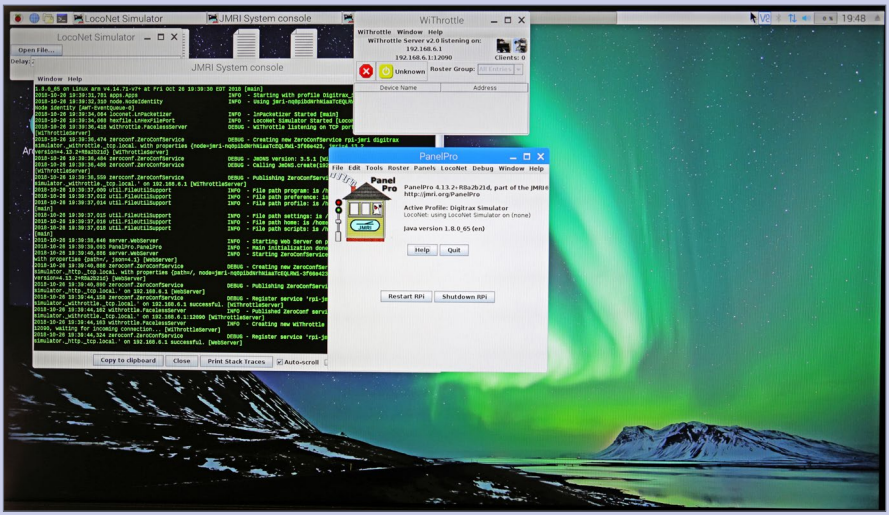
Now, set up your display. Connect the display's HDMI cable to the connector on the side of the Raspberry Pi card [13]. Turn on the display.

STEP 3: Power on

Lastly, connect your 5V power adapter's micro USB plug to the power connector on the side of the RPi [13]. Plug the power adapter into an AC socket. If it has a power switch in the cable, turn it on.

After a short time, your RPi should power up, and automatically run JMRI. Thanks to Steve Todd's work, if you plug in a computer interface to your DCC command station and it is one of the preconfigured interfaces Steve has set up, JMRI will recognize it, and automatically pre-configure itself for operations. The list of preconfigured interfaces is in Step 4.

For now, let it power up and display the startup screen [14].



14. RPi Power-on screen.

CONTINUED ... STEP 3: POWER ON ...

Video: The Raspberry Pi start up sequence video.

You can follow the power-on sequence in [Video], and familiarize yourself with the screen layout. This will give you a good orientation in the remaining steps.

Since we have not connected the DCC command station interface, JMRI is set to power up to the Digitrax Loconet Simulator configuration, which we can use for testing later.

VIEW READER COMMENTS

STEP 4: Connect DCC command station

Once you get to the screen in [14], you are almost done. Again, thanks to Steve Todd's work, the boot-up includes an auto-configure mechanism that's included in the disk image. It accounts for the following configurations:

DCC++ to an Arduino using the FTDI USB interface

DCC++ to an Arduino using the CH340G USB interface (newly added to this disk)

Digitrax Simulator

EasyDCC Serial

LENZ Simulator

LENZ USB

Locobuffer-USB to Digitrax

MERG USB

NCE Serial

NCE USB

PR3 to Digitrax

Pi-SPROG Nano

Pi-SPROG One

RPi

Sprog

CONTINUED ... STEP 4: CONNECT DCC ...

If your desired JMRI DCC command station configuration is not listed, don't worry. Simply open JMRI and set up the configuration for your command station, then re-start JMRI. You might contact Steve to ask if he can add it to the auto-configuration list.

Connect your DCC command station USB interface to one of the available ports and re-start the RPi. Once JMRI fully comes up, you should be able to select from the top Panel Pro menu Tools-> Power Control.

From the small window that opens, you should be able to turn your layout DCC power on and off.

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STEP 5: Arduino and DCC++ (optional)

For those modelers using DCC++/Arduino USB connections, note that RPi does not use COM port designations. instead, serial ports usually are designated by "tty. . ." (e.g., tty01, tty05) (teletype). In my installation, the Arduino Uno USB port shows up as "ttyUSB0."

In the disk image you loaded, and on the RPi window that opens up when you start the RPi, you will find the Arduino IDE already loaded for your RPi.

If your Arduino or DCC++ command station is plugged into your RPi, you can open the IDE by double-clicking the icon. Go to the Tools menu, then pick the Port. On a Raspberry Pi 3B+ you should see a port list like: /dev/ttyAMA0, /dev/ttyS0, and /dev/ttyUSB0.

If you unplug your Arduino USB cable, you will see the /dev/ttyUSB0 disappear. But note well: if you plug it back in, the RPi will likely assign a new designation like: /dev/ttyUSB1, which may well mess up previous settings, so be careful. Plug and unplug your USB cables before powering up.

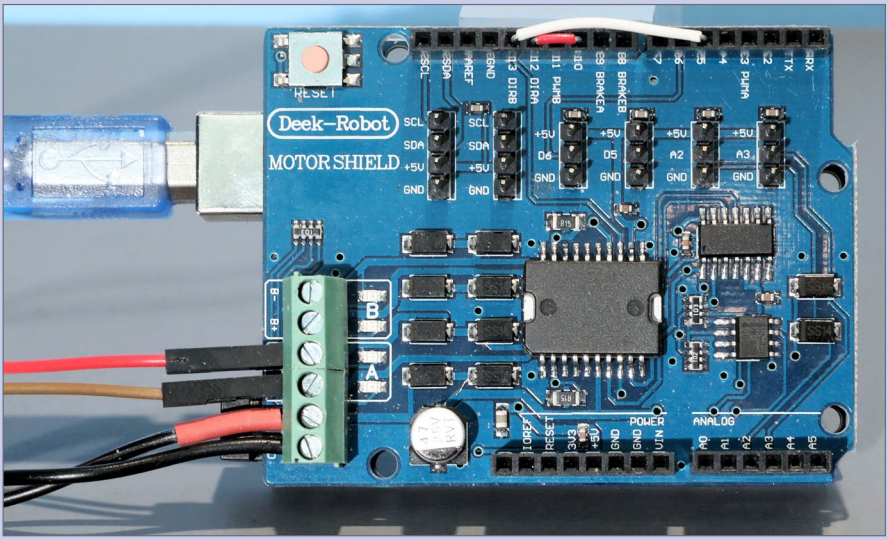
There has been some confusion using the RPi with DCC++ configurations, in part because vendors of Arduino Uno's and Mega2560's have substituted a cheaper USB interface chip, the CH340. I have added a DCC++ configuration using this interface to facilitate using this variation. The appropriate driver is included and is recognized by the Raspian version 9 operating system on your disk.

CONTINUED ... STEP 5: ARDUINO & DCC++ ...

I've written several times before about installing and loading Arduino software in MRH December 2016, "A modeler's introduction to the Arduino" [mrhpub.com/2016-12-dec/online] and in MRH March 2017, "DCC projects using the Arduino" ... [mrhpub.com/2017-03-mar/online/html5].

While we are discussing the Arduino setup, if you start the Arduino IDE and select **File->Open...** from the menu and select **Arduino** at the top-left of the open window, you will see all the Arduino sketches from my MRH Arduino articles.

This is everything from my December 2015 and March 2016 MRH articles, including the DCC++ and DCC decoders sketches. Yes, you can program your Arduino from your RPi!



15. Basic DCC++ setup – The USB cable connects directly to the RPi.

STEP 6: Turn cell phone into DCC throttle

I mentioned before that one of the great benefits of using the RPi with JMRI is the WiFi capability built into the RPi module. When Panel Pro opens on your RPi, you should also see a window at the top of your screen labeled "**WiThrottle.**" It should also show "**192.168.6.1:12090**"

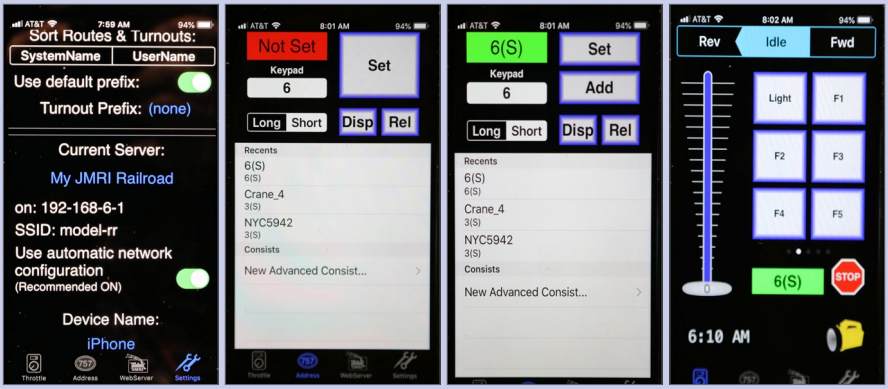
This is the IP address (**192.168.6.1**) and port number (**12090**) for your RPi, running its own wireless network, identified (**SSID**) as "**model-rr**" with an access password of "**model-rr**" that I will show you how to change later. You will need this information.

The easiest way to access and use the WiThrottle interface to run your layout is to load a free application (App) onto your cell phone or tablet that is WiFi-capable. On an iPhone the App is called "**WiThrottle**" – pretty clever, eh?

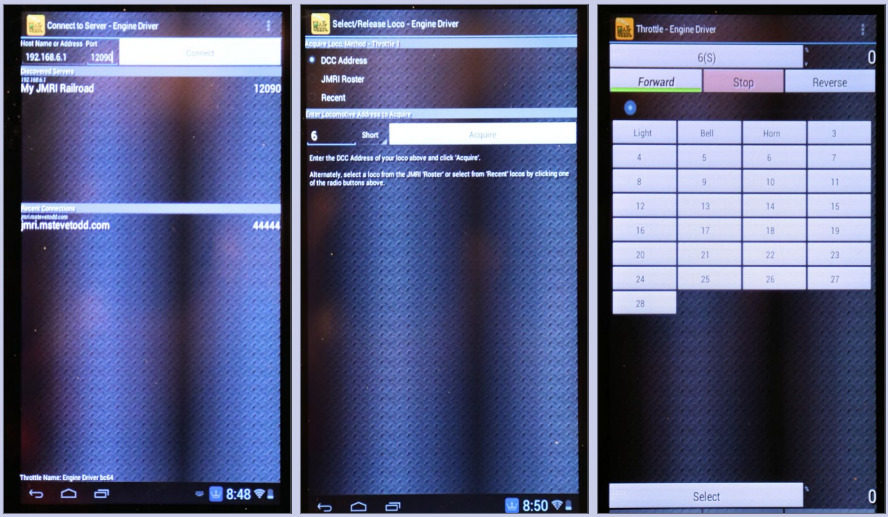
On an Android WiFi device it is called "**Engine Driver**." These are free on the Apple App Store and the Google Play Store respectively. First go to settings and set your phone or tablet to access the WiFi for SSID: **model-rr**, and the password: **model-rr**.

You will need to provide the IP address **192.168.6.1** and port: **12090** when you first set the server for your WiThrottle or Engine Driver App.

CONTINUED ... STEP 6: CELL PHONE THROTTLE ...



16-19. WiThrottle setup: server setup, enter loco address, set loco address, change to throttle and run!



20-22. Engine Driver Setup: server setup, set loco address, change to throttle and run!

CONTINUED ... STEP 6

Once you connect to the RPi's WiFi network, you can try controlling a loco. But first, let's test the connection:

Step A: On the Panel Pro Window on the RPi, select **Tools-> Throttles->New Throttle** and in the **Address Panel** in the **Throttle** Window type an arbitrary address, like **6**.

Hit **Set**, and see if you can toggle the Off (red) / On (green) power button at the top right of the Throttle window. If not, something is not set up correctly.

Step B: Assuming you got this far, go to your WiFi handheld throttle (your cell phone or tablet), and enter the same loco address (**6**) and hit **Set**.

Step C: Now go change the speed setting for this imaginary loco (6) on your handheld throttle and watch the throttle speed indicator move on your RPi! You are now capable of running your trains on your own private network.

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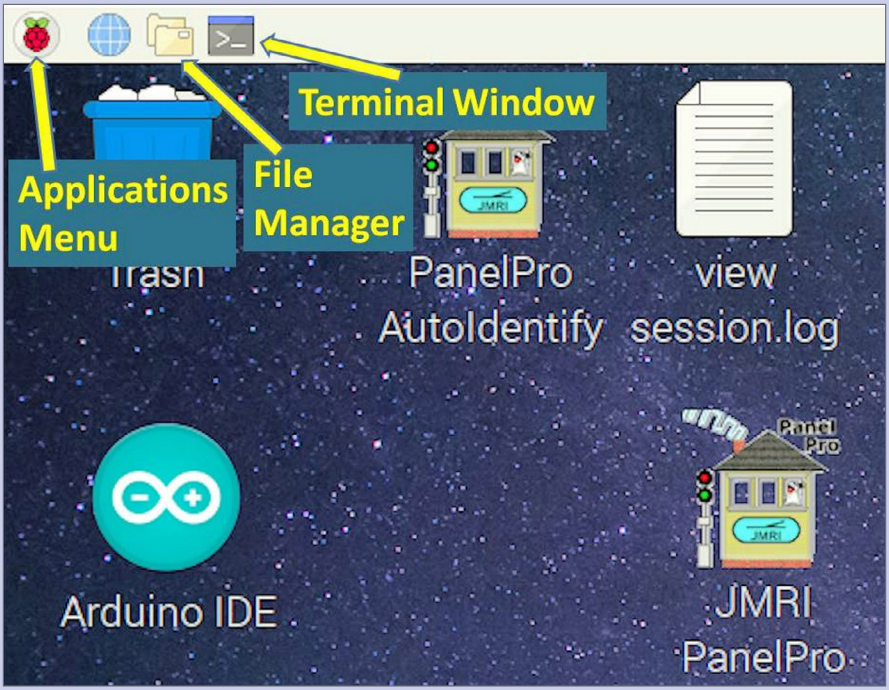
STEP 6: Customizing your RPi (optional)

There may be some things you would like to change on your RPi. You will find a wealth of information on the web, including Steve Todd's website: : mstevetodd.com/jmri-raspberrypi-access-point.

Let me add some quick notes which may be of help if you would like to make some changes. Most of these need to be typed in a "terminal window" which you can open by clicking on the black terminal window icon in the upper left menu bar [23].



23. RPi Main menu bar icons (top-left).

CONTINUED ... STEP 6: CUSTOMIZING ...

Here are some additional useful notes for modelers:

1. If you already have a JMRI loco roster entered on another computer, you can open the JMRI on your other computer and from the top menu bar click **Roster->Export Complete Roster...**, enter a file name, and save it to a USB drive which you can insert into your RPi and then from the JMRI top menu bar click **Roster->Import Exported Roster...**, enter a file name, and save the entries you want in the RPi JMRI installation.

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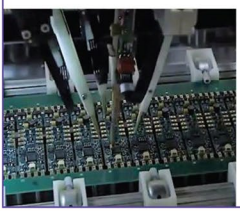

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CONTINUED ... STEP 6: CUSTOMIZING ...

2. In the terminal window, type **lsblk** to see which devices are currently connected to your machine. You will likely find **mmcblk0** as the main RPi disk, and if you inserted a separate USB drive, it may be listed as **sda** or **sda1**.
3. When you insert a USB drive into a running RPi, it will ask you if you want to look at the new drive with the File Manager (also accessible on the main RPi menu bar, the top-left). This tool is very similar to the MS Windows file explorer and will let you move, copy, and delete files and folders.
4. To change your WiFi SSID and password, click File Manager from the top menu bar, and instead of /home/pi in the entry bar, type /etc/hostapd and hit enter. Right click hostapd.conf, and select **Open With...** -> **+Accessories** -> **Text Editor**, then OK. Then edit the lines **SSID=model-rr** and **wpa_passphrase=model-rr** to whatever you want to name your network and its associated password, like: **SSID=my_WiFi** and **wpa_passphrase=supersecret**. Then save and quit the editor. Re-booting your RPi should follow.
5. To safely unload and eject a USB drive that you plugged into your RPi (for file transfers), click the up arrow on the far upper-right of the main menu bar. A list of devices should appear. Select the one you want to eject, and a message should appear saying that it is now safe to remove the device.

CONTINUED ... STEP 6: CUSTOMIZING ...

6. To change the screen resolution on your display, click the **raspberry icon** (the Applications menu icon labeled in [23]), then **Preferences -> Raspberry Pi Configuration** and the Raspberry Pi Configuration window should open. Next click **Set Resolution...** -> then **down arrow**, and select the new screen resolution you want.
7. To shut down your RPi in an orderly fashion, click the **raspberry icon** (the Applications menu icon labeled in [23]), then **Shutdown...** and in the new small window that opens click **Shutdown** again. Wait for the small indicator light on your RPi to stop blinking, then turn off the power. ***Caution here – see our note below.***
8. There is another alternative to equipping your RPi with its own mouse, keyboard, and display – VNC Viewer. If you have a WiFi-equipped laptop or PC, you can load, run, and configure VNC Viewer to open a window on your PC that will behave as if it were the display on the RPi. The mouse and keyboard on your laptop will act as if they were

M. Dodd

RPi powering down best practices

The web is full of warnings to never power down an RPi by just killing the power. Always do the orderly shutdown recommended by Geoff in #7, above. If you have a "headless" RPi, you can add an orderly shutdown power button using one of these aftermarket kits: mausberrycircuits.com. Or if you're more adventurous, here is a do-it-yourself video: youtu.be/W5YTm0xkCb8

CONTINUED ... STEP 6: CUSTOMIZING ...

directly connected to the RPi as well. Sometimes called a "virtual or remote desktop," it will give you full access to set up and configure your RPi and its applications, like JMRI. You can find the documentation and the software here: www.realvnc.com/en/products/viewerplus/

Download a copy for free, personal use. VNC will need to be configured on both your laptop or PC and on your RPi. It is already installed on your RPi, with a general access password of "model-rr" which can be changed to suit your needs.

9. You can plug your RPi into your home network (your LAN) via an Ethernet cable to the "Wired Network" jack in [12]. If your home router is set to automatically assign IP addresses (via DHCP), the RPi will auto-connect and give your RPi the same capabilities as if you connected your laptop to your net, including web access if it has it. Click the blue globe icon on the upper left main menu bar on the RPi screen to open a web browser.
10. When using VNC, remember to shut down the RPI as instructed per #7 in this list.

There are many more things that a modeler can do with an RPi. This article should get you started on a whole series of new adventures in model railroading, quickly, and for relatively low cost! Have fun! ☑

Dr. Geoff Bunza

Geoff Bunza started as a model railroader when he received a Mantua train set for Christmas, at age 6. He fed his interests through college, becoming a member of the Tech Model Railroad Club (TMRC) at MIT while getting his doctorate and three other degrees in electrical engineering. He has collected Lionel HO trains for many years, which spawned his interest in realistic model animation and control. Primarily, he models the New York Central Railroad.

Geoff is a member of the New York Central System Historical Society, a life member of the NMRA, and holds an Extra Class amateur radio license. ■

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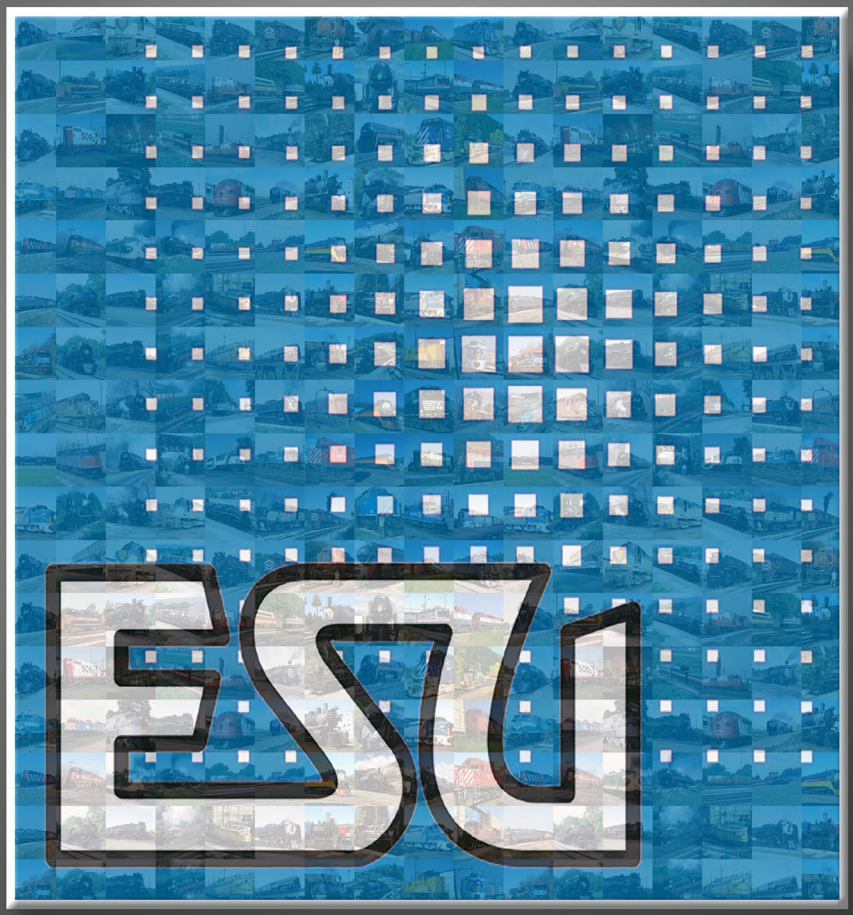

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Lee Nicholas' Utah Colorado West

Also

THE MRH STAFF *visits this popular operations training ground layout ...*

1. Lee Nicholas' layout will be on tour this coming July at the NMRA National Convention in Salt Lake City.

MRH: Hello, Lee! How did you end up a model railroader?

Lee Nicholas: It goes back to my early childhood and living in Corinne, Utah, the last town established before the Golden Spike site.

My great-grandfather and his brothers lived and homesteaded in Promontory, so Promontory's been like a second home to me my entire life. The original transcontinental grade runs through our farm to this day.

That got me excited about trains. My dream was always to have a model railroad of sorts – it started out with me being able to build in this basement. This is the home where I grew up. So I've had trains in here literally my entire life.

MRH: The Utah Colorado Western. Why are you modeling that?

Lee: I started out in prototype railroading. My dad worked for the SP, and I spent time out in Promontory, especially at the point where the causeway was built in the early '50s. So, the SP was part of my journey.

Then I discovered the Denver and Rio Grande Western. And then I discovered the Utah Railway. Of course, the UP runs through Corinne, and I was always around that – but these other railroads just fascinated me. I was heavily into the Rio Grande for

2. When you first enter the layout room, you see the stub-end engine terminal here at the east end of East Yard. To the left (west) out of the picture is East Yard proper [3].

a long time. I couldn't decide on a specific prototype. So rather than have all kinds of power on here, I decided to freelance.

My paint scheme incorporates my three favorite railroads. My overall color is SP Dark Lark gray. The red stripe around the body is from the Utah Railway. And the red tiger stripes on the front I modeled after the Denver & Rio Grande. So, I combined my three railroads to get my freelance paint scheme.

MRH: That's cool. Why this era and location?

Lee: I wanted to model Utah, between here and Colorado. That let me include my love for the Rio Grande. The old Denver & Salt

Lake line was going to come to Salt Lake but never made it, so I kind of extended that. Utah is my home state, so I wanted to honor that in my modeling, too.

MRH: That explains the location. Why the particular era?

Lee: I chose 1967 for a couple of reasons. First, that's the year we got married, so I can always remember that! And the late '60s is also the transition between first and second generation diesels, so I could have both. I could enjoy first generation diesels, and my newly-acquired love of second generation diesels.

Occasionally a car will creep in that I just must have that doesn't quite fit that era, but you know, freelance modeling lets me cheat a little, too.

3. Here you can see the rest of East Yard and the town of Shasta with its station in the foreground. East Yard is the main yard on Lee's layout.

4. Coal traffic makes up one of the more common consists you see on the Utah Colorado Western. You can see how the UCW paint scheme uses elements of the SP, DRGW, and the Utah Railway.

MRH: How did you develop the track plan? Did it take many iterations?

Lee: I have built several railroads in this basement. Each one has been a learning as to what works and what doesn't work. The present track plan started as a doodle I made on a piece of paper, influenced by Allen McClelland and his V&O, plus Dave Barrow and the Cat Mountain & Santa Fe. I used their concepts of linear aisles, turnbacks, and those kinds of things to come up with the present track plan.

One effort that took work was avoiding a duck-under. To do that, the track along the outside walls doubles back on itself and then enters staging.

The track plan evolved as we went along and as we rebuilt parts of the layout. The track plan is actually a kind of rough sketch. Once you start building, you keep what works, and what doesn't work, you change.

MRH: When did you start construction?

Lee: Which time?

MRH: Tell us, briefly, about the various iterations of this layout.

Lee: The first layout down here was when I was a young child. My dad built a bench for my trains but that was soon forgotten.

5. This new sugar beet plant at Jiggs has become one of Lee's favorite scenes on the layout. When Lee expanded the basement a few years ago and moved the active staging area (aka, the mole) to the new basement space, it allowed adding this scene. Lee couldn't be more pleased with it!

I built my first HO layout in the late '60s, and I followed a track plan that was in one of the hobby magazines. "Six track plans you can build," it was called. I picked the last one and built it.

That lasted about eight months. I had bigger visions and more basement space, so I tore that one down. And I learned a lot – I learned mostly *what not to do.* Not so much *what* to do, but I knew what I didn't want to do!

I started in half of the basement and built a layout following a track plan in *Model Railroader.* That would have been about 1969. I added on to that layout over the years as I acquired more of the basement. It was a kind of a scab job, but I learned a lot.

One thing I learned was don't build it low to the ground. I had outsiders say "Oh, you need to build it so your kids can view it," so I built 30 inches off the floor. Today, I wouldn't recommend that to anybody unless you're doing a multi-deck layout and have no choice. Kids grow up, so having it that low was not a very good idea.

In the 1980s, I tore that layout down and built a new one, and it lasted into the 1990s. I started the current layout in 1995, and it has grown into the layout I still have today. The last modification I made was in 2013 when we dug out more basement to make room for the new mole. We dug out about 20 tons of dirt one bucket at a time! It took us about a month with the help of my crew.

But that's it. I'm not doing any more!

MRH: What iteration is this layout?

Lee: The iteration that I'm at now is something like four point five. Realize this layout has been added on to a number of times.

MRH: Okay, that makes sense. As you've gone through the process of building, rebuilding, and expanding, did it always go like you expected, and was it as fast as you would have liked?

Lee: I would say it went pretty much as expected. Of course, by layout four, I had perfected a lot of techniques so it went together pretty much how I had figured. Using spline roadbed, for example, went fairly quickly. It probably progressed *faster* than I expected. I had a lot of help.

To get the layout through its biggest rebuild when we tore two-thirds of the layout down, back to our next op session with no undone bench work or anything, took us exactly one year.

6. Local fellow modeler Rob Spangler painted the backdrops on Lee's layout. This example shows how Rob's backdrop nicely expands the layout and blends with it very well. Can you spot where the layout road ends and the backdrop road starts?

7. Lee's layout has an active interchange and secondary line with the CB&Q (Burlington Route). Here a CB&Q train rounds the bend between Lone Pine and Sage Hen.

MRH: That's impressive. Your benchwork seems somewhat unique – I don't see a lot of legs, for instance.

Lee: I knew about L-girder and what was popular at the time, but I wondered about using TGIs or laminated floor joists. So, I pursued that. I found some at a lumber store for a very good price, and we put them in.

They're basically four laminated floor joists 26 feet long. We brought them in through the window in the basement, laid them on the floor, cut the legs, and lifted them up, and screwed the legs on.

Within 20 minutes we had both peninsulas constructed, and then we just started putting in the cross members and the risers

wherever needed. All very quick and very easy to do. And absolutely indestructible for a model railroad. I mean they're built for a home. You can walk on them!

I like that there are only legs at one end. The other end ties into the basement wall, so only two legs. The whole railroad just floats in midair. That makes it very easy to get under it and work on the wiring. Works out great.

MRH: Yes, you don't see many legs.

Lee: There are more legs on the old part of the layout. I am considering putting some laminated joists there too. That's been in the back of my mind.

8. Going around the corner from [7] we see Lone Pine. The upper route is the CB&Q, while the lower route is the UCW main.

MRH: What have been your greatest challenges, and how well did you foresee them? Were there any nasty surprises?

Lee: A lot of the challenge early on was learning techniques. A lot of it is just learning as you go. It doesn't take much to mix plaster for instance – that's not exactly rocket science.

Most of the challenge has been the CTC panel and the signaling – and the electronics behind that, along with the software. That's been a daunting task for me. I'm not an electronics engineer nor am I a software programmer, so it's been hit-and-miss. Sometimes you hold your breath when you turn it on, wondering if it's actually going to keep working!

I've met some great people in the last ten years who have really helped me with the CTC panel and the signaling. I feel much more comfortable with it now than I ever have, and it works fairly well. We do have one little glitch we need to work on, and then we'll have it rock solid.

One of the frustrating things I've had to combat is water, because we live in an area where there's a high water table. I was flooded out a year ago in January – I had four inches of water down here. That's been a sore spot since I've lived in this house. I have a sump drain and it helps, but the sump has to be running for it to not flood, and that was the problem.

MRH: The sump pump?

Lee: The sump pump didn't fail, the breaker shut off. I've had to empty this basement out of water before so it's just something you have to deal with.

MRH: Any other surprises?

Lee: We did have some wonderful surprises.

For instance, when we started using laminated Masonite for doing our subroadbed, that was a wonderful surprise. We didn't know if it would work or not, but once we found the right glues to hold it together, it was great. Building a railroad using spline is marvelous. Easements get built in naturally, you can adjust the curvature as you go – it actually is very cool.

MRH: What do you like most about your layout, and what do you like least?

Lee: I really don't like the low ceilings. I don't have high ceilings in this basement. This basement was constructed probably 80 years ago and was dug out by hand, so they didn't go down far.

9. Tres Pinos Yard (right) marks the other end of the CB&Q line just before entering CB&Q staging at the far end of the shelf. This part of the layout is double-decked, with the UCW on the lower deck.

10. Across the aisle from Tres Pinos the UCW line approaches the town of Watercress. The elevated industrial park hosts Pioneer Meat Packing and Golden Valley canning.

I would like to have higher ceilings, but I don't know that I would go eight foot. I like a little lower ceiling because the lighting valance is easier to work with.

But do I like my layout? I love my layout. It's been years to getting it to where it is. I'm not saying it's perfect, but in my eyes it's almost perfect. It runs the way I want it to, it's fun to operate, and we have a great time on it. The guys keep coming back, so I guess we did something right.

MRH: What's your favorite part about the layout? If you pick one thing and say "This makes my day. This is a dream come true for me" what would that be?

Lee: The latest addition that we did at Clayton Yard and Jiggs with the sugar plant. That come out just how I envisioned it – it's exactly what I wanted. I love just going over and looking at it, because it's different than any other part of the layout.

I love that we have a live interchange there between the UCW and the CB&Q. It worked out how I had dreamed that area would be for many years. We finally pulled it off!

MRH: If you had anything to do over again, what would you do differently?

Lee: I would have exactly the same track plan, but I would build wider aisles. Other than that, I wouldn't change a thing.

MRH: It's pretty close then - quite satisfying.

Lee: Yes, I think we've nailed it.

MRH: Talk to me about layout height.

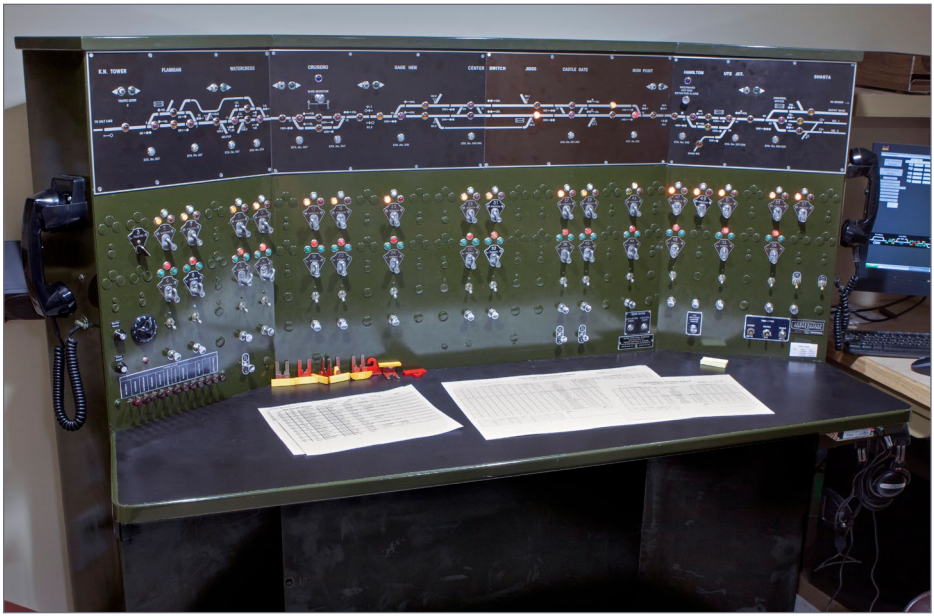
Lee: The low part is 42 inches. And that's the previous old layout there. It runs from 42 to 56 inches at the high point. I've set the main yard at 48, which I think is a desired level. Between 48 and 53 inches is perfect for a yard.

We climb from 42 all the way up to 53 inches. We would have lost that helper division if I would have raised the layout any higher.

We also have the CB&Q that goes all the way up to chest height, probably somewhere around 60 inches.

MRH: What's the ruling grade?

Lee: Grades on the UCW main are just a little under 2%. As for grades on the CB&Q, there's one point that's probably just over 2%, but for most of the railroad, it's right around 2%.



11. The UCW uses Centralized Track Control signaling and has this CTC machine adapted from real CTC machine parts salvaged by Rod Loder. Under the hood, Lee uses Bruce Chubb's CMRI to run the CTC panel and the associated signals on the layout.

MRH: What's your least favorite part of doing a layout, and how do you motivate yourself to do it anyway?

Lee: Probably wiring, that's the most monotonous to do but it has to be done. I know it must be done, so I just do it. I'm not as young as I used to be, so I don't really relish getting under the layout but I do it anyway.

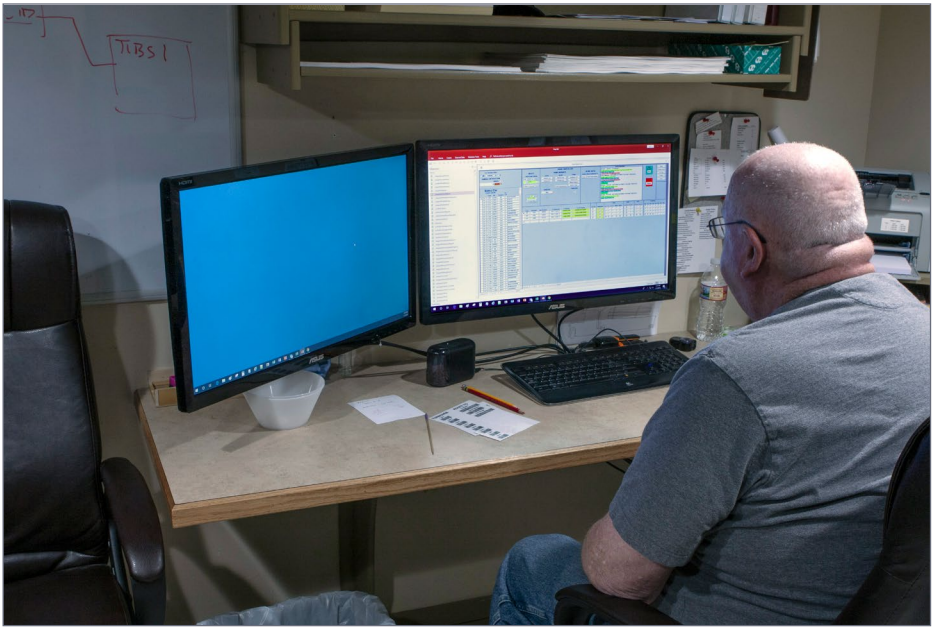
So wiring is monotonous, but when it ends up like this [pointing at the CTC panel] and you see a working result, that does help you get motivated.

My other least favorite thing is maintenance. There's a certain amount of maintenance with this railroad, but I've got some

good help on that now. One gentleman, Daland Spiers, has been helping me, and he understands CMRI very well. That helps a lot.

I don't know, when you're doing plaster work too, with bags and bags of plaster, that can get old after a while. But when you start to see the end result appear, that inspires you, so there is that.

But really, there's a lot more *under* the layout than there is on top of the layout. That's the part of the layout nobody ever sees. They come, they expect the signals to work, the switches to



12. For car routing, Lee uses a custom program developed originally by Steve Karas called Flexbill. All the waybills stay in here in the freight agent office, while the road crews get switch lists to work with. Lee finds managing the waybills in the office here (instead of out on the railroad) allows him to spot bottlenecks early enough he can react and call extras as needed before the railroad gets clogged.

13. When you enter Lee's active staging area, you get greeted with this sign – we had to chuckle! Lee pioneered active staging – managing off-stage trains during the op session. It started out using staging buried under the layout 25 years ago, with a cramped position that got dubbed "the mole." Over the years it has evolved to the point the mole and active staging moved into its own room (thanks to Lee expanding the basement a few years ago).

throw, and everything to work perfect. They have no idea what it took to get there.

Then when something goes wrong and they come help you fix it – they get underneath the layout and look around and go "holy cow!" Most don't realize what's under there and what it takes to keep these little trains running!

MRH: Speaking of what it takes to keep the layout running, can you comment on layout size? You have a pretty good size layout here.

Lee: The layout is 30 by 33 feet, plus the lounge area, the CTC area, and our mole area in the back. The main layout is 30 by 33. That's plenty big enough for me. I know some guys out there are building huge layouts today and bless them. But I don't know how they maintain them.

There's a lot of work to just keep this guy up. Sometimes if you get too big, I fear you start to cut corners, and it won't be as neat as you thought it would be.

For me, this is perfect size for me to take care of. Like I said, if I had a bigger basement, I'd have the same size layout, I would just have wider aisles. That's the only thing I would expand.

14. In this panoramic view, you can see the new active staging area, which is very nice indeed. The operator staffing this position, still dubbed "the mole," makes up and breaks down trains during the operating session. Note the drawers – they house the cars and paperwork for the premade trains to be going out onto the line.

15. The shelves house cars waiting to be reassigned to trains. The upper shelf with track is the staging for the CB&Q, while the UCW staging tracks are down below at the extreme lower left of this image [17].

I wouldn't try to put any more trackage in. I don't need any more track. What we have works just fine.

MRH: Yeah, too much layout can start to really complicate your life.

Lee: It depends on what you want out of your railroad, too. Now, you've noticed this layout is basically narrow benchwork. We do have a long distance between towns. We have a lot of what we call green space.

When you leave Watercress and run clear over to Jiggs, that's quite a distance of just open running. And then from Jiggs down to East Yard, we have more open running there, too. One design

16. Lee added a security camera TV system to monitor the hidden trackage to and from staging. This helps the mole keep an eye on inbound and outbound trains and make sure all is well.

goal of this layout is to have what we call green space, without a town every five feet.

I don't like it when you leave one town and your caboose is still in the other town. I tried to avoid that and I think we pulled that off fairly well.

There's enough switching and through running to keep a crew of 14 or 15 busy for five to six hours on a Saturday. There's plenty of work for everybody. You don't need a gymnasium-size layout to have fun. When it comes to operations, you can have fun on a little switching layout.

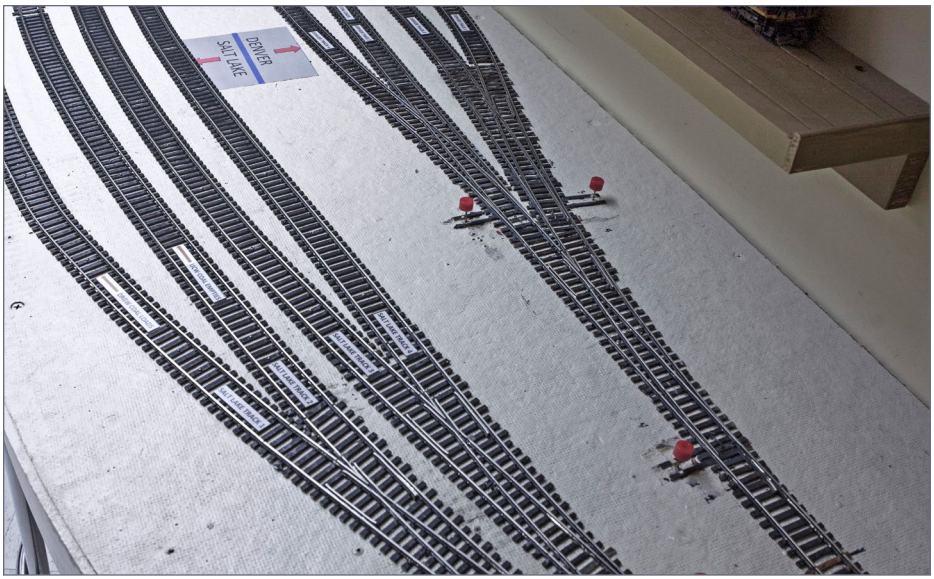
MRH: Do you have any interest in any other scales, or would you ever consider modeling in a different scale or gauge?

Lee: No, I love HO. We participate locally in some N scale layouts. To me, N is just too small. I get frustrated because at my age I don't see as well, and I can't read the numbers at all on N scale.

I get the ratio between the size of the engines and cars to the scenery. I understand that. But it's just too small for me.

If I was going to leave HO, I could go to Sn3 because I think that is the perfect scale. S is a wonderful scale to be in. But then you will need to deal with the steam era, and all of that.

But it would take a little bigger basement, I think. It would make the railroad seem smaller because the equipment's bigger, so I would think you'd have to have a little bigger room keep the same level of operating interest in S scale.



17. For the UCW staging on the lower shelf, one yard represents Salt Lake and the other yard represents Denver. While the yards are side-by-side, they represent opposite ends of the layout run.

But, I'm not going to change now. I've got too much invested in HO.

MRH: What's your philosophy on doing a layout well? For example, how do you narrow the focus?

Lee: I don't try to bite off the whole thing at once. Get the sub-roadbed in and get the fascia on. That's important, because when you catch one of those risers right here in the hip, it hurts! That also defines the boundaries of what you're doing.

Spline roadbed goes in quick. You can visualize things immediately, and if you don't like it, cut it out and splice in a new section.

Then I'll work on a scene until I have it roughed in. I coined a phrase: "layered scenery."

I made a goal with myself a long time ago that I would not have op sessions with open benchwork. It used to be I just put in a quick layer of plaster – but in this day and age I use spray foam insulation. It goes fast and I can fill in things quickly.

I finish that so it's not open bench work and it looks okay. Then I can come back later and add in details over time.

Get my roadbed in, get track laid, go through and put the scenery in overall, and then come back later and layer on details over time. Because, it's never finished, as you know.

One of my great friends, Kelly Newton (now deceased), was an N scaler but he used cheesecloth. He wanted to build the scenery before I put any track in or even wired.

This was going against my nature – it would be a lot harder to get the wiring in since you can't just reach underneath. But he convinced me to give it a try. We were able to put natural cuts and fills in by just laying the cheesecloth right over the roadbed. Then we'd come back and just cut a slot where the track would be and fold it down and get a natural cut.

18. Lee's layout includes very useful signs at each town. The sign includes the town name, mile post location, as well as identifying the next town to the west and the next town to the east. Nicely done, Lee!

It worked well. But I don't know that I'd do it that way again.

MRH: That's rather innovative. Any more hobby innovations?

Lee: This may not be exactly what you asked, but I think biggest innovation in the hobby has been glue.

MRH: Explain.

Lee: Early on, we had thick hobby cement. We had Elmer's white glue, Testor's thick tube cement, Ambroid glue – and that was pretty much it. And when we had CA – Krazy Glue – come on the market. In my opinion it revolutionized the hobby because now

you could glue parts together instantly. You could construct stuff so much faster.

Related has been the move to styrene and the availability of liquid cement you can brush on. To me, new methods of gluing have really revolutionized the hobby. You have a bottle of CA on your work bench, right? You're using it all the time. And if you had to give that up, what would you use if you didn't have that?

You're always using it. I need a quick bond. Zip, and it's done!

We couldn't do that 30 years ago. You always had to wait for the glue to dry, which made building things take many hours of time.

DCC, electronics, and all that, sure. But I've thought about this and glue has really been biggest innovation. If I had to give up anything, man, I would hate to have to give up my Krazy Glue!

MRH: Another one is LEDs.

Lee: LEDs, absolutely. Look at what they've done for the entire world, where we're headed with LEDs. Anyway, that's a side conversation.

MRH: When you operate, do you use car cards? How do you route the cars and make up the trains?

Lee: I'm not using car cards and waybills anymore. When we went to the active staging concept, my friend Steve Karas and I collaborated for a number of years on a piece of software that eliminates car cards and waybills.

We now use what we call a one-time use waybill. In other words, the mole active staging operator sends a car out, it makes its move, it comes back, then the mole puts it on the shelf and the waybill is discarded.

19. One of Lee's least favorite parts of his layout is the low ceiling in his basement. Here you see 6'-3" Joe Fugate's head brushing the ceiling in the crew lounge. Lee's house was built in the early 20th century and digging out a basement by hand in those days meant a low ceiling is just what you got.

So we came up with a program we call Flexbill. Steve passed away in 2012, and I've been using Flexbill since then.

I come up with a different concept than what he had. I wanted to introduce an agent into the process, and totally eliminate the crews having to handle a mitt full of waybills. So, I came up with this process in Flexbill where we have an agent now who can generate that paperwork.

MRH: You have a "freight agent" position, then?

Lee: Railroads run on paperwork, even to this day. A car has to get from A to B, and they use a waybill to generate the car movement. Of course, today it's computerized.

For model railroaders, the best way to do that has been cards and waybills. It's basically a little envelope that stays with the car, and then inside of that you insert a waybill. Sometimes they can have two spots on each side, that's four spots total, or one spot on one side, however you want to do it.

Those go with the car when the car's been delivered to, say, a shipper online. Then that waybill, when you pick it up, would be rotated to give it a new destination someplace else, offline, or whatever. It's still very popular today.

With the way we work with our mole staging, we wanted to generate a one-time use waybill that could be discarded after the car had completed its run, and then have a new waybill generated after that.

So Flexbill today has the one-time use generated waybill. When the car's completed its move, we simply throw that waybill away and generate a new car movement when we "waybill a new day" for our operation.

MRH: So, the Flexbill software is the heart of how you route cars, then.

Lee: Today I use Flexbill with the PC, with the agent process in real time during a session. I wanted to get the data in accurately and fast, so we barcoded everything. All our cars have barcodes on the bottom that we can scan to get the car number into the system, and then the waybills that we generate have barcodes on that I can scan. So, I scan that information into the computer. It's quick. It's accurate. And it works.

MRH: The desk here with the racks behind it; is this part of it?

Lee: This is the agent center right here. The envelopes represent the trains. The rows are for the tricks [shifts]. We have three tricks. I use these slots to stuff the waybills in, based what they're doing. This happens to be a spot, the next two would be a pull. I organize the waybills so I can keep track of them by train and stay organized.

This top row has all my customers on the railroad. There I keep the cars that have been delivered to the customers. For example, this car's been spotted at this customer here. When this car gets pulled, or picked up, then it moves off the railroad.

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When the cars terminate they go into the deleted box over here, and they're deleted out of the temporary table in Flexbill. The car gets put on the shelves awaiting its next assignment. I have the yard over here, and other industries up here.

With car cards and waybills, they're put out on the layout in little cubby boxes, probably on the fascia usually by industry, and kept there until that car is picked up and moved someplace else. And the car card and the waybill accompany that car to its next destination.

With this system here, all the waybills get kept in the office. The agent handles this just like the prototype would. The agent keeps track of all the information according to those customers. What goes out to the individual crews now is a switch list with a breakdown of all the cars in the train.

This list happens to be for a local, so this one shows the spots. The next page shows the pickups. If it's a road (through) train, it may stop and set out a block of cars and/or pick up a block of cars. We do setouts and pickups for those.

MRH: How has it worked out in practice?

Lee: It's been a lot of work to get here, but it's working out very well. I think my crews enjoy it. I certainly like it because I keep all that paperwork off the railroad.

As the agent, I can now see where I might have a bottleneck generated, because I'll get a group of excess waybills that'll show up over here. I'll go "Wow, I'd better call out an extra!"

I never really had that vision with car cards. Because they were always out on the layout, you never saw a problem happen until after the fact. Then it's too late. So, this is more real-time. You can see it as it develops.

For instance, in this area right here, Flanagan, we'll sometimes get a buildup of Denver cars. About every third session, I have to call an extra because we'll have a buildup there. Like I said, couldn't see that with car cards, because this position didn't exist.

MRH: Does this position get tedious?

Lee: I like it because I can come down here and play trains. It takes me maybe four hours max to waybill the railroad, but I do that over a month's period of time. As I do this, I get to see my whole railroad work. I see every car movement, I see which trains they go in.

I get to do all this without ever having to turn the layout on, or to boot up the computer. I can actually "run" my railroad via this paperwork by myself.

So, I get to run the whole railroad by myself – and it's a lot of fun.

MRH: You are a big fan of wireless loco control. Tell us about that.

Lee: My goal has been to get away from the signal in the rail. I'm not trying to create a flame war here with DCC.

I came from Dynatrol – signal in the rail – to Rail-Lynx, with no signal in the rail, and operated that way for 25 years. To me, there were all kinds of advantages.

Rail-Lynx was an infrared line-of-sight control from your hand-held controller direct to the locomotive. The drawback was the line-of-sight. We had to compensate by using repeaters to make it work. But we got used to it over the 25 years we had it.

MRH: So, you made Rail-Lynx's infrared signal work for you.

Lee: Yes, you can bounce the Rail-Lynx signal off the walls or off the ceiling and skip it around – and we learned how to do that over the years.

But when we put in this new active staging area for the mole, the line-of-sight issue became a real problem. We're now a cement wall away from the railroad, and it was getting to be a concern of how we'd get trains from here to there and control them.

So, when RailPro came out on the market a few years ago, I looked at it hard. Because it was radio frequency now, it had no line-of-sight limitations.

The RF repeaters are built in to the RailPro power supplies. There're four power supplies on the railroad, and they each act as a repeater, too. So, there's no dead spots in the basement anywhere. I was sold.

MRH: So, you've become a big fan of RailPro.

Lee: Yes, I like how it's totally upgradable. You plug the handheld controller into your layout's system server and you can download

20. A mixed freight just out of East Yard rolls westbound through Hamilton. In the background is a raised industrial area that Lee upgraded and reworked in 2007.

any changes to any module, to any power supply, to any accessory, and to any throttle.

Whatever changes you've downloaded to your central system, you simply upload those to the handheld controller. I can go in and if there's software changes on any module in any engine, and if there's a new sound that comes out – whatever it is, a prime mover, a bell, a whistle. I'll save it to the loco module and then you can assign that to a horn button or whatever and you got the latest sound. It's never obsolete.

Probably the thing that sold me most is there are no CV settings. It's all done through icons on the screen. Whatever you want to put in the buttons, it's your choice. You can configure them any way you want visually with buttons on a touch screen.

We also don't need to do any speed matching. When you put a module in an engine, you do a stall test as part of the process, which lasts approximately three seconds, and that registers the milliamp draw for that loco.

When you want to link up locos in an MU, the lead unit talks to the following units in a consist, and it will tell the follower units to speed up or slow down based on what it sees in as the milliamp draw. Super simple to set up. Just a couple steps and you're there.

MRH: So, you don't mind the touch screen part?

Lee: I like how you can do anything you want simply by touching the screen. You can jump around from engine to engine, you can go back to the main page, you can get to all various functions on here.

It's a great system. I really like it. And it's got full sound capability. I highly recommend it.

MRH: What happens if someone brings a DCC loco over here, or what about taking your RailPro locos to other layouts?

Lee: This last year, Tim (Tim Ring, the man behind Ring Engineering and RailPro) created the capability for RailPro's modules to be controlled by DCC throttles.

You go to a screen and you enable the DCC option. I can take my engine to a DCC layout and run it with their NCE throttle, or Digitrax throttle, or whatever.

So, you could buy a RailPro loco module and use it on your DCC layout and control it with a DCC throttle. But I can't control DCC locos with the RailPro throttle.

But you don't really need to enable DCC if you're running it with RailPro on another layout that's DCC. I can take my engine and controller to a DCC layout and run my loco with a RailPro module inside using my RailPro throttle.

All I need is power in the rails to run. I don't need any signal on the rails, the RailPro control signal goes straight from the throttle to the loco. If you're short on throttles, and I take my RailPro throttle and locos, that becomes an extra throttle.

I can run my RailPro engines on their layout without any problems whatsoever.

MRH: Okay, last question.

Lee: Your last question: how fast will the trains go? No, that's not it?

21. In the final analysis, Lee says he loves his UCW layout. While he admits it's not perfect, it's plenty perfect enough for him. Lee's layout remains extremely popular among modelers who like to operate, so he must be doing something right!

MRH: No, that's not it! What advice would you give someone just starting out in the hobby?

Lee: That's an interesting question. What advice would I give to somebody starting out in the hobby? Don't give up your dream. Today, different to when many of us started, kits weren't that expensive. Rolling stock today is expensive. It takes a lot of money to be in this hobby. And I think it's like any hobby.

For young kids to start out and to have something like we have here, don't give up if this is something you want to pursue. I didn't give up. I kept at it. There were times I'd get discouraged. There are times even to this day when I come down here and I say, "I'm sick of this stuff."

So, I just stop, I turn the lights off, go upstairs and I don't come down here for two or three days. You've got to let your batteries draw down, and then get them recharged again so you can come down.

My philosophy to get things done is an hour a day. If you do an hour a day, you'll get things done on your railroad.

Now that doesn't mean you have to work an hour every day.

Sometimes that can be four hours on Saturday, for example. But an hour a day is my philosophy. You can get up early before you go to work, or an hour when you first come home, and you'll make great progress.

This is what keeps you going along. Set that as a goal, average working on the layout an hour a day.

Don't get discouraged. Don't be shy to come up and ask somebody for help, or to ask "Can I run on your layout? Can I join your crew? I'd like to learn about operation." Those types of things.

I was talking to somebody the other day about operation, and he paid me a compliment and said I was well known in the

operations circle. And he says, "People out there are nervous to do that because of who you are."

I said "Yeah, I know that, because that's exactly how I was in the hobby, years ago." I had my mentors, and over time, because you stuck with it, you were able to meet those people.

One of my heroes was Allen McClelland, and I actually got to meet him. He came out here for a convention we had in 1986 and was one of the keynote speakers for our NMRA convention. He came early and I got to spend three days with him.

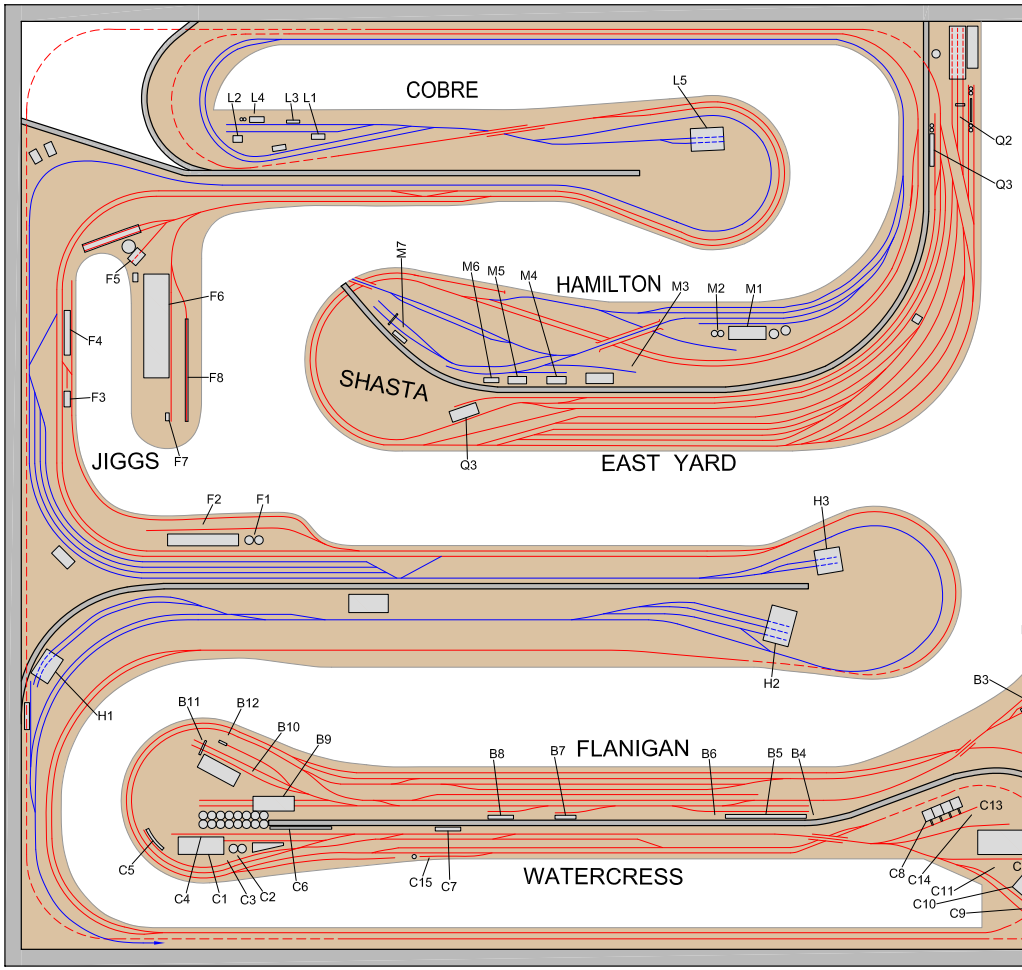
What a friendly guy – and most helpful to give you ideas and suggestions.

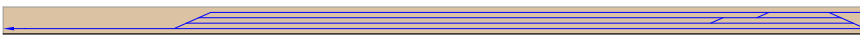
People today, they're nervous because they think you will talk down to them. You'll find out that most guys are willing to give and share information. We're just waiting for people to ask us. So, don't be afraid to talk to people. Ask those that have been at it a long time for ideas.

If you're interested in operation, don't be shy about asking somebody to come and operate on their layout. What's the worst that could happen? They will tell you no.

But 99% of the time they will say "Absolutely, how about next session? This session is already full, but I'll invite you next month." And you bring them in, and since they're new, you give them a mentor here on the railroad and let them run.

And just remember one thing, the most important: it's just a hobby. Okay? It's just a hobby. Don't get way over the top. ☑



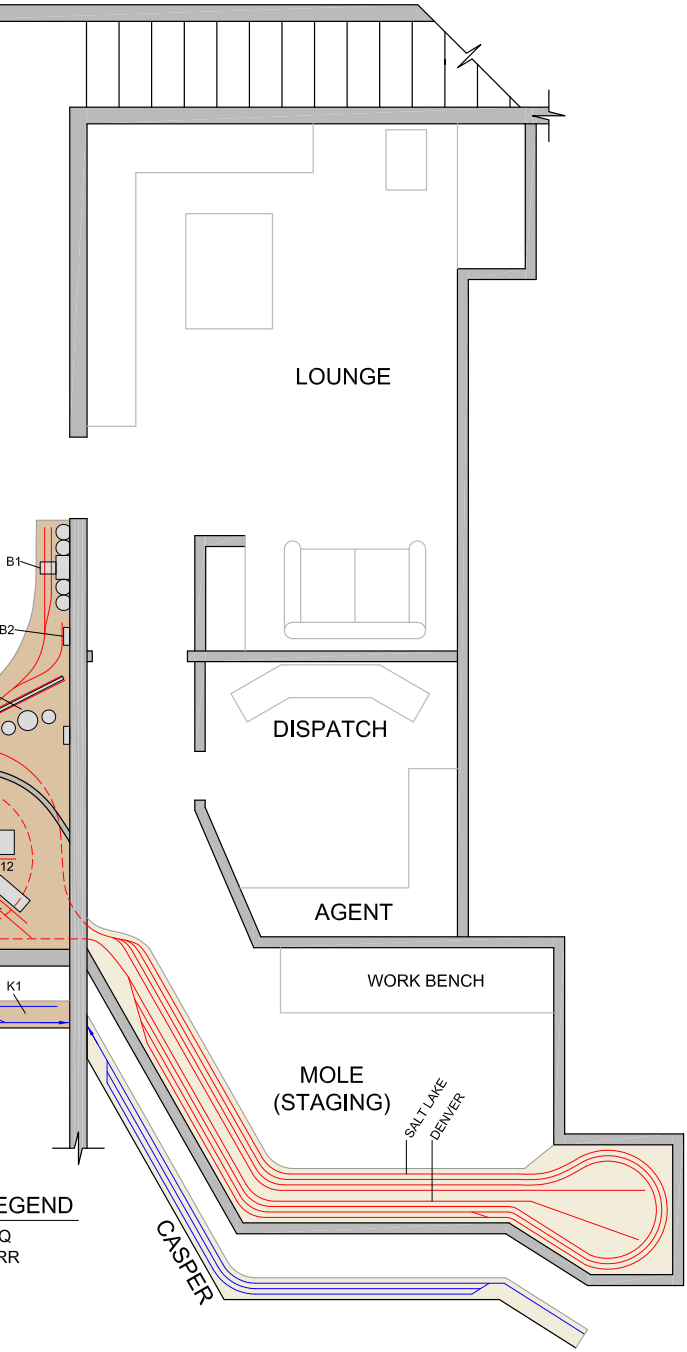


Lee Nicholas'

UTAH COLORADO WESTERN

Room approx. 30' x 33'

TRACK LE
BLUE = CB&
RED = UCWR



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F2 WESTON PETROLEUM DOCK
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F5 BRIMLEY SUGAR BULK LOADOUT
F6 BRIMLEY SUGAR WHSE DOCK
F7 BRIMLEY SUGAR TANK
F8 BRIMLEY SUGAR RAMP

FLANIGAN
B1 CENTENNIAL MILLS
B2 C&G CLARK
B3 ROBINSON SEPTIC & SLUDGE
B4 BOYER TANK
B5 BOYER COLD STORAGE
B6 BOYER CANNING
B7 UTAH STEEL
B8 WAITE CHEMICAL
B9 FARMERS GRAIN
B10 FOSTER CARLOADING
B11 FOSTER TEAM TRACK
B12 FOSTER TOFC

WATERCRESS
C1 LOADING DOCK
C2 LOADING DOCK
C3 SOLVENT WHSE
C4 WAREHOUSE
C5 TANK FARM
C6 DULANEY MILLING
C7 LOWER PENS
C8 JOHNSON PENS
C9 CLEANOUT
C10 ICE DECK
C11 DOCK REEFERS
C12 DOCK BOX CAR
C13 BOILER
C14 TALLOW
C15 HELPER SPUR

HAMILTON
M1 PORTLAND HIGH
M2 PORTLAND LOW
M3 STINKER SCRAP
M4 SPANGLER PAINT
M5 PHOTO ELECTRIC
M6 LIMP NOODLE
M7 KELLY STEEL

COBRE
L1 BRAY FRABRICATION
L2 DISTILLERS GRAIN
L3 TEAM TRACK
L4 INTERSTATE FUEL
L5 CASTLE GATE COAL

LONE PINE
H1 UINTAH MINING
H2 BEAR RIVER MINING
H3 CARBON FUEL

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K1 SCHEN OIL

SHASTA
Q1 RED WING MILLING
Q2 ENGINE SERVICE
Q3 DEPOT

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SALT MINE switching problem

Model Railroad Hobbyist | March 2019 | #108

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GREG BAKER: How would you switch this salt mine?

ONE OF THE MORE INTERESTING AND COMPLICATED places I have had to switch was a salt mine. The main reason for the complication was that it was originally served by three different railroads; now only served by one, and as a result it has some odd track arrangements.

With only one railroad switching the facility, connections to the other lines are all cut back and stub-ended, making it important to know how many cars will fit before you run out of track.

To reduce confusion, for this problem I have simplified the track arrangement a bit by removing tracks that are not needed for this problem.

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Greg Baker on the secrets to more realistic scale figure painting.

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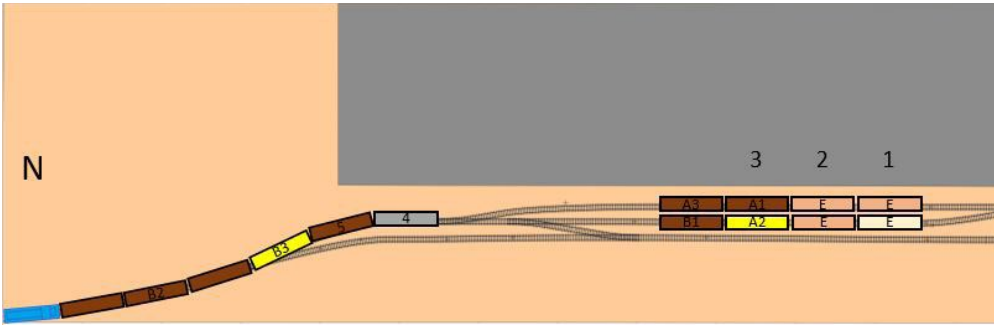
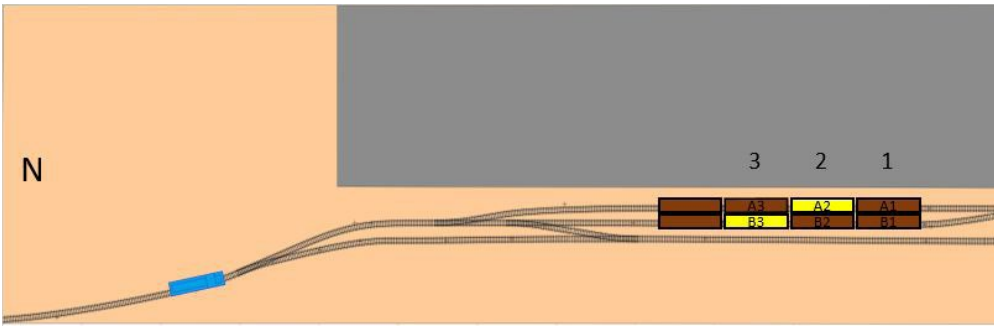
What made the operation interesting? We would start by shoving into the facility, heading south to spot the facility. The first task was to pick out the empties and shove them south.

Next, we grabbed the cars to spot on the south end of the building and placed those on top of the empties. We then



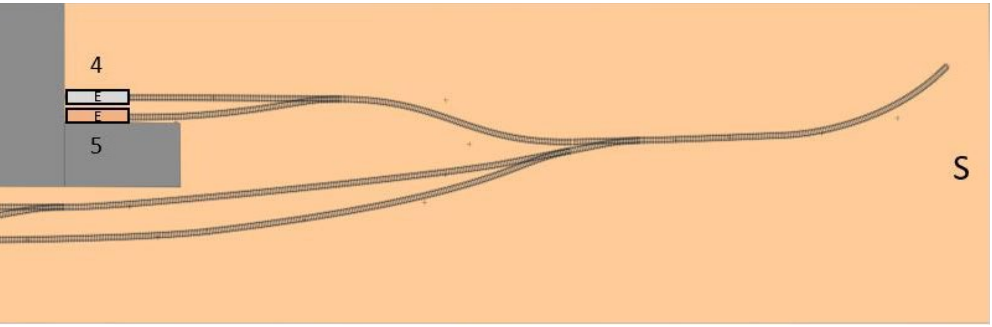
1. Start: Here is a typical start to the day the locomotive (blue) on the North end with some of the cars to spot in the train. The first order of business is to gather the empties (E), place all the cars for the backside south of spot 1, and get the front side spotted.



2. Middle: With the front side complete it is time to run the engine to the back side to take care of the remaining spots and get the train ready to depart. (This took me 27 moves to get the power light with 4 cars spotted and both tracks).

would make sure to spot up the requested cars on the front end of the facility, the cars lined up for cross spotting.

Cross spotting is having a car spotted with a door on one track, opening both doors on the boxcar and crossing through the car to a car spotted on an adjacent track. This allowed



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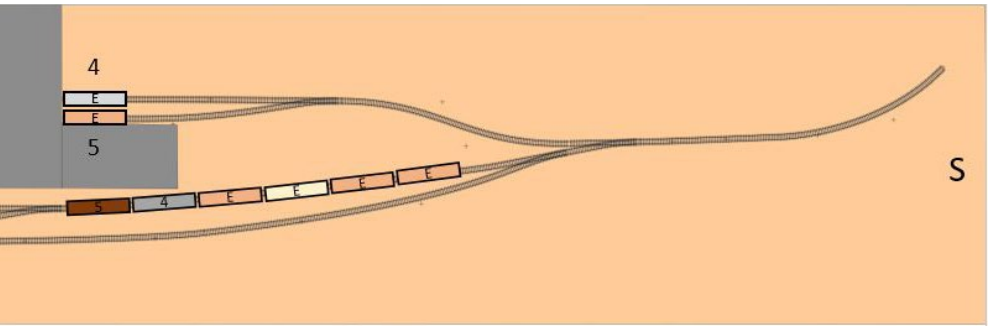

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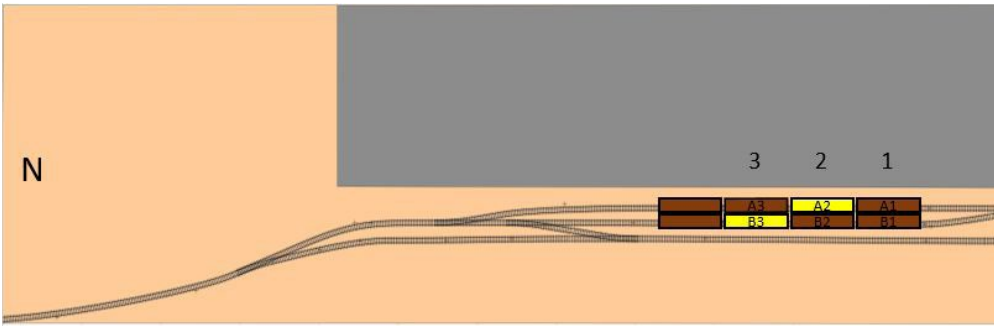


3. End: With all the work complete it is finally time to gather the empties and shove out to the mainline. (In total, taking care of the front and back spots and gathering the empties took me 45 moves.)

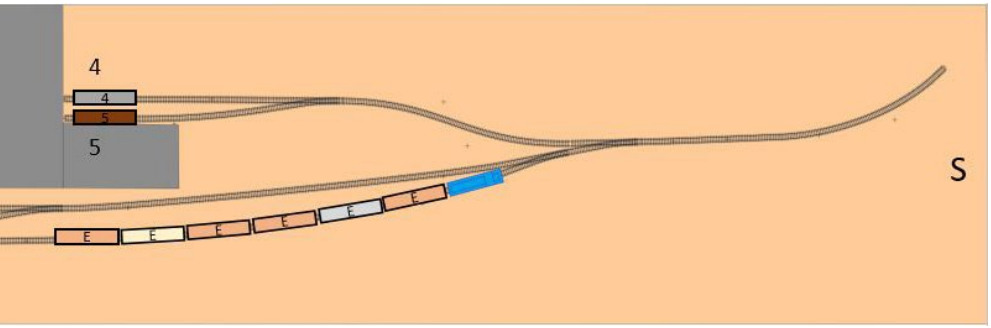
using a single door on a building to load two cars instead of just one car.

We then would place any extra cars on the front end, between the tracks, as the customer would sometimes roll cars down to load. With the front end taken care of, we then would head to the south end of the facility and take care of the back side of the building.

Another thing we had to deal with was having only enough room for four cars and a locomotive between the last switch and the end of track.

With the empties pulled and loads spotted we would then grab all the empties and shove north out of the facility. This would allow us to head south out of the facility with all the empties.

At the salt mine we handled boxcars and hopper cars. The front side of the building (spots 1-4 on both tracks) were designed to handle 50-foot boxcars.



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The boxcars were either RBOX sliding door boxcars or a group of privately owned plug-door boxcars. The back side had a spot for hoppers (spot 4). We got one or two a night.

The customer also received food grade salt in bulk in hi-cube boxcars that were unloaded and then reloaded with packaged salt on the back side of the building (spot 5).

This facility made a large variety of salt products including road salt, bagged salt for water softeners, products for animals, and products you would find in your grocery store.

Remember a "move" is any time a car or locomotive moves in either direction.

You can find my step-by-step answer in this month's bonus downloads here. ☑

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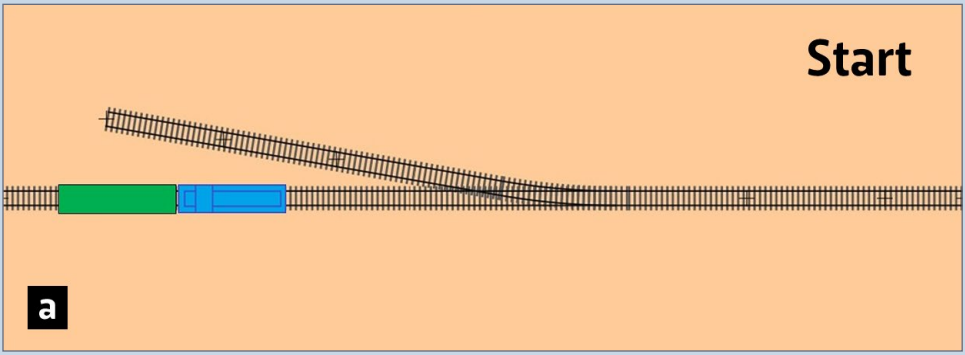
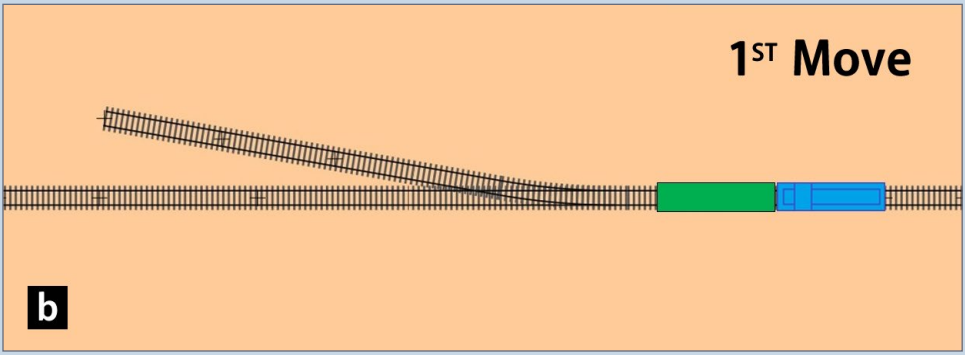
WHAT CONSTITUTES A MOVE?

One "move" is any time cars or the locomotive move in either direction. See the example images here, which show the starting position and four moves.





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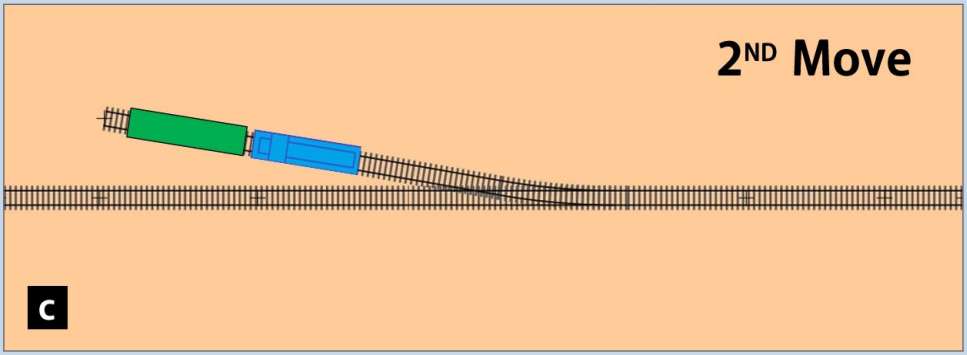
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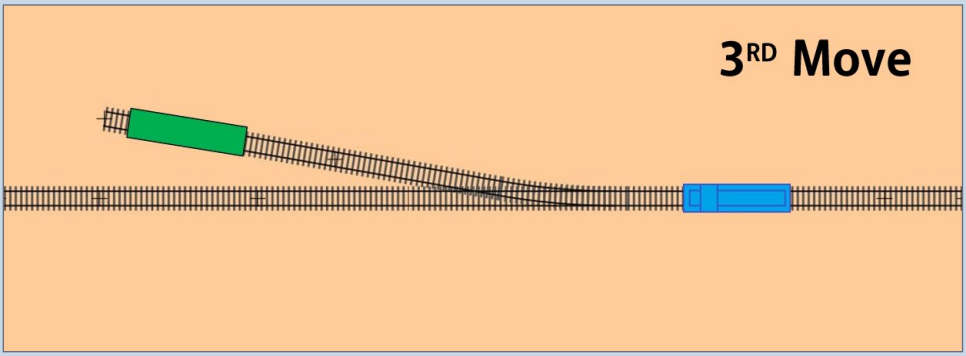
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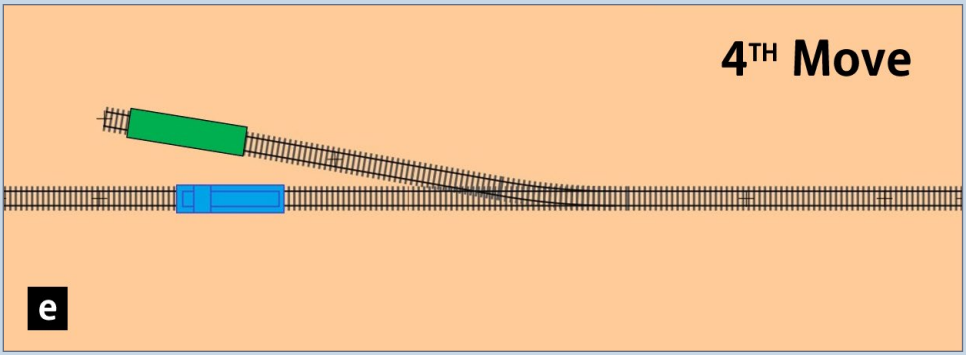
4TH Move
e

Greg Baker

Greg Baker has been serious about model railroading since 2000, but as long as he can remember he has been fascinated by trains.

Greg's main interests are the railroads of Central Oregon in 1968, with the focus on the Spokane Portland & Seattle, Great Northern, and the Union Pacific along the Oregon Trunk. He is also interested in the City of Prineville Railway and its connection to the Oregon Trunk.

He currently resides in Lewiston, Idaho, with his wife and two children as he continues his career in railroading. He is actively involved in promoting Free-mo and has created an Idaho Free-mo group. ■

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Building an Animated Rollup Door

Model Railroad Hobbyist | March 2019 | #109

Rick Wade adds a detail element that impacts operation ...

Modelers ask, "Why animate a door?" I have a small layout and I'm always looking for interesting details. Opening and closing an overhead door adds an interesting step

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to a switching operation. I'm inspired by Lance Mindheim's modeling and may add his idea of using a key lock or locking cover to operate the door.

I certainly didn't come up with the idea of animating an overhead door. Other modelers have done this. I've seen an example where a CD-ROM gear drive powered the animation.

My project challenge was twofold:

1.) Design a rolling-style door that follows a curved track as opposed to a door that goes up and down

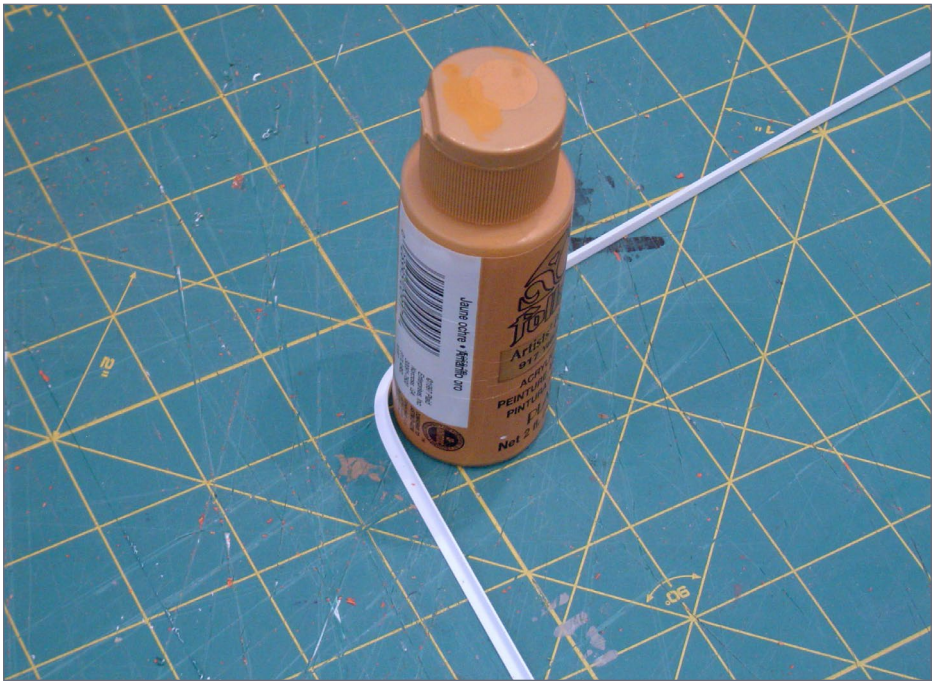
2.) Find a drive mechanism compact enough to fit the structure

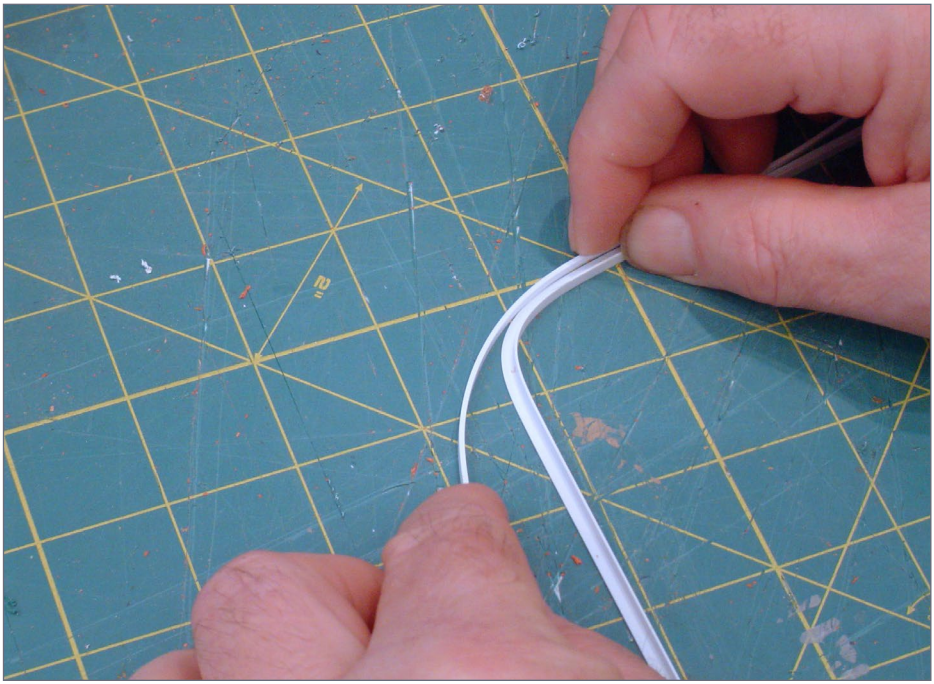
My structure is single-story, so a curved track door was key. I want the door to raise then retract parallel to the roof, like an overhead garage door. I thought I could curve C-channel styrene to use as the door track, but that did not work. Every attempted method resulted in kinking and deformation.

Door track solution

My solution was a simple one: I created the curved channel using two pieces. First, I heated a piece of Evergreen #295 angle (.156 x .156 x .023) in boiling water to soften it. Once softened, I bent the angle around a small paint bottle of the diameter I wanted, and held it in place until the plastic cooled.

I painted the lower portion of the channel with a neutral-gray acrylic paint. This part would be seen with the door open, and it was easiest to paint before installing. I used a 0.060"-thick piece





1. (Top left) A small bottle of paint was used to curve the angle iron.

2. (Bottom left) After the angle cooled, it was not holding an exact 90-degree bend. I didn't think this would be a problem, as the angle could be set when installed.

3. (Above) A flat strip of styrene was glued in place to form the other side of the channel. This thin, flexible material did not need the heat treatment, and easily bent around the formed angle. I used styrene cement to attach the pieces, and clamped them while the cement set. I repeated the bending and assembling process for the second curved channel.

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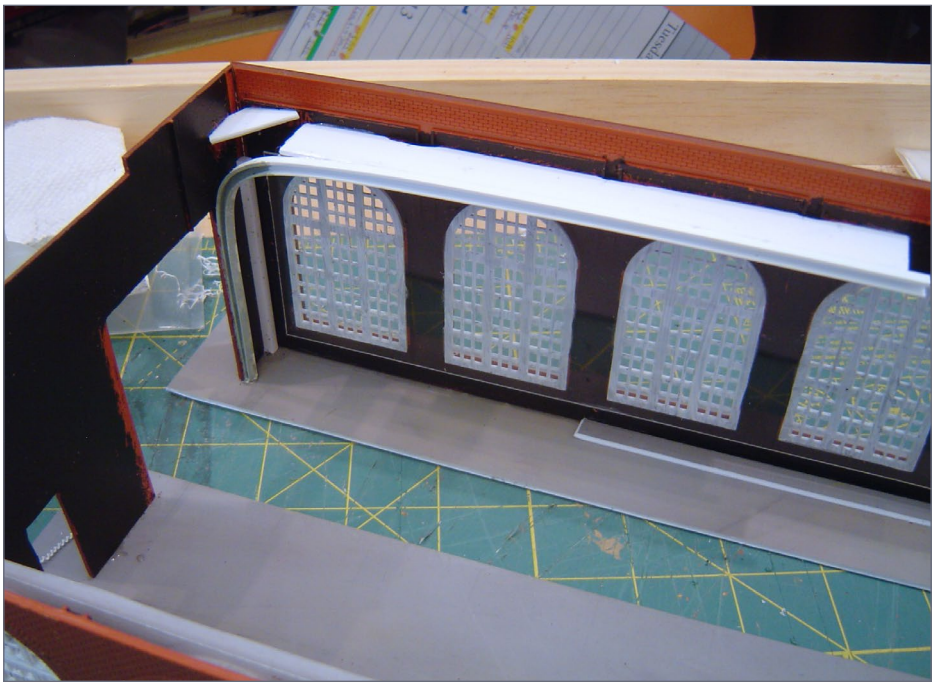
of styrene to mount the channel to the interior wall. I made sure the channel was positioned properly to the door opening in the structure.

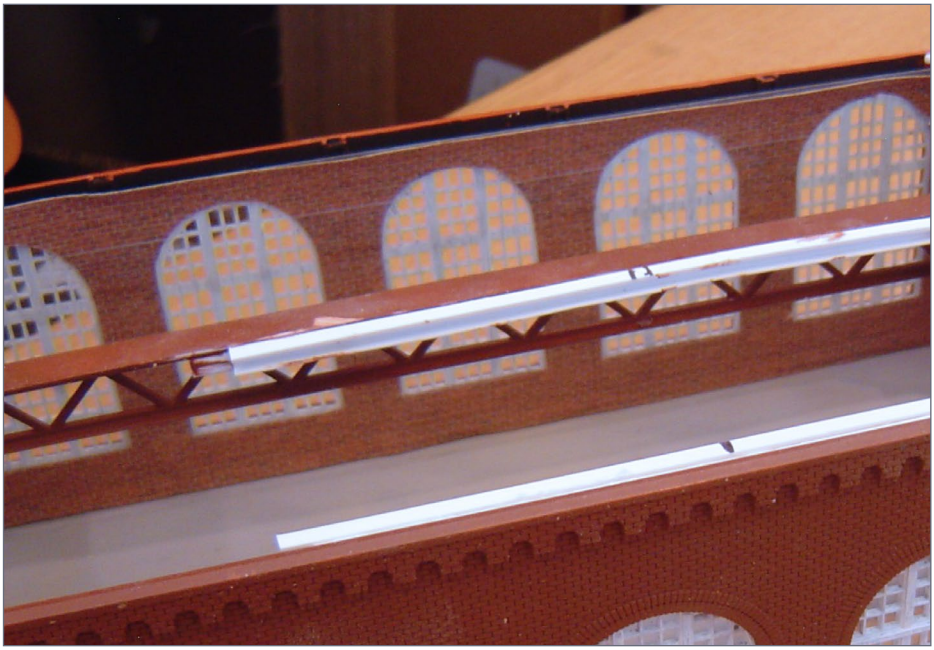
The second door channel presented a challenge, as there wasn't anything to mount it. I solved this problem by installing a piece of Plastruct OWTS-16 Warren Open Web Truss that I reinforced with a piece of 0.060"-thick styrene.

Making the door

My next challenge was to create a realistic-looking door flexible enough to follow the curved channel. I used Plastruct PS-11 corrugated siding for the door material. The material was much too



4. The first door track channel is installed.



5. The other door track channel is supported with a styrene web truss.

rigid, so I carefully sanded it with 120-grit sandpaper. I frequently checked my progress by holding the siding up to a strong light and gently flexing it. I worked the material until it was almost sanded through, to make it as thin as possible without coming apart. I applied a piece of clear packing tape to the back side to reinforce the door.

Next, I slid the door into the channels from the end opposite the door opening. When I did this, I felt resistance in sliding the door. I became concerned that the servo wouldn't have enough power to move it. Lithium grease came to the rescue! I applied a small amount to the channels and the door slid up and down with very little effort. I used a marker to indicate the open and

closed position locations of the door. These reference marks will be helpful in determining the servo mounting position.

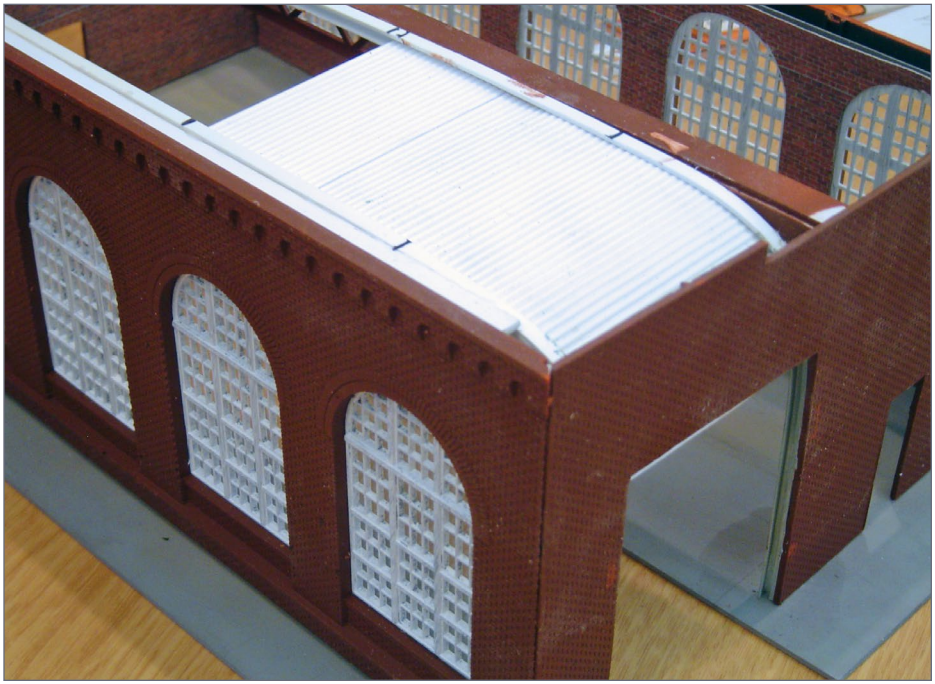
Powering the door

I chose to use the Singlet servo and circuit board set from Tam Valley Depot for the drive mechanism. I use them on my turnouts, and am familiar with their functions, plus I happened to have an extra unit on hand. I like these units for a few reasons:

A. The end points and speed are adjustable electronically using the control board

B. I like the small size

6. The door material needs to be sanded extra-thin to flex through the curving door track channel.



7. The door installed on the door track channel.

C. The units can be controlled through my DCC throttle

D. Replacement servos are inexpensive

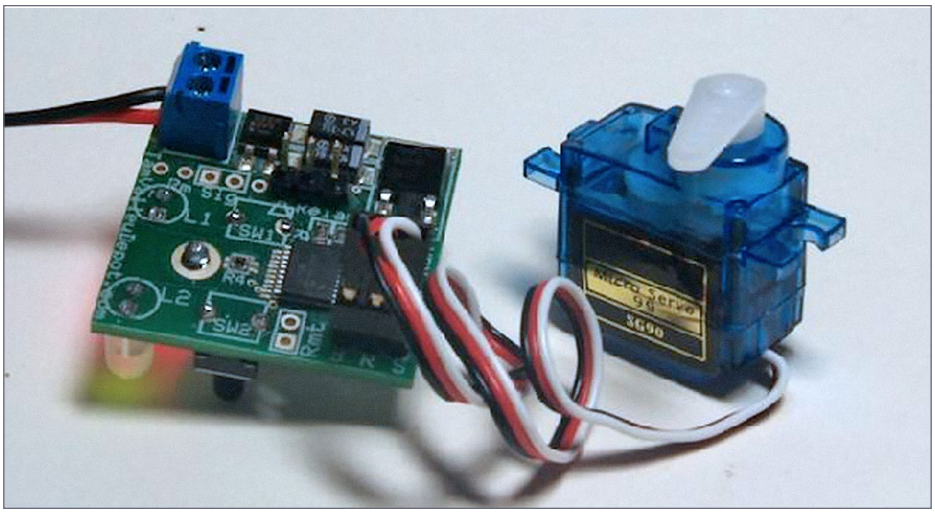
I added an extension wire to the servo, and routed it down through the structure to the control board. The servo was mounted to the roof truss using a piece of 0.060" styrene and the reference points I had marked previously. Then I needed a mounting point for the servo linkage where it attaches to the door. I reinforced the top of the door with a piece of 0.060" styrene and used scrap styrene to create the pad.

I mounted the servo to the side of the roof truss and fabricated linkage, which took some trial and error. Two screws were used

for the pivot points. One of the screws can be seen in the picture. The other screw (not visible) attaches the linkage to the mount on underside of the door.

I painted the visible part of the door with a very light tan acrylic paint. A light dusting of weathering chalks gave it some texture.

With everything completed and working great, it was time to button-up the installation. I realized a problem while fitting the roof into place. The servo protruded above the roof line! I solved this problem by taking careful measurements and cutting an opening in the roof where the servo would show. I covered the servo opening with a rooftop air conditioner unit. I kept the roof as a press-fit (no glue) just in case I need to service the servo or linkage.



8. The Singlet control board and servo mechanism that powers the door. *Photo compliments of Tam Valley Depot*

9. The servo, linkage, and door in the open position.

10. The servo, linkage, and door in the closed position.

11. The linkage arms and attachment to the underside of the door. You can see some of the patchwork linkage arms where adjustments were made for smooth operation.

12. The handy rooftop AC unit covers an opening for the protruding servo.

The animation of the Palmer overhead door was a fun and challenging project. I really enjoy using the animation when switching the industry. Visitors to my layout are surprised and pleased to see the door magically open at a touch of a button, or when I open it with my Digitrax handheld throttle. I hope modelers will be inspired to add animation to their layouts, as it can add interest and increase modeling fun! ☑

Rick Wade

Rick Wade grew up in the east end of Louisville, Kentucky, giving him lots of opportunity to watch the Louisville & Nashville trains pass behind his home. His first layout was an HO scale layout that he and his Father put together when he was eight years old.

He built his first adult HO layout in a Georgia basement. The Richlawn Railroad was named after his childhood neighborhood. A 2012 move to Florida to be near family meant starting over. Rick's current Richlawn Railroad is based on the Heart of Georgia (HOG) track plan – an around-the-walls design in his 10'x12' layout room. It is sectional should he have to move again.

His favorite part of model railroading is building structures, with scenery a close second. He enjoys operating the layout and watching the L&N trains rumbling through landscape set in the 60s and 70s. Besides model railroading, Rick enjoys riding on Amtrak and the Florida Sunrail trains. ■

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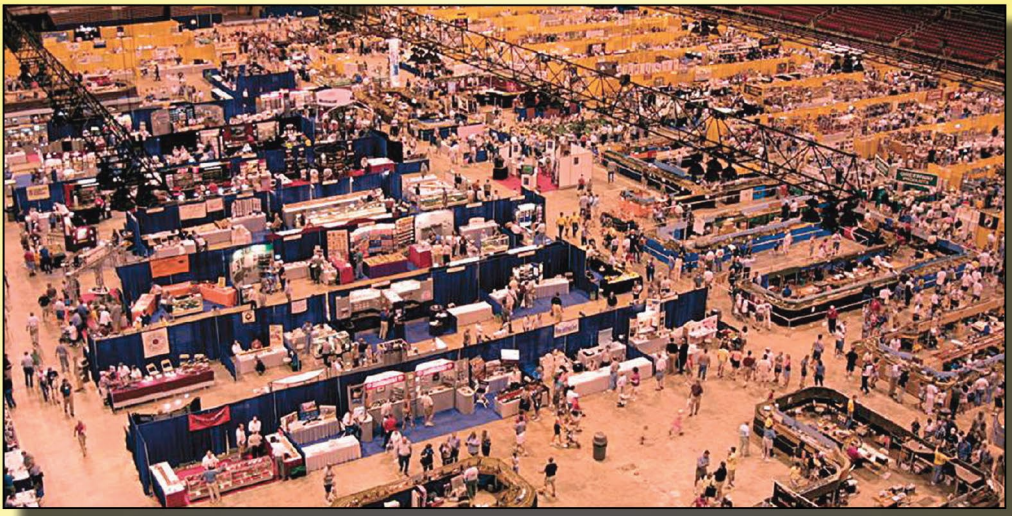

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MARCH NEWS column

Model Railroad Hobbyist | March 2019 | #109

Richard Bale and **Jeff Shultz** report the latest hobby industry news

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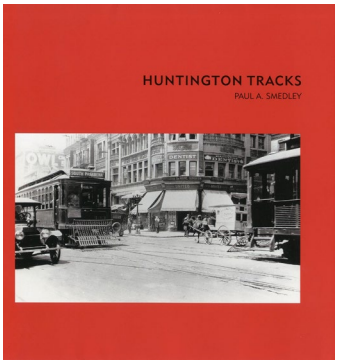
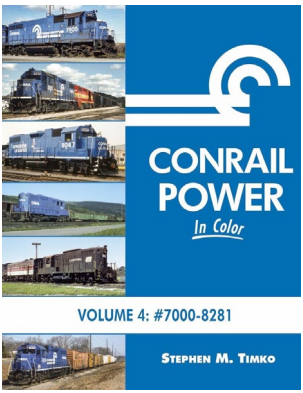
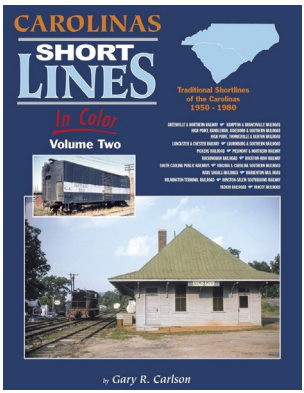
NEW PRODUCTS FOR ALL SCALES



Golden West Books has published *Huntington Tracks,* an exhaustive study of the Pacific Electric Railway and how it grew into the largest and most successful electric railway in the world, with 1,100 miles of track in Los Angeles, Orange, Riverside, and San Bernardino counties. Author Paul Smedley has included more than 100 rare images and numerous maps in the 432 pages of this impressive hardbound book. For details contact a dealer or visit www.goldenwestbooks.com/product/huntington-tracks.

THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS





New hardcover releases from **Morning Sun Books** include *Conrail Power in Color Volume 4.* Author Stephen M. Timko focuses on Big Blue's medium horsepower road switchers from GP7s through GP38-2s. Coverage includes units from Penn Central, Erie Lackawanna, Lehigh Valley, and Pennsylvania-Reading Seashore Lines, as well as newly acquired Conrail GP38-2s.

Morning Sun has also released *Carolinas Shortlines In Color Volume 2,* by Gary R. Carlson. The book explores several little-known small southeastern steam-era lines that operated until 1950, as well as some healthier roads that survived into the diesel era. For additional information contact a dealer or visit morning-sunbooks.com.

O SCALE PRODUCT NEWS

Berkshire Valley Models has added three new REO high-wheel trucks to its selection of vintage O scale vehicles. The new kits include a delivery truck (left), box delivery truck (right), and a canopy express truck. The kits include laser-cut wood, metal detail parts, and decals for the REO logo. For additional information visit berkshirevalleymodels.com.

Portland Locomotive Works is selling On3 body kits for 28-foot Southern Pacific narrow gauge boxcars. The models are available unpainted or pre-painted and lettered. Parts are laser-cut and laser-etched. Trucks, couplers and detail parts are not included. For additional information visit portland-locomotiveworks.com.

Right On Track Models has announced a new O scale kit, "Mason Grain Company." Representing a farm supply co-op structure, the kit includes precision cut MDF, printed parts, "Real Scale Wood Shingles," and styrene windows and doors. Also included are step-by-step color instructions. The finished model has a footprint of 18 x 22 inches. For more information visit rightontrackmodels.com.

New detail castings available from **Rusty Rail** include a five-piece kit that assembles into this dual steam engine. The engine parts are 3D printed while the base, pulley, and flywheel are cast in resin.

Also new is a pile of old steam equipment, motors, and other assorted junk. For additional information visit rustyrail.com.

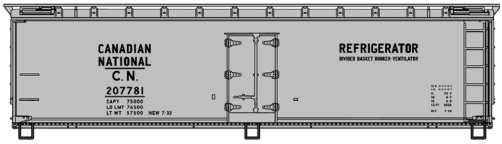
San Juan Models displayed several new narrow gauge items in their booth at the Amherst Railroad Hobby Show held in West Springfield, MA in late January. San Juan Models is a relatively new narrow gauge supplier formed by merging several companies including San Juan Car Co., San Juan Decals, San Juan Details, American Limited, Grandt Line, and Leadville Shops. In accordance with the family's wishes, the Grandt Line name will not be continued, but its products will be.

Options for this D&RGW 30-foot 3000 series boxcar will be expanded with several door and detail configurations. It will also be available in gray MOW paint. The model will be available for both On3 and On30 operation.

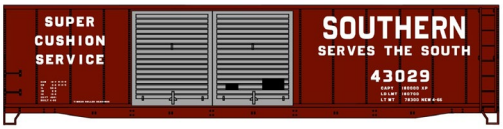
A group of HO scale Santa Fe tank cars decorated for company service was on display in the SJM booth. The colorful markings indicate the different products each car was assigned to haul.

Future releases include this On3/On30 four-wheel bobber caboose. It will be available with either the 1883 or 1890 D&RG lettering styles. There will also be detail variations available. Like this sample, the production caboose will be 3D printed. Coupler pads and wheelsets for both On3 and On30 coupler (different heights) will be provided. It's expected to be available this summer. For additional information visit sanjuanmodelco.com.

HO SCALE PRODUCT NEWS



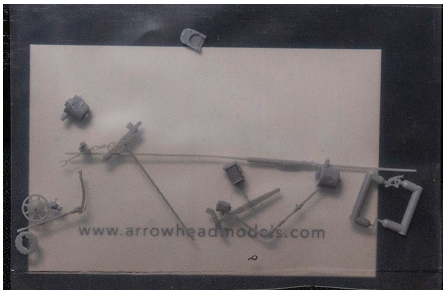
Accurail has released a kit for a Canadian National 40-foot wood refrigerator car. The HO scale model is based on a prototype built in July 1933.



Also new from Accurail is a kit for a 50-foot riveted steel boxcar with double Youngstown sliding doors. The HO scale model is decorated for Southern Railway's Super Cushion Service.

A three-pack of Buffalo & Susquehanna USRA twin-bay hopper cars with different road numbers has been released to dealers by Accurail. Additional new HO scale kits include a 40-foot wood refrigerator car decorated for Northern Refrigerator Banana Distributing Company, a 36-foot Fowler boxcar decorated for Chicago, South Shore & South Bend; a Toledo & Ohio Central 36-foot double-sheathed wood boxcar with a straight steel underframe, and a Southern Pacific/GARX 50-foot plug-door riveted steel boxcar. All Accurail kits include appropriate trucks and Accumate knuckle couplers. For additional information contact a dealer or visit accurail.com.

Arrowhead Models introduced HO scale Apex 1955 and Miner 1942 handbrake and brake appliance sets at the Amherst Show.



According to Arrowhead owner Blaine Hadfield, the date of the Miner kit may be re-labeled to clarify that it is a 1960s-era appliance kit for the Miner 1942-era design handbrake. For additional information visit arrowhead-models.com.

Athearn has announced plans to produce a new run of ES44DC diesel locomotives. The Genesis HO scale model represents prototypes built by General Electric in 2005-2006. Spotting features from that era include the nose door on the left side, two widely-spaced dynamic brake vents, X-panels on the electrical cabinet, side grab irons on the long hood, and flush-mounted top radiator grilles and radiator compartment doors.

Road names will be BNSF (Primed-for-Grime, Hi Adhesion trucks, and cab side windows), CSX (low mounted front headlight, cab side windows, and MU receptacles molded into the anti-climber), and NS (headlight mounted high in the nose, rear ditch lights, NS handrails, and a tall snowplow).

All versions have LED lighting, illuminated ditch lights, tinted see-through cab windows, see-through dynamic brake intakes, MU and trainline

hoses, lift rings, wire grab irons, truck sander lines, and 5,000 gallon fuel tanks with fuel fillers and gauges.

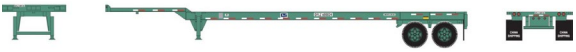
Athearn has scheduled the release of a 50-foot PS 5344 cu. ft. boxcar next January. The HO scale model is based on a prototype built in 1970 with outside posts, sliding doors, and non-terminating corrugated ends. Athearn's Ready-to-Roll model features wire grab irons, etched metal end platforms, and appropriate trucks with 33-inch machined nickel-silver wheels.

Road names will be Lamoille Valley, Montreal, Maine & Atlantic; Saint Marys Railroad, and Union Pacific. A Bangor & Aroostook version will be available in Athearn's Primed-for-Grime weathered paint scheme.

Athearn showed several intermodal items at the Amherst Show including new HO scale 45-foot International Containers that are scheduled for release next January.

Container company names will be Mitsui Overseas Line, NYK, American President Lines, CMA-CGM, OOCL, and Sealand.

The containers will be sold in 3-packs with each can having a different number. In some cases the logos and decoration may vary within the 3-pack.



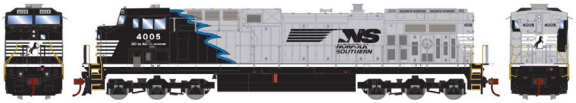
Additional intermodal equipment coming in January 2020 includes a 45-foot rubber-tired chassis specifically designed to fit Athearn's 45-foot containers.

Road names for the chassis will be China Shipping, Maersk Line, Wan Hai, Trans Pacific, K-Line, and Yang Ming.

Athearn's early 2020 production schedule includes an intercity bus. Decorating schemes will be Santa Fe Trailways, Union Pacific, Rock Island, Capitol Bus Company, Glacier National Park, Pioneer Tours, and Unified School District. Additionally, a Department of Corrections bus with simulated bars printed on side windows, and an RV conversion with curtains on the inside of windows and a plated-over side door window will be available.

The model is based on a Visicoach design built by The Flxible Company between 1950 and 1956. Features of Athearn's HO scale version include interior details, windshield wipers, and rubber tires.

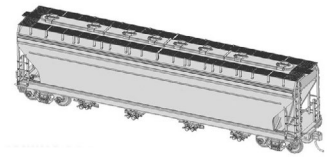
The lineup of **Roundhouse Brand** models coming next January includes a GE AC4400CW locomotive with LED lighting and numerous factory applied details including wire grab irons.



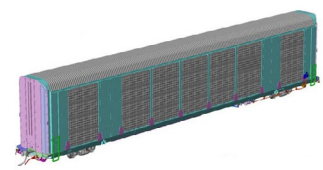
Road names include three variations of Norfolk Southern, CSX with a choice of SCL, L&N, or Chessie nose emblems; BNSF

in two Primed-for-Grime schemes, Union Pacific, and Canadian Pacific in the northern road's new Beaver scheme.

The HO scale ready-to-run AC4400CW will be DCC-ready with Athearn's Quick Plug technology with a 21-pin NEM plug. For additional information on Athearn and Roundhouse products contact a dealer or visit athearn.com.



Atlas has released a computer rendering of an ACF 5250 cu. ft. four-bay covered hopper it is preparing for release late this year. The HO scale Master series model is based on a prototype introduced by ACF in 1964. According to Atlas an estimated 20,000 ACF 5250s may still be in service today. When new most of the cars were equipped with pneumatic outlets and eight 20-inch round hatches for use in transporting plastic pellets. In addition to the plastics cars, several have been converted with gravity outlets and elongated hatches for grain products. As with most cars that have long production spans, the design has evolved with changes in both the physical features of the body and the fixtures. Atlas's commitment to tool this car in all its variations is significant since it will involve four distinct body types, four different roofs, and six different hatch combinations.



In addition to the 5250 covered hopper, Atlas is cutting new tooling for an HO scale 89-foot Greenbrier Multi-Max auto rack. The prototype design allows adding or removing decks to

convert the auto carrier to a bi-level or tri-level configuration. For additional information contact a dealer or visit atlasrr.com.

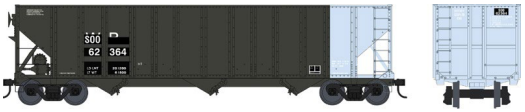
To mark the 150th anniversary of the Golden Spike ceremony at Promontory Point, UT, on May 10, 1869, **Bachmann** has introduced Transcontinental, a limited edition HO scale train set with two DCC locomotives equipped with digital sound. Bachmann's Transcontinental includes Central Pacific 4-4-0 locomotive No. 60 Jupiter, Union Pacific 4-4-0 No. 119, two open-platform coaches, a DCC and digital sound control center, and an oval of Bachmann E-Z track. Additional accessories include a terminal rerailer, one manual turnout, and a Hayes-style end-of-track bumper. This is a limited edition train set with only 1,000 being produced. For more information contact a dealer, or visit bachmanntrains.com.

Bowser is accepting reservations for a 100-ton class H-11 triple-bay

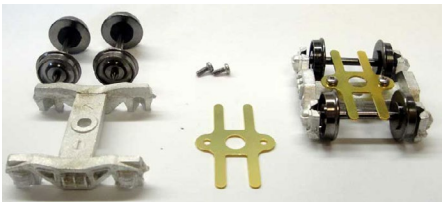
Class H-11 Coal Hopper

Developed in 1960 by the N&W, the H-11 class hopper was essentially an enlarged PRR H-39 70-ton hopper. In 1964, the height was increased to 12-feet 3-inches, capacity increased to 3433 cu. ft., and weight capacity increased to 90-100 tons. Over 130,000 H-11 hoppers have been built. Three distinctive characteristics highlight the H-11 class of hopper: roping eye with integral end buffers; end slope sheets at a steeper angle than the hopper sheets; and 13 riveted side posts with the middle two panels wider than the others. Details include Wine door locks, and full height side ladder stiles. The cars were assembled in the shops of the PRR, B&O, C&O, N&W and RDG. Bethlehem Steel and ACF supplied prefabricated kits to other railroads.

coal hopper planned for release in December. Road names will be B&LE, Conrail, Conrail Quality, D&H (ex-Reading), N&W, N&W (wood chip), PRR (yellow ball), PPL, Rock Island, Soo Line (ex-WP, blue end, below), Soo Line (white end), Southern, Union Pacific, and Western Maryland.



Bowser's HO scale model features interior detail and slope sheet braces. The ready-to-run model comes with roller-bearing trucks with 36-inch metal wheelsets.



After mentioning Bowser's new tender trucks last month we later obtained photos to illustrate the new items. The four-wheel Kiesel rigid tender trucks include a one-piece cast frame with 36-inch wheels and a brass retainer.

The kit for the six-wheel Buckeye tender truck also comes with

36-inch wheels. The retainer plate has two center clearance holes that allow optional positions for the truck's bolster mounting. For additional information contact a dealer or visit bowser-trains.com.

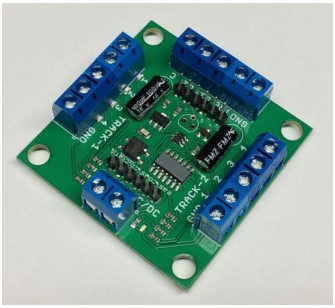
City Classics has released its popular plastic Company House in turquoise. Homes of this type were often built in company towns or communities where a factory employed large numbers of

workers. This latest version of the City Classics kit represents a company home that has been purchased by a private owner who repainted it. The assembled model has a footprint of 2.25 x 5 inches.

Also new from City Classics is an HO scale kit for a custom decorated 40-foot box car that celebrates the company's 30th anniversary. The kit was produced by Accurail and comes with trucks and Accumate knuckle couplers. For additional information visit cityclassics.biz.

Digitrax displayed a wide range of electronic items in their Amherst booth including their DCS 52 Zephyr Express, a 3.0 amp LocoNet command station, booster, and throttle. This latest version features a backlit 3D keypad, a 2.4-inch LCD color display screen, and an integrated USB computer interface. For additional information contact a dealer or visit digitrax.com.

East Coast Circuits has expanded its selection of specialized



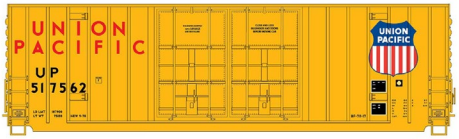
control circuits for model railroaders. The latest item, introduced at the Amherst Show, is a crossing light system that will handle trains approaching in either direction on two separate tracks. All of the sensors needed are included. The system will integrate with ECC's street traffic signal circuit and override it. Crossing gates and LED equipped crossbucks are not included. For additional information visit eastcoastcircuits.com.

ExactRail showed preproduction samples of its new Berwick 7440 cu. ft. appliance boxcar at the Amherst Show. The HO scale models replicate a prototype built by the Berwick Forge and Fabricating Corporation in the former AC&F plant in Berwick, PA. ExactRail ready-to-run models decorated for Penn Central, Illinois Central Gulf, and Rock Island will be available in their 1973 as-delivered paint schemes. Conrail cars will be available in two distinct schemes representing 1980 and 1985 repaints. An undecorated kit will also be available. Depending on the practice of the prototype railroad, the models will have either 100-ton or 70-ton Barber S-2 trucks with 33-inch machined metal wheelsets, and Kadee No. 58 knuckle couplers. Availability is planned for spring 2019. For additional information visit exactrail.com.

Fos Scale Models introduced its newest HO kit, Jensen Tower, at the Amherst Show. The craftsman style kit combines Hydrocal cast brick and laser-cut wood clapboard for this traditional lineside railroad structure. A clapboard annex with laser-cut walls and roof is included. Components include laser-cut support brackets and a ceiling panel for the large overhang, gable detail, a cast metal coal bin, plastic windows and doors, color signage, and assembly instructions. For additional information visit fosscalemodels.com.

InterMountain Railway released a long list of new products at the Amherst Show including seven new HO scale products -- 71 if you count all of the decorating schemes. At the top of the list is a newly tooled GP16 diesel. In addition to the Seaboard System scheme shown here, road names will be Genesee & Wyoming-York, Family Lines System, Pee Dee River, RJ Corman Railroad, Louisville & Indiana, The Indiana Railroad, Everett Railroad Co., CSX, and United States Army.

The GP16 will be available with an ESU LokSound Select sound decoder or an ESU LokPilot non-sound DCC decoder. An optional DC-only plug will be available on request.



InterMountain showed pre-production samples of Gunderson 50-foot High Cube boxcars with double plug-doors. Road names for the HO scale ready-to-run Value Line model will be Union Pacific, Burlington Northern, Santa Fe (two schemes), Milwaukee Road, CP Rail (ex-Milwaukee Road), Golden West Service, two BNSF schemes, and Minnesota, Dakota & Western.

InterMountain's Amherst display included several pre-production samples of HO scale ACF twin-bay covered hopper cars. The ready-to-run production versions will have round roof hatches, etched-metal roof walks, machined metal wheelsets, and Kadee couplers.

Road names will be Norfolk Southern, Southern Pacific, Union Pacific, Winchester & Western, Western Maryland, ACFX, Burlington Northern, Montana Rail Link, and Chicago & North Western. A car painted gray will be decorated with data only.

InterMountain is working on a new production run of 40-foot 12-panel boxcars that will be available in ten decorating schemes including five for Great Northern. Additional road names for the HO scale ready-to-run model will be Southern

Pacific, T&NO-Southern Pacific, Santa Fe (Grand Canyon), SP&S, and Chicago & Eastern Illinois.

Pre-production samples shown by InterMountain include a 4650 cu. ft. covered hopper including this decorated, but unassembled, BN car. In addition to Burlington Northern, the final selection of road names will be Cotton Belt, Southern Pacific, French's, Sclair, ATSF, ACFX-Sterling Salt, ACFX-American Borate, ACFX-Thiele, and ECC International.

R. Bale

PFE Reefer Emblems

Before the arrival of steel PFE reefers, the Southern Pacific and Union Pacific emblems were large enameled metal plates screwed to the side of wood cars. On steel cars the emblems were painted on the sides, however, the Union Pacific emblem was no long painted in black and white. Instead. they were rendered in red, white, and blue.

InterMountain is working on four classes of PFE wood refrigerator cars for release later this year. PFE class R-30-18 cars will be available decorated with a single herald (above), with double heralds, and with a black stripe at the top of the side.

PFE R-40-19 reefers with a single herald, an R-30-12-18 car with a stripe, and class R-30-21 reefers with a choice of single herald or double heralds (above) will complete the run.

InterMountain's impressive list of new products announced at the Amherst Show included a PS2-CD 4785 cu. ft. covered hopper with triple discharge bays. The newly tooled model is replicates Pullman-Standard's late end frame design. Features on the HO scale ready-to-run model include an etched metal roofwalk, machined metal wheelsets, and knuckle couplers.

Road names will be Penn Central, CSX, Milwaukee Road, Central Soya, M-K-T, Norfolk Southern, Lauhoff Grain, and three Conrail schemes. For additional information contact a dealer or visit intermountain-railway.com.

Ipswich Hobbies is selling an HO scale craftsman structure kit based upon the Boston & Maine Railroad freight house in Union, NH. The laser-cut kit depicts the Union Freight House as it appeared in 1909. For additional information visit ipswichhobbies.com.

Kadee has scheduled the release of this Tidewater & Southern 50-foot PS-1 boxcar in April. The HO scale fully-assembled model is based on a prototype built in 1955 with 8-foot six-panel Superior sliding doors.

Also due from Kadee next month is an ACF 11,000 gallon insulated tank car decorated for TGCX-Tank Gas Corporation. The HO scale

model replicates the prototype as built in 1948 with a full loading platform. All Kadee ready-to-run models come with Kadee body-mounted couplers and two-piece self-centering trucks. For additional information contact a dealer or visit kadee.com.

Mine Mount Models has added two new textures to its line of HO scale textured sheets. Both the Rectangular Stacked Stone and the Cobblestone are engraved on 1/16-inch basswood, with 1/32-inch plywood announced as coming soon. For more information visit minemountmodels.com.

Mini Metals has several new 1:87 scale vehicles including a GMC city transit bus, decorated for Pacific Electric and New York City.

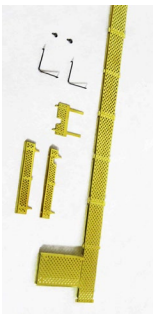
This HO scale version of a 1959 Ford Fairlane sedan is available in four color schemes including green, red, metallic silver, and tan.

A 1941-46 Chevrolet tractor with a tarp covered trailer is available from Mini Metals decorated for USS and U.S. Mail.

A 1941-46 Chevrolet tractor-trailer rig is available decorated for Associated Truck Lines, Strickland Trucking, MasonDixon Line, and Lee Way. For additional information contact a dealer or visit round2corp.com.

Moloco is selling an HO scale 50-foot RBL boxcar in eight paint schemes for five railroads. Prototypically accurate details on the ready-to-run model include an overhanging Stanray roof, Stanray T3-4 welded ends with separate roofwalk end brackets, Morton running board and crossover platforms, rubber air hoses, FGE riveted sides, cushioned draft gear coupler boxes, and Moloco 70-ton Ride Control roller bearing trucks.

Road names are Burlington Northern, Great Northern, TP&W, and Southern. Two variations in decorating are available for SAL, and ACL.



Moloco sells an HO scale version of a Morton metal roofwalk for a 50-foot car. The edges on the etched parts are pre-fold, just like the prototype. The kit includes a high brake wheel platform and two bottom crossover walkways suitable for cushioned cars. One of the walkways has a cutout for the brake linkage. A pair of corner grab irons and eyebolts are included. For additional information visit www.molocotrains.com.

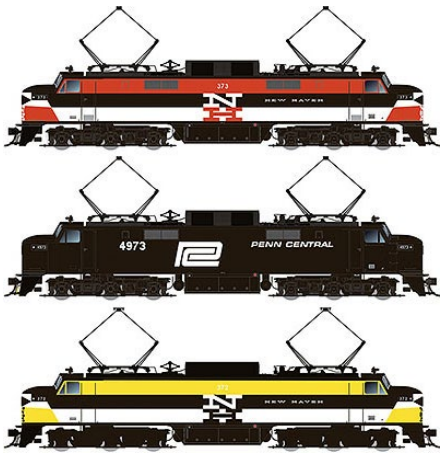
Motrak Models is selling kits that assemble into specialized boxes for storing strip wood, styrene shapes, or long-handled tools. The boxes are pre-cut from Masonite hardboard and mat board. The assembled boxes measure 10 x 10 x 2.25-inches, and have 10 individual compartments. For additional information visit motrakmodelsusa.com.

Pacific Western Rail Systems – North American Railcar, showed several undecorated samples of a new NSC 5092 cu. ft. 50-foot combo door boxcar. There will be several variations of the scale model due to different doors, door stops, vents, and sills.

The Pacific Great Eastern / British Columbia Railway received 1,785 of these boxcars from National Steel Car between 1971 and 1973. The cars were routed all across Canada and the United States primarily in forest product service. Beginning in 1989 some were re-built for pulp service. North American Railcar plans to offer both HO and N scale models representing the cars built in 1971 and 1972, and those re-built for pulp and forest product service. For additional information visit pwrs.ca.

At the Amherst Show, **Rapido** displayed a hand-painted pre-production sample of their upcoming EP-5 Jet electric

locomotive. In keeping with the Northeastern location of the show, Rapido selected New Haven's red, white and black McGinnis scheme to show off their new HO scale model. In addition to this scheme, the production version will be available decorated for Penn Central as well as in New Haven's one-off yellow scheme. Jeff Shultz reports that the sample was indeed red, however lighting in Rapido's display booth forced the color shift to orange. See the color samples following.



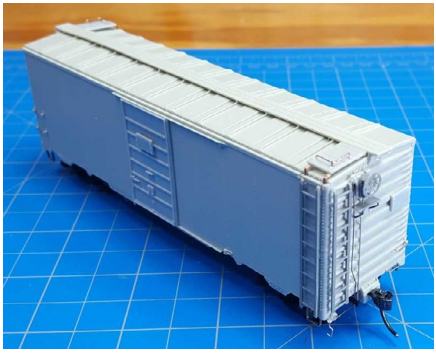
Rapido has extended the order deadline for the EP-5 to June 24 with delivery scheduled at the end of the year.

VIEW READER COMMENTS

Rapido also showed pre-production samples of its General Electric B36-7 four-axle diesel, the company's first modern US freight locomotive. The HO scale model is scheduled for release in December. Road names will be Conrail, CSX, NS, Southern, Transkentucky Transportation, Minnesota

Commercial Railway, Seaboard System, Southern Pacific, Santa Fe, and BC Rail.

Future models on display in Rapido's Amherst booth included this sample of their recently announced EMD SW1200 switch engine. The HO scale model will be available decorated for Baltimore & Ohio, Burlington Northern (ex-GN), Chicago, Burlington & Quincy; Chicago, Rock Island & Pacific; Conrail (ex-PRR), Denver & Rio Grande Western, Grand Trunk Western, Great Northern, Milwaukee Road, Missouri Pacific, New Haven, Northern Pacific, Pennsylvania Railroad, Penn Central (ex-NH0), Soo Line, and Southern Pacific. Reservations are being accepted through June with availability set for late December 2019. For more information on Rapido products contact a dealer or visit rapidotrains.com.



Resin Car Works is selling HO scale resin kits for a 40-foot Chicago, Burlington & Quincy XM-32 class steel boxcar. Between 1940 and 1958 CB&Q operated more than 16,000 XM-32 cars. RCW's HO scale model replicates some 4,000 early XM-32s built during World War II. The cars have 10 side panels and an inside height of 10-feet 6-inches. Accurate decals are included in the kit along

with a pair of Tahoe double-truss truck side frames. Wheelsets and couplers are not included. For additional details visit resin-carworks.com.

One of the most innovative new products introduced at the Amherst Show was **Roomettes,** a simple method of adding realistic interiors to scale structures. Developed by Barry Silverthorn, Roomettes offers a wide range of residential and commercial interiors designed to fit DPM and other popular structure kits.

In addition to realistic interior scenes, Roomettes include an LED lighting system that is compatible with Woodland Scenics Just-Plug and NCE Corporation electronic components.

For additional information visit www.facebook.com/Roomettes or roometteslighting.com.

ScaleTrains.com is on scheduled to release a Rivet Counter version of a GE C44-9W diesel unit this summer. This all new model features 26 individually applied etched-metal see-through grilles, and LED walkway lights, ditch lights, lighted

number boards, and headlights. Road names for the HO scale ready-to-run model will be Santa Fe (Warbonnet with three cab side windows), BNSF (Heritage-II scheme, with four cab side windows), Norfolk Southern (Horsehead scheme, high mounted headlight), and Union Pacific. One road number each of the BNSF and NS Rivet Counter versions was released at the Amherst Show, with the available units selling out quickly.

The release will include a less-detailed Operator Series version decorated for BNSF, Chicago & North Western, Norfolk Southern, and Union Pacific. The modeler can upgrade the Operator model using detail kit (#SXT811047) that includes MU and trainline hoses, uncoupling levers, grab irons, lift rings, windshield wipers, sanding lines and traction motor cabling. Units will be available with either an ESU-LokSound Essential Sound unit with PowerPack (Operator), ESU-LokSound v5.0 DCC sound decoder with "Full Throttle" and PowerPack (Rivet Counter), or DCC ready with a 21-pin connector.

A spring release date is being quoted for ScaleTrains.com's new HO scale EMD SD40-2 six-axle road unit. Features of the Rivet Counter model include operating LED number boards and headlight. Road names will be Burlington Northern, CSX (YN3 boxcar logo), Milwaukee Road, Milwaukee Road Bicentennial, and Norfolk Southern. The spring release date will include Operator Series locomotives decorated for

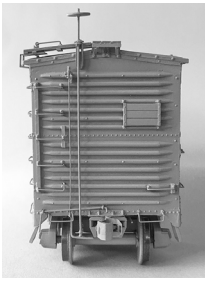
Santa Fe (blue and yellow), Burlington Northern, Conrail, and Union Pacific.

The third new HO scale locomotive ScaleTrains.com has scheduled for release during the first half of this year is a Rivet Counter GE C39-8. Road names will be Conrail, CSX (ex-Conrail), CSX (YN2 repaint), Norfolk Southern, Savage (ex-CSXT YN3), and Savage repaint. All ScaleTrains.com locomotives mentioned here will be available for DC only with a DCC-ready 21-pin socket, or with ESU LokSound v5.0 DCC and sound decoder. For additional information visit scaletrains.com.

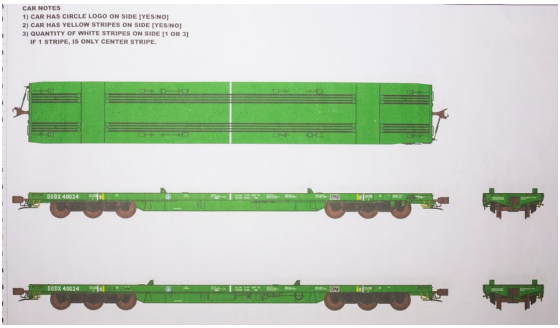
Showcase Miniatures has entered the HO scale vehicle field with a kit for a 1929 Six-Speed Delivery Van. The kit includes a resin body and chassis, a lead-free pewter roof, wheels, window glazing, and custom waterslide decals. Added details include a stainless steel photoetched fret with the windshield frame, mirrors, and steering wheel.

Showcase Miniatures has updated its HO scale US&S and GRS searchlight signal base cabinets to allow for variations in signal height. For additional information visit showcaseminiatures.com.

Speedwitch Media is selling a resin kit for an HO scale Chicago, Burlington & Quincy XM-25/-26 single-sheathed boxcar. The model is also prototypically accurate for C&S and FW&D. Decals for all three roads are included.

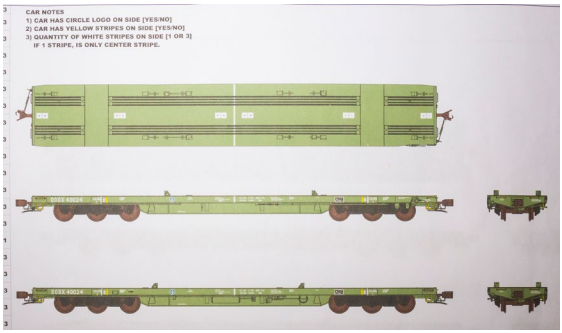


Also available from Speedwitch Media is a resin kit for an Ann Arbor 41000-series single-sheathed automobile car. The kits include one-piece cast resin bodies that replicate 'board-by-board' construction, a fully detailed underframe, styrene details, wire, and etched metal parts along with detailed prototype information and assembly instructions. For additional information visit speedwitchmedia.com.

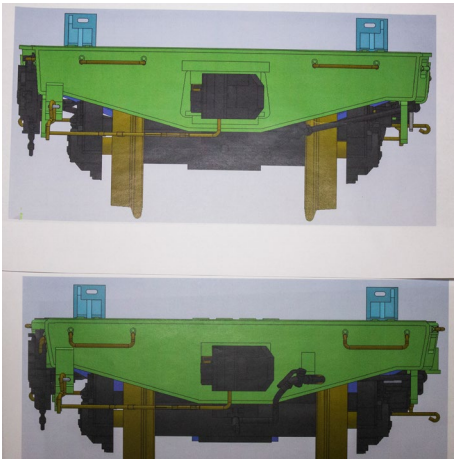


Spring Mills Depot, like many model railroad manufacturers, lost its Chinese manufacturing partner last summer, so a model they hoped to have in production now was displayed in paper form at Amherst. Multiple versions of a DODX six-axle flat car, suitable for hauling Abrams tanks and other heavy military equipment, are planned, including one version of this car on which the

container pedestals can be folded down or otherwise stored flush with the deck. Spring Mills Depot intends to model that feature.



As an example of the level of detail that Spring Mills intends to incorporate in the model, two different bodies will be tooled, reflecting the differences in two different manufacturers' versions – one manufacturer built the deck two inches wider, with squared-off edges, and the other had a narrower rounded edge deck.



Along with several prototypical DODX paint schemes, the flatcar will be available in a Spring Mills Depot scheme... and a couple of others that you'll need to see in person when the cars are produced. For additional information visit springmills-depot.com.

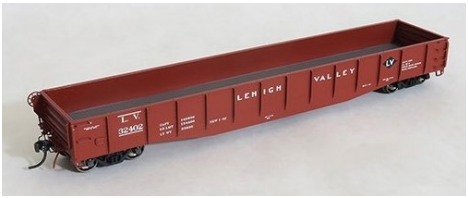
Summit USA has introduced an HO scale kit that builds into a Modern Strip Mall Building. The buildings have a variety of textures including bricks and Plastruct Random Stone.

Components in the kit include laser-cut white and clear acrylic, milled black styrene plastic, awnings, and signage. The completed model has a footprint of 21.5 x 7.5 inches. For additional information contact a dealer or visit summit-custom-cuts.com.

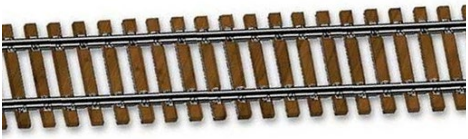
Sylvan Scale Models showed a wide variety of cast resin vehicles at the Amherst Show. Jeff Shultz photographed three versions of an HO scale 1956-66 Mack B-81 heavy duty truck in Sylvan's booth. From the left is a single-axle tractor, a tandem-axle tractor, and a tandem-axle dump truck. Also on display were numerous body styles and paint schemes of 1956 Chevys. Other new items include a re-run of a Canadian National wood caboose in both the as-built and modernized versions. For additional information contact a dealer or visit sylvanscalemodels.com.

Tangent Scale Models has completed another production run of 52-foot 6-inch 70-ton gondolas. The HO scale version is based on a standard design built by Bethlehem Steel Company between

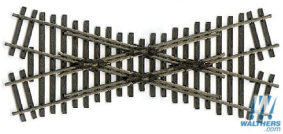
1937 and 1957. The ready-to-run model displays Tangent's usual attention to authenticity including drop ends, interior detail, wire grab irons, and appropriate trucks with machined metal wheelsets.



Road names include Baltimore & Ohio (Capitol dome herald), Reading (riveted steel floors, corrugated ends, Ajax brake wheels, two paint schemes); Lehigh Valley (oxide red, wood floor, and Dreadnaught ends); and Lehigh Valley (green scheme, etched-metal Wine tie-downs, stand-off ACI plates). For additional information visit tangentscalemodels.com.



Walthers has completely retooled its line of HO scale code 83 and code 100 nickel silver track and accessories. The first items available in the new line will be 36-inch FlexTrack sections with dark brown simulated wood thin-profile ties. Each tie will have molded spike and tie plate detail. Spike mounting holes for securing the track are located next to the rail. Both code 83 and code 100 FlexTrack are scheduled for release in April.



Walthers reports that track accessories coming this fall include FlexTrack sections with concrete ties, bridge track with guard rails; 45, 60, and 90 degree crossings; and code 83 to code 100 transition track sections. Insulated rail joiners, metal rail

joiners, and metal joiners presoldered with black #22 gauge feeder wire are also planned.

DCC-friendly turnouts will feature snap-action solid-rail points, isolated frogs with built-in jumpers for powering as desired, and an insulated tie bar. The selection will include No. 4, 5, 6, and 8 turnouts, wyes, curved turnouts, three-way turnouts, double crossovers, and double slip switches.

Walthers is quoting a late June release date for a new HO scale International extended wide-vision caboose. The Mainline series model will have an X-panel roof (without running boards or end ladders), a detailed underbody with wide-mounted brake gear, and Barber Swingmaster roller-bearing trucks with 33-inch machined metal wheelsets. The styrene body has molded drill starter points for grab irons, that can be installed by the modeler using caboose Detail Kit No. 910-201 sold separately.

Road names will be Santa Fe, Burlington Northern, Canadian Pacific, Chessie C&O, Conrail, Soo Line, and Duluth, Missabe & Iron Range.

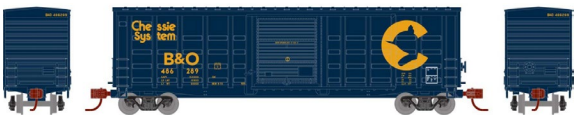
Walthers has also announced a GP7 in the WaltherProto line for delivery in late 2019. Road names in this release include Belt Railway of Chicago, CB&Q, Chessie System-C&O, Erie Lackawanna, Great Northern, and Reading. These will be

limited editions, with only one run of these road numbers. Equipped with improved hood contours, road specific details, 14:1 helical gears, and Proto MAX metal knuckle couplers, the units will also be available with ESU LokSound Select DCC and sound decoders or a 21-pin DCC plug.

Also new from Walthers is a 39-foot Trinity 3281 cu. ft. twin-bay covered hopper. The HO scale model is based on a short prototype built in the 1990s to handle dense, heavy commodities. Separately applied details on Walthers ready-to-run Mainline series model include brake gear, roof walks, discharge gates, inlet hatches, and end ladder cages. The 3281 model comes with roller-bearing trucks with 36-inch machined metal wheelsets.

Decorating schemes will be NRLX-NorRail Ciment Quebec, BCAX-Blue Circle Cement, CITX-Cit Group, CRDX-Chicago Freight Car Leasing, HWCX-Halliburton, Norfolk Southern, Union Pacific, and CSX Transportation. For additional information contact a dealer or visit walthers.com.

N SCALE PRODUCT NEWS



Athearn's production schedule for January 2020 includes an N

scale 50-foot waffle side boxcar. The ready-to-run model is based on a prototype built by Pullman Standard in the mid-1970s. In addition to the distinctive indentations on the body of the waffle car, spotting features include outside posts, non-terminating corrugated ends, and a slightly peaked roof.

Road names will be Baltimore & Ohio-Chessie System, Chicago & North Western, Rio Grande, Green Bay & Western, Louisville & Nashville, and Rock Island.

Athearn has scheduled N scale 45-foot International Containers for release next January.

Container company names will be Evergreen, K-Line, Maersk, Hapag-Lloyd, Hyundai, Hanjin, Mitsui Overseas Line, NYK, American President Lines, OOCL, CMA-CGM, and Sealand.

The containers will be sold in 3-packs with each can having a different number. In some cases the logos and decoration may vary within the 3-pack.

Athearn's early 2020 production schedule includes an N scale 1950s-era intercity bus. Decorating schemes will be Santa Fe Trailways, Union Pacific, Rock Island, Capitol Bus Company, Glacier National Park, Pioneer Tours, and Unified School District. Additionally, a Department of Corrections bus with simulated

bars printed on side windows and an RV conversion with curtains on the inside of windows and a plated-over side door window will be available.

The model is based on a Visicoach design built by The Flxible Company between 1950 and 1956. Features of Athearn's N scale version include windshield wipers, and rubber tires. For additional information contact a dealer or visit athearn.com.

Broadway Limited has released an N scale version of the Pennsylvania Railroad's famous 4-4-4-4 class T1 duplex steam locomotive. The model has a heavy diecast chassis and superstructure with numerous separately applied details. The locomotive will negotiate a minimum radius of 9.75-inches, however, the broader the curve the smoother the operation and the better the appearance. Operating features include Paragon3 Sound with Rolling Thunder in both DC and DCC environments. For additional information contact a dealer or visit broadway-limited.com.

R. Bale

Pennsylvania's 4-4-4-4 Duplex Locomotives

The pair of 4-4-4-4 class T1 duplex steam engines Baldwin Locomotive delivered to the PRR in 1942 were esthetic beauties and engineering failures. The T1s tended to be slippery engines and their poppet valves required constant attention. The grate area and boiler capacity was insufficient to meet the needs of the four cylinders, and the long, rigid wheelbase could not negotiate the curve at the west end of PRRs Pittsburgh station. Ironically, Raymond Loewy's streamlined design kept them dirty with smoke tending to swirl around the cab and head end cars. Despite their many problems PRR doubled-down, ordering 25 more T1s from Baldwin in 1946 and erecting a like number in their Altoona shops. Despite constant tinkering, things did not improve and by 1949 PRR had removed their T1s from service. All were scrapped by the end of 1953.

ExactRail has an all-new Johnstown America AutoFlood II five-bay hopper car. Road names on the N scale ready-to-run model include CSXT, BNSF (brown and green schemes), KGLX, NRLX, UCEX, UCEX (pink), and UCEX (red, white and blue patriotic scheme). For additional information visit exactrail.com.

Fox Valley Models displayed samples of their new Pullman-Standard coal gondola at Amherst. FVM's N scale model is based on a series of prototypes built by PS during the mid to late 1970s. In addition to the Burlington Northern sample car photographed at the Amherst Show, road names will be CEPX-Cajon Electric Power, and FPPX-Fayette Power. The schemes portray prototypes equipped for single rotary operation. They are sold in 6-packs with each car having a different road number. The release will include one double rotary car decorated for FPPX-Fayette Power. For additional information visit foxvalleymodels.com.

InterMountain Railway released an impressive list of new products at the Amherst Show including six new N scale models in multiple decorating schemes. Among the new items is a Gunderson 50-foot High Cube boxcar with double plug-doors. Road names for the ready-to-run model will be Santa Fe (two schemes), Union Pacific, Burlington Northern, Milwaukee Road, CP Rail (ex-Milw Rd), Golden West Service, Minnesota, Dakota & Western, and two BNSF schemes.

Additional N scale models announced by InterMountain at the Amherst Show included a Cylindrical covered hopper car with trough hatches and four discharge outlets. Road names will be

Ferrocarriles Nacionales de Mexico, Santa Fe (ex-Koppel), and two schemes each for Canada, Alberta, and Canadian Wheat Board.

InterMountain displayed several preproduction samples of N scale ACF twin-bay covered hopper cars. The ready-to-run production versions will have round roof hatches, etched metal roof walks, machined metal wheelsets, and Kadee couplers.

Road names will be Norfolk Southern, Southern Pacific, Union Pacific, Winchester & Western, Western Maryland, ACFX, Burlington Northern, Montana Rail Link, and Chicago & North Western.

InterMountain is working on a new production run of 40-foot 12-panel boxcars that will be available in ten decorating schemes including five for Great Northern.

Additional road names for the N scale ready-to-run model will be Southern Pacific, T&NO-Southern Pacific, Santa Fe (Grand Canyon), SP&S, and Chicago & Eastern Illinois.

InterMountain also showed several pre-production samples of a 4650 cu. ft. covered hopper including this decorated but unassembled BN car. In addition to Burlington Northern, the final selection of road names for the N scale model will be Cotton Belt, Southern Pacific, French's, Sclair, ATSF, ACFX-Sterling Salt, ACFX-American Borate, ACFX-Thiele, and ECC International. For additional information contact a dealer or visit intermountain-railway.com.

Kato USA has made another production run of its N scale Santa Fe Super Chief. EMD F7A and F7B Warbonnet diesels will be available separately with three operational choices: DC only, DCC (no sound), and ESU LokSound DCC with decoder.

An eight-car set of Super Chief cars will include a baggage car (No. 3456), RPO (No.87), ACF 10-6 sleeper (Palm Stream), pleasure dome (No.501), Diner (No. 603), dormitory lounge (No. 1341), ACF 4-4-2 sleeper (Regal Crest), and a sleeper-lounge-observation (Vista Canyon) with an illuminated Super Chief drum head sign).

A four-car add-on set will be available with two ACF 10-6 sleepers (Palm Haven and Palm Top); and two ACF 4-4-2 sleepers (Regal Gate and Regal Hunt). An optional interior LED lighting kit is available. For additional information contact a dealer or visit katousa.

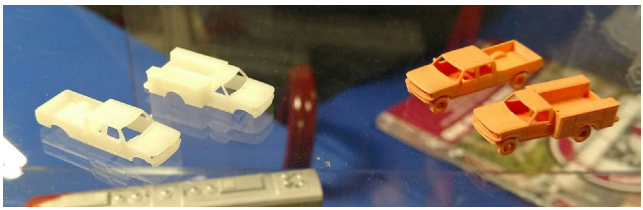
com. A video of the Santa Fe Super Chief and combined El Capitan using Kato USA equipment can be viewed at www.youtube.com/watch?v=6di4waS4Wtk&feature=youtu.be.

Among the new N scale models from **Micro-Trains Line** is this Rock Island depressed-center flat car. It comes with six-wheel heavy-duty trucks and includes the load.

This N scale 40-foot double-sheathed wood boxcar was inspired by a prototype built in 1917 by Ralston Steel Car Company. Spotting features include a heavy steel underframe and the 1-1/2 sliding doors to ease loading of automobiles.

Also new from Micro-Trains is a 40-foot steel boxcar with a seven-panel Superior sliding door. The SL designation indicates the car is equipped with specialized fixtures for securing appliances.

Completing our report on new Micro-Trains Line models is this 60-foot excess height boxcar with riveted sides and a pair of plug doors on each side. The N scale car follows a prototype built by Thrall for the Norfolk & Western in 1969. The car was later absorbed into the Norfolk Southern System and repainted. For additional information contact a Micro-Trains dealer.



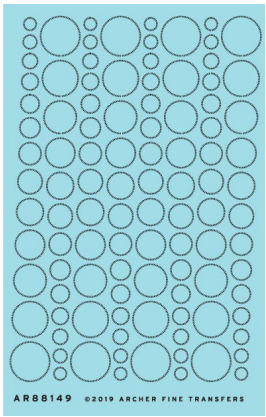
River Point Station has been releasing a steady stream of HO scale Ford F-series pickup-based vehicles over the past few years. At the Amherst Show RPS showed pre-production samples of N scale 1992 Ford F-series utility and crew cab trucks. Spring 2019 delivery is expected. For additional information visit riverpointstation.com.

New N scale locomotives coming this spring from **ScaleTrains.com** include a GE C44-9W diesel. Road names for the Rivet Counter model will be Santa Fe (Warbonnet scheme), BNSF, Norfolk Southern (Horsehead), and Union Pacific. ScaleTrains.com will also be offering the C44-9W in their Operator line for the first time in N scale for BNSF, Norfolk Southern

(Horsehead), Union Pacific, and Chicago & Northwestern. The C44-9W is scheduled for release this summer. Locomotives will be available in DCC Ready with a Next18 connector, DCC (non-sound) with an ESU Next 18 Micro DCC decoder, and DCC & Sound with an ESU-LokSound Next18 Select Micro DCC sound decoder with "Full Throttle.".

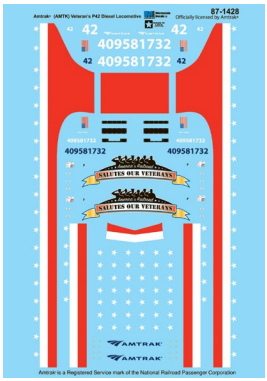
A springtime release has been announced by ScaleTrains.com for an N scale GE Tier 4 GEVO diesel locomotive. Road names for the Rivet Counter model will include Navajo Mining, BNSF (Wedge scheme), Canadian National, CSX, CSX (Spirit of Ravenna), GE Demonstrator, Norfolk Southern, and Union Pacific.
The locomotive models will be available for DC only with a DCC-ready plug, with DCC only, and with DCC and sound. For additional information visit scaletrains.com.

NEW DECALS, SIGNS AND FINISHING PRODUCTS

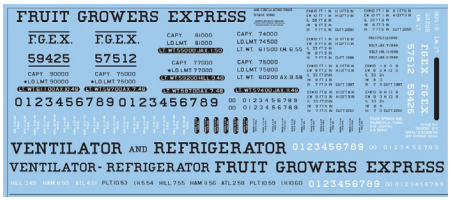


Archer Transfers has expanded its selection of textured decals to include circular patterns of weld beads. Four different bead widths are available. They are packaged as HO, S, O, and G scale with the corresponding weld beads being .015, .025, .030, and .040-inches in width. The widths of the new circular patterns are compatible with straight weld bead patterns previously issued by Archer. For more information contact a dealer or visit archertransfer.com.

Microscale Industries has HO and N scale decals for Amtrak Veterans Locomotive No. 42. In June 2013, Amtrak P42DC No. 42 was painted in a red, white, black, and dark blue scheme with a large logo on the side proclaiming "America's Railroad Salutes Our Veterans". A dark blue band near the sill contains 50 white stars.



Microscale's new water slide decal includes material to correctly letter one locomotive. For additional information contact a dealer or visit microscale.com.



Speedwitch Media has released three carefully researched HO scale water-slide decal sets of interest to prototype model builders. Set D119.2 will letter two refrigerator cars as rebuilt in late 1947 by Fruit Growers Express and Western Fruit Express. The set is intended for the Intermountain kit but is well-suited to other applications.

This Bangor & Aroostook lettering set is correct for clone R-40-26 refrigerator cars

including Accurail and Sunshine HO scale models. In 1951 Bangor & Aroostook purchased 500 refrigerator cars from Pacific Car & Foundry that were virtually identical to Pacific Fruit Express class R-40-26 refrigerator cars. The cars were given orange sides, and black roofs and ends. The side sill support sections, underframe, and trucks were also black.

Material included in this Speedwitch Media decal set will correctly letter an HO scale Spokane, Portland & Seattle Railroad 52-foot straight side flat car as built by Pacific Car & Foundry in 1951. The SP&S cars were painted black and numbered 34000-34199. For additional information visit speedwitchmedia.com.

DISCLAIMER .....

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Briefly noted at press time ...

Otto M. Vondrak has been named editor of ***Railroad Model Craftsman*** magazine. He fills the position left vacant when Stephen Priest left RMC in December to become marketing manager of ScaleTrains.com. Vondrak had previously been associate editor of ***Railfan & Railroad*** magazine...

Athearn is offering replacement handrails for Genesis GP38-2 or GP40-2 models that may have been damaged in shipment. Have your proof of purchase available and contact Horizon Hobby customer support at 1 (888) 959-2307 *Select #4 for Returns. Technically this isn't a return, however, this is the department handling the handrail replacements ...

Atlas reports that preproduction samples of its N scale AMT multilevel passenger cars were removed from their display booth at the Amherst Show. Atlas is asking that they be returned no questions asked. The missing models were the only samples in the US, so anyone seeing them will know where they came from ...

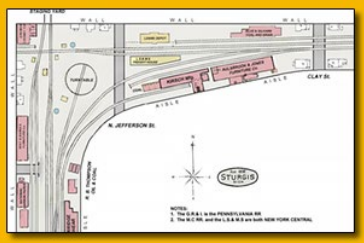
In happier news, **Atlas** says it's third-quarter production schedule will include two brand new N scale models: a 41-foot side-dumping ballast hopper, and a 50-foot Sieco pulpwood flat car. We'll have road names and details on Atlas's complete third quarter production schedule next month ...

Bowser has successfully qualified two new HO scale locomotive manufacturing partners in China. The following start dates involve a limited number of road names with additional selections coming as the new factories gain experience. The first DS 4-4-1000s will be released in May; SD40-2F in July; C628, C630, and C630M in August; SD40-2

in September, M630 in November, and F units starting in December 2019 ...

KatoUSA has released its N scale Union Pacific 4-8-4 FEF steam locomotive to dealers with optional TCS DCC or ESU LokSound DCC ...

VIEW READER COMMENTS



THE LIMITED MODELER
Jim Six: Layout design with Sandborn Maps
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In MRH RUNNING EXTRA

SELECTED EVENTS

March 2019

(Many events charge a fee. Check individual info website for details.)

AUSTRALIA, CANBERRA, KALEEN, March 30-31, 31sr Annual CMRCI Model Railway Expo, sponsored by Canberra Model Railway Club, at UC High School, Baldwin Drive. For details phone Anthony Hunt at +61 0414 730 824.

CANADA, ONTARIO, KINGSTON, March 10, 30th Annual Rail O Rama Model Train Show, sponsored by Canadian Railroad Historical Association, at Ambassador Hotel, 1550 Princess Street. Request info from Graham Oberst at graham.oberst@bell.net.

CANADA, ONTARIO, TORONTO, March 16, Railway Prototype Modellers Meet, at Humber College, 205 Humber College Blvd, North Campus, Building B, Rooms B201 & B202. Info at torontoprototypemodellers.wordpress.com.

CALIFORNIA, BAKERSFIELD, March 9-10, 26th Annual Model Railroad Show & Sale, at Kern County Fairgrounds, 1142 South P Street. Info at gehams.club.

COLORADO, DENVER, March 2-3, Rocky Mountain Train Show, at Denver Mart, 451 E 58th Ave. Info at rockymountain-trainshow.com.

FLORIDA, PALMETTO, March 9-10, Sarasota/Bradenton RealRail 42nd Anniversary Train Show, Bradenton Area Convention Center, 1 Haben Blvd. Info at realrail.org.

GEORGIA, SAVANNAH, March 29-30, Savannah Prototype Modelers Meet, at White Bluff Presbyterian Church, 10710 White Bluff Road. Info at www.savannahrpm.com.

IDAHO, LEWISTON, March 24, 8th Annual Lewis-Clark Train Club and Collectables Swap Meet, Nez Perce County Fairgrounds, 1229 Burrell Ave. Info from wrails@cableone.net.

ILLINOIS, SPRINGFIELD, March 24, Train Fair at Illinois State Fair Grounds Orr Building, sponsored by the Springfield Railroad Society. Info at springfieldtrainfair.com.

INDIANA, INDIANAPOLIS, March 2, Naptown & White River Model Train Show, Emmerich Manual High School, 2405 S. Madison Ave. Info at www.naptownrr.org/shows.

KENTUCKY, LOUISVILLE, March 23, Annual Train Show & Sale, sponsored by NMRA Division 8 Mid Central Region, at Moose Lodge, 4615 Fegenbush Lane. Info at www.div8-mcr-nmra.org.

MINNESOTA, PLYMOUTH, March 15-16, Railroad Modeler's Retreat at Mount Olivet Lutheran Church. Request info from Ken Zieska at mhry19@gmail.com.

MISSOURI, SPRINGFIELD, March 23, 39th Annual Model Train/Swap Show, at Expo Center, 635 St. Louis Street. Info at omraspringfield.org.

NEW YORK, BATAVIA, March 31, Great Batavia Train Show, sponsored by Genesee Society of Model Engineers, at Richard C. Call Arena, Genesee Community College. Info at www.gsme.org.

NEW YORK, ROCHESTER, March 2-3, Rochester Model Railroad Club 80th Anniversary Open House, First Universalist Church, 150 Clinton Avenue South. Info at www.rocmrrc.com.

OHIO, GREENVILLE, March 3, 38th Annual Model Railroad Swap Meet, sponsored by the Darke County Model Railroad Club at Youth Building, County Fairgrounds, 800 Sweitzer Street. Request info from Joe Worz at josephbw@hughes.net.

OHIO, KIRTLAND, March 16-17, Railfest Train Show, sponsored by NMRA Western Reserve Division 5, at Lakeland Community College, 7700 Clocktower Drive. Info a railfest.org.

OREGON, ELSIE, March 2, 15th Annual Pacific Model Loggers' Congress, at Camp 18 Restaurant & Logging Museum, 42362 Highway 26. Info at www.pacificmodelloggerscongress.com.

OREGON, PORTLAND, March 9, 34th Annual Swap Meet sponsored by Willamette Model Railroad Club at WD Jackson Armory, 6255 Northeast Cornfoot Road. Info at facebook.com/events/1303189686489326.

PENNSYLVANIA, GREENSBURG (Metro Pittsburgh), March 22-23, 2019 RPM-East, sponsored by NMRA Division Two, at Ramada Greensburg Hotel and Conference Center, 100 Sheraton Drive. Info at hansmanns.org/rpm_east/index.htm.

VERMONT, ST. ALBANS, March 9, Vermont Rails Model Railroad Show, sponsored by Northwestern Vermont Model Railroad Association, at Collins Perley Sports & Fitness Center. Info at nwvrailroad.org.

WISCONSIN, CEDARBURG, March 10, 24th Annual Model Train Show & Swap Meet, sponsored by METRO Model Railroad Club at Circle B Recreation Center. Info at www.metrorrclub.org.

April 2019, by location

AUSTRALIA, NEW SOUTH WALES, ERINA HEIGHTS, April 19-21, 14th Australian Narrow Gauge Convention, at Central Coast Grammar School. Info at www.austnarrowgaugeconvention.com.

ALABAMA, GADSDEN, April 21, 33rd Annual Train Show sponsored by Coosa Valley Model Railroad Club, at 210 At The Tracks, 210 Locust Street. Info at coosavalleymodelrailroad.com.

CALIFORNIA, SAN BERNARDINO, April 27, Western Prototype Modelers Meet, at San Bernardino Train Depot, 1170 West 3rd Street. Info at railroadprototypemodelers.com.

INDIANA, INDIANAPOLIS, April 13, Indianapolis Spring Train Show, sponsored by NMRA Central Indiana Division at Manual High School Gym, 2405 S. Madison Avenue. Info at cidnmra.org.

KENTUCKY, NEW HAVEN, April 6, Kentucky Railway Museum Annual Train Show & Sale, at St. Catherine Academy Gym, 413 North 1st Street. Info at kyrail.org.

MAINE, WESTBROOK (Metro Portland), April 6, Train Show at Westbrook Community Center, sponsored by Southern Maine Model Railroad Club. Info at southernmainemrc.wordpress.com.

MICHIGAN, WYOMING, April 13, Spring Train Show, sponsored by Grand River Valley Railroad Club at 5625 Burlingame Ave SW. Info at grvrrc.org.

OHIO, MARION, April 26-28, Central Ohio Railroad Prototype Modelers Meet. Request info from dblake7@columbus.rr.com.

Future 2019, by location

CANADA, BRITISH COLUMBIA, BURNABY, May 3-5, Railway Modelers Meet of BC, at Simon Fraser University, Burnaby Campus, West Mall Centre. Info at railwaymodellersmeetofbc.ca.

CALIFORNIA, RICHMOND, June 15, San Francisco Bay Area Prototype Modelers Meet, at St. David's School Hall, 871 Sonoma Street. Info at www.bayareaprototypemodelers.org.

CONNECTICUT, FARMINGTON, May 31-June 1, New England-Northeast Railroad Prototype Modelers Meet, at Farmington Marriott, 15 Farm Springs Road. Info at nerpm.org.

ILLINOIS, COLLINSVILLE (metro St Louis), July 26-27, St. Louis RPM Meet, at Gateway Convention Centre. Info at icg.home.mindspring.com/rpm/stlrpm.htm.

NEW YORK, LIVERPOOL, (Metro Syracuse), September 19-22, NMRA Northeastern Region Empire Junction 2019 Convention, at Holiday Inn, 441 Electronics Parkway. Info at empirejunction.org.

NORTH CAROLINA, DENVER, May 31-June 2, Modular Layout Display sponsored by the Sipping and Switching Society of North Carolina, at Salem United Methodist Church. Request info from Glen Frix at gafrix@charter.net.

OREGON, PORTLAND, August 27-31, 35th National Garden Railway Convention, hosted by Rose City Garden Railway Society, at DoubleTree by Hilton Hotel, 1000 NE Multnomah Street. Info at www.ngrc2019.org.

TENNESSEE, JOHNSON CITY, May 31–June 1, Scale Model Train Show & Sale, sponsored by Mountain Empire Model Railroaders, at George L. Carter Railroad Museum, East Tennessee State University. Info at memrr.org.

TEXAS, FRISCO, June 27-30, 2019 Texas Special NMRA Lone Star Region Convention, at Drury Inn & Suites, 2880 Dallas Parkway. Info at www.2019TexasSpecial.com.

TEXAS, TAYLOR, May 4-5, Austin Train Show, at Williamson County Expo Center, sponsored by Austin Model Railway Society. Info at austinrailway.org/trainshow.html.

UTAH, SALT LAKE CITY, July 7-13, 2019 NMRA National Convention and National Train Show. HQ at Little America Hotel. Info at nmra2019slc.org.

Beyond 2019, by date

ENGLAND, BIRMINGHAM, 2022, NMRA National Convention and National Train Show.

CALIFORNIA, SANTA CLARA, 2021, NMRA National Convention and National Train Show.

MISSOURI, ST. LOUIS, July 12-18, 2020, NMRA National Convention and National Train Show. HQ at Hilton St. Louis at the Ballpark. Info at gateway2020.org. ■

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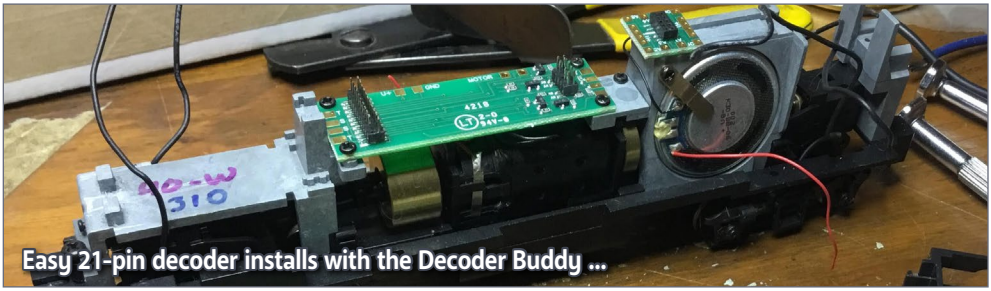
Ted York's Santa Fe Cajon Pass ...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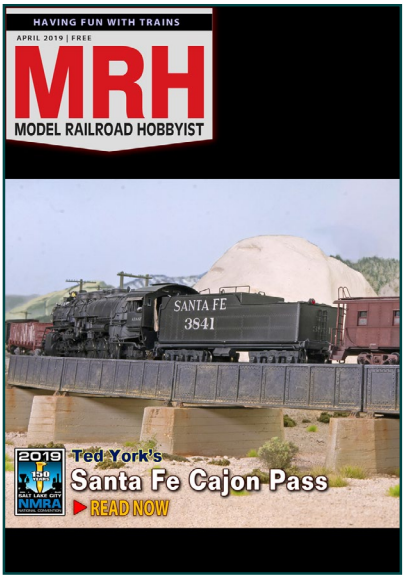

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... coming in the April MRH

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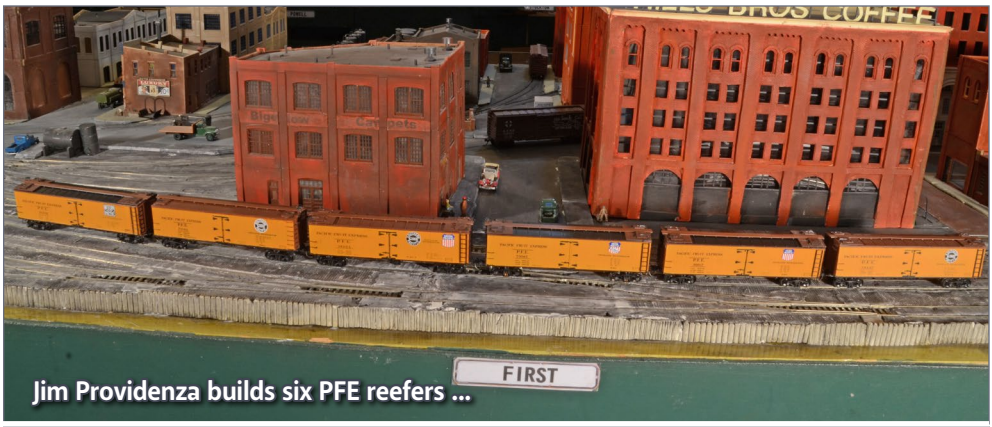
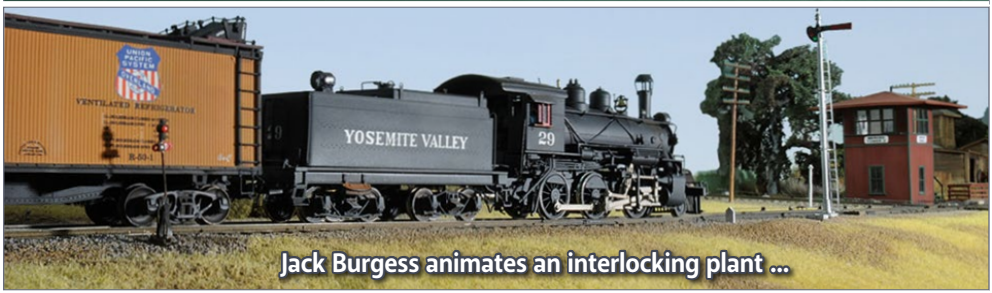


Jim Providenza builds six PFE reefers ...



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