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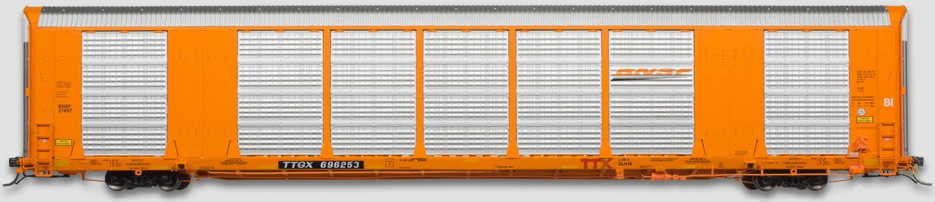

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Model Railroad Hobbyist February 2020 | #120
(Updated 01/31/20)

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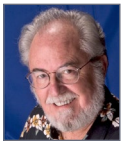
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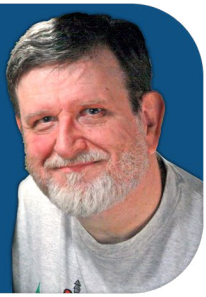


Model Railroad Hobbyist | February 2020

Joe Fugate: Sound decoders ... and a reed switch update

I've been thinking lately about sound decoders as I dive into writing my *Run like a Dream: Locomotives* book. (For those who bought the series, I hope to roll out the first Loco book sneak peek in February.)

To me, the epitome of the hobby for running things like a dream has become sound decoders, momentum, braking, and the Iowa Scaled Engineering ProtoThrottle. It doesn't get any better!

Here's the big fly in the ointment when it comes to achieving this dream (the thing that's seldom if ever talked about): achieving this dream has some seldom discussed truths we need to face.

Put bluntly, you cannot mix sound decoders from multiple vendors on your layout without becoming totally frustated! Function key mappings vary, braking behavior and momentum effect settings vary. I'm sorry, but trying to consist locos with sound decoders from different vendors just *does not* work!

That means you need to standardize on one vendor's sound decoders and stick with them. Most layouts I've visited have sound decoders from multiple vendors and the layout builders are quick to express their headaches to me. Even getting the

function keys to work the same across multiple sound decoder brands leads to early baldness from all the hair pulling!

So if achieving this dream matters to you, then it's time to face facts and pick *one* sound decoder vendor and go with them.

This means I recommend against buying locos that come with the sound decoder pre-installed. Always get a non-sound loco and install your preferred sound decoder instead.

But what if the loco with the pre-installed sound decoder happens to have your preferred vendor's decoder? Don't do it. I've found vendors almost always ask the decoder vendor to customize the installation with some special features you don't get in the vendor's stock decoder.

Publisher's Musings | 3

As a result, the decoder now becomes non-standard, and configuration headaches raise their ugly head. So I avoid locos that come with sound installed by the locomotive make.

This begs the next question – which vendor's sound decoder is best?

I've tried the three biggies: SoundTraxx, TCS Wow Sound, and ESU LokSound. They all have their advantages and disadvantages.

No question SoundTraxx's Dynamic Digital Exhaust is super cool. In effect, the decoder tracks the load on your loco and automatically changes the sound to match.

If you don't like manually fiddling with function keys to get the "correct sound" then this "automatically correct" sound fills the bill nicely. True, nothing automatic is ever 100% perfect, but this comes darn close without all the function key complexity.

Soundtraxx also has an equalizer, giving you the ability to adust the bass, midrange, and treble sounds to "sound right" in your layout space. The two other vendors at this writing do not have this feature.

Similarly, TCS WOW Sound has its "Proto" mode where it adjusts the sound based on load. Plus, WOW Sound has many super-detailed adjustment curves on things like acceleration and braking levels. And you can save your settings, making it very easy to restore them if the decoder ever gets its settings scrambled.

Sometimes a major short (not uncommon on a DCC layout) can scramble decoder settings, so being able to restore them easily can be quite handy.

Then there's TCS's audio assist. Some love it, some hate it. I've spoken to many modelers about audio assist and I get mixed reactions. Many think it's great.

Those less enamored by audio assist tell me the idea of your loco talking to you kills the sense of this being a miniature prototype and reminds you this is just a "toy train."

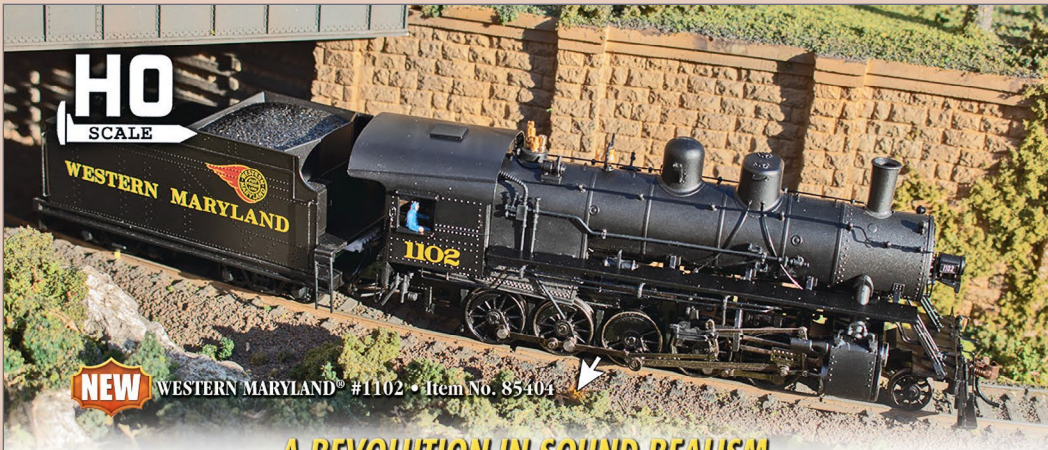
Then there's ESU's LokSound. Out of the box, LokSound decoders tend to have the most sophisticated motor settings and give very smooth loco performance. Plus you have a lot of options for loading your own sounds. Many modelers who use LokSound tell me they really like the sound recordings in ESU decoders.

What do I use? I have standardized on LokSound, but I recommend you try a decoder or two from each vendor until you find which you prefer.

I know many modelers very happy with SoundTraxx and TCS Wow Sound.

Update on reed switches

Last issue, we ran an MRH Staff authored article on magnetic reed switches.



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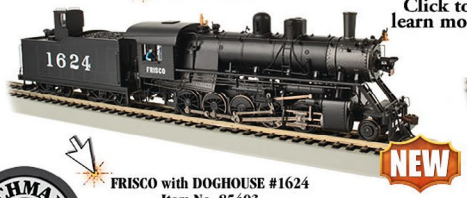

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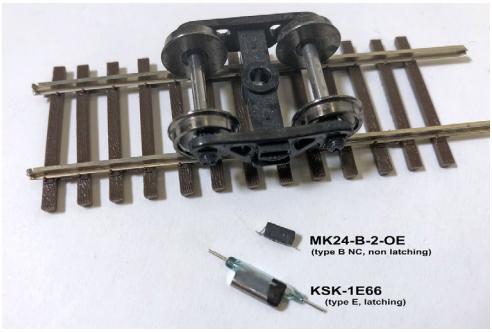
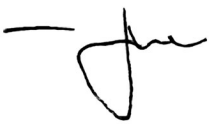


Unfortunately, the tiniest reed switch, the Digikey MK24-B-2-OE, is no longer available as a type E latching switch.

The smallest reed switch we could find that's latching is now the Mouser KSK-1E66. For more, check out the comments thread on the reed switch article: mrhmag.com/magazine/mrh2020-01/electrical-impulses

We've updated the shopping list on the website thread to reflect the latest supply realities. Posting the shopping list to the website makes it easy to keep current. ☑



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Last issue's ratings

The three top-rated articles in the January 2020 issue of *Model Railroad Hobbyist* are:

4.6 Bob Truax's Great Northern
4.5 Youth in model railroading
4.4 PRemote control with reed switches

Issue overall: **3.6**

Please rate the articles! Click the reader comments button on each article and select the star rating you think each article deserves. We depend on these ratings to help us determine which articles to publish, so your rating matters! ■

Best of the MRH WEBSITE THIS MONTH

Model Railroad Hobbyist | February 2020

compiled by Joe Fugate

RATE THIS ARTICLE

Going overboard on lumber

Tim Schwartz has a short thread on making wrapped lumber loads for both flatcars and as stacks in a lumber yard:

1. MRH forum member **tschwartz** discusses making these wrapped lumber loads in this short MRH forum thread.

"Last weekend it was cold outside so I decided to make a few wrapped bundles of lumber to scatter here and there on the layout. I used information from another modeler. [He] posted on his blog [about] cutting pine to scale bundle size, printing some bundle wrapping, and then cutting the paper to size to wrap around the wood. I only planned on doing a dozen bundles, but it was so easy I made a lot more."

Read more on the MRH website by clicking the button below.

Read the full thread on the MRH website

MRH'S MONTHLY GREAT MODELER POSTS

Pulpwood loads and jigs

Chris van der Heide writes in his MRH blog about making pulpwood loads using jigs [2]:

2. Forum member **cv_acr** shares how he made and uses these pulpwood load jigs in his MRH blog.

"Pulpwood logs are a significant traffic item on my Algoma Central, and a type of load I'll need quite a supply of for my flatcars and gondolas. I've been doing some playing ... and I figure on using anywhere from 15-20 pulpwood loads during a future operating session. These loads can be moved in at least five different types of cars (52' flatcars, 40' flatcars, 52' gondolas, 61' gondolas, 48' gondolas), so I need a lot of loads and several different types of loads.

While there are some cast resin or plastic loads you can get ... they won't fit some of the customized cars I have, and I've never really seen one made for a standard gondola. Moreover, just nothing looks as good as a load made of real logs.

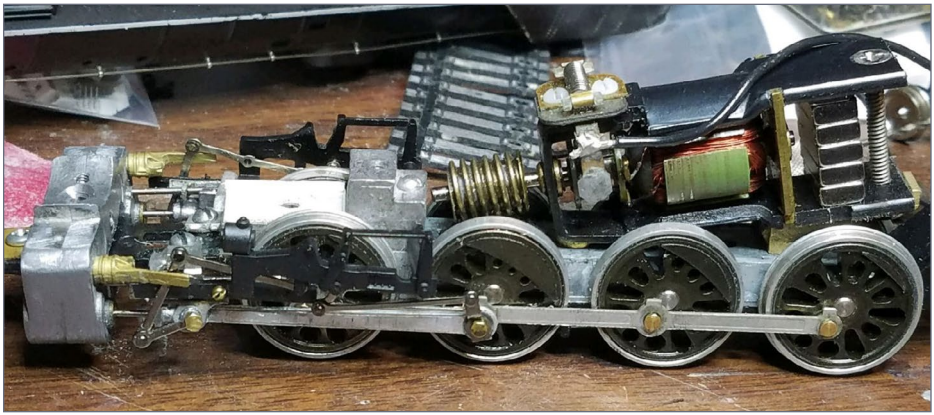
Fortunately these aren't too complicated to make ... "

3. By using jigs pre-made to match the flatcar fleet, the load fits perfectly!

For more details, visit the MRH website and read the full thread.

Read the full thread on the MRH website

Bachmann / Bowser 4-8-4 needs help



4. MRH forum member kirkifer shared this photo of his steam loco mechanism and solicited some help.

Forum member Kirk Wakefield displayed asked for assistance:

"This is a Bachmann / Bowser retrofit 4-8-4. This happens to be for a Niagara but true to Bachmann form, I think this drive train is used under the UP and Santa Fe loco versions too. Of course, Bowser did not make a different frame either.

I isolated the motor from the frame by using a couple of non-conductive nylon screws to hold the brushes on the motor. It is now sort of DCC friendly.

I need help. There is a whole lot of movement in the steam chest and I think the valve gear [is] hitting little brass pieces coming off the steam chest. You can see the one on the fireman's side is bent. I really don't want to cut them off, but they are really in the way. Anyone have any suggestions?"

For more details, visit the MRH website and read the full thread.

Read the full thread on the MRH website

Visiting the Amherst winter model train show

MRH Staffer Eric Hansmann visited the Amherst model train show in late January and posted a number of new announcements from the show.

5. The New England Amherst show is one of the largest model train shows in the US.

This show, which has always been on the last weekend in January for several decades running, has grown to be one of the largest model train shows in the US. It's spread across several buildings at the "Big E" exposition grounds in Springfield, MA. Tens of thousands of model railroaders and the general public attend this show every year. Modelers are known to drive for well over 6 hours to attend this huge show. The show not only includes many vendors, it also hosts dozens of modular layouts.

If you would like to learn more, visit the MRH website and read the full thread.

6. MRH Staffer Eric Hansmann walked around the show and captured many of the new product announcements.

Read the full thread on the MRH website

Weekly photo fun thread

The weekly photo fun thread never fails to disappoint. The most recent one as we're putting this issue to bed already has some great photos [7, 8].

For more, visit the MRH website and view the full thread.

Read the full thread on the MRH website

7. Jim Six posted some photos of his recent modeling work.

8. Steve Hurt (MRH forum member **Modeltruckshop**) posted some great photos of these Frisco units outside in the snow on a diorama. Sure looks cold out there!

VIEW READER COMMENTS

WHAT'S NEAT column

Model Railroad Hobbyist | February 2020

KEN PATTERSON FLIES A DRONE, SHREDS LEAVES, SHARES PHOTO TIPS, AND VISITS TWO LAYOUTS ...

★★★★★ RATE THIS ARTICLE

THIS MONTH, STEVEN M. CONROY SHARES SOME fantastic drone footage in Modeling Ideas From Above, always the best way to visualize how your modeling should look.

▶ PHOTOS AND VIDEO OF SUPERB MODELING

Campbell Rice shares his technique of processing dry leaves to add to our scenery. We look at two layouts this month, the North American Prototype Modelers layout in Milwaukee and the McReynolds' Santa Fe layout just outside of St. Louis. I also share photography techniques as we shoot a winter landscape photo indoors for Athearn Trains. All of this makes this month's video run at 30 minutes in length.

Dry leaves as scenery

1. Campbell Rice starts us off by showing how he uses real leaves to make scale looking leaves for ground cover in our forests. The real trick is the blender he uses which saves a few steps by allowing us to grind our leaves without the use of water in the process. The blender, called the Magic Bullet, was purchased online for about $8. Campbell breaks off the stems and discards them as they are too stout and not what is needed for the final effect.

2. It's the actual leaves minus the stems that he packs into the small one-cup blender.

3. He lets the blender do its job for about a minute of grind time, stopping and shaking the unit during the grinding process. After that, he screens the leaves through a kitchen strainer to sort out the fine material that represents our scale leaves.

4. He separates the fine screened material from the larger coarse chopped material. He saves the rough stuff for future use in scenery areas on the layout.

View reader comments

5. The finely ground scale material looks very believable as dry fallen leaves under the tree.

6. (Right top) The North American Prototype Modelers layout in Milwaukee occupies about 4000 sq. ft. with long main lines designed with operation in mind. The amazing passenger train station has a head house made from Lego blocks with a full interior and lights. The train shed is also scratchbuilt, with trusses that extend over the tracks and passenger platforms that are fully lit. The layout has very expansive scenery with large naturally flowing scenes modeled.

7. (Right bottom) There are about 28 scale miles of mainline allowing 12 to 15 long trains to be run at the same time. The signaling system is fully functional. The club uses the NCE DCC system to power the layout and uses about 20 radio cabs during an operating session.

The North American Prototype Modelers layout

Rate this article

8. The scenery is generic Midwest, with one section of the layout representing California scenery with snow sheds, mountains and a lot of pine trees made by Timberline scenery products. It is located in the basement of the South Gate shopping center. The club is run by a board of directors. A committee of the board directs scenery and construction projects that follow a pre-determined plan.

9. The layout's era covers the '40s through the '80s, allowing a variety of passenger and freight trains that can be run on the layout. The club was started in the 1970s, making the layout about 42 years old. The group is a 501c3 with dues for its members set at $30 per month. During an operating session the club uses a car card system to handle the cars on the many branch lines all tied together by the 28 scale-mile main lines. The minimum radius of 48 inches allows for very long trains. The benchwork averages about 51" above the floor.

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

Don and Chris McReynolds' Santa Fe layout

10. This layout in this month's video is built by a father and son team, Don and Chris McReynolds. They have also had a lot of construction assistance from all the friends who love to operate the layout. Construction started about 10 years ago with a double track mainline that runs through a great deal of industry, warehouses and refineries.

11. Chris says he really enjoys creating scenery and his dad Don loves building structures and bridges. The layout's era is 1970 to 1972 with a large city, grain elevators, and river bridges. Most of the structures are based on Walthers kits.

12. Sonny Sellers is credited with spending many late nights assisting in laying the many miles of code 83 track and turnouts. The curves have a minimum radius of 30" and the benchwork averages 54" from the floor.

13. This operating layout also uses a car card system to keep track of freight moves during operating sessions that can take 2 to 3 hours to complete. This layout will be featured on the layout tours for the St Louis NMRA National train convention in the summer of 2020, July 12 through 18. See the Gateway 2020.org website for more information.

Wintertime train station photo shoot in HO scale

14. This month I share with you how James Regier and myself designed and photographed a winter theme photo shoot indoors, with a full moon and a Santa Fe caboose as the featured model. The setting of the scene is the Hutchinson, Kansas train station. James built the Walthers kit and added 40 or more LEDs to light the interior and station platform. I used simple spray can paint to create the background sky and a full Moon on a sheet of 4X8 foam. Wire trees were used to scenic the area. The locomotive and caboose were also lit, with the entire scene covered with loose plaster to represent snow.

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

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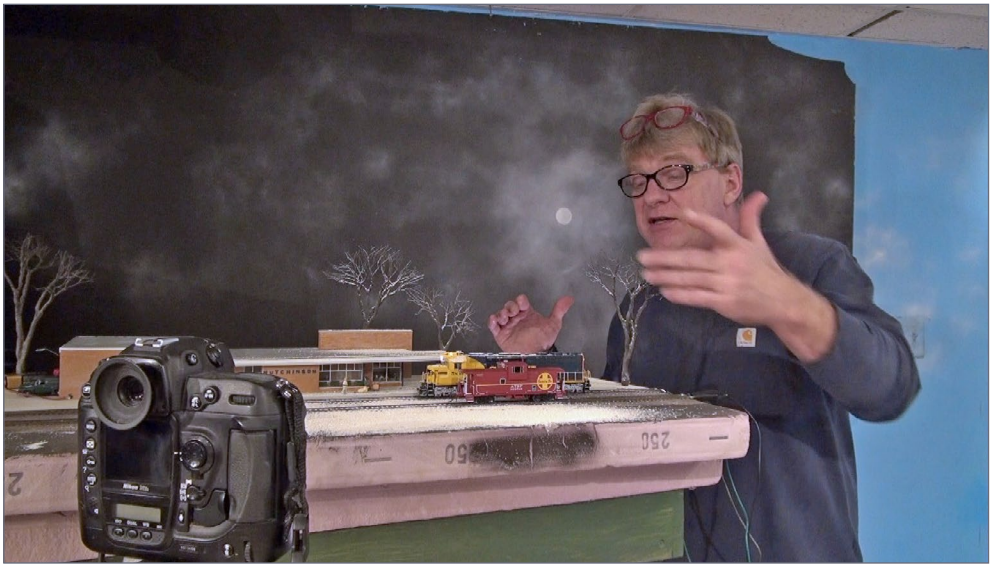

15. The exposure took 20 minutes to produce, with the shutter on the camera set to bulb. The photo was shot in total darkness with the moon being lit from the floor with a simple house lamp for about 30 seconds during the exposure process. The camera's f/stop was set to f/22 and the ISO was set to 100 for a grain-free photograph. The train station lights and locomotive were lit for 30 seconds as well. The caboose rear end red light was lit for 20 minutes during the exposure. Chris Palomarez from Athearn used Photoshop to add a little fog to the photograph. Simply experiment with your models and different time exposures during your photo shoot. Trial and error are the best ways to create great looking photos of your models indoors or out.

Click here to see the What's Neat video for February ...

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

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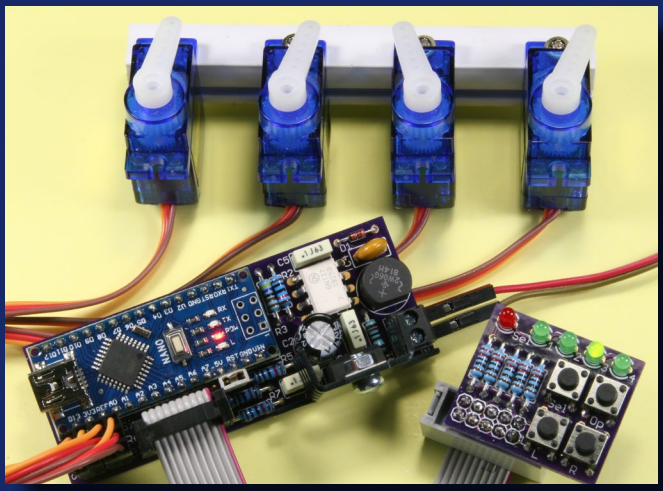
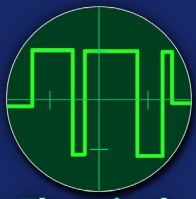




Electrical Impulses

Model Railroad Hobbyist | February 2020

1. The Quad Servo DCC Decoder (QSDD) consists of two separate modules: The decoder itself which connects to the layout track and drives up to four servos, and a small detachable keypad used to manually adjust the servo throws and set the speed of servo movement.

Terry Chamberlain's frustrations with commercial decoders led to building his own highly configurable quad servo DCC decoder ...

After deciding to use servos to drive the turnouts on the small HO layout I am planning, I found trials with commercial DCC accessory decoders to be rather disappointing.

I wanted to control the throw of each servo easily and accurately by hand, prior to their installation on the layout, and then fine-tune the servo movements after they were in place.

I found the commercial decoders awkward to use, especially once the servos and decoder were in place under the layout. It was quite difficult to set the servo throws accurately.

Inspired by the work of Geoff Bunza on accessory decoders based on Arduino modules, I decided to build my own, with the capability of setting up and operating four servos.

As a result, I ended up with a DCC accessory decoder that can be built by anyone. All you need are reasonable soldering skills and the basic computer knowledge to load software into an Arduino module. All this for a cost of less than $20, including custom-designed printed circuit boards!

In [1], I show the entire setup with four servos, the decoder, and a small keypad for adjusting servo operation. The keypad can also be used to operate the servos by hand, using the pushbuttons.

For convenience, you can either plug the keyboard directly into the decoder, or you can alternatively connect the keypad to a ribbon cable up to 40 inches long. This makes it easier to see and set up your turnouts when the decoder and servos are out of sight under the layout.

Once set up, you need not keep the keypad plugged in – you can completely disconnect it from the decoder board.

The decoder drives the connected servos to throw your turnouts in response to standard DCC commands sent from your command station. You can either use a handheld throttle or suitable software such as JMRI Panel Pro running on a computer to throw the turnouts.

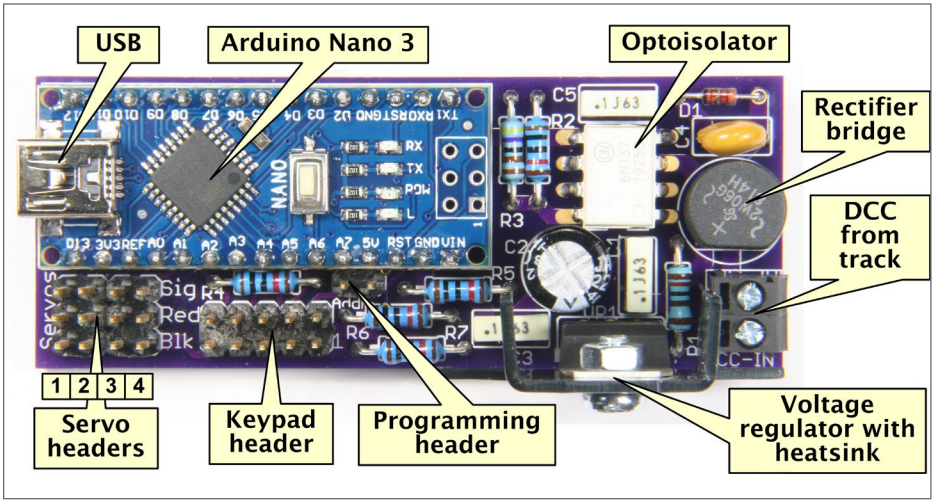
I use my own A-Track computer application:
www.a-train-systems.co.uk/atrack.htm

Overview of structure and operation

Connecting the decoder board to the track through its DCC-IN terminal block powers the board. The rectifier bridge and the +5V voltage regulator provide the proper DC power needed for the rest of the board.

The DCC signal, carrying command packets from your command station, also goes to the Arduino Nano 3 module via a 6N137 optoisolator chip – a device that also protects the microprocessor and associated circuits from the potentially destructive DCC track voltage (approximately 14 Volts AC).

As you can see in [2], four three-pin headers provide the connections to small analog servos (such as the Tower SG90), and a dual-row 10-pin header connects to the separate keypad board.



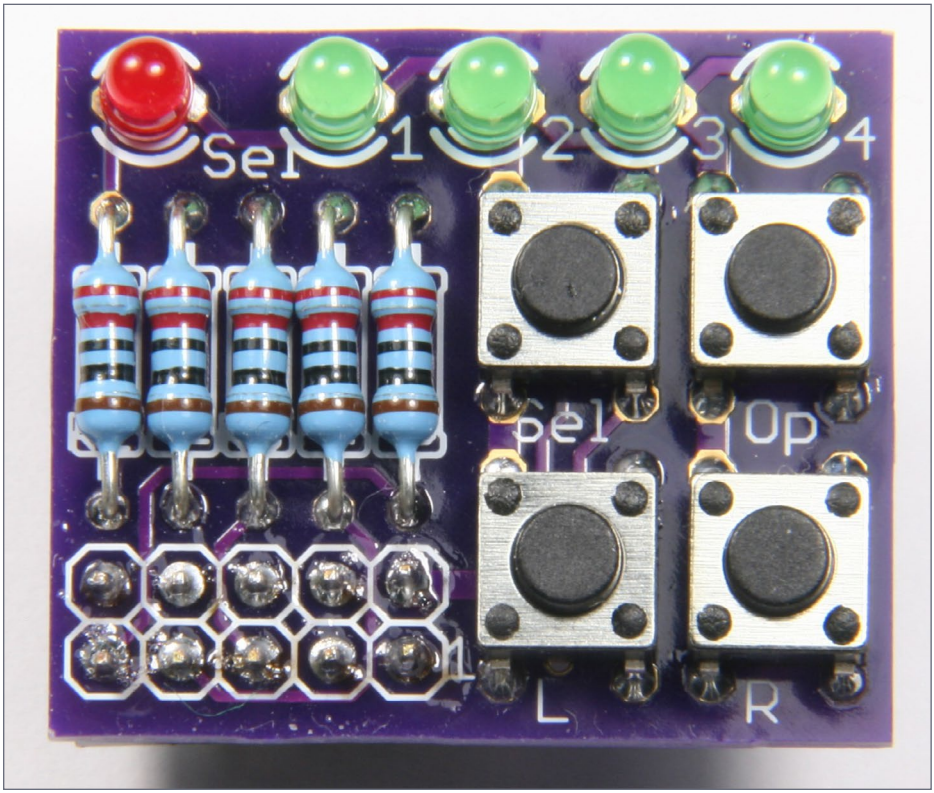
2. The configuration and layout of the QS DCC decoder (QSDD).

As mentioned, you only need the keypad to set up the servo operational characteristics.

The board includes a small two-pin programming header (and associated shorting jumper) for use when setting the DCC addresses of the servos. The shorting jumper can be "parked" on one of the header pins during normal use of the decoder.

The keypad holds four pushbuttons:

- **Sel** (Select), which is used when setting up servo movements
- **Op** (Operate), which selects which servo to control



3. The servo setup keyboard.

- **L** (Left) to make the servo move left
- **R** (Right) to make the servo move right

There are also five light-emitting diodes (LEDs), one red labeled **Sel** (Select), and four green labeled **1, 2, 3,** and **4,** that show the servo selected and indicate the operation in progress.

I will cover the details of keypad use in Part 2 next month.

Building the Quad Servo DCC Decoder

You can buy a pair of printed-circuit boards (PCBs) from OSH Park, a small company located in Lake Oswego, Oregon, to build a Quad Servo DCC Decoder (QSDD). Buy one pair for each QSDD you need: 1 QuadServo-DCCDecoder + 1 Keypad.

They supply the PCBs in multiples of three boards: three decoder PCBs for $15.45 and three keypad PCBs for $5.25, including free shipping to any destination worldwide.

QuadServo-DCCDecoder PCB:
oshpark.com/shared_projects/CjngC3qb

QuadServo-Keypad PCB:
oshpark.com/shared_projects/7ATX5aqB

To order a set of PCBs (multiples of three) click the button labeled "Order Board" next to each board. Enter your email address, name, and a password of your choice to establish an account with OSH Park, then follow their ordering process. You can pay with a credit card or via PayPal.

Your boards will be manufactured and delivered within two or three weeks depending on where you are in the world.

Note: Neither A-Train Systems nor I have any connection with OSH Park, other than as a very satisfied customer.

If you prefer to use an alternative PCB supplier, then instead of clicking "Order Board", just click on "Download" to download a copy of the relevant file in Eagle board (.brd) format, which you can then send off to your preferred PCB board fabricator.

[4] and [5] list the parts required to build a complete QSDD (decoder plus keypad), including cables.

Decoder parts			
Part description	**Reference**	**Quantity**	**Value/Nbr**
Diode Rectifier Bridge	BR1	1	W005G
Capacitor - Polyester	C1, C3, C5	3	100nF
Capacitor - Electrolytic	C2	1	220uF 35V
Capacitor - Disc Ceramic	C4	1	270pF
Resistor – Metal Film, 1/4 Watt	R1	1	1K2
Resistor – Metal Film, 1/4 Watt	R2, R4 - R7	5	10K
Resistor – Metal Film, 1/4 Watt	R3	1	4K7
Diode	D1	1	1N4148
Voltage Regulator - 5 Volt	VR1	1	LM7805
Optoisolator	OK1	1	6N137
Arduino Module	M1	1	Nano-3
Terminal Block - 3.5mm pitch	DCC-IN	1	1 x 2
Pin Header - 0.1" (2.54mm) pitch	JP1 – JP4	4	1 x 3
Pin Header - 0.1" (2.54mm) pitch	JP5, JP6	2	1 x 5
Pin Header - 0.1" (2.54mm) pitch	JP7	1	1 x 2
Heatsink – to fit TO220 package		1	
USB Cable - A Plug to Mini B Plug		1	

4. Table 1, list of decoder parts. See [6] for distributor stock numbers.

Keypad parts			
Part description	Reference	Quantity	Value
Resistor – Metal Film, 0.25 Watt	R1 – R5	5	220R
Light-Emitting Diode - Red	LED1	1	3mm Red
Light-Emitting Diode - Green	LED2 – LED5	4	3mm Green
Tactile Switch	S1 – S4	4	6mm
Socket Header - 0.1" (2.54mm) pitch	JP1 – JP2	2	1 x 5
IDC Socket Ribbon Cable Connector		1	10-way (2 x 5)
IDC Plug Ribbon Cable Connector		1	Box Header (2 x 5)
Ribbon Cable – 0.05" (1.27mm) pitch		As req'd	10-way

5. Table 2, list of keypad parts. See [6] for distributor stock numbers.

Suggested suppliers for the parts listed in [4] and [5]:

Modelers in the UK ...

RS Components – uk.rs-online.com/web

Farnell – uk.farnell.com

Modelers in North America ...

Newark – www.newark.com **(part of the same company as Farnell).**

Mouser – www.mouser.com

Digikey – www.digikey.com

Mouser and Digikey prices tend to be a little higher than Newark. Both Mouser and Digikey also have European-based operations, but this also tend to have higher prices than RS Components or Farnell.

The Arduino Nano 3 module can best be obtained from one of the many suppliers operating on eBay, although you will have to make

your own judgment about who will give you the best service, based on their feedback from previous customers.

The tables in [6] give stock numbers for QSDD components from each suggested supplier. The bonus extras for the February issue [mrhmag.com/magazine/mrh2020-02/bonus-extras] provides a PDF listing the parts from each manufacturer with clickable links.

Build Your Own Quad Servo DCC Decoder – Part 1

Suggested suppliers for the parts listed above are RS Components (https://uk.rs-online.com/web/) or Farnell (https://uk.farnell.com/) for users in the UK, or Newark (www.newark.com/) for users in the USA (part of the same company as Farnell). Mouser (www.mouser.com/) or Digikey (www.digikey.com/) are alternative sources in the USA, although their prices tend to be a little higher than Newark. Both Mouser and Digikey also have European-based operations, but still tend to have higher prices than RS Components or Farnell.

The Arduino Nano 3 module can best be obtained from one of the many suppliers operating on eBay, although you will have to make your own judgement as regards who will give you the best service, based on their feedback from previous customers.

The tables below gives suggested part numbers for each QSDD component from each suggested supplier. Click on the part number to view the relevant webpage with details of the part.

Ref-Decoder	RS Cmps	Farnell	Newark	Mouser	Digikey
BR1	7082668	1861434	70AC6544	625-B380C1000G-E4	B250C1000G-E4/51GI-ND
C1, C3, C5	3121469	2429342	18AC7634	80-R82DC3100AA50J	399-19335-ND
C2	7111264	8126690	62W6211	80-ESK227M035AG3AA	P5166-ND
C4	7167226	2860060	57AC2084	594-S271K43SL0N6TK5R	BC2679CT-ND
R1	1650230	9341226	95W7689	71-CCF071K20GKE36	S1.2KCACT-ND
R2, R4 - R7	1651031	9341110	95W7695	71-CCF0710K0JKE36	S10KCACT-ND
R3	1650319	9341951	95W7764	71-CCF074K70GKE36	S4.7KCACT-ND
D1	7390290	2675146	05AC0533	512-1N4148	1N4148FSCT-ND
VR1	7147780	1467758	89K1366	511-L7805CV	497-1443-5-ND
OK1	8051267	2453244	31Y6274	859-6N137M	160-1791-ND
M1	eBay	eBay	eBay	eBay	eBay
DCC-IN	8971332	3882615	68C9065	651-1985807	277-6043-ND
JP1 – JP4	2518632	1593422	08N6751	517-929834-01-24-RK	3M9457-24-ND
JP5, JP6	"	"	"	"	"
JP7	"	"	"	"	"
Heatsink	7124257	1611415	81F046	532-507302B00	HS115-ND
USB Cable	eBay	eBay	eBay	eBay	eBay

Ref-Keypad	RS Cmps	Farnell	Newark	Mouser	Digikey
R1 – R5	1650814	9341528	95W7736	71-CCF07220RJKE36	S220CACT-ND
LED1	1780909	1581111	14N9386	859-LTL-4211N	160-1139-ND
LED2 – LED5	1808502	1581114	14N9374	859-LTL-4231N-1	160-1958-ND
S1 – S4	3786476	1555982	95M4260	688-SKHHAM	450-1650-ND
JP1 – JP2	8277728	1593490	08N6807	710-61301021821	S7108-ND
IDC Socket	8323483	2215247	45W6459	517-D89110-0131HK	732-2102-ND
IDC Plug	6741205	4139045	94F7977	710-61201025821	732-5452-ND
Ribbon Cable	eBay	eBay	eBay	eBay	eBay

6. See the bonus extras [mrhmag.com/magazine/mrh2020-02/bonus-extras] for a list of suggested parts from each recommended supplier for the decoder and the keypad as clickable links.

Tables in [6] notes:

1. You may be able to source equivalent parts locally at a lower cost, using the part details by clicking on the links above. This assumes you have sufficient electronics knowledge to understand the specifications. Although eBay can be a good source for components, you need to be wary of low cost parts, since these may be low quality or manufacturers' substandard rejects.

2. The total cost of parts for a single QSDD should be less than $20 (UK£16), including the PCBs, but could be more if all components are ordered from the major suppliers.

3. Buying electronics components singly or in small quantities is much more expensive than buying in bulk (in quantities of 10 or more), so it is worth considering carefully at the outset how many modules you might build, and then procuring all of the required components in a single purchase. This will also reduce shipping charges.

Soldering components onto the PCBs

Once you have your PCBs and components, next you need to solder the components to the boards.

If you do not have any experience of soldering electronic components then have a look at one or two of the guides available on the internet:

www.makerspaces.com/how-to-solder

You can find many more "how to solder components on PCB boards" videos on YouTube.

I find nothing beats getting some copperclad PCB material from one of the component suppliers to practice soldering wires and some spare components to it before tackling the real PCBs.

I prefer rosin-cored solder in wire form only. Of course, never use solder with acid flux (as sold for plumbing purposes).

I recommend a fine-tip soldering iron with a maximum power rating of 25 watts. All joints should be made as quickly as possible to avoid damaging the PCB and components. The greatest enemy of electronics is prolonged heat.

The position and value of each component is shown on the diagrams for the decoder [7] and the keypad [8].

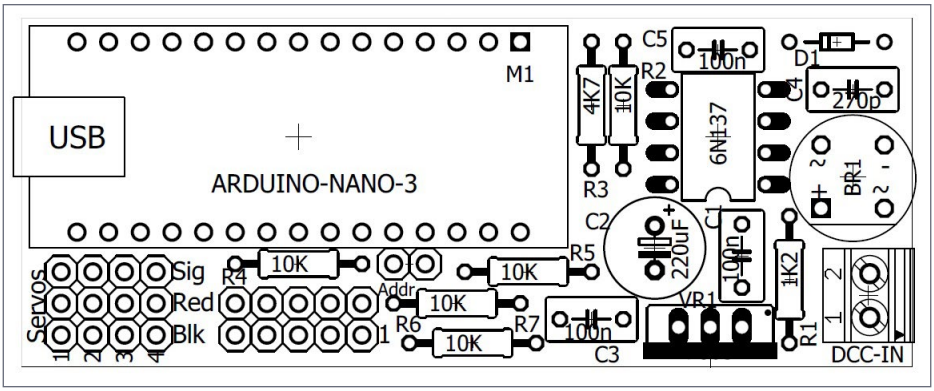
Assemble the QSDD board

Fit those components with least height to the PCB first, i.e., the diode (D1) and resistors (R1-R7). Then when you turn the PCB over to solder the component wires on the underside of the board, the components do not fall out of the holes.

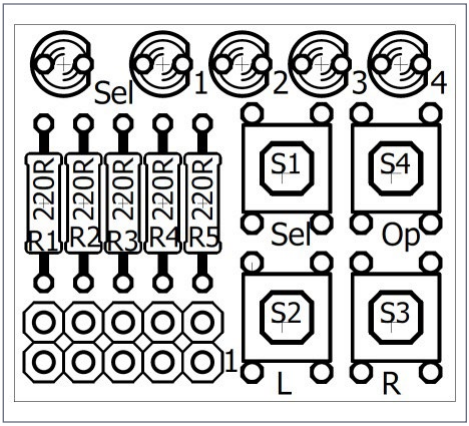
Make sure to fit the diode in the right direction as shown on the PCB markings. It does not matter in which direction the resistors are placed on the PCB.

A tip here: Solder just one wire from each component, then turn the PCB over and check that all components sit flush with the PCB.

If not, make them so by briefly melting the one soldered joint while holding the component flat – but watch your fingers



7. Component layout on the QSDD decoder board.



8. Component layout on the QSDD keypad board.

VIEW READER COMMENTS

– soldered wires are hot! Do this before soldering the remaining wire(s) of the component.

Clip the excess component wires flush with the soldered joints on the underside of the PCB using a small pair of side cutters.

When you fit the 6N137 optoisolator, orient the notch or dot at one end toward the center of the PCB. Use the board markings as your guide and make sure all pins went through the PCB holes, with none having been bent under the device.

Solder two diagonally-opposite pins on the chip first, and then check that the device is still flat on the PCB. If not, melt the solder on one corner pin while pushing the device down.

You will need to attach the Arduino Nano 3 module to the supplied pin header strips before fitting it to the PCB [10].

When doing this, solder the corner pins first, then check that the headers fit square and flush with the Arduino before soldering the rest of the pins.

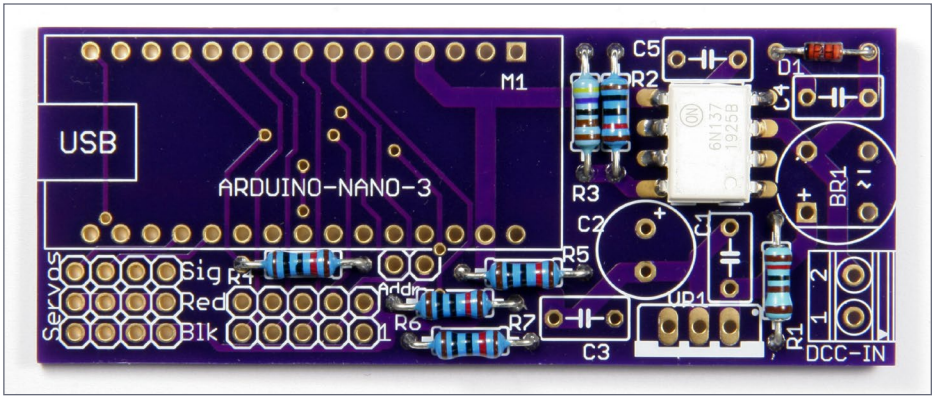
As always, complete the solder joints in as short a time as you can, to minimize the heat applied to the components. Note that there is no need to fit the additional 6-pin header to the end of the Arduino board farthest from the USB connector.

Before you solder the Arduino Nano to the decoder PCB, you can connect it to one of your computer's USB ports using the cable listed in the decoder parts table, and check that the module powers up correctly.

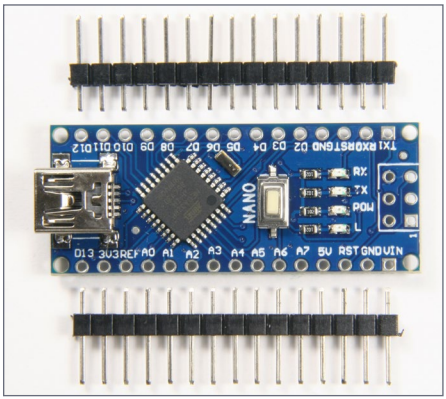
You will normally see two LEDs lit – one constant (labeled POW) and one flashing (labeled L), depending on the current internal state of the Nano module. You do not need to have any of the Arduino software installed on your computer to perform this check.

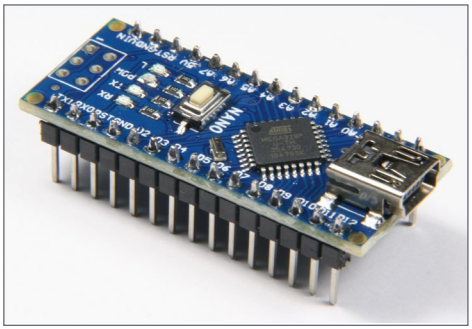
Fit and solder the Nano module on to the decoder board, making very sure that the module's USB connector is toward the edge of the board, followed by the capacitors (C1, C3-C5), rectifier bridge (BR1), and terminal block.

As the tallest component, fit the 220uF capacitor (C2) last, and ensure you mount it the right orientation, with the stripe indicating the negative (-) terminal toward the nearest edge of the PCB.



9. Partially assembled QSDD board.





10a, b. Attaching the header pin strips to the Arduino Nano 3.

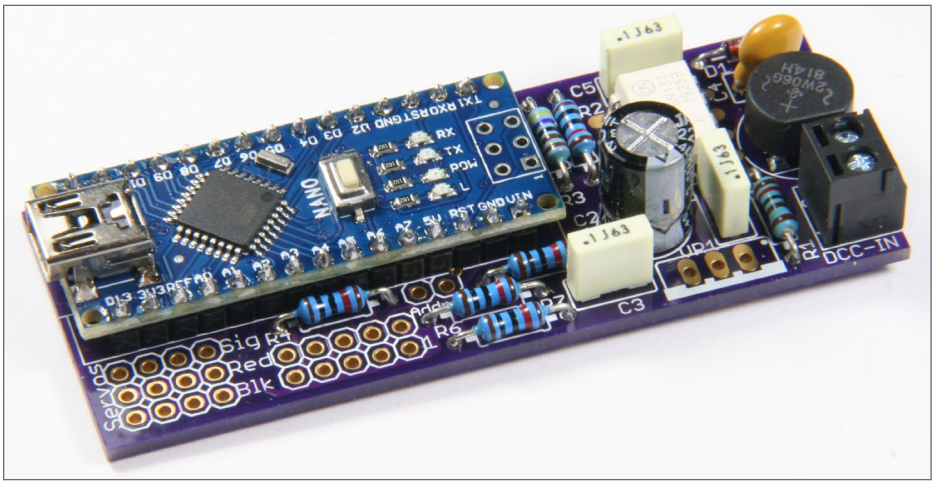
The other capacitors can be installed in either direction.

The flat edge of the bridge rectifier should be next to the terminal block.

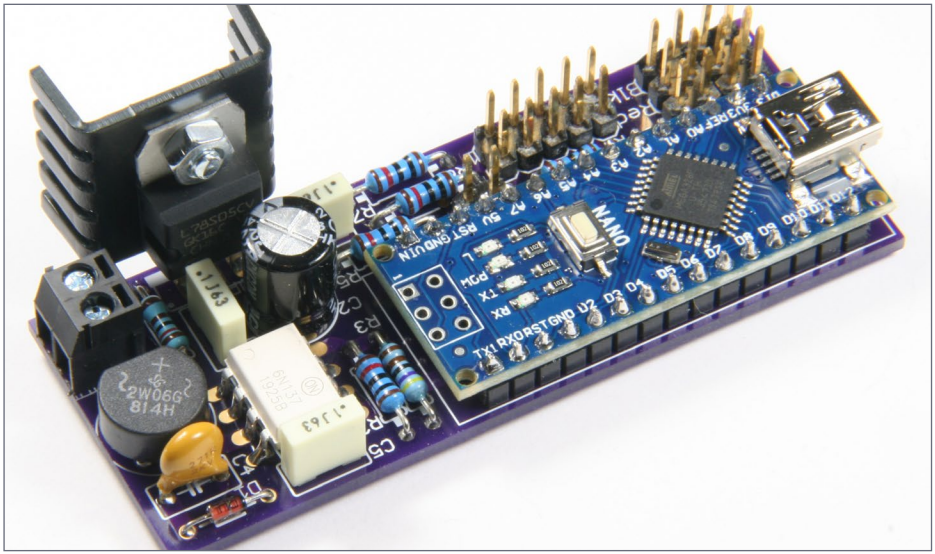
Now fit the pin headers. Although you can buy individual headers to match exactly the sizes used, I find it less costly to buy a single long strip of at least 24 pins, then carefully snap it into the required sizes.

Beware of buying the very cheapest headers on eBay, since the plastic used tends to shatter easily, exposing the end pin and often failing to hold it in position.

Finally, fit the voltage regulator (VR1) with the metal tab facing outward. I recommend adding a heat sink to the voltage regulator (listed in the decoder parts table), to keep its operating temperature at a safe level.



11. Assembled QSDD board, minus the pin headers and voltage regulator.



12. Fully assembled QSDD board with the heat sink facing outward.

The heat sink can be fitted most easily with the fins facing away from the PCB [12]. However, if you prefer something more compact, you can carefully straighten the bottom pair of fins (slowly to avoid cracking the soft aluminum and breaking off the fins), and mount the heat sink with the fins facing inward toward the center of the PCB.

Assemble the keypad board

On the keypad PCB, fit the LEDS [14] with the shortest lead toward the printed captions (Sel, 1, 2, 3, 4). Take care to associate the correct caption with an LED. As seen in [14], the captions are toward the *lower-right* of their associated LED holes. LEDs can be particularly sensitive to heat, especially when fitted flush to the PCB, so do not linger with your soldering iron.

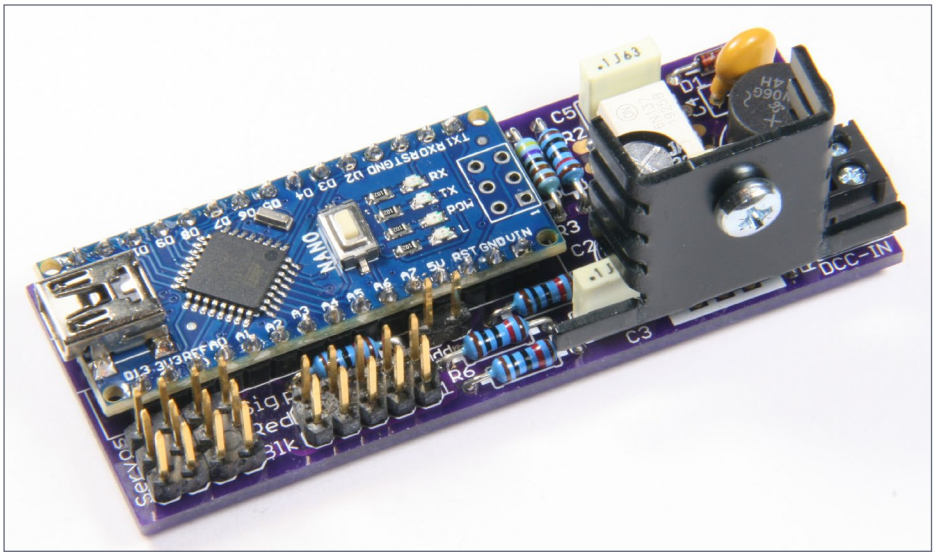
Fit the 2 x 5 socket header after the four pushbuttons, on the underside of the board [15].

Once you have completed the boards, check that all of your soldered joints are bright and shiny, and that the solder wicked through the PCB holes to the component side of the board.

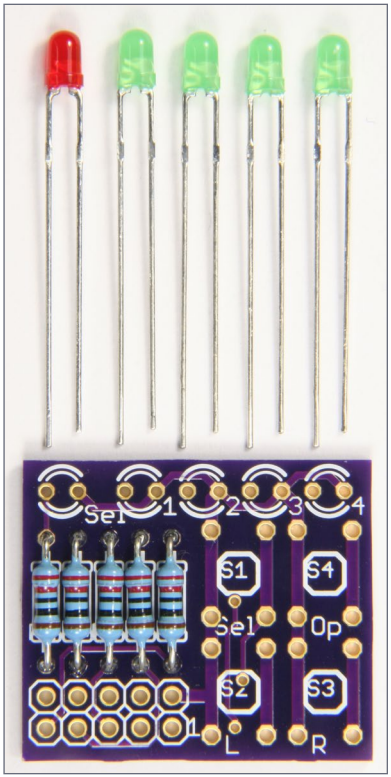
Also look for solder bridges between copper pads or component pins anywhere on either side of the PCB. I recommend using a 5X or 10X hand lens or jeweler's loupe for this inspection.

The keypad can be connected to the decoder board directly or via a ribbon cable. While you can buy ready-made cables, you can assemble your own using the listed components [16].

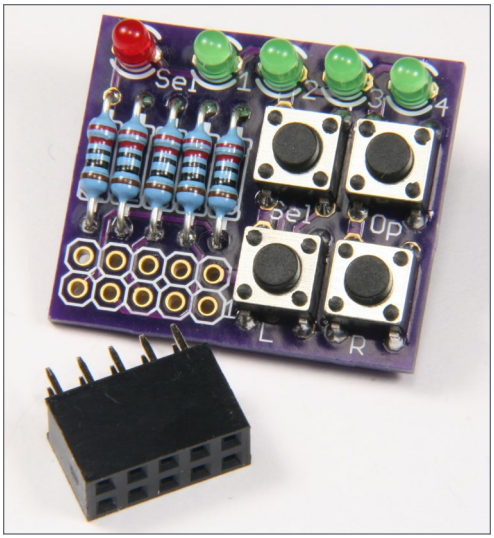
After cutting the 10-conductor ribbon cable to the required length and ensuring the ends are square, place the ends into the



13. Fully assembled QSDD board with the heat sink facing inward.



14. Partially assembled keypad PCB showing proper LED lead alignment.



15. Assembled keypad PCB, with the 2x5 socket header to be installed on the bottom of the board.

insulation-displacement connectors (IDC) as shown. Firm finger pressure will generally be enough to hold the two parts of each connector on the cable temporarily, with the tangs just biting into the cable insulation.

Place each connector between the jaws of a vise and carefully

apply just enough pressure to close the two parts of the connector onto the cable and complete the joint. Finally, fold the ribbon cable back over the top of the socket connector and slide the strain relief into place as shown [16b, c]. The box-header plug connectors do not appear to be readily available with a strain-relief feature [16a].

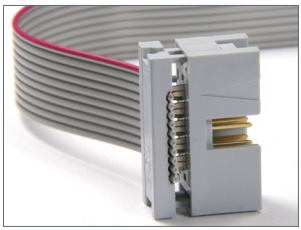
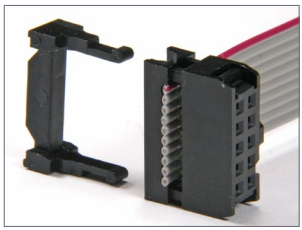
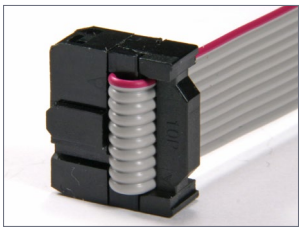
You can now plug the keypad into the 2 x 5 pin header on the decoder, either directly or using the ribbon cable. Connect your USB cable from your computer to the Arduino Nano module.

If everything is assembled correctly, the Arduino Nano should light two of its onboard LEDs, one steady and one flashing, depending on the current internal state of the Nano. That means it's ready to receive its software program called a "sketch."

Software for the Quad Servo DCC Decoder

As I mentioned earlier, Geoff Bunza's article in the *Model Railroad Hobbyist* forum, "SMA20 Low Cost 17 Channel DCC Decoders" (mrhmag.com/node/24316) inspired the development of this decoder.

Geoff's article in the December 2016 issue of *MRH,* "A modeler's

16a, b c. It's easy to add insulation-displacement connectors and make your own ribbon cable.

introduction to the Arduino" provides a very good introduction: mrhpub.com/2016-12-dec/online/html5/index.html?page=132

The files provided in Bonus Extras for the December 2016 *MRH* include a guide to setting up the Arduino Integrated Development Environment (IDE) on your computer: mrhmag.com/magazine/mrh-2016-12-dec/bonus-extras

You also get a link to the Arduino website for downloads: www.arduino.cc/en/Main/Software

And a link to getting started: www.arduino.cc/en/Guide/HomePage

- There are also links to tutorials: create.arduino.cc/projecthub/Arduino_Genuino/getting-started-with-the-arduino-desktop-ide-623be4
- www.arduino.cc/en/Guide/ArduinoNano

I use the Nano here in the QSDD.

Programming the Nano 3

Once you have the Arduino IDE installed and set up on your computer, and you have mastered the basics by working through some of the examples supplied, you need to use the Include Library function from the Sketch menu in the IDE to add an extra library to the system.

Add the NmraDcc library developed by Alex Shepherd, Wolfgang Kuffer, Geoff Bunza, Martin Pischky, Franz-Peter Müller, and Sven (littleyoda) which lets an Arduino system interpret DCC commands: www.arduinolibraries.info/libraries/nmra-dcc

This library can also be downloaded directly from GitHub: github.com/mrrwa/NmraDcc

You can find a lot of examples of the library being used on GitHub.

Now download the sketch for the QSDD from the Arduino download section of my A-Train Systems website to any convenient folder on your computer, and then open it in the Arduino IDE: www.a-train-systems.co.uk/arduinodownload

In addition to the NmraDcc library, the sketch uses the standard Arduino Servo library (already loaded as part of the IDE) to provide servo operations rather than the SoftwareServo library used by Geoff Bunza in his applications. I prefer the Standard Servo library because it provides a greater degree of control over individual servo setup.

A common failing – the majority of example sketches and libraries I have come across contain very little explanation of how they work, or how to use the facilities they provide.

I have included plenty of comments on the purpose of each section of the QSDD sketch, and how the various functions should be used. Also, as I describe in Part 2 of this article, you can use the IDE Serial Monitor to display explanatory messages and confirm your actions as you set up the decoder.

Click the Verify () button on the Arduino IDE toolbar to confirm that the sketch will compile with the included libraries.

Any errors are most likely to be caused by the Arduino IDE failing to find the required libraries where it expects them, or the Board, Processor, and Port settings under the Tools menu are not set correctly.

Assuming that all is well, ensure you have the USB cable connected to your computer, then click the Upload () button to transfer the compiled sketch to the Nano. You should see the Tx and Rx LEDs on the Arduino Nano light for varying lengths of time as the transfer proceeds.

When the upload completes, all five LEDs on the keypad should light up in sequence, and then go out again in the same order, to confirm that the code has been transferred successfully and has run through its normal initialization process.

Following this, you should see the red **Sel** LED on the keypad light briefly again. This signifies that the default settings for the decoder's configuration variables (CVs) have been loaded into the permanent memory (EEPROM) of the Arduino Nano.

This only occurs the first time the decoder is initialized, or if you choose to reset all CVs to their default values – see more about this in Part 2 of this article.

Once you have uploaded the sketch, the QSDD will retain all of the code even when switched off, so you can now remove the USB cable before connecting up to four servos.

Plug each servo into to one of four three-pin headers on the decoder board, making sure the black or brown wire of each servo goes on the pin nearest to the edge of the board.

Connecting the servo the wrong way round will not do any damage, but the servo will not operate.

Although the decoder itself can be powered from your computer via the USB cable only, you may have problems if the USB also powers the servos.

Only modern USB 3.0 ports have sufficient capacity to power servos as well – The 5V power on older USB 2.0 ports will likely drop as soon as you start to operate a servo, and the decoder will reset and not move the servos.

It's best to connect track power from your DCC system to the decoder's two DCC-IN terminals. If it is not convenient to power-up your DCC system at this point, then any power supply between 9 and 16 volts, either AC or DC, can be used instead. Even a 9-volt battery will work.

Working with the servos

At this stage, leave the servos out and unmounted, disconnected from whatever linkage you're using to drive the turnouts.

The default servo throw movement left or right in the software will likely not be appropriate to your setup. In extreme cases, either the servo, the linkage, or both, could be damaged.

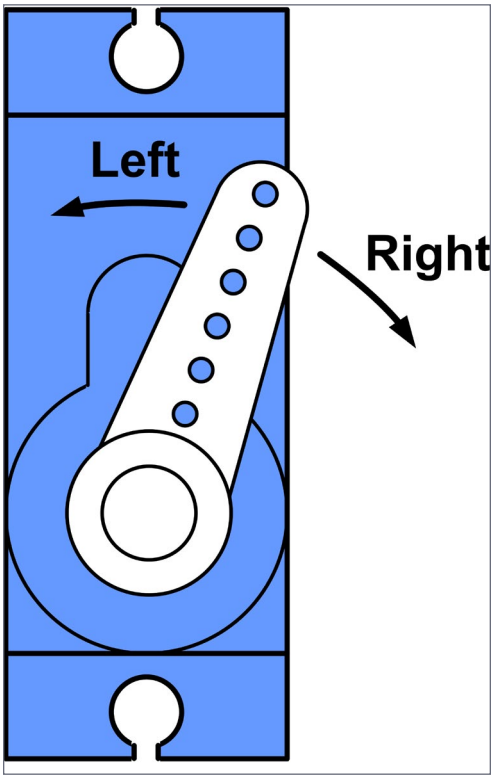
It is safer to start with the servos free to rotate with a basic actuating arm ("horn") fitted so you can easily see the servo position. I describe servo movements as "left" and "right" when seen looking down on the top of the servo, where the actuating arm is fitted, as shown [17].

As soon as the decoder has power applied to it, all the keypad LEDs should light up one after another, and then go out in the same order, and all attached servos should move clockwise to the default rightmost position set in the software (20 degrees right of center).

To reset the decoder, you can restart the uploaded program (sketch) again by pressing the reset button on the Arduino Nano. However, with the keypad plugged directly onto the decoder board, the reset button is not easily accessible.

As an alternative, just press and hold down the L pushbutton on the keypad, then press the Op pushbutton – and release both buttons to reset the Arduino Nano.

To operate a servo, press and release the Op pushbutton on the keypad. This will light the green 1 LED to show that servo 1 is selected.



17. Servo with the actuating arm fitted, showing the left and right movement directions.

Press the L pushbutton to move servo 1 to its left limit position at the default rate, or the R pushbutton to move servo 1 to its right limit position. No movement will result, of course, if the servo arm is already positioned at the selected limit.

Further presses of the Op pushbutton will light green LEDs 2, 3, and 4, in turn, selecting the corresponding servos 2, 3, and 4. When the relevant green LED is illuminated, the currently-selected servo can then be operated by using the L and R pushbuttons, as described.

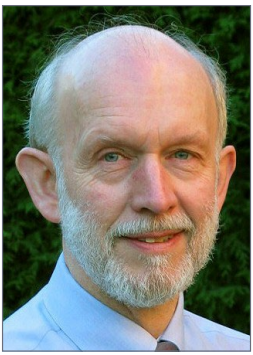
A final press of the Op pushbutton will switch all LEDs off, stopping manual servo operation.

You can also operate the servos by sending an accessory command with the appropriate address from your DCC system. With the sketch loaded, the four servos are assigned default accessory addresses of 1, 2, 3, and 4, respectively.

For full details of how to program servo addresses of your own choice into the decoder, and how to tune the servo throws precisely to suit the turnout linkages on your layout see Part 2 of this article.

Meanwhile, you can build your own Quad Servo DCC Decoder this month and be ready to tune the servo throw and set their accessory addresses next month! ☑

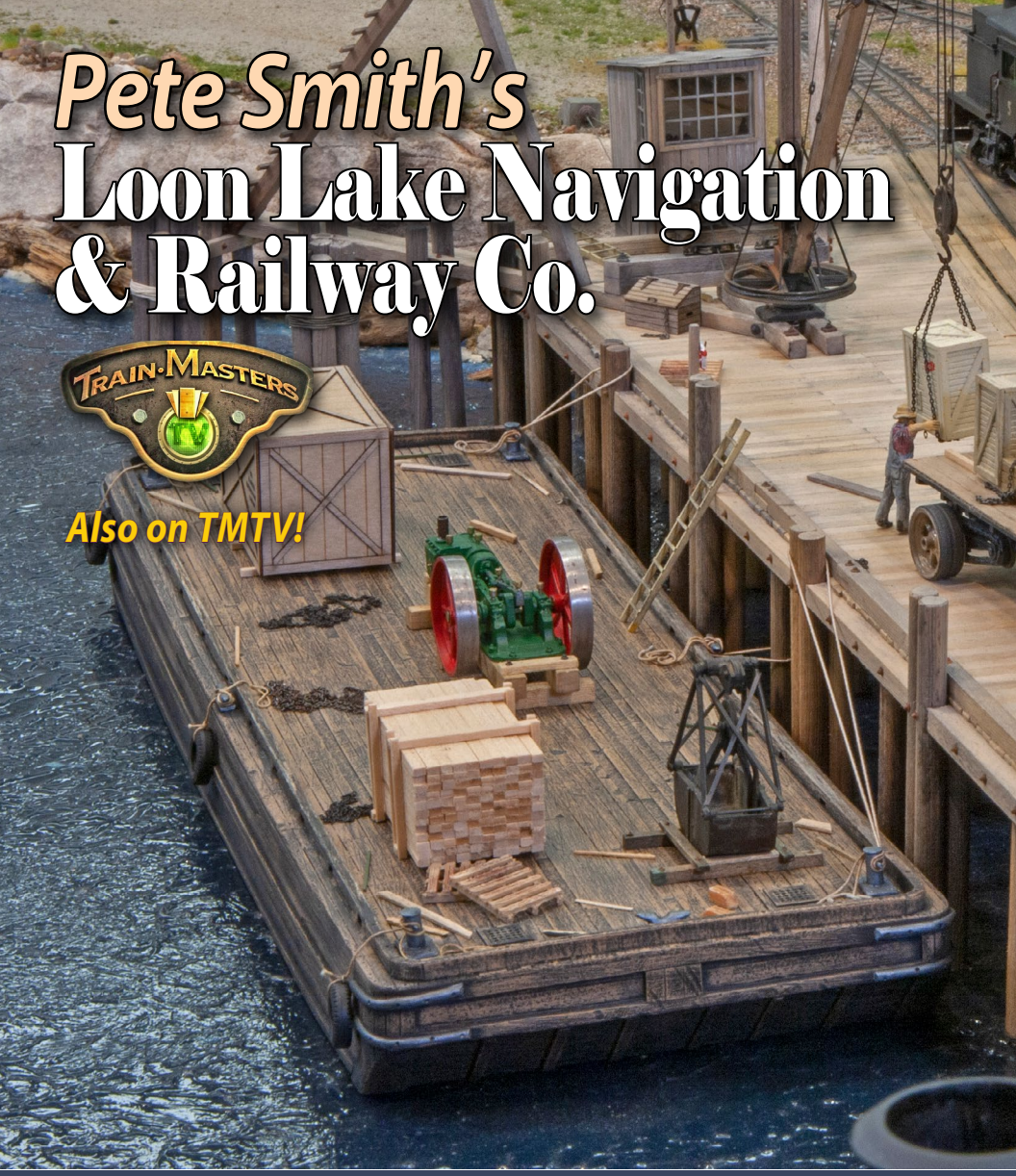
Dr Terry Chamberlain



Terry Chamberlain got into model railroading almost by accident in the 1990s when he responded to a request from some modelers in California to build a DCC system based around an Atari personal computer – and he had to build a simple layout to prove that it all worked. Eventually the project evolved into A-Track, a Windows application to provide full computer support for the complete range of NCE DCC systems, with facilities similar to JMRI's Decoder Pro and Panel Pro.

Terry is a professional electronics engineer and spent most of his career in the UK defense industry designing, and managing the development of, large real-time computer systems for the Royal Navy. Now that he has retired he is still hoping to build the logging and mining layout he has been planning for years (after several visits to Colorado) – but keeps getting distracted by new computer and electronics projects for model railroading. ■

MRH Marketplace



Pete Smith's Loon Lake Navigation & Railway Co.

TRAIN-MASTERS TV

Also on TMTV!

THE MRH STAFF *visits with Pete Smith about his freelanced Pacific Northwest narrow-gauge railroad that could have been …*


RAIL ROAD CROSSING
See Pete's layout at ...
Gateway ST. LOUIS 2020 NMRA
July 12-18
NATIONAL NARROW GAUGE CONVENTION
40
ST. LOUIS 2020
September 2-5

MRH: So Pete, how did you get interested in trains?

Pete Smith: I grew up in Milwaukee, Wisconsin, around a lot of railroads. I got my Lionel at Christmas time under the tree, the old typical story – and it grew from there.

An interesting sidebar – my father sold addressing machines and two of his customers were Kalmbach and Walthers. So I'd get all kinds of free literature when whenever he went on a business call to these people.

Around age 10 or 12, I went into HO. I sold the Lionel and used the money to buy some Varney kits and a locomotive.

I stayed pretty active in HO until about my sophomore year in high school and then kind of gave up, had other interests coming in. Out of school I went into the Air Force, and for the first five or six years in the service I did not do any modeling.

As I settled in and decided I wanted the Air Force for my career, I came up with a system for carting my railroad along with me between moves. I built a series of 2 x 6' or 2 x 8'modules that I'd package up in a wooden coffin.

I'd go from station to station, unpack the coffins in my new layout area and decide what kind of layout design I could have incorporating those modules.

MRH: So that was HO, how did you end up in S scale?

2. Detailed and believable scenes like this one at Logging Camp 8 abound on Pete's Loon Lake Railway.

Pete: A friend of mine and I went to the Eugene, Oregon NMRA convention in the late 1980s and he convinced me to buy an S-scale PBL boxcar kit. I put it together and I was sold. I went into Sn3 and the rest is history as they say.

MRH: How would you describe what you're trying to create here in your basement?

Pete: I'm trying to recreate a bit of the Pacific Northwest – modeled after both the US and Canada – in the 1938 timeframe. I'm focusing on logging and a little common carrier operation in Sn3.

It's my thing, so I count my own rivets. It's called the Loon Lake Railway & Navigation company.

I tend to get my ideas from other people's ideas. I plagiarize a lot and if I see something I like, I go for it. And of course I take pictures when I'm traveling around.

3. Pete has detailed and realistically weathered all his Sn3 steam loco fleet. They also all have sound decoders, making it sheer delight to railfan this layout!

4. A side view of Shay #6. The cab detail and engineer really heightens the realism.

5. Pete's Loon Lake has many nice bridge scenes like this one between Rock Harbor and Camp 8.

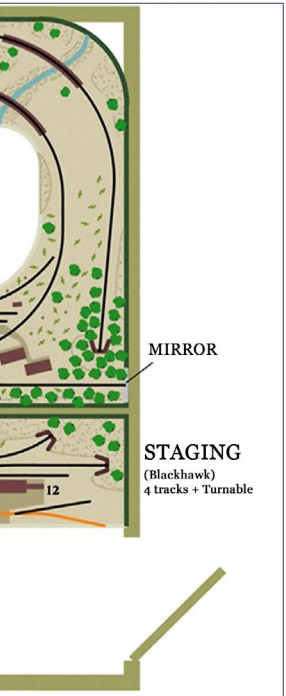
I'm always taking pictures of dilapidated buildings and trash and one thing or another, picking up things and getting color samples. But for the most part I think I really look at other people's work and I get inspired.

I don't want to be held to a specific era or a specific prototype because there's too many things in railroading I like. So I take what I like from whatever railroad happened to have it and put it on my railroad. And the only way I can justify that is to freelance.

MRH: How did you design a layout for that idea here in your available space?

Pete: My layout is in an area perhaps 22 x 20'. I set my average roadbed height to about 52 inches. I've kept my radius fairly tight – about 30 inches in S scale. I've kept my grades at less than 2%.

Loon Lake trackplan.



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There's no hidden track. I learned over the years if something's going to go wrong, it's going to go wrong in hidden track.

I have kept the track all within reach, so I don't have to get up on a ladder to reach any particular area. I can reach everything from a standing position.

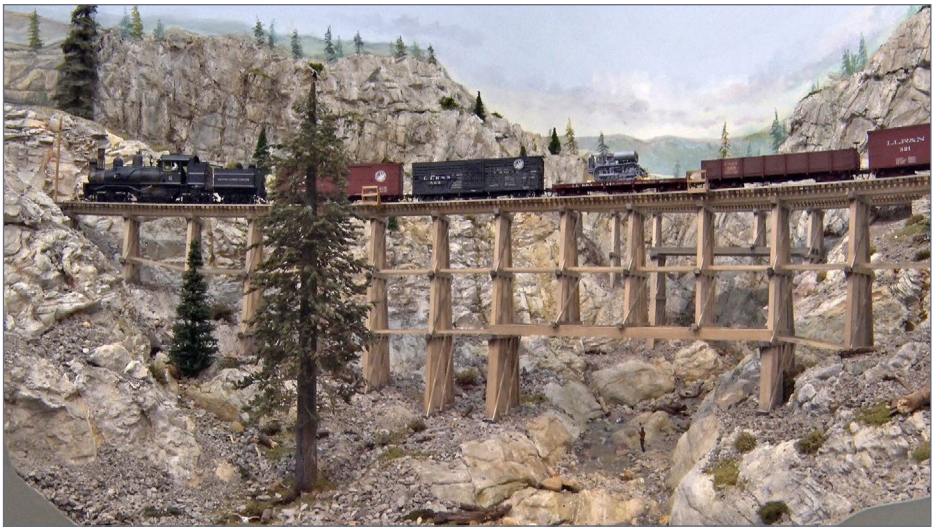
MRH: It doesn't take more than a few minutes looking around your layout to discover one of your passions: structures. Tell us about that.

Pete: My favorite thing is structures – I really enjoy putting together structures.

I should explain that I'm part of a group called the Friday Night Boomers and that's about eight guys who are very good modelers, artists, and they've done a lot of work on my railroad. We rotate around in a round-robin every Friday night and about every six weeks or so they come over to my place and we spend the night building things for my layout.

When I first came to the St Louis area, I had switched recently to Sn3 and met John Kaylin, who was a member of the Boomers. So I joined the Boomers about two years after that. I think the group itself been around for about 50 years. They had their beginnings in the early seventies, I believe. And they've always been a group of narrow gauge modelers.

The group's primary interest is modeling, not operating, but they all are wonderful modelers and they have some beautiful layouts.



6. This curved trestle scene between Camp 8 and Beaver Creek stands out as one of the most dramatic on the entire layout. Also note the superb rockwork!

7. Another view of the dramatic curved trestle scene in [6].

8. A short mixed freight pulled by Shay #6 rolls through Rock Harbor.

The beauty of this group is that we have a couple of artists, a couple of guys that are very good at chasing electrons and most everybody in the group is an excellent modeler – all first rate.

So we rotate around round-robin style and we visit each other's layouts. Not everybody has a layout but about half the folks do. When we arrive at someone's house on a Friday night, the host assigns us a work project.

And since we only get around maybe six times a year to any one member's house, it takes a long time to complete a project, sometimes years. We typically have a building or some type of machinery or such that we're building for that other person.

All our layouts represent the handiwork of the group, as such. We number 10 – 11 people, and membership is by invitation only. We try to limit the number because we don't have many workbench places in each home.

Some of the homes are smaller and it gets rather tight. So that's why we limit the number of people in the group. But it's been a fun group, an interesting group. And its every Friday night for the last 30 years.

What you see on the layout is a combination of my talents and the work of a lot of very talented people that help me through the Boomers group.

Getting back to structures – the brewery is one of the latest structures on the layout and that's kind of an interesting story. We decided we wanted a brewery because I liked reefers and one of the fellows in the unit, Jeff Polk, is an architect.

So I went on the internet and downloaded through a search about 50 photographs of turn-of-the-century breweries, and gave

9. Pete has been part of a weekly round-robin group that calls themselves the Friday Night Boomers. Roughly once every couple months, the group shows up at Pete's to work on projects for his layout. The rest of the weeks, they work on other members' layouts.

10. A small wooden bridge that looks deceptively complex – here the train approaches Beaver Creek. Also note Pete's convincing rockwork.

them to Jeff. Jeff did a composite brewery using all the concepts and ideas and got the general feeling of a turn of the century brewery. He drew up the plans by hand – I did convert them to AutoCAD.

The half that was all wood is the part that Jeff built and the brick portions are the portions that I built. And then subsequent to building the brewery I've built the icing platform, which is to the rear of the brewery.

That was a fun project and something you don't see too often in narrow gauge.

MRH: How has building the layout gone for you?

Pete: It's much easier when you have help like the Boomer's group, particularly when you use everybody's talent. You know,

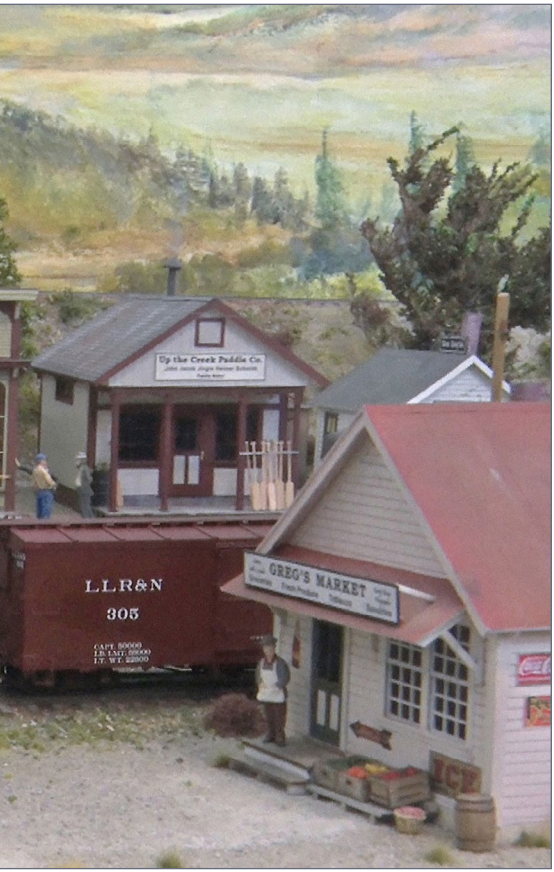
one guy is a great artist and another guy's an electronics wizard, and a whole bunch are just good modelers. So it works out well.

Whatever your problem is, someone in the group can solve it. So at each of our homes we have a series of workbenches that

11. A mixed freight rolls through Beaver Creek on the main, in tow behind Shay #6. In this direction, we're seeing the Shay's "blank side" ... all the cylinders and gears are on the back side of the loco at the moment. That will change once the train rolls through Cascade and starts the climb up the high line in the back.

everybody can sit down and work at and they all have projects that were assigned by the host. In my case, I have a workbench position for just about everybody in the group.

During a work session, you may also have two or three people out in the layout doing work. Greg Gray, a friend of mine in the group does the background painting. In fact, Greg's done background paintings all over the United States for various people. He's a really talented fellow.



And in my case, I have a lot of photographs from the Pacific Northwest. I just gave Greg a photograph of an area or a scene and he takes it from there.

MRH: What methods are you using for your fantastic looking rockwork?

Pete: A lot of the rocks come from Bragdon's molds and I've done some urethane work with the Bragdon stuff. But the medium I prefer is plaster.

And most of the molds I've done are molds that I have made or my friends have made. And we change and interchange molds. You take the plaster while it's a little bit green and you do a little carving in between and you get them to match up pretty well.

MRH: One very notable aspect of your layout is that it doesn't consume most of your available basement space and the layout space is clutter-free. There's a lot of "maneuvering room" down here, so to speak.

Pete: I like the layout to feel like it's part of a house. I've tried to keep everything off the floor from under the layout and make it part of an extension of the family room, if you will.

MRH: Your around-the-layout inset fascia shelf is a clever idea. Where did that come from?

12. The mixed freight rounds the loop at Cascade and starts up the high line. We can now enjoy the Shay's "good side" with all the intricate cylinder action.

13. The mixed freight from [10] now rolls by on the high line on a background bridge in Beaver Creek. Now we can see Shay #6's piston mechanism in all its glory.

Pete: That is an invention of a Brian Ellerby. Brian was the founder and owner of the Evergreen Styrene company. He did this on his layout and I decided that this was the answer.

You've got a drink shelf, a tool shelf, and a place for idle hands to sit down instead of on your layout. So it really works out well.

MRH:The layout looks more or less finished. Are you done or do you have any expansion plans?

Pete: The worst thing from my point of view would be a completed layout because my first love is building them and constructing buildings details. I am finishing up two areas: One has a spar pole loader in one corner and I'm putting the finishing touches on the peninsula where the brewery is located.

But yes, the layout looks basically complete from the average person's point of view. But I intend to keep adding more layers of detail to what's already here.

The process is almost endless. I can see where there's going to be, you know, five or six more years of work on this layout. I could spend that much time.

MRH: What about operating sessions?

While this is a folded dog bone layout, I can close down the high-line and run from Cascade, which is the engine terminal at one end to Rock Harbor, the other end where I can turn trains. So it's a point to point back and forth.

We've run a couple of sample sessions and it's been kind of fun. The last session we had as a trial session, there are four cities on this railroad, so four opportunities to stop and switch.

We've set up the criteria where we'd start a train from each end with about a five car train.

14. The mixed freight rumbles along the high line past the cattle pens on the far edge of Beaver Creek.

15. Pete recently finished this logging scene on his layout, located on the high line in the corner between Beaver Creek and Cascade. The scene includes spar pole and steam donkey, complete with all the proper blocks and cable rigging.

The individual operating the train would have to drop a car and pick up a car, his choice at each location. And it took almost an hour to get from one end to the other, which is pretty good considering how small the general area is.

And then every once in a while, we'd run a log train through to confuse things and maybe a passenger train would come through with priority. And so that would cause a little upset and things to slow down.

It's been a fun operation. I think there's some potential in operating on this railroad, as simple as the track routing basically is.

MRH: How have the operating sessions been?

Pete: The layout runs really well and the locomotives are almost flawless. I've spent a lot of time on the track, so the track work is pretty good.

In my past layouts, I had problems. Things would break down, things wouldn't work right. But by and large, this layout really works well and I'm really pleased with it.

MRH: Any nasty surprises along the way with this layout?

Pete: I didn't make any big errors on this one. I learned through 40 years of constructing layouts of what not to do.

If you're fortunate enough to have some good friends that are modelers, man, bring them into your circle and make use of their talents because a lot of this work is theirs and they deserve a lot of credit.

It's been a thoroughly enjoyable experience so far. ☑

A small layout with a big feeling

Model Railroad Hobbyist | February 2020

1. Walking into the small room you are surrounded by the wrap-around backdrop, totally immersing you in the environment.

Peter Hoffman creates the illusion of space in a very small room ...

After downsizing to a modest 55+ senior community, our new home had no room for a layout. The only possibility was in the garage.

One of our autos is only 13'-3" long. There was just enough space to build an enclosed room in front of it. The 7x8' foot room that resulted allowed for a 47 sq. ft. layout with a three foot wide center aisle [2].

I wanted to create an environment isolated from any outside distractions. Being completely surrounded by the layout backdrop helps achieve this feeling.

I placed four can lights in the ceiling and sheet rocked the walls. Later, I added a three-spotlight fixture. For lighting, I used a combination of warm white and natural daylight bulbs, providing a realistic warm and sunny appearance.

I used 2x3" studs to gain the maximum interior space. There remained only a one-inch clearance for the front and the rear

2. The plywood benchwork helped to stabilize the entire structure.

3. I check the realism of my scenes using photographs. which work much better than the naked eye. Woodland Scenics Realistic Water fills the log pond to a depth of 1/2". I poured the water in four equal applications.

of the auto! I attached the framing to the existing walls and ceiling with a few long screws, enabling the structure to be easily removed.

I smoothed and finished the sheetrock to serve as a paintable surface for the backdrop. I rounded the four corners using a flexible sheet of Polywall Utility Panel purchased at Home Depot. I then floated the joints for a smooth transition with the sheetrock.

A dimmer switch allows for twilight operations. I made sure to light all my buildings as well.

Because of the limited space, I decided a logging theme from 1930 to 1940 would be the best fit. For the layout focal point, I chose a lumber mill with an ample log pond [3]. All my locomotives are geared. Three Shays, two Heislers and a Climax allow for steep grades and tight curves.

I finished the backdrop and the upper levels first to allow easy access for construction [4]. I placed one inch thick insulation board on the lower deck to allow excavation of the log pond and to help reduce track noise.

I used thicker insulation board to form the topography, using a hot wire to cut the pieces to shape. Lastly, I covered everything with plaster cloth.

4. I added shelves to one side and the back for the logging camps.

5. Stage 1: Trial positioning.

I use YouTube tutorials to learn how to paint clouds and trees. The process involves a lot of trial and error! Fortunately, mistakes can be painted over easily enough.

I completed the process in three stages:

1. I paint the backdrop to the approximate elevation of the hillsides, which I experimentally fit and temporarily place, then remove after marking the backdrop to complete the painting [5].

2. I then complete painting the backdrop and finish the terra-forming. I went with cork roadbed on all plywood surfaces to reduce the noise level [6].

3. The landscaping and trees are my final step. I screen real dirt and use it as a base to cover the ground. I also use the dirt for

ballast, which makes sense for a logging railroad. The shelf section shown measures 6" to 7.5" deep [7].

The switchback spur holds five cars plus the engine. The log loads, permanently assembled, can be placed onto the cars quickly by hand for the trip to the mill. Once there, they can be removed and the empties returned to the camp [8].

After I completed the switchbacks and landscaping, I positioned the mill and sawdust burner. I scratchbuilt both using discontinued Suydam metal kits (still available on eBay) for the wall framing. I cover the exterior with pre-stained lumber strips. I made the corrugated roof from the unused wall and roof materials and cut into individual pieces using a paper cutter with a jig [9].

6. Stage 2: Backdrop painting finished.

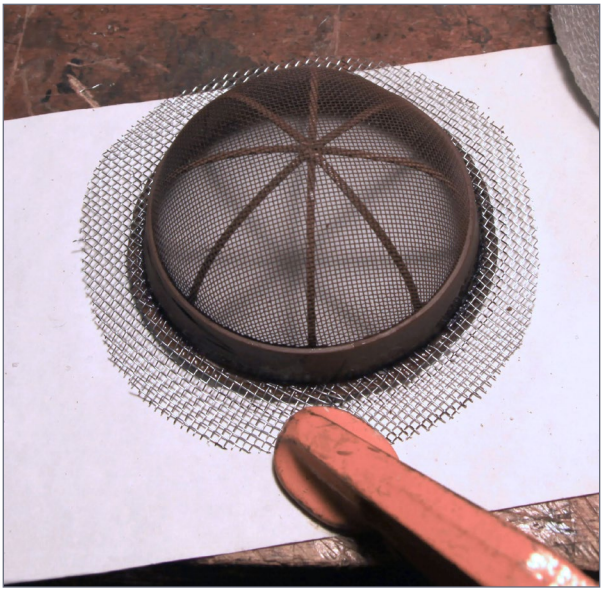
7. Stage 3: Landscaping completed.

8. A spar tree with heel-boom at Camp One loads cars for the trip to the mill. The unfinished backdrop and branch line interchange is just visible (under the hand). Note the glued-up log loads.

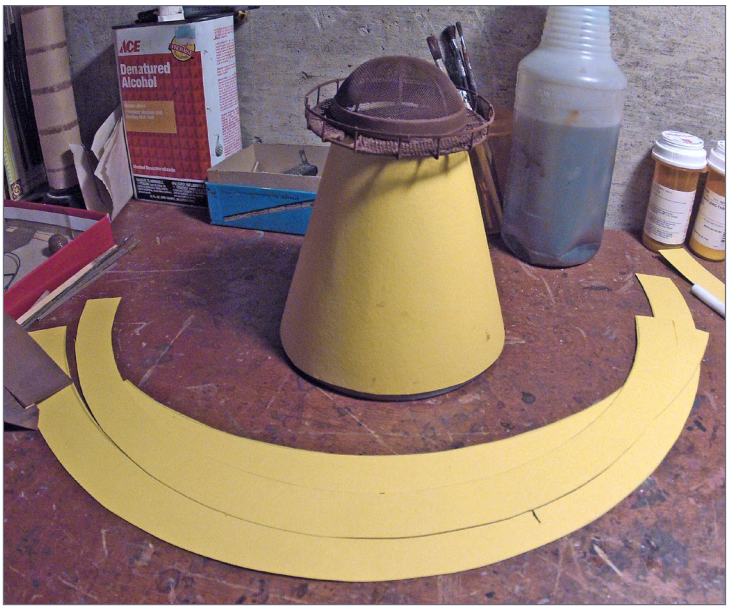
I built the sawdust burner using a kitchen strainer [10] and a styrofoam base wrapped with heavy construction paper [11]. The burner and the mill both took First Place in the Structure Class at the Pacific Model Loggers Convention in Oregon.

The two-stall engine house also incorporated Suydam parts [12].

9. The mill's placement was experimental and I repositioned it many times until finding the optimum location. With that done, I determined the layout of the yard.



10. Common kitchen strainer. I added struts to act as supports.



11. I cut concentric construction paper into strips and overlapped to make them appear as sheets of metal siding.

One of the more taxing projects was the trestle. After forming the mountain, I placed the trestle deck and laid the rails. I spaced the bents equally and cut every leg on each bent to conform to the hillside [13] and [14].

I use two varieties of trees. I built the 8" to 12" inch Douglas firs using kits from Coastmans Scenic Products (www.coastmans.com). I also use these kits to make the logs, which I cut to lengths that fit the cars and distressed them. For smaller evergreens I use ready-made trees by Moose Creek.

For the track I go with Micro Engineering Code 83 weathered flex track and BullFrog Manual Turnout Control kits to operate the switches. I make the short flat cars using Bachmann Old Time Water cars, removing the water tanks, changing the couplings, and weathering. Perfect for a logging operation [15].

12. Along with the mill and sawdust burner, I scratchbuilt the engine house which sits at the end of the mill yard. Smoke exhaust stains must still be added above both engine stalls.

13. I purchased the trestle bents pre-assembled and cut them to fit. After installing them, the bottom of any inaccurately cut posts could be hidden with foliage.

14. Fortunately, the finished trestle didn't collapse under the first load of logs.

15. An inexpensive flat car conversion using Bachmann Old Time Models.

16. Climax No. 2 pushes a string of empty skeleton cars up the 4.5% grade after clearing the first switchback.

Safety procedure requires locomotives to run on the downside of all trains when on the steep grades to prevent run-a-ways.

Two engines must take the train to the first switchback, one on each end. The engine on the rear then returns to the mill yard while the second engine pushes the train up the grade.

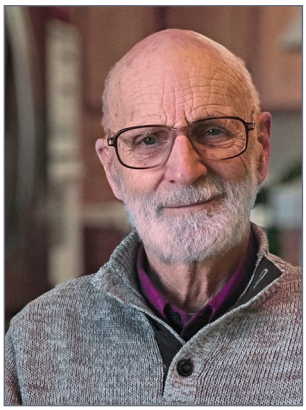
I reverse this operation when returning with loaded cars [16].

17. Climax No. 2 pushes a string of empty skeleton cars up the 4.5% grade after clearing the first switchback.

Even though the operation may be limited, I find it provides enough activity to last for most of an hour.

Finishing the lower backdrop and the branch-line interchange is my next project. Detailing work will go on indefinitely. It's a small layout with more than just a big feeling -- it immerses you in another world [17]. ☑

PETER HOFFMAN



Peter has been a railfan for 75 years. His grandfather was Superintendent of Telegraph for the Southern Pacific and his father Superintendent of Car Service for Pacific Fruit Express (PFE). He started modeling only a few years ago.

After moving to Oregon, he became enthusiastic about logging railroads. He enjoys a wide range of photography and taking pictures of his layout.

An avid bridge player, now 83, he lives with his wife in Galt, California. ■

LOOK
column

Dave Kilborn looks at Rapido's new 4-6-4 Royal Hudson ...

Rapido Trains announced the *Icons of Canadian Steam* back in October of 2015 with the Royal Hudson as the first model in the line. The Royal Hudson was delayed several times, but finally released in 2019.

Rapido's HO scale model is that of the 45 4-6-4 Hudsons Montreal Locomotive Works (MLW) built for CP between 1937 and 1940. 30 class H1c (numbers 2820-2849), 10 class H1d (2850-2859) and 5 class H1e (2860-2864) were built over that time period.

The class H1c and H1d locomotives were coal-fired, while the later class H1e were oil-fired.

Sixteen coal burners were later updated to burn oil around 1950. All classes had 75-inch drivers with 45,300 lbs of tractive effort. The locomotive weighed 324,000 lbs, and the tender an additional 133,000 lbs.

The stack had several variations over the years, and there were two different types of trucks on the tender (Commonwealth or Buckeyes).

Rate this article

The Royal Hudson was perhaps the most popular locomotive with engineers and the CPR overall. It was very reliable and was at home in passenger or freight service from Montreal to Vancouver.

The "Royal" moniker was bestowed following the 1939 visit by the King and Queen. A single locomotive (#2850) took them across Canada, and the King was very impressed with its

1. Number 2850 with a Royal Crest on the tender and Crown on the running board.

2. Number 2860 with the CPR herald on the cab and Crown on the front of the running board.

performance, even riding in the cab on occasion. With the King's blessing, the Hudsons were designated "Royal Hudsons."

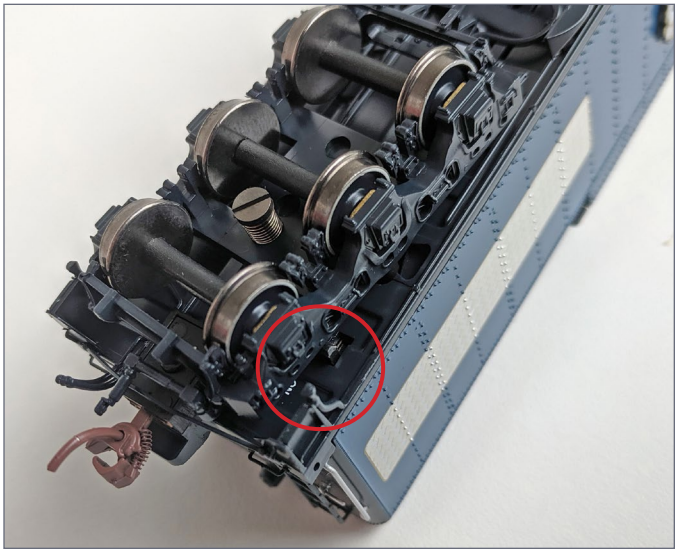
I ordered the Royal model, number 2850 – as well as number 2860 which was used in excursion service duing my era.

Included inside the package are some detail parts, including a set of driver wheels, two spare rubber tires, and a scale-size, non-functioning coupler for the front if you want to replace the functional one with something to scale.

There are also the appropriate name plaques that go on the front of the locomotive ("Canadian Pacific" for the Royal Train and "British Columbia" and "Canada" for 2860). It also comes with a parts map, detailed instruction manual, and a couple of advertisement fliers.

3. Nose of 2860 with name plates installed.

4. Back of tender.



5. Speaker switch on tender.

The manual is also typical Rapido with a lot of silliness. Although some find this off-putting, I quite enjoy the humor and extensive detail – to me a welcome relief from bland, brief (or non-existent), and sometimes poorly written manuals.

My models are equipped with DCC/Sound, but they are also available in DC (DCC-ready) versions. The DCC/Sound-equipped models include an ESU LokSound 5 decoder with two speakers – the primary one in the boiler and a secondary one in the tender that you can turn on and off using a tiny switch underneath the tender [5].

The second speaker significantly increases the volume but then the sound "appears" to come more from the tender than the engine.

The tender attaches to the engine via an 8-pin plug. You just need to line them up and push them together. There is a distinct click when the plug engages, but it takes a bit of practice to get them lined up correctly.

The Royal Hudson includes road number-specific details:

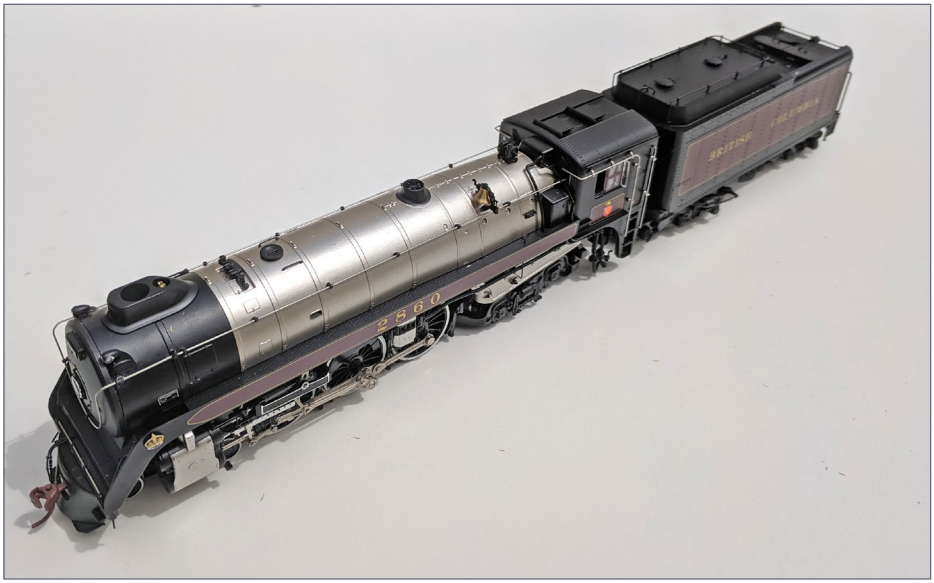
- Appropriate stack type
- Correct tender and tender trucks
- Heavy diecast weight over the drivers
- Working headlight and rear light
- Classification lights (white, green, and off)
- Marker lights (although they don't work on models with twin markers on the stack)

The model also features a detailed interior with gauges, a cab light, and a fire box flicker [6].

While there is no smoke unit, Rapido made a space for one; you just need to remove a weight to install it. There is a warning, however, that installing a smoke unit may throw off the balance of the loco.

The chuff is synchronized with the drivers using a cam. I've heard reports that they are not well-synched, but I found the synchronization to be accurate on both models.

6. Cab interior detail and tender/cab connection.



7. Number 2860 from above.

The engine itself weighed about 580 grams (about 20.5 ounces) and the tender weighed about 180 grams (just over 6 ounces). The weight in the loco is also centered over the drivers to gain maximum tractive effort. The drivers are geared, so the rods are there only for looks, which should provide better reliability.

In operation, both of my locos (2850, 2860) ran well on speed step 1, achieving just over two scale miles per hour. I calculated maximum speed at about 55 scale miles per hour.

Without a way to definitively demonstrate pulling power, I hooked up 14 boxcars (about the limit for my small loop) to one of the locos, and it easily moved them around the track. My test loop has an 18" radius that the loco navigated with no difficulty at all.

In all, I ran each loco about an hour around the track without a single issue, though obviously they would look a lot better on a broader radius.

This first release in the *Icons of Canadian Steam* line should increase excitement for the models yet to come. The next in line is the CPR D-10.

Rapido has stated they hope to offer the matching passenger cars to go with the Royal Hudsons, but if this happens, it will likely be a long way down the road. ☑

8. Number 2850 from above.

Dave Kilborn

Dave Kilborn has been a member of the MRH forum since 2008. His main modeling interest is Western Canada in the late '70s/early '80s.

Outside of modeling, Dave enjoys composing and arranging music, and playing bass.

Dave lives in Saskatoon, SK, Canada with his wife, Sandra, two grown children attending a university, his mother, and two toy poodles. ■

Savvy Modeler Online

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Easy tall grass tufts

YouTube modeler ***TheTerrainTutor*** shows how to tame Woodland Scenics tall grass so you can trim it to length and keep it under control while you add glue to it. Watch this quick six minute video to see the entire process demonstrated for you. You don't even need an expensive static grass applicator to make use of this method! ■

View reader comments

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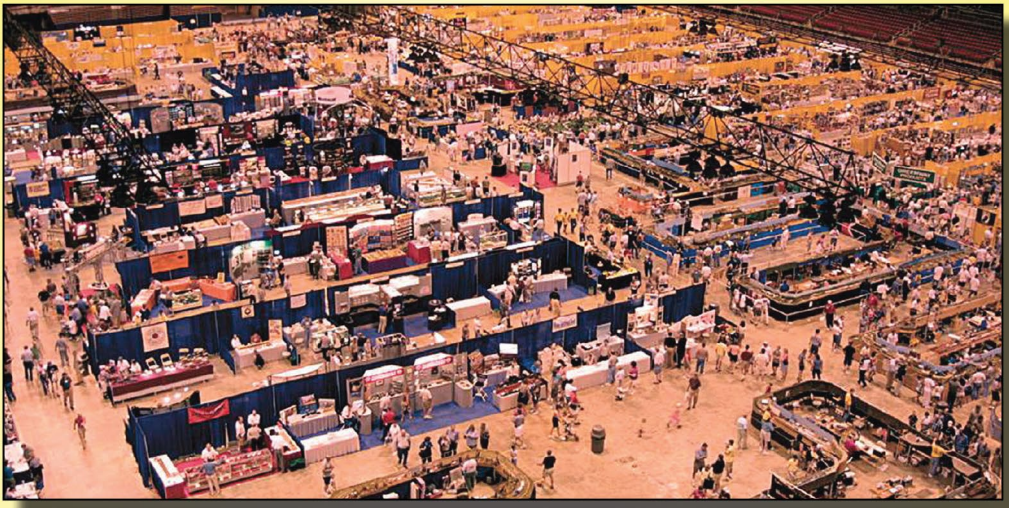

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FEBRUARY NEWS column

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

NEW CLUB CARS

Custom-decorated HO and N scale 40-foot boxcars commemorating the 2019 Trainfest are available from the **Burlington Route Historical Society.** The N scale version is a ready-to-run model manufactured for BRHS by Micro-Trains Line.

The HO model is a kit with trucks and couplers produced by Accurail. For information visit www.burlingtonroute.org/store.

THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS

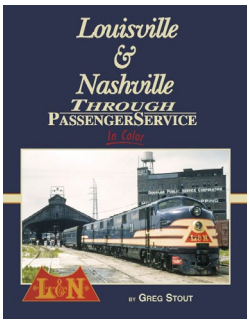
NEW PRODUCTS FOR ALL SCALES

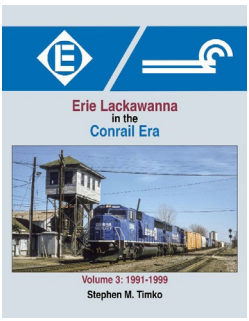
Deepwoods Software has again updated its Model Railroad System software with the release of version 2.1.44. This update primarily consists of bug fixes, but also updates its LCC support and documentation. The entire software package includes libraries for communicating with Chubb (C/MRI) and Lenz XPressNet networks, a driver for the Rail Driver control console, libraries for working with XTrkCAD files, and assorted utilities including ones for creating time tables and forwarding freight cars via a switch list. For information visit the Deepwoods Software website at www.deepsoft.com/ModelRailroadSystem or www.facebook.com/ModelRailroadSystem.

Model Train Technology has released a 16-port LED Lighting controller that is plug compatible with the Woodland Scenics' Just Plug® Lighting System. Capable of both independent and DCC control, the LED Lighting controller includes 100 pre-configured special effects and can individually adjust the brightness of each port. Up to 64 LEDs are supported per controller. A version with screw terminals and switchable resistors is also available. For more information visit model-traintechnology.com.

The Missouri Pacific Historical Society is taking pre-orders for a book on the Missouri-Illinois Railroad by Charlie Duckworth. The book, with an expected arrival in August 2020, will be hard bound and feature approximately 700 photographs and maps in an anticipated 368 pages, including 16 pages of color images. The

book will cover the Missouri-Illinois and its predecessor railroads, including the Mississippi River & Bonne Terre, Illinois Southern, and Centralia & Chester. Information in the book will include stations and depots with photos of almost all of the depots and interlocking towers covered, steam and diesel locomotives and gas-electrics; rolling stock, wrecks and accidents, employees, customers served, railroad car ferries used to cross the Mississippi River, and lanterns, locks, and keys used by the M-I and predecessor roads. This is a fund raiser for the MPHS archives to support scanning costs, materials for storage, monthly rent, etc…The author is doing this as a volunteer effort. For more information visit www.mopac.org/store/m-i-book.





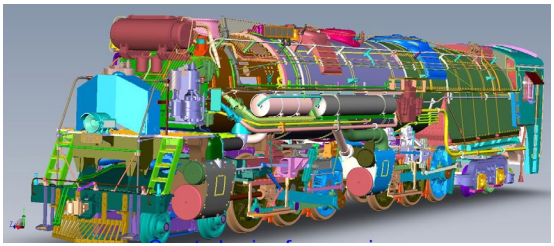
One of the latest hard cover books from **Morning Sun** is *Louisville & Nashville Through Passenger Service,* by Greg Stout. Old Reliable's passenger service was neither deluxe nor state-of-the-art, and its feature trains all originated on someone else's railroad. However, the Louisville & Nashville offered a comfortable, friendly service that provided major gateways from the South to the East and Midwest.

Also new from Morning Sun is *Erie Lackawanna in the Conrail Era: Volume 3 1991-1999,* by Stephen M. Timko. This is the final edition in this book series that roams across the old Erie Lackawanna

system viewing former EL property and equipment and operations from CP, NYS&W, and Ohio Central. For information contact a dealer or visit morningsunbooks.com.

O SCALE PRODUCT NEWS

3rd Rail Division of Sunset Models has scheduled the release of a handcrafted O scale model of Denver & Rio Grande Western class L-105 4-6-6-4 Challengers. Seven versions of the locomotive will be available representing prototypes that received different paint and lettering schemes during their short lives.



This computer rendering shows the individual brass parts that will go into fabricating the O scale model. For additional information visit www.3rdrail.com/reservation.html#L105.

Train Troll is selling an O scale kit that assembles into a well-detailed buggy. Train Troll also sells a broad selection of wagon and cart wheels. For additional information visit traintroll.com.

HO SCALE PRODUCT NEWS

Here is a preview look at an ACF twin-bay Center-Flow covered hopper coming from **Accurail** later this year. The HO scale kit is based on a 2970 cu. ft. prototype ACF built in the late 1960s.

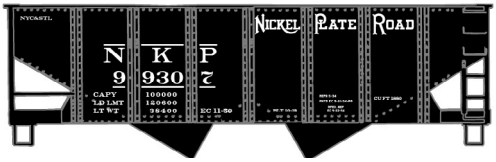
New HO scale kits from Accurail include this Illinois Central Gulf triple-bay covered hopper. Pullman Standard built the prototype version in the summer of 1979. Accurail is offering the kit singly and in a 3-car set with different road numbers.

The D&SL Railway had failed to reach its Denver to Salt Lake City goal when it was acquired by D&RGW in 1931. Among the rolling stock that went with the acquisition was this 36-foot double-sheathed wood boxcar Pullman Company built in 1913. Accurail's HO model has prototypically-correct steel ends and a straight steel underframe.

Accurail's HO scale kit for this Ashland Chemical triple-bay Center-Flow hopper is based on a prototype ACF completed in March 1983.

Accurail is selling HO scale kits for this 1950s-era General American 50-foot steel boxcar

in three different road names; Rock Island, Pennsylvania, and Chicago, Burlington & Quincy. The models are available individually and in a special three-car set.



This Nickel Plate Road USRA twin-bay open hopper is available as an HO scale kit from Accurail. The model is based on an 1880 cu. ft. prototype built in 1919. Accurail sells the kits individually and in a three-car set with different road numbers.

Accurail has released an HO scale kit for this Chicago, St. Paul, Minneapolis & Omaha (CStPM&O) 36-foot Fowler single-sheathed wood boxcar.

Completing the list of recent HO scale kit releases from Accurail is a 41-foot Chesapeake & Ohio AAR steel gondola. The kit is available singly and in a three-car set with different road numbers. All Accurail car kits include appropriate trucks and Accumate knuckle couplers. For additional information contact a dealer or visit accurail.com.

New **Athearn** items scheduled for release this month include HO scale bay-window cabooses, 40-foot Fruehauf Z-Van trailers with smooth sides, 20,900 gallon tank cars, and SD70ACe, SDP40F, SD90MAC-H Phase II, ES40DC, and ES44DC diesel locomotives. Check with your dealer for availability of specific road names.

Athearn plans to release a new group of HO scale cabooses in June. The Genesis models are based on prototypes built by International Car Company beginning in the late 1950s. The release will include Santa Fe class CE-8 and CE-11 cupola way cars. Bay-window cabooses will be available for Southern Pacific, Cotton Belt, Baltimore & Ohio, and B&O Chessie System.

Details include illuminated marker lights, overhanging X-panel roof, and roller-bearing caboose trucks with axle driven generators. The models feature interior details, see-through steps, flush window glazing, formed wire grab irons, machined metal wheelsets, coupler lift bars, trainline and brake hoses, and full underframe detail.

Sound equipped cabooses feature a Soundtraxx Tsunami SoundCar decoder with air horn or trainline air whistle, rail joint clickety-clack with optional wheel flat spot sounds, brake set/release sounds including brake squeal, emergency brake application sound, and adjustable flange squeal.

Newly announced Athearn models scheduled for release in December 2020 include a Genesis HO scale GP40-2 diesel locomotive. Road names will be Union Pacific, Southern Pacific, Western Pacific, Boston & Maine, Canadian Pacific, and Norfolk Southern.

The Genesis series models will be available with numerous road specific details. WP and UP units will have a large plow, late grille and Q fans, and a nose-mounted gyralight. SP versions also have the late grille and Q fans, a modified L window and a brake wheel located on the nose. The NS locomotives have a small plow and front and rear ditch lights. The CP and B&M units will both have Blomberg M trucks. All of the Genesis GP40-2 models will come with a DCC decoder with SoundTraxx Tsunami2 sound.

Also coming from Athearn next December is a new release of ES44AC locomotives. The selection will include three BNSF models with number-specific details, and Canadian Pacific units both as delivered with steerable trucks, and a 2010 version with high-adhesion trucks.

Union Pacific versions of the ES44AC will be available in standard paint, faded paint without the flag, and in faded paint with a replacement nose door. All Athearn Genesis locomotives feature an onboard DCC decoder with SoundTraxx Tsunami2 sound that functions in both DC and DCC environments.

Athearn's December 2020 delivery schedule includes a 50-foot 5344 cu. ft. boxcar based on a prototype built in the 1970s by Pullman Standard. In addition to the Rock Island scheme shown above, road names will

be Hartford & Slocomb, Golden Triangle, Corinth & Counce, BKTY, Bangor & Aroostook, Terminal Railway Alabama State Docks, and Montreal, Maine & Atlantic.

Features on Athearn's HO scale Ready-to-Roll model include separately applied brake wheel, end ladders and grab irons; etched metal end platforms, and appropriate trucks with 33-inch nickel silver wheelsets.

This HO scale 2970 cu. ft. twin-bay covered hopper is included in Athearn's December 2020 release. In addition to Missouri-Kansas-Texas, road names for the Ready-to-Roll model will be Burlington Northern, Burlington Northern Santa Fe, CSX, Rock Island, Union Pacific, and two Great Northern schemes.

Road specific details include round or trough hatches. Additional features include an etched-metal roof walk, separately applied wire grab irons, stirrup steps, and brake wheel; detailed discharge outlets, and screw mounted trucks with machined metal wheelsets.

Roundhouse brand models coming from Athearn next December include a 50-foot exterior post hi-cube per diem boxcar. Road names for the HO scale model will be Arkansas-Oklahoma Railroad, Canadian National, Canadian Pacific, Kansas City Southern, Missouri Pacific, Dansville & Mount Morris Railroad, and Wisconsin Central.

A non-insulated single-dome tank car based on a prototype introduced in the 1930s will be coming from Roundhouse this December. Decorating schemes will be Chicago Great Western, CSX, CP Rail, North American Car Corporation, Santa Fe, General American Transportation, and Rock Island Refining Company. A Southern Pacific tank car in faded Primed for Grime paint is included in the release. Roundhouse models come with knuckle couplers and appropriate trucks with machined metal wheelsets. For information on Athearn and Roundhouse models contact a dealer or visit athearn.com.

R. Bale

NP Northerns

The American Locomotive Company (Alco) delivered the first of 12 new 4-8-4 locomotives to the Northern Pacific Railroad in late 1926. The intent of the design was to have sufficient power to eliminate the need to double-head fast passenger trains and to accomplish the task while burning low-grade lignite coal from NP's own mines in Montana. Nicknamed Northerns, NP's new 4-8-4s had 73-inch drivers and a 4-wheel trailing truck with 45-inch wheels to support an exceptionally large firebox. The 4-8-4 wheel arrangement exceeded expectation and was quickly embraced by most major North American railroads with an eventual total of 1,115 being built. The last new 4-8-4 was delivered to the Norfolk & Western in 1950.

Rate this article

Broadway Limited Imports' production schedule for this spring includes Northern Pacific Class A-3 4-8-4 steam locomotives. The HO scale models replicate the first Northerns built for NP in 1926.

BLI will offer the HO scale model in the original decorating scheme (top photo), with a gray boiler, as an unlettered model painted brass, and as Spokane, Portland & Seattle No. 700 as modernized for excursion service (below).

The locomotive and tender have brass bodies with diecast chassis. All versions include Paragon3 sound and operation, including Rolling Thunder for operation in DC and DCC. A minimum radius of 22 inches is required. For information contact a dealer or visit broadway-limited.com.

Intermountain Railway has released a new run of HO scale 4785 cu. ft. PS2-CD triple-bay covered hopper cars in eight decorating schemes. Multiple road numbers are available for Staley, Penn Central, Norfolk Southern, CSX, Milwaukee Road, and three Conrail decorating schemes.

The HO scale ready-to-run models have etched metal roof walks, machined metal wheelsets, and metal knuckle couplers.

The Staley unit has an early end frame. All other models in this release have the late end frame with the inverted-J end sill plate and side ladder arrangement. For information contact a dealer or visit intermountain-railway.com.

Coming soon from **Kadee** is a New York Central 40-foot PS-1 steel boxcar with six-foot seven-panel Superior sliding doors. The HO scale ready-to-run model is painted in the original boxcar red scheme as delivered to NYC in 1948. Details include full-height ladders and a see-through running board.

A virtually identical PS-1 boxcar decorated for Santa Fe is also scheduled for release this month. The ATSF car promotes the Grand Canyon Line on one side and carries a Ship and Travel All the Way slogan on the opposite side. Both models come with Kadee metal knuckle couplers and self-centering trucks. For information contact a dealer or visit kadee.com.

Lines West has released three new limited edition Milwaukee Road Thrall cabooses. Seen left is #02134 with dual 3M Thermal Generators and a wagon wheel antenna. The model, limited to a run of 50 cars, includes a 1970s detailed body shell with blanked

louvers, Miner brake wheels, drop center MILW design trucks, and Duryea cushion draft gear underframe.

Milwaukee Road #992149 is a 1970s detailed body shell equipped with painted toilet window, extra plates on the generator access panels, Equipco brake wheels, the correct smoke jack, and drop center MILW design trucks with a truck mounted generator on one truck.

Milwaukee Road #992175 is a 1980s detailed body shell with blanked windows, platforms with end rails, Miner brake wheels, drop center MILW design trucks, and a Duryea cushion draft gear equipped underframe. It is lettered to match the prototype with the herald under the side window instead of on the bay.

All three cabooses include etched roof walks, Tangent 33" machined metal wheels, Kadee #153 couplers, uncoupling levers, and marker paddles with decals as a user installed item. For information visit lineswestproducts.com.

Maple Leaf Trains has introduced two sizes of eye bolt lift rings. The available ring sizes are .037 and .045" which are approximately three and four inches in HO scale. The rings are available in packages of 10 and 50 rings. For additional information visit mapleleaftrains.com.

Mine Mount Models has released Sunrise Warehouse, an HO scale craftsman kit featuring laser-cut doors and roofing

materials, Mt. Albert Scale Lumber siding materials, Tichy doors and windows, BEST Trains metal castings, a jib hoist, a rafter/joist/stairs assembly fixture, and a variety of loading docks. The footprint of the finished model is 10 ½ x 8 ½". For more information visit minemountmodels.com.

Monashee Laser Engineering has released four new HO laser-cut station kits, two for the Canadian National Railway (CNR) and two for the Canadian Pacific Railway (CPR).

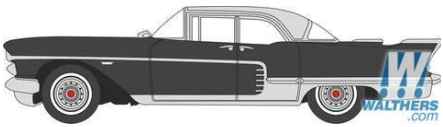
The first is a CNR Third Class Station with wood/shingle siding, of which hundreds were built across Canada. All parts to complete the kit are included – laser-cut floors, walls, windows, doors, roof, trim, shingles, and chimneys. Stripwood to build the platform is included. An assembly manual is included. An optional interior finishing kit with laser-cut interior walls, staircase, railing, ticket counters, and doors is also available. Finished size of the building is 7 ¾ x 7" including the platform, but not including the eave overhangs.

Next is a CNR Fourth Class Station, representing approximately 20 prototypes in Ontario, Manitoba, Saskatchewan and Minnesota.

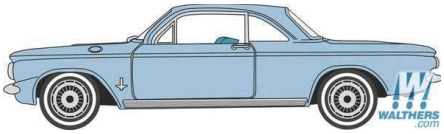
As with the Third Class Station, all parts to complete the model are included, and a manual including over 50 photos. The building footprint is 8 ½ x 6 ¾" including the platform but not including the eave overhangs.

A CPR #4 Standard Station is the fourth kit released and features an extended eave over the platform. As with the other Monashee Laser Engineering kits, all parts to complete the station are included, as is a manual with photos, drawings and templates. Footprint of the kit is 7 x 4 5/8" including the platform but not the eave overhangs.

The last station is the CPR #5 Standard Station with gable dormers, widely used in central Canada. All parts to complete the station are included, along with an instruction manual. An optional interior finishing kit with additional laser cut interior walls, staircase, railing, ticket counters, and interior doors is available. The model's footprint is 7 x 5 ¼" including the platform but not including the eave overhang. For information on all Monashee Laser Engineering products, visit www.monasheelaserengineering.ca.

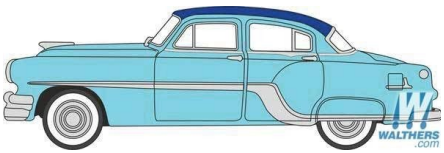


Oxford Diecast has released four newly-tooled 1:87 scale American vehicles including this 1957 Cadillac Eldorado Brougham four-door sedan. Spotting features include a silver over black paint job, a beige interior, elaborate tailfins, and thin white wall tires with red-center hubcaps.



This satin blue 1963 Chevrolet Corvair Coupe has a medium blue interior.

Oxford has decorated the initial release of its new 1950 Chevrolet Panel Van as an ambulance. Details include silvered side windows and an emergency light on the roof.



Like the prototype it models, this 1:87 scale 1954 Pontiac Chieftain four-door sedan is painted Mayfair Blue over a lighter San Marino Blue. Interior details are tan. For additional information contact a dealer or visit walthers.com.

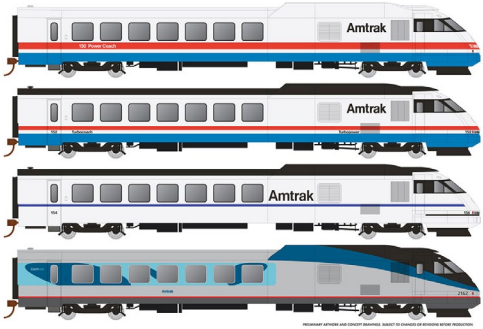

R. Bale

Rohr RTL Turboliner

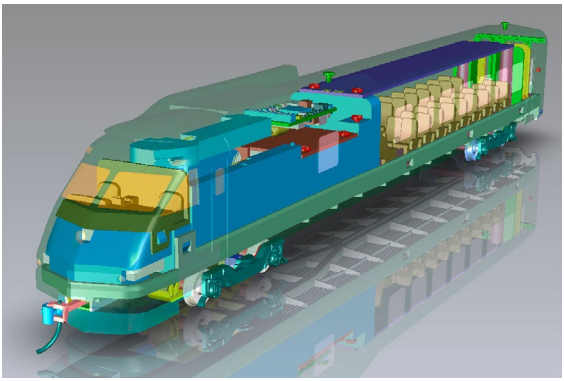
In the 1970s Amtrak operated French-built RTG Turboliners in the Midwest. They were considered successful, however, the fixed five-car consist precluded adding more coaches during periods of peak traffic. Shopping for more flexible Turboliners for the New York Empire Corridor, Amtrak turned to Rohr Industries in San Diego. Entering service in September 1976, the Rohr RTL Turboliners proved their value. Decorated in Amtrak's red, white and blue Phase III paint scheme, the RTL Turboliners, equipped with conventional passenger couplers and third rail shoes for operation in Grand Central Terminal and Pennsylvania Station, operated on most Empire Corridor lines out of New York City into the early 2000s. They also saw occasional service between Montreal, Buffalo, Detroit, and Toronto. These were the final gas turbine trainsets purchased by Amtrak since new Amfleet equipment pulled by conventional diesel locomotives proved cheaper to operate.

Rapido Trains has completed preliminary work on an HO scale Rohr RTL Turboliner, the gas-turbine trainsets Amtrak operated in the northeast, including Canada, in the 1970s. The next step however, committing to production tooling, is dependent upon the receipt of sufficient advance reservations to justify completing the project. If the model enters production, the four paint

schemes shown below will be included in the initial release. The deadline for reservations is March 17, 2020.



The HO scale model will be available as a five-car train set with additional coaches available. A special set decorated in Phase V is also planned, along with a set of power cars decorated for the X2000 demonstration trainset.



Rapido has released a preliminary computer rendering of the RTL Turboliner Power Car. Designed from original blueprints plus extensive field measurements, Rapido's HO scale version will feature tinted windows, complete interior details, interior lighting, newly designed trucks with third-rail pickup shoes, working marker and headlights, and cab-mounted strobe lights. DCC models will have authentic sounds sourced from original videos of the prototype.

Also under development at Rapido is an HO scale GMD F59PH diesel locomotive. The F59PH was designed by General Motors Diesel Division in the 1980s for GO Transit. The production run of 73 locomotives was split between Toronto's GO Transit and Southern California's Metrolink. Subsequent owners include AMT/EXO (Montreal), Metra (Chicago), TRE (Dallas), and NCDOT (Raleigh). Rapido will offer the HO scale model

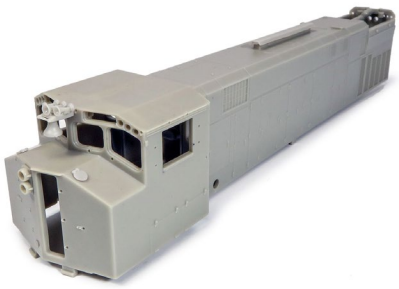
Photo courtesy Stephen Gardiner

decorated for GO Transit, Metra, Metrolink, AMT, TRE, and ex-GO Lease Scheme.

Preproduction test samples of the Los Angeles Metrolink (left) and Chicago Metra F59PH are coming this fall. Features of Rapido's HO scale version include metal end handrails with plastic stanchions, complete underframe detail including traction motor cables and numerous individually applied parts; etched-metal grilles, separate stamped-metal grab irons, and full cab interior. Lighting features include operating headlights, rear light, and ditch lights; operating ground lights, step lights, and tri-color classification lights or red markers as appropriate to the prototype road being modeled. E-bell and horn combination will be included on GO Transit units. Models with DCC/Sound will have an ESU LokSound decoder.

A third new HO scale locomotive under development at Rapido Trains is an HO scale MLW M420. The M420 was a 2,000hp AC locomotive of Alco design built under license by Montreal

Locomotive Works from 1973 to 1977. Spotting features include the four–piece windshield assembly and full-width Safety Cab, aka Canadian Comfort Cab.



This preliminary test shot from the M420 tooling shows the M420 project is moving forward on schedule.
Rapido engineers used a 3D scan of a real M420 in developing their new HO scale model. Features will include straight metal side handrails with plastic stanchions, complete underframe detail including traction motor cables, detailed cab interior with optional open front door, heavy diecast chassis with a new coreless motor fitted with dual flywheels, operating headlights, rear lights, tri-color classification lights, and an illuminated cab control stand. DC units will have a 21-pin socket for installation of an aftermarket decoder. DCC Sound models will come with a TCS decoder featuring sounds recorded from a prototype M420. The order deadline is March 31, 2020, with delivery of the M420 planned for this fall. For additional information contact a dealer or visit rapidotrains.com.

ScaleTrains.com has expanded the selection of road names for its HO scale EMD SD40-2 diesels scheduled for release in September 2020. Roads will include Burlington Northern, BNSF, Union Pacific (Fast Forty scheme), and the one-of-a-kind Conrail unit with special 1992 Altoona Olympic Bicycle Trials scheme.

Multiple decorating schemes are planned for Dakota, Minnesota & Eastern; Chicago & North Western, CSX , and Chessie System.

SD40-2s with high nose hoods will be available for Norfolk & Western and the Southern Railway. For information visit scaletrains.com.

Showcase Miniatures has released an HO scale kit for a two-track signal bridge. Additional spans are available to expand the bridge for more tracks. The kit is composed of wood decking and etched stainless steel parts that assemble using tab and slot construction. For additional information visit showcaseminiatures.net.

Jim King has announced that **Smoky Mountain Model Works** will produce another run of HO scale kits for Southern/NS/N&W GS50/G82 large wood chip hopper cars. Components in the kit will include a one-piece cast urethane body, brass weight, etched brass crossover platforms, Kadee shelf couplers and 36-inch code

88 wheelsets, Intermountain truck side frames, and detail parts (brakes, stirrups, wire, styrene strip). Assembly instructions, prototype photos, and decals complete the kit. For additional information visit smokymountainmodelworks.com/HO_rolling_stock.html.

Tangent Scale Models has introduced a new concept for HO scale 100-ton Barber S-2 trucks with options for the wheelsets, roller-bearing end caps, and brake beams. The Barber S-2 side frame includes detailed lettering showing that it was cast at ASF's Granite City, IL foundry.

Options for the 36-inch machined metal wheelsets include standard .110-inch width tread (NMRA RP-25) either blackened or nickel plated. Wheels with .88 semi-scale treads are available nickel plated ready for painting or weathering leaving a prototypically shiny tread. All of the options include wheels with contoured faces on both the front and back sides.

The trucks are available with Timken (left) or Brenco (right) rotating roller-bearing end caps. Additional end caps are available in packs of 12.

Separate brake beams are available for cars equipped with a brake cylinder and body-mounted brake linkage. Tangent offers a second style of brake beam for truck-mounted brake cylinders. Tangent will continue to sell its 100-ton ASF N-11 truck with non-rotating bearing caps. For additional information contact tangentscalemodels.com.

Walthers has released a group of Mainline GP9 diesel switchers with high, short hoods. The HO scale model is based on Phase II units EMD delivered from 1955 thru 1957.

Road names for the ready-to-run model include Santa Fe, Boston & Maine, Illinois Central, Precision National, Rock Island, and New Haven.

A group of chopped nose GP9 Phase II diesels is scheduled for release later this month. Road names will be CSX, Canadian National, Chessie System, Chicago & North Western (with employee-owned logo), Conrail, Illinois Central, Montana Rail Link, and Soo Line.

The economy priced Mainline series diesels use the same drive system as WalthersProto locomotives. Drill starter points molded into the plastic body aid modelers wishing to add grab irons, which are sold separately in GP9 Phase II Diesel Detail Kit #910-258.

Also scheduled for release later this month is an EMD SD60M with a two-piece windshield. In addition to Union Pacific, Walthers HO scale ready-to-run model will be available decorated for Burlington Northern, BNSF, CSX, and Norfolk Southern.

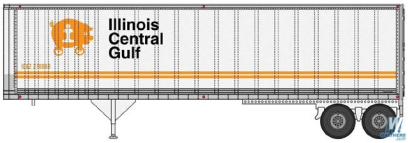
Walthers is quoting a late March release date for a Proto series 50-foot bulkhead flat car based on a Canadian Car & Foundry prototype. CC&F introduced the cars in the late 1970s to handle pulpwood, wrapped lumber, and similar building materials.

Road names will be BC Rail, Canadian National, and Ontario Northland. The Proto series model has separately applied ladders and grab irons, metal knuckle couplers, and appropriate trucks with 33-inch metal wheelsets.

Also due from Walthers late next month is an HO scale 60-foot NSC 5150 cu ft. triple-bay covered hopper. Walthers based the Mainline series model on a 1996 prototype designed to handle a wide range of edible grains.

The car will be available decorated for ADMX Archer-Daniels- Midland, Canadian National, Canadian Pacific, FURX-First Union Rail, WFRX-Grain Connect Canada, Illinois Central, and Union Pacific. Details include raised weld beads on the side panels, trough-style roof hatches with handles, detailed discharge outlets, thin-profile roof walk, end ladders and platforms; metal knuckle couplers, and 100-ton roller-bearing trucks with 36-inch machined metal wheelsets.

Walthers has set a June 2020 delivery date for a group of four 40-foot Trailmobile trailers. Details include side rivet detail,



four latch bars, and positionable landing gear. Carrier names will be Illinois Central Gulf, Texas-Mexican Railway, Milwaukee Road, and US Postal Service. The Trailmobile units will be sold in two-packs of identical trailers.

New HO scale UPS equipment coming from Walters late this month includes a white International box van, and a 35-foot fluted side trailer.

To haul the UPS trailer Walthers will have both single and double-axle semi tractors.

The semi tractors are HO scale versions of International 4900 series trucks introduced in the late 1980s.

Walthers plans to release a group of contemporary service and delivery vans in late March.

Decorating schemes will be FedEx, Homemade Bakery Shop, Bel Aire Flowers, Speedy Movers, Teusink Plumbing, U.S. Postal Service, Fire & Rescue, and Ambulance.

Walthers has announced three new Cornerstone 1950s-1960s structure kits including a two-story motel, a motel office, and a restaurant. The structure kits are scheduled for release in late March.

Also due for release in March is a Walthers Cornerstone kit for a suburban train station. Details include a ticket vending machine, platform access ramp, gas meter, electrical panel, and rooftop vents and air conditioner. The station has a footprint of 5.75 x 3.625-inches. For additional information on Walthers products contact a dealer or visit walthers.com.

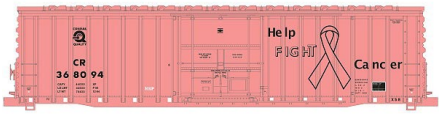
N SCALE PRODUCT NEWS

Athearn's has scheduled the release of this N scale bay-window caboose for December 2020. The ready-to-run model features newly tooled trucks with an axle-mounted generator, separately applied wire grab irons, walkway tread on the end platforms, and clear window glazing.

Road names will be Southern Pacific, Baltimore & Ohio, Northern Alberta Railways, Rock Island, Chessie System, SSW-Cotton Belt,

and two Union Pacific paint schemes. For additional information contact a dealer or visit athearn.com.

Here is an early look at two 50-foot X-series boxcars coming later this year from **Eastern Seaboard Models.** Both the Penn Central ex-PRR patched scheme and the Conrail car decorated for cancer awareness will be applied to ESM's N scale X58 boxcar.



The ready-to-run model will come with body mounted Micro-Trains couplers and M-T trucks with metal wheels. For additional information visit esmc.com.

The **Electric Wallpaper Co.** has released three new laser-cut Roomette interior kits for popular N scale structures. Crafton Avenue Service Station (above) is a two-room kit for City Classics Crafton Avenue Service Station. Additional laser-cut card stock kits include Grafton Hotel that fits Woodland Scenics/DPM 10-room Hilltown Hotel. Also new is a Storefront Assortment that includes detailed interiors for upper level rooms and 10 street level interiors for eight different Woodland scenic/DPM storefront kits. Roomette kits include LEDs with plugs that are compatible

with NCE and Woodland Scenics Just-Plug lighting systems. For information visit www.roometteslighting.com. To view a video describing Roomettes go to youtu.be/etudHFMI6-M.

Kato is preparing a mid-summer release for another run of N scale MAXI-IV well-cars and containers. The cars will be decorated for Pacer Stacktrain and both classic and new logo variations for BNSF and TTX. Each three unit set of well-cars will come with six 53-foot ribbed side magnetic containers.

The containers will be decorated for CSX , UMAX, Green HUB, Red HUB, and Pacer Stacktrain. For more information contact a dealer or visit katousa.com.

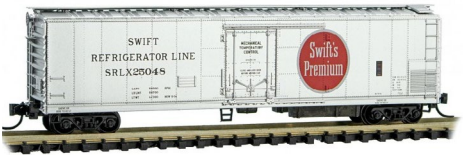
Micro-Trains Line has released an N scale version of a 70-foot heavyweight RPO mail/baggage car decorated for two well-known railroads. The model of a Denver & Rio Grande car is painted classic Pullman green while a Pennsylvania Railroad version is painted Tuscan red with a black roof.

Both cars ride on six-wheel passenger trucks with plain bearings.

Also new from Micro-Trains is a 51-foot American Refrigerator Transit mechanical refrigerator car based on a 70-ton prototype built by Pacific Car & Foundry in the early 1960s. Features on the N scale model include riveted sides with plug doors, full height ladders, and roller-bearing trucks.

This brown 89-foot Southern Pacific tri-level enclosed autorack rides on a yellow TTX flat car. Micro-Trains N scale version is equipped with Barber roller-bearing trucks.

Among the earliest mechanical refrigerator cars produced in volume was the prototype of this 51-foot Swift reefer that was built in the early 1950s with riveted aluminum sides. Contact a dealer for information about Micro-Trains models.



Pacific Western Rail System plans to release a Canadian National Railway 40-foot boxcar in June. The N scale model, custom made for PWRS by Micro-Trains, is based on cars built by National Steel Car from 1944 to 1962. Like the prototype, the model will be painted boxcar brown with a green maple leaf herald and yellow doors indicating its assignment to newsprint service. For additional information visit www.pwrs.ca/announcements/view.php?ID=15832.

Showcase Miniatures has released a new kit for a postal delivery vehicle. The N scale vehicle mirrors a Grumman LLV delivery truck. The kit features a resin body, cast pewter frame, etched stainless steel doors and mirrors, and laser-cut window glazing. Detailed instructions and water-slide decals complete the kit. The doors can be positioned opened or closed. For additional information visit showcaseminiatures.net.

NEW DECALS, SIGNS AND FINISHING PRODUCTS

Black Cat Decals has HO scale water-slide decals for Canadian National mechanical refrigerator cars. The decals are designed for orange cars leased by CN in 1962. For additional information visit www.blackcatdecals.com.

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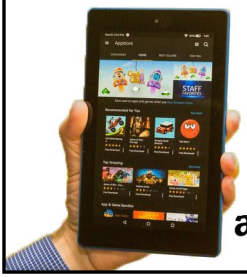

amazon

Briefly noted at press time ...

New **Atlas** Master series locomotives under development include an N scale GP40-2W based on the initial 1974 production run of EMD GP40-2s built with full-width comfort cabs, and an HO scale General Electric U28C including the U28CG passenger hauling variant introduced in 1966. A 3rd quarter 2020 release is planned ...

Broadway Limited Imports expects to release a new run of N scale EMD F3 A and B diesel units late this month. Road names will be ATSF, B&O, CGW, DLW, NYC, PRR, WP, C&O, SOU, SP, and UP ...

Moloco is selling an HO scale Denver & Rio Grande Western 50-foot insulated boxcar with a Hydra-Cushion underframe based on a prototype built by General American beginning in 1962. The assembled model is available in three numbers. More info at molocotrains.com ...

Woodland Scenics will soon announce a system of prewired single and double crossbar utility poles and transformer sets that promise to simplify modeling realistic commercial and residential power lines. The system will be available for N, HO and O scales ...

ExactRail is planning a late summer run of HO scale 54-foot Thrall coil cars with a Coilshield and Protector ...

Tangent has released a new HO scale International Car Co. class I-18 steel bay-window caboose decorated for B&O (blue) and five Chessie System variations with lighting, full interiors and numerous era-specific details ...

SELECTED EVENTS

February 2020

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

KANSAS, WICHITA, February 1-2, Train Show & Swap Meet at Cessna Activity Center, 2744 George Washington Blvd. Request info from Phil at aylward1@cox.net.

KANSAS, LAWRENCE, February 8-9, 19th Annual Train Show and Swap Meet, sponsored by Lawrence Model Railroad Club, at Crown Toyota , 3400 Iowa Street. Info at lawrencemodelrailroad-club.org/TrainShow.html.

MARYLAND, TIMONIUM, February 1-2, Great Scale Model Train Show at Maryland State Fair, 2200 York Road. Info at www.gsmts.com.

MICHIGAN, BLISSFIELD, February 8, Open House sponsored by Blissfield Model Railroad Club at 109 East Adrian Street (US223).

SOUTH CAROLINA, EASLEY, February 7-8, Great CRMHA Model Train Expo hosted by Central Railway Museum at Rock Springs Church Impact Center. Request info from John Johnston at jwjohnston@crmha.org.

WEST VIRGINIA, St. ALBANS, February 22-23, Model Train & Craft Show sponsored by Kanawha Valley Railroad Association, at The Event Center, 6400 MacCorkle Avenue S.W. Info at kvrail-road.org.

WISCONSIN, MADISON, February 15-16, Mad City Model Railroad Show & Sale, hosted by NMRA South Central Wisconsin Division at Exhibition Hall, Alliant Energy Center. Info at nmra-scwd.org.

WISCONSIN, STEPHENS POINT, February 1-2, 23rd Annual Model Railroad Show, sponsored by Central Wisconsin Model Railroaders at Holiday Inn Convention Center Hotel, 1001 Amber Avenue. Request info from Jim Miller at jimbro67@gmail.com.

March by location

CANADA, ONTARIO, TORONTO, March 21, Railway Prototype Modellers Meet, at Humber College, 205 Humber College Blvd, North Campus, Building B, Rooms B201 and B202. Info at torontoprototypemodellers.wordpress.com.

CALIFORNIA, REDLANDS, March 28-April 5, Train Days 2020, sponsored by N-Land Pacific, at San Bernardino County Museum, 2024 Orange Tree Lane. Request info from Chuck Coker at chuck@ix23.com.

FLORIDA, SARASOTA, March 21-22, 43rd Annual Real Rail Train Show at Bradenton Convention Center, 1 Haben Blvd, Palmetto. Request info from David Fontaine at davidf34205@yahoo.com.

INDIANA, INDIANAPOLIS, March 7, Train Show sponsored by Naptown & White River Model Railroad Club at Emmerich Manual High School, 2405 South Madison Avenue. Info at naptownrr.org.

INDIANA, NAPPANEE (Metro Elkhart), March 21, 15th Annual Train Show sponsored by Elkhart Model Railroad Club, at Claywood Event Center,13924 North 1100 West (County Line Road). Info at www.emrrc.com.

KENTUCKY, LOUISVILLE, March 21, NMRA Division 8 Mid-Central Region Train Show and Sale, at Holy Family Parish Saffin Center, 3938 Poplar Level Road.

NEW YORK, BATAVIA, March 29, Great Batavia Train Show, sponsored by Genesee Society of Model Engineers at Genesee Community College, Richard Call Arena. Info at www.gsme.org.

NEW YORK, ROCHESTER, March 7-8, Open House sponsored by Rochester Model Railroad Club at 120 South Clinton Avenue. Info at RocMRRC.com.

OHIO, GREENVILLE, March 1, Swap Meet sponsored by Darke County Model Railroad Club at Darke County Fairgrounds Youth Building, 800 Sweltzer Street. Info at model-railroad-hobbyist.com/sites/model-railroad-hobbyist.com/files/webform/news/2020dcmrr_swap_meet.jpeg.

OREGON, PORTLAND, March 14, Swap Meet sponsored by Willamette Model Railroad Club at W.D. Jackson Armory, 6255 NE Cornfoot Road. Request info from Brigg Franklin at wmrc-swapmeet@gmail.com.

PENNSYLVANIA, MALVERN (Valley Forge), March 27-29 2020, Railroad Prototype Modelers Meet, at Desmond Hotel. Info at rpmvalleyforge.com.

VERMONT, ST. ALBANS, March 14, Vermont Rails Model Railroad Show at Collins Perley Sports & Fitness Center, sponsored by the Northwestern Vermont Model Railroad Association. Info at www.nwvrailroad.org.

WISCONSIN, CEDARBURG, March 8, 25th Annual Model Train Show & Swap Meet, at Circle B Recreation 6261 Highway 60. Info at www.metrorrclub.org.

Future 2020, by location

AUSTRALIA, SYDNEY, ROSEHILL NSW, June 5-9, 34th National Model Rail Convention. www.nmra.org.au/conventions/index.html.

CANADA, ALBERTA, CALGARY, April 18-19, Supertrain 2020, Genesis Centre, 7555 Falconridge Blvd NE. Info at www.super-train.ca.

CANADA, BRITISH COLUMBIA, BURNABY, May 22-24, 2020, 5th Annual Railway Modellers Meet of BC, sponsored by Burnaby Railway Modellers at Simon Fraser University's Burnaby campus. Info at www.railwaymodellersmeetofbc.ca.

CANADA, ONTARIO, FENWICK, April 19 and 26, Open House sponsored by the Greater Niagara Model Railroad Engineers at 1141 Maple Street. Info at www.gnmre.ca.

NEW ZEALAND, CHRISTCHURCH, April 10-13, National Model Railroad Convention. Info at www.modelrailcon.co.nz.

NEW ZEALAND, DUNEDIN, MOSGIEL, May 9-10, Model Train Show at Taieri Bowling Club, 12 Wickliffe Street. Request info from Trevor Buchanan at dunedinmodeltrain-show@gmail.com.

ARKANSAS, JACKSONVILLE, August 22-23, 10th Annual Jacksonville Train Show, sponsored by Tuscarora Lumber Company at Jacksonville Community Center, 5 Municipal Drive. Request info from Daryl Conner at 501-982-6835.

CALIFORNIA, OCEANSIDE, April 11, Train Show & Swap Meet sponsored by North County Model Railroad Society at Heritage Park. Info at swapinfo@ncmrs.org.

COLORADO, COLORADO SPRINGS, April 17, Tracks to Success Leadership Program, held in conjunction with the TECO Train Expo. model-railroad-hobbyist.com/sites/model-railroad-hobbyist.com/files/webform/news/tts_sparkplug_flyer-karen_2.pdf. Request info from Al Hovey at alhovey@comcast.net**.**

COLORADO, COLORADO SPRINGS, April 17, Track to Success Train Show, held in conjunction with the TECO Train Expo. Request info from Al Hovey at alhovey@comcast.net.

FLORIDA, TALLAHASSEE, June 27, 26th Annual Model Railroad Show & Sale at Forth Florida Fairgrounds. Info at www.facebook.com/events/564525630749478.

ILLINOIS, EAST PEORIA, May 14-17, NMRA Midwest Region Convention, at Holiday Inn, 101 Holiday Street. Info at www.peoriarocket2020.org.

INDIANA, FRANKLIN, (Metro Indianapolis), April 4, Franklin Spring Train Show, sponsored by NMRA Central Indiana Division at Johnson County Fairgrounds, 250 Fairground Street. Info at www.cidnmra.org.

IOWA, DAVENPORT, April 18, Model Railroad Show at Mississippi Valley Fairgrounds, 2815 W. Locust Street. Request info from Roger Kujawa at AGWRailway@gmail.com.

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.

MISSOURI, ST. CHARLES (Metro St. Louis), September 2-5, 40th National Narrow Gauge Convention, St. Charles Convention Center/Embassy Suites Hotel. Info at www.40nngc.com.

MONTANA, HELENA, April 26, 40th Annual Helena Railroad Fair, at Helena Civic Center, 340 Neill Avenue. Info at rrfair@mt.net.

OREGON, ELSIE, April 4, 16th Annual Pacific Model Loggers' Congress, hosted by Lon Wall and Jeff Johnston at Camp 18 Restaurant and Logging Museum, 42362 Highway 26. Info at www.pacificmodelloggerscongress.com.

TENNESSEE, NASHVILLE, May 31-June 6, National Garden Railway Convention, at Gaylord Opryland Resort. Info at ngrc2020.com.

VIRGINIA, FISHERSVILLE, May 17, 34th Annual Shenandoah Valley Model Train & Railroading Show, sponsored by Augusta County Model Railroad Club at Augusta Expo, 277 Expo Road. Info at www.acmrrc.org.

Beyond 2020, by date

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

ENGLAND, BIRMINGHAM, 2022, NMRA National Convention and National Train Show. www.nmra2022.uk.org. ■

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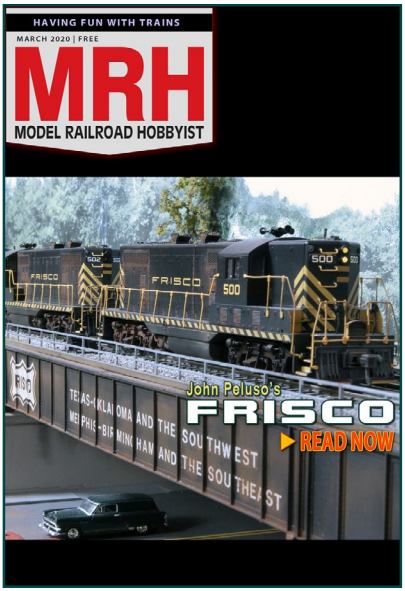

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