

HUB Headlight

HUB Division Inc., Northeastern Region, National Model Railroad Association - www.hubdiv.org
Volume 40, Number 1, September - October, 2023

RAILFUN TIMETABLE

Getting Started in 3D Printing

By Dave Insley and Erich Whitney

10 AM Saturday, September 23, 2023

Chelmsford Public Library, 25 Boston Road, Chelmsford, MA

Come and explore the world of 3D Printing. We will look at the various printers on the market today, discuss how they work and the steps you need to take to get started with these wonderful tools. We will discuss the various materials that can be used for printing and the considerations you will need to make to get a quality print. If you have never used a 3D Printer before then this might be a perfect opportunity to get the information you need to get over the hurdle of starting out. If you have already been using a 3D Printer then bring along some of your prints and be ready to share how you were able to get your prints to the next level. If time permits, we will explore some of the available 3D modeling software to make your own designs.

We are meeting at the Chelmsford Public Library. The library opens at 9:30 AM and our meeting is scheduled to start at 10:00 AM. Have you been working on a modeling project over the summer months? Bring it along with you and we will have a display area available so members can show off their work. There will be time before the clinic to browse the models and discuss our latest projects with friends new and old.

Our meeting will end at noon and after we will head over to Stan and Debbie Ames' house for some pizza and an operating session on their wonderful large scale layout the SJR&P Railway. So, come for the clinic, or come for the entire day and join your fellow HUB Division members as we kick off another modeling season. See the website for more details and directions to the Chelmsford Public Library.

SJR&P Railway

Stan and Debbie's SJR&P is an outdoor garden railway with nearly 5,000 feet of track, over 250 pieces of rolling stock, and more than 40 locomotives powered by DCC. The focal point of the SJR&P is narrow gauge operation. With over 125 switching locations, this railroad offers plenty of hands-on action for the newbie

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Bat Yard is a busy place during an operating session.

Build a Low-Cost Static Grass Applicator

By Manny Escobar and other HUB members

10 AM Saturday, November 18, 2023 (to be confirmed)

Chelmsford Public Library, 25 Boston Road, Chelmsford, MA

Interested in building your own static grass applicator? Well, you're in luck. In this clinic you will learn how to convert an inexpensive electronic fly swatter into a device to apply static grass. Reservations will be required to make sure we have enough supplies and we will be looking for a donation of \$5.00 towards supplies. Look for more info in the next issue of the *Headlight*.

Modeling East Broad Top Mine Number 1

By Russ Norris

The Rockhill Iron and Coal Company opened its first deep mine on Broad Top Mountain in 1875 -- the same year that the East Broad Top Railroad reached Robertsdale at the southern end of the tracks. Mine number 1 was a slope mine that proved to be one of the most productive of a number of deep mines on the Broad Top. Over the next 75 plus years, number 1 closed and reopened several times. It was still active when the railroad ceased operations in 1956.

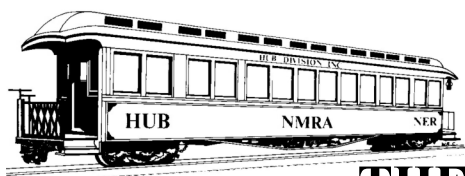
The mine was a short walk from the center of Robertsdale, where the EBT tracks crossed Main Street at what became known as "Company Square" -- so named because of the four railroad-owned structures that bracketed the crossing: the Company Store, the Robertsdale station and scale, the old Post Office, and the coal company office building. The Company Store was demolished years ago, but the other three buildings are still standing.

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THE PRESIDENT'S CAR

By Manny Escobar

A new season is upon us!

This summer we had several events, starting with our annual cookout at the Waushakum Live Steamers in Holliston, MA in July. We had decent attendance, despite the wet weather. Thanks to Pete Watson, Dick Ball, and all members who attended in the rain, as well as the volunteers from Waushakum. On July 22nd and 23rd, we again had the opportunity to display our "Thomas the Train" layout at Springfield Union Station, together with Amherst Railway Society that was hosting Kids ON TRACK – a model railroading job fair.

I want to raise a very important issue to the membership. This year we are going to re-evaluate and focus on new ways to improve RAILFUN events. This year, RAILFUN sessions will be in different venues and held at mid-day Saturday, followed by an afternoon trip to a local layout. The September 23rd RAILFUN will be held Saturday at the Chelmsford Public Library, followed by a visit to the Ames's large garden railroad. October will be skipped as we hope you will attend the NER convention on Long Island. The November 18th RAILFUN will be held at the Chelmsford Public Library (not confirmed at the time of publication). There will be no RAILFUN in December due to the Expo Show.

We're hoping the change to Saturday will increase attendance at the in-person events. As the year progresses, the Division will be looking for new venues and ways to refine and enhance the program. RAILFUN has been with us since the early '90s and it has been a great asset and resource for our membership and the public, just like the modular group.

While we and many other divisions have had success holding virtual meetings, we want to focus our efforts on in-person activities. We will still look at holding virtual meetings in the future to complement our in-person events, but the in-person events will not be available online. We really just want you to join us in-person to enjoy RAILFUN as it was intended to be.

I want to say that our past RAILFUN Coordinator, Andy Reynolds, has done a great job rekindling RAILFUN since COVID. Thank you, Andy!

We need your help to re-charge our Division, so please volunteer to be a department coordinator or volunteer to assist the department heads. We need our members to step-up and help make the organization function and to grow this fantastic model railroad hobby.

As noted earlier, the 2023 NER Convention is being held on Long Island. I hope you'll consider attending the NER "Cannonball Express" October 5-8 (Thursday to Sunday) in Uniondale, NY. It's not too late to register, so visit www.ner-conventions.org/cannonball-express/

Please see our calendar of events on Page 11 and check the website for updates and listings of other important dates and events.

Thank you for everything you do for the HUB Division and the organization.

Please stay safe and healthy

"Keep 'Em Rolling"

Fiscal Year 2023 Appointments

Malcolm Houck - Vice President
 Gerry Covino - Treasurer
 Peter Higgins - Membership
 Bill Barry - Headlight Editor
 Bob Collins - Module Coordinator
 Dave Insley - Webmaster
 Peter Watson - Office Manager/Clerk
 John Russo - Expo Show Director
 Mark Harlow - Expo Show Manager
 Ken Belovarac - Librarian
 Dan Fretz - Donations Chairman
 David "Shack" Haralambou - MOS Coordinator
 Peter Watson - NMRA AP Chairman
 Erich Whitney - Online Activities Coordinator

Herding Cats

By Bruce Robinson

I host operations sessions. This activity brings along some pitfalls as well as joys within our hobby.

I am writing about a subject for this issue of the *Headlight* that touches on the "real life" of being involved in a very social hobby activity: trying to get modelers together to share the fun of model railroading.

Recently I received an e-mail that said "Can you come to my empty basement and offer some pearls of wisdom on how I should go about designing my new layout?" The invitation was sent to two other modelers. That makes four people. We all know one another, too. Now, can you guess what unfolded from the invitation?

Trying to get four (or more!) model railroaders in the same basement, on the same date and the same time becomes an exercise of challenging proportions. After several rounds of e-mails, we ended up getting together in two groups: two people one night and three people two weeks later. I entered the date in my phone calendar and I am done. See you guys in two weeks. Well, so much for sharing ideas.

I am a host for operations sessions, layout tours and group gatherings, which means dates are set, people notified and then they show up. The Valley Junction RR has hosted 344 op sessions since 1994 that included something north of 300 different operators. How the VJRR runs its op sessions is pretty straight-forward. The regular crew receives the "Trainmaster's Letter" the sixth of each month setting the date, the fourth Friday, for the month's



The substitute operator called it quits half-way through the op session. The dispatcher set the protecting signal to red for "accident avoidance."

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Shanty Talk:

By Rudy Slovacsek

A New Season of Fun

I began this column with the intention of picking up where I left off on the operations of my D&H-themed modules I began last season. However, I've changed my mind and will begin the year talking about model railroading in general. Railroading is the creation of transportation services for customers by employees of the railroad utilizing its specialized equipment. In its simplest form it is about people serving people. However, we model railroaders tend to focus on the equipment used in this practice, often neglecting the actual function. Oh, there are a few more enlightened among us, who prefer to operate the equipment in a somewhat prototypical manner, and for this we use some form of car cards or switch lists, which add to the fun over and above just running our model trains around. But, what about modeling the people serving people aspect? This actually occurs on a human-to-human level and is fostered by interactions such as sharing our knowledge with others through clinics, and slide shows, or just plain listening. It can also occur when we volunteer to do things for the good of others, like being

our editor of the *Headlight* or acting as our module coordinator just to name a few. As we begin our new season, why not make it a point to volunteer for a position (we always need people to make this organization run).

OK enough of my rah, rah speech. You didn't pay good money to hear this. But rest assured without our volunteers we would cease to be the organization that many of you have come to know and enjoy.

On another serious note, I have not done much modeling this summer due to some setbacks from my open-heart surgery last fall and some computer software issues. I have, however, finished carving off the extra dump hinges on my kit-bashed D&H Diffco dump car and installed the strut guides. Maybe next time, after I've re-installed my Nikon transfer software, I'll be able to show you a few pictures. Also, this has given me time to begin reading my newly acquired book by Rudy Garbely entitled "Delaware and Hudson Cabooses." If the rest of the book is anything like the first chapter, it will make for nice reading this fall. Until then, keep the talo pots burning. Hint, they were used in the winter by maintenance crews.



A Diffco dump car is pulled by D&H RS-36 Number 5017.
RRPictureArchives.net image Copyright Philip M. Goldstein

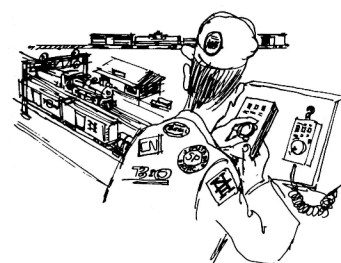
Could "You" be the next Headlight Editor?

By Bill Barry

I have now been editor of this publication for the past 12 years, and it's time for me to pass the torch. So we need a HUB member willing to take on the responsibility of putting together five issues of the newsletter each year. This involves gathering info from the members and online resources, putting it all together in an electronic format, sending that along to the printer and webmaster, and finally preparing and mailing the printed copies to the membership. The editor position is a behind-the-scenes job, but it will keep you involved in the goings-on of the Division. Thankfully, we have a very active Division with many members that are willing to contribute articles and photos to the newsletter.

So if you have computer skills and some familiarity with page layout software, would you be interested in becoming the *Headlight* editor? You will need to have your own computer, but the division will purchase the software you need to do your work along with providing the necessary supplies, like postage, labels, wafer seals, etc.

If you want to discuss this or are looking for more info about the position, please email me at editor@hubdiv.org.



TRY IT - YOU'LL LIKE IT

SJR&P Railway

(Continued from Page 1)

to the expert operator. We operate using a dispatcher, agents, and two-person crews using waybills and switchlists. Come to operate or watch as you desire.

The highlights of the SJR&P are its bridges, rock gardens and lily ponds. Unlike an indoor layout where the scenery

must be created, the bridges, tunnels and grades of the SJR&P are functional as they were required in order to mold the railroad into the hillsides.

Layout at a Glance:

- Scale: F and Fn3 (1:20.3 3 ft. narrow gauge)
- Size: 200 ft. x 180 ft., with over 19 scale miles of track
- Prototype: American 3 ft narrow gauge
- Local: rugged hills of the North East
- Era: 1940-1960s

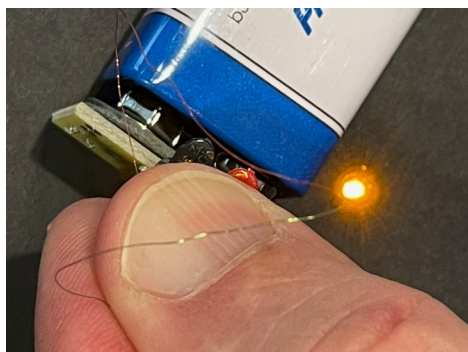
- Style: linear with 7 main destinations yards,
- 10 branch lines, 125 industries/switching locations
- Mainline run: 4 scale miles (1100 ft)
- Minimum degree of curve: 43° (2 Meters)
- Minimum Turnout: #6 for mainlines and #4 for yards / industries
- Maximum Grade: 2.5% mainline, 4% branch
- Elevation Change: 450 scale ft (22 feet)
- Roadbed: gravel roadbed
- Track: 110 lb rail (code 332 stainless steel)
- Control: DCC/Digital plus by Lenz
- Most areas are handicap accessible

Let There Be Light!

By Dave Insley

I have been working on two buildings from the South River Model Works kit, Streeters and Clear Brook, for way longer than I should – the story of my model railroading life. I have been building the kits mostly per the instructions. Streeters is a General Store/Gas Station, the prototype of which was in Bernardston, MA while Clear Brook was a Feed Mill in Pennsylvania.

I decided that I needed to add interiors to both the general store and the feed mill, and if I were going to add interiors then it meant I also needed to add lighting. I had purchased some nano LEDs from MicroLumina and NGineering over the years. They are surface-mounted LEDs that require soldering wires to them. They are super tiny and you need to use magnet wire to solder onto the pads on the back of the LED. Did I mention that they are tiny? The instructions make it sound pretty simple, so I figured what the heck. Out of a 10 pack, I probably sent 4 of



They work, when you get them right.



Did I mention these things are tiny?

The Streeters General Store has a front porch that the roof overhangs, and three doors into the building. I decided to add a strip wood ceiling over the porch where I used three of my LEDs. Each LED needs about three volts, so I decided to wire them in series to power them with a nine-volt battery. I wired some 30-gauge wire to the magnet wires and threaded the wire through the attic of the building so I could run it out the back. I tested everything and it worked, so it was then on to building the interior of the store.

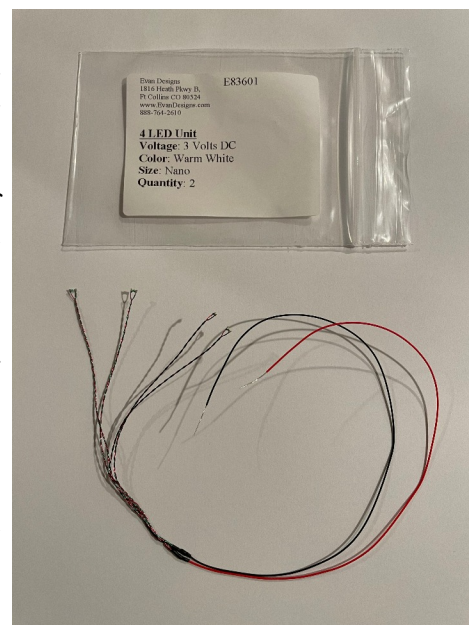
I finished the interior (another story for another day) and created a ceiling out of card stock. I found a tin roof pattern on the Home Depot website and used the image to create a pattern, printed it out, and glued it to the card stock. I needed to add lights, but I did not have any prepared and I was not excited about wiring up



An early picture of the Streeters front porch lights working. Proof they did work at one point. Don't ask.

tiny LEDs. I remembered a conversation with Jeff Gerow where I told him about my trials and tribulations soldering wires to tiny LEDs. He gave me a look and said he chooses to buy his LEDs with the leads already attached. Duh. So, I went on an internet search for LEDs and came across Evans Designs in Colorado.

They sold individual LEDs, but they also sold groups of four LEDs wired together in a nice bundle. I ordered some to try out and used one of the bundles to light the interior. I had to create holes in the ceiling larger than I wanted since the four lights were wired to a single set of leads, but I was able to plug the holes with a little glue. The fact that it was a single harness made it worth the compromise. The specs from Evans Designs said the set of lights needed three



Evans Designs makes a nice set of 4 Nano or Pico LEDs already wired in parallel with leads for not much more than the LEDs without LEDs. What they call a no-brainer.

I tried the Just Plug Lighting System on a small little shed that I had built. It was super simple to use and install, and included pre-made goose-neck lamps with pre-wired surface mount LEDs. It also included a Light Hub that all the LEDs plugged into that took care of making sure each light got the needed power. It was so simple that it felt like cheating. I did not really like the look of the goose-neck lamps, so, I decided I needed something different.

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Let There Be Light!

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The same friend that coined the phrase “gluing hair to a gnat” had submitted a building to the NERx Model Showcase. It had beautiful goose-neck lamps, so I reached out and asked him how he got those results. He pointed me to the NGineering website where they sell a jig that allows you to bend your own goose-neck lamps and they also sell the necessary materials. I placed an order and soon had everything I needed to make my own goose-neck lamps. Their website had a good set of tutorials that led you through the process of creating various lighting features. I was able to thread the LED leads through the 0.018” stainless steel tubing and bent it on the jig. I added the shade and the escutcheon, painted them, and had a reasonable lamp for my buildings.



The goose-neck lamp bent with the NGineering jig made for a better looking light.

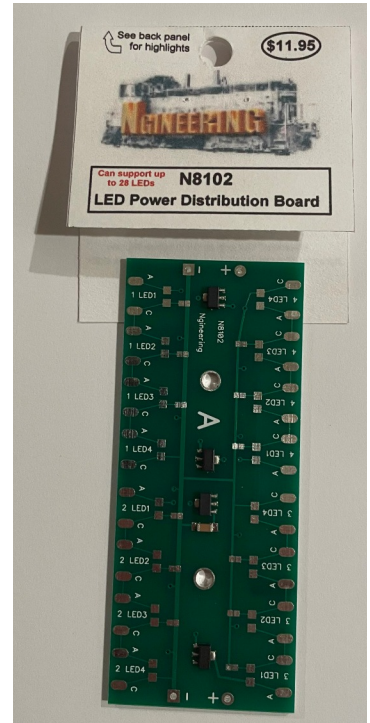
I have since discovered that Evans Designs sells goose-neck lamps in 2-packs already prepared and bent. You do need to glue the shade and escutcheon in place and paint them, but they are already bent, with holes punched in the correct places. The cost is not much more than buying the individual parts. Evans Designs was also just announced as an NMRA Partner so members can get an 18% discount using the code on the NMRA website. I think I found my permanent supplier of lighting products.

Now that Streeters had lights, it was time to set my sights on Clearbrook. One thing I realized during the lighting of Streeters was that I had three sets of lights coming out of the building, one that required nine volts and two that required three volts. Now I need to figure out how to get them to a power source that would provide the correct voltage. I probably need a board with resistors, but it seems like there should be an easier way.

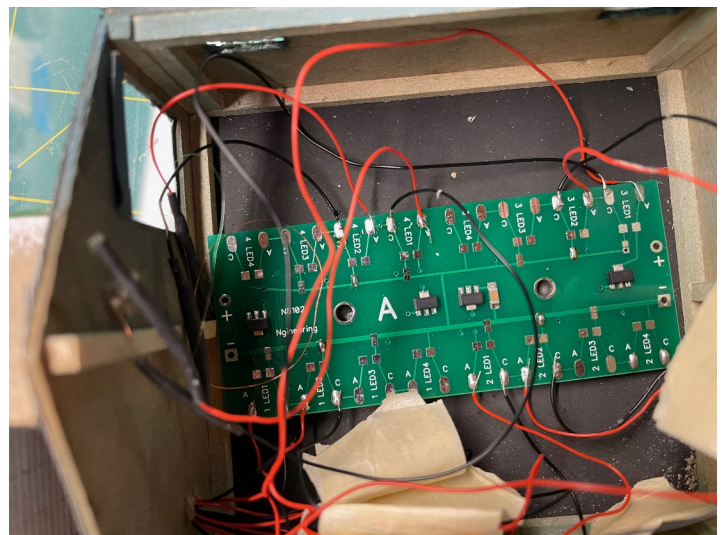
When I designed the lighting for Clear Brook, I decided to keep them all as individual LEDs. The reason for this is that my friend, Chuck (the gnat guy), pointed me to another product on the NGineering website called the LED Power Distribution

Board. This board would accept up to 16 LEDs and control power to the LEDs, so all you needed to do was solder on the lights and get an appropriate power supply. The instructions were easy to follow and it was a much cleaner way to wire up the building. I was able to hide the board inside the outbuilding that was part of this kit. I found some connectors on the Evans Designs site that will allow me to plug in a power source and disconnect it without needing to get to this board inside the building.

NGineering also sells a smaller version of the LED Power Distribution Board that I can use to connect the different wires from Streeters. These two buildings sit on a single diorama for now. Eventually they will end up being carved out and placed in different parts of the layout, but my goal is to bring the diorama to the Cannonball Express Convention on Long Island in October and see what the judges think about my buildings. Maybe this is another article for another day?



NGineering Power Distribution Board. The A side includes pads to solder up to 16 LEDs.



The board installed inside one of the buildings to hide all the wires.

Hopefully some of this information will inspire you to add lights to your buildings. If you want a real challenge, then why not try your hand at gluing some hairs to a gnat? I have some extra single LEDs without leads in packages I have no intention of using. I could even throw in some magnet wire...

Modeling EBT Mine Number 1

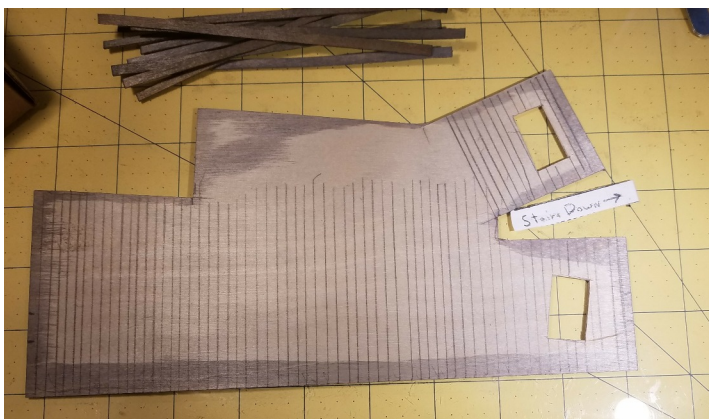
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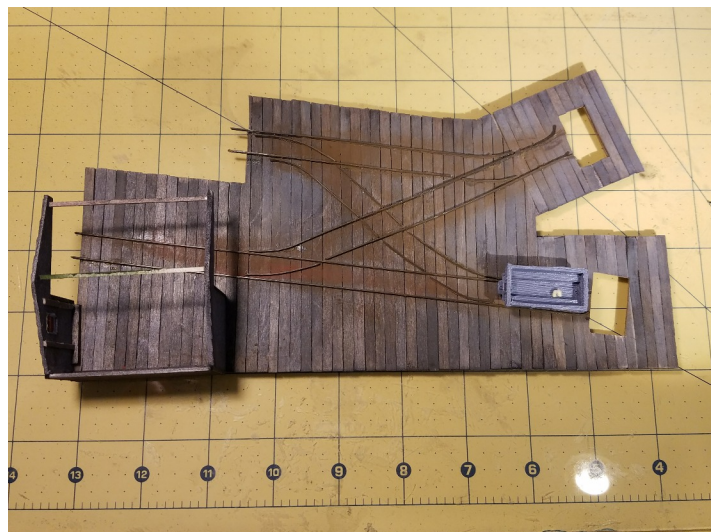
*EBT #15 around Mine Number 1 in the early 1950's
Photograph by Jack Alexander, FEBT Collection*

The mine openings are still visible, but the tunnels have collapsed. However, tours of the area are offered by the Friends of the East Broad Top (FEBT) on weekends. What is visible today is a pile of "boney" where the tippel once stood. The above photo is a rare shot of engine 15 pulling a string of hopper cars past the tippel. The wood structure with the chimney was the scale house. The metal building next to it was a shelter for crews during inclement weather.

Based on scale drawings by Lee Rainey published in "Along the East Broad Top" by Donald J. Heimburger (Heimburger House Publishing, River Forest, IL, 1987), pp. 84-85, the deck of the tippel was constructed of 4x12 boards resting on heavy timbers. I decided to make the decking from coffee stirrers cut to size and stained various shades of gray and brown. To make construction easier, I cut out a sub-floor from 1/16" basswood sheet. I drew guidelines on the floor to make sure the boards were square.



Planks were dipped in various shades of stain for random lengths of time, then dried on a paper towel and cut to size. The boards were glued to the sub-floor with Aileen's Tacky Glue. After the floor planks were in place, I used the plans to lay out HOn3 code 40 rail for the tracks. Rusty brown powders were applied to the tracks to give a sense of rust and dirt. The rails were secured to the deck with Pliobond, an adhesive that is strong, quick drying and flexible. The walls of the scale house can be seen on the left end of the tippel floor.



The tippel rested on heavy timbers and cross beams. I laid the floor upside down on the workbench, then carefully set the supports along the near side of the tippel. Here is a photo of the structure on a bare section of the railroad that would later be covered with vegetation and trees.



The loaded mine cars were hauled up to the tippel on a long trestle that rose to an apex slightly higher than the deck of the tippel, allowing the cars to coast down to the scale house, where they were weighed. Workers would then push the car to one of the chutes, where the wheels would actuate a mechanism that tipped the car, dumping its contents either into waiting hopper cars or a truck for local deliveries.

The return track (furthest from the camera) did not run on a trestle, but on a bed of boney, which still stands today. The back of the tippel is supported by timbers largely hidden by a bank of boney. To model this embankment, I cut a piece of two-inch pink foam insulation, shaped to resemble the fill.

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Modeling EBT Mine Number 1

(Continued from Page 6)



The foam was shaped with a Surform tool, painted black and sprinkled with finely crushed boney I collected from the EBT yards in Rockhill, Pennsylvania. The pile of boney supports the back side of the tipple. The return tracks for the empties slope down to where they will eventually disappear into the trees.



Since I was working with code-40-rail, not flextrack, I had to create a length of track for the empties. I laid out a series of tinted wood ties on a sheet of glass using doubled sided sticky tape. I then used Plibond to glue the rails to the ties, using HOn3 track gauges to keep the rails three-scale-feet apart. Weights were used to clamp the rails to the ties until the glue dried.



Before gluing the tracks in place, I needed to finish the scenery for the hillside above and behind the tipple. The mountain was made with strips of plaster bandages with several additional layers of plaster added. To give the smooth hillside some "tooth" I applied adhesive screen used by contractors to plaster over sheet rock. For trees, I used some of my collection of lichen found in low-lying areas of Cape Cod, then cleaned, boiled in glycerin and water, sprayed with adhesive and sprinkled with green foam. If you look closely at the following photo, you can see one of the company houses in Robertsedale on the extreme right. This is not scenic compression. The town really is that close to mine number 1.



That left only the details. I added a small corrugated shed for the crew, railings all around, and chutes made from Evergreen plain sheet Styrene to protect the decking. Here is a close-up shot of how it looks.



The project is not yet finished. I still have to construct the trestle that will run parallel to the mine return tracks for the loaded cars to make their ascent to the tipple. Before I can finalize the model, I also need to ballast the tracks and add other scenic materials. Even in its unfinished state, compare the following photo with the prototype shot at the beginning of the article.



Erich's Electronics Notebook

By Erich Whitney

A DCC Power Supply

Introduction

I will admit right up-front that this is not the catchiest article title and there's a pretty good chance you skipped this one already. However, if you've hung in this far, I hope you'll at least find the following discussion entertaining if not somewhat informative. If you have a DCC system that came with its own power supply, this discussion will probably not be that useful. The reason some systems have separate power supplies is for expansion. For example, you might want to use a larger power supply to power multiple boosters. Being able to choose the power supply separate from the DCC system allows you to make the best choice at the price point that suits your needs.

Last December, at the HUB's NEMTE show in Marlborough, I came across a bargain-priced DCC Specialties Magna Force MF615 power supply (Figure 1). In case you are unfamiliar, these are power adapters that provide 15 Volts AC at up to 5 Amps and they are commonly recommended for use with Digitrax, Lenz, and NCE DCC systems. I have used them with NCE and Lenz systems for years. Unfortunately, DCC Specialties no longer makes these and so they are becoming increasingly rare. Why not use someone else's power supply? That's a great question. There are other options on the market, but my first reaction was to go online and get a couple of spares. The MF615 is compact, convenient, and does the job well. Do I really want to get into the business of chasing these on eBay?

I decided that I would use this opportunity to design my own power supply and I would give it the features I wanted. To be clear, I am not presenting a MF615 replacement here. My version will cost more to make; however, it can be built from parts readily available, and it will perform incredibly well. My design also scales from the basic 6.66 Amp, single output version shown here, all the way up to a 20-Amp version that can support up to four 5-Amp boosters or two 10-Amp boosters in one chassis. All you need to do is select a different model transformer and make sure all the wiring, fuses, and connectors are rated to handle the additional current.



Figure 1: DCC Specialties Magna Force MF615 Power Supply (photo from Walthers)

Design

There isn't anything difficult about providing power to a DCC Command Station, it's really the DCC Power Station (the power output section) that drives the track. In most DCC systems, the Command Station and the Power Station are in the same box, so I'm making a distinction that may not seem obvious. DCC Power Stations are also called Boosters when they are sold separately.

The basic function of the DCC adapter is essentially just a voltage transformer that takes the line voltage down to 15 Volts AC and feeds that directly to the DCC system. This 15 Volts AC must be able to supply enough current to power the entire DCC system it's connected to, so the transformer tends to be large and heavy. The MF615 is basically just a large transformer, a power switch, a power cord, and a supply cord all packaged in a neatly molded plastic case.

I know that I could build my own version of the MF615, since I can buy the parts and have a 3D printer. However, I can think of some things I'd like to change about the design that suit my personal taste and so I'm going to present to you my version of a DCC power supply. I will give you a list of the parts and the circuit if you wish to build your own. I do have to mention up-front that I chose a metal enclosure that requires some machining to fit the parts. I was fortunate to be able to borrow some time at a friend's machine shop to do this.

The first improvement that I came up with is the addition of analog voltage and current meters at the output of the transformer. I see a lot of layouts using the DCC Specialties RRAmpMeter at the output of the boosters, but I think it's important to know what AC voltage and current is feeding the DCC system, because if there's a problem there, all bets are off "down the line." You may be wondering why I said I used "analog" meters for this. One reason is that AC meters that work in the 0-30 VAC (Figure 2) and 0-10 Amps AC (Figure 3) range are very inexpensive and available. I could not find any digital meters that would read in these ranges. Besides, there's something kind of cool about having a good old-fashioned moving needle display.



Figure 2: Baomain Voltmeter DH-670 AC 0-30V Rectangular Class 2.5 (Amazon.com)

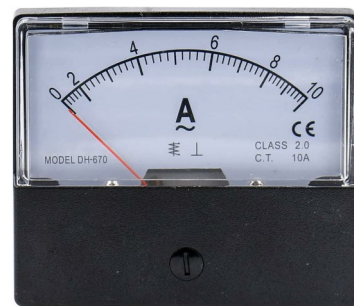


Figure 3: Baomain Ammeter DH-670 AC 0-10A Rectangular Ampere (Amazon.com)

(Continued on Page 9)

Erich's Electronic Notebook

(Continued from Page 8)

When it comes to selecting a transformer, you have two basic types that provide 15 Volts AC in the 5-Amp to 20-Amp output current range. There's the traditional iron core transformer (Figure 4) and there's the toroidal transformer (Figure 5). Toroidal transformers look like a large donut and have several advantages over their traditional iron core brethren, except for their price. They can be smaller for a given output current, they have a symmetric magnetic field that produces less stray magnetic flux (they're commonly used in medical equipment), and I think they just look cool. Electrically they are the same so they are wired identically, and you can use the same circuit with whichever transformer type you choose.



Figure 4: Hammond Manufacturing 165P30 150VA 30V CT 5A Transformer, former Laminated (Mouser #546-165P30 or Digikey #HM561-ND) Figure 5: Triad Magnetics VPM30-3330 100VA 30V CT 6.66A Parallel, former Laminated (Mouser #546-3330 or Digikey #237-2040-ND)

In addition to the panel meters, I selected a pair of 10-Amp binding posts for the outputs and I selected a 10-Amp barrel jack as an alternate output connection. I used a blue LED pilot light because I think it looks cool. Finally, I found a very convenient way to handle the 120 VAC input connection inside the enclosure. There's a component called a "Power Entry Module" that is an all-in-one unit that snaps into a cutout on the back panel of the enclosure, and it has the IEC power cord socket, the 115/230 VAC voltage selector switch, a dual fuse holder, a line filter, and a terminal block that you plug the transformer's primary wires directly into (using the vendor's terminal plugs). I decided to move the output connections to the back panel after I showed this design to my friend, Bruce Stockdale. He suggested that having the wiring in the back made the installation look cleaner and I agree. Bruce also suggested adding an output fuse to the design, which I did, so there's a 5x20 mm Ceramic fuse in a fuse holder on the front as well. I selected a 10-Amp slow-blow fuse to protect the transformer wiring in the case of a very persistent short circuit. I do highly recommend having someone review your designs!

Assembly

I used Fusion 360 to plan the placement of all the components. Then I exported that placement information onto 2D drawings and took those to the machine shop where I did the drilling and cutouts. Once the components were mounted, I wired them together, ran a quick test with the lid off, and then finished the assembly.

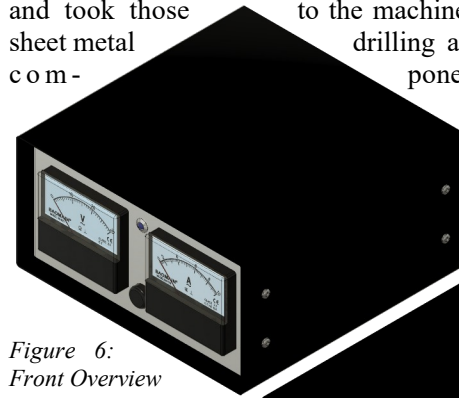


Figure 6: Front Overview

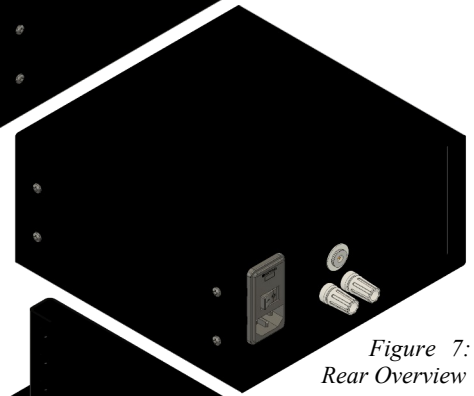


Figure 7: Rear Overview

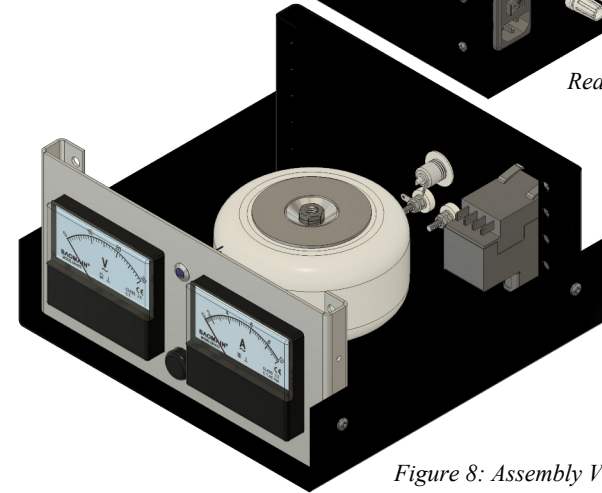


Figure 8: Assembly View

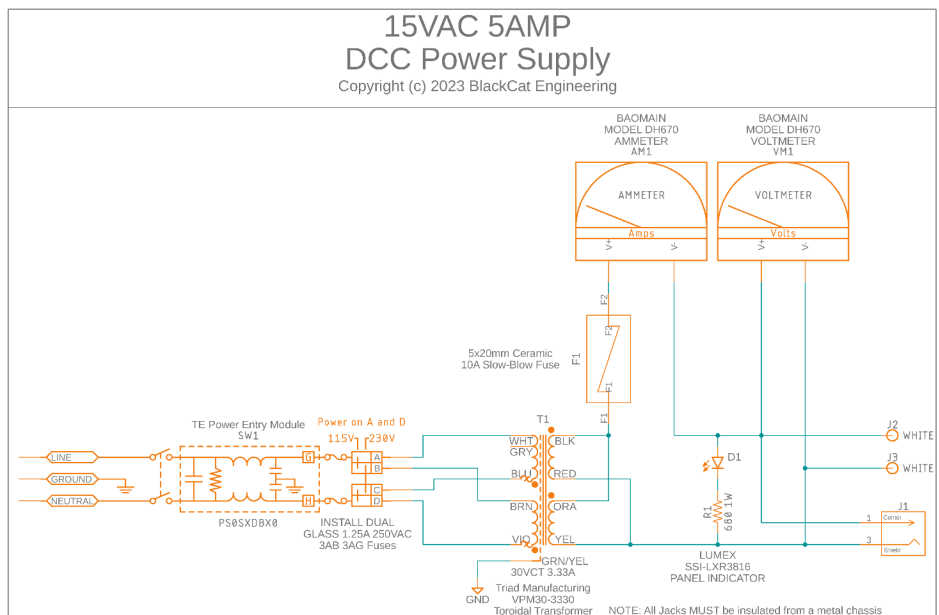


Figure 9: Schematic Diagram

(Continued on Page 10)

Erich's Electronic Notebook

(Continued from Page 9)

Completed Project

After working in the machine shop to drill the mounting holes and cutouts for all the components in the Hammond Industries enclosure, the assembly was completed. Figure 10 shows all the components mounted and the wiring completed.

Figure 11 shows the power supply under nearly full load, the voltage reading 15 VAC and the current reading ~5.6 Amps with a load resistor of 2.5 ohms. This is in the ballpark of about 80~90 watts. This power supply will comfortably run a Lenz LZV200 or NCE PowerHouse Pro.

Conclusion

While I was creating this power supply, I designed variations using 10-Amp and 20-Amp transformer models and I've built those versions as well. A 10-Amp version could be used to supply the 15 VAC to an LZV200 command station and one LV103. I built a 20 Amp version to drive a LZV200 and up to 3 LV103s (or it could be used to drive a bank of 3 LV103s, depending on what's needed), this is the version that will be powering my railroad. There's really no need to have a separate transformer for each DCC device and with the voltage and current meters in place, you will always have an easy way to check if the supplies are up and running properly.

I hope you enjoyed this little adventure. This project was a lot of fun to do. Let me know if you're interested in building your own version and I can give you some tips for how to go about doing the metalwork. Also, I can send you a PDF of the design document for the three versions I described. It has the complete drawing package, schematics, parts list, and measured drawings. As always, I'd sure appreciate your comments and suggestions.

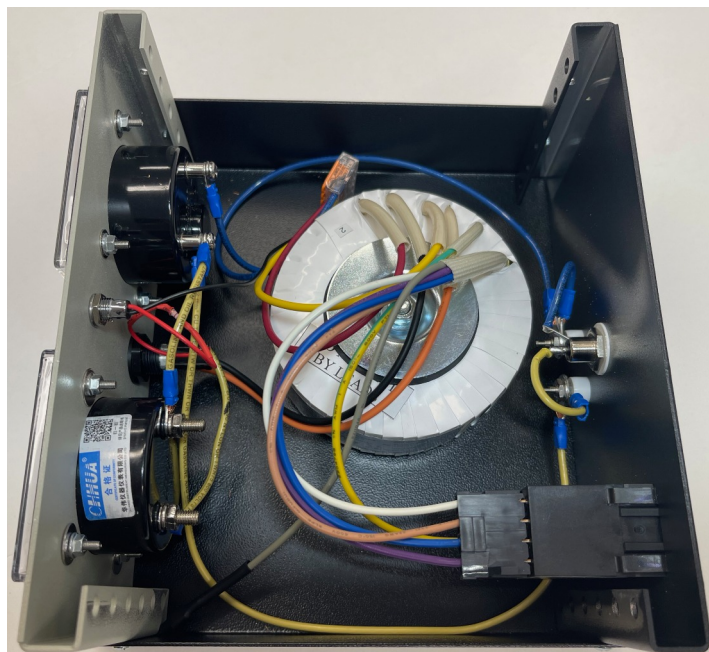


Figure 10: Project Wiring Completed

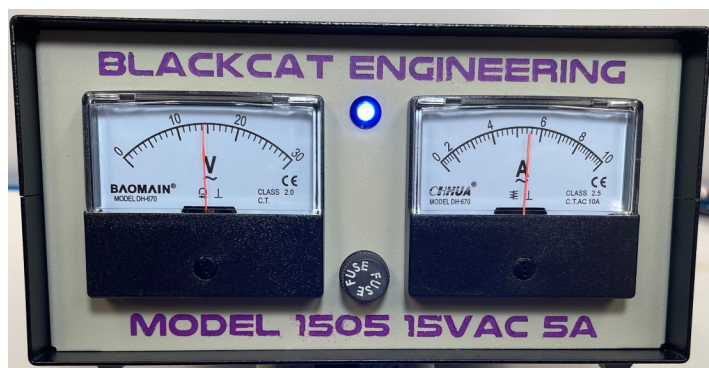


Figure 11: Power Supply Load Testing

Materials for 15VAC 5A DCC Power Supply

Manufacturer	Part Number	Item	Description	Price Each	QTY	Price Extended
Digikey	HM339-ND	Case	BOX STEEL BLACK 8"L X 8"W X 4"H	\$ 59.57	1	\$ 59.57
Digikey	PS0SXDBX0-ND	Power Entry Module (PEM)	PWR ENT MOD RCPT IEC320-C14 PNL	\$ 23.43	1	\$ 23.43
Digikey	1609146-1-SI-ND	Connector for PEM	CONN PLUG FOR P POWER FILTERS	\$ 2.48	1	\$ 2.48
Digikey	A27702CT-ND	Terminals for PEM	CONN QC RCPT 16-20AWG 0.187	\$ 0.13	4	\$ 0.53
Digikey	507-2314-ND	Fuses	FUSE GLASS 1.25A 250VAC 3AB 3AG	\$ 0.77	2	\$ 1.54
Digikey	67-2293-ND	Panel LED	LED PANEL INDICATOR BLUE 3.5V	\$ 4.85	1	\$ 4.85
Digikey	680WCT-ND	Resistor	RES 680 OHM 5% 1W AXIAL	\$ 0.07	1	\$ 0.07
Digikey	283-2712-ND	Fuse Holder	FUSE HLDRT CART 250V 16A	\$ 3.28	1	\$ 3.28
Digikey	507-2119-ND	Fuse	FUSE CERM 10A 600VAC	\$ 1.74	1	\$ 1.74
Digikey	BKCT2232-9-ND	Binding Post - WHITE	CONN BIND POST KNURLED WHITE	\$ 5.70	2	\$ 11.40
Digikey	SC3720-ND	10A Power Jack	DC POWER JACK, SHIELDED, FRONT P	\$ 4.90	1	\$ 4.90
Digikey	137-760Z-ND	10A Power Plug	DC POWER PLUG, Z SERIES, 2.5MM X	\$ 5.71	1	\$ 5.71
Mouser	553-VPM30-3330	Triad VPM30-3330 100VA Toroidal Transformer	Power Transformers MEDICAL GRADE PWR TOROID 30.0VCT@3.33A UL/CE TOROIDAL MOUNT	\$ 64.60	1	\$ 64.60
Amazon	PXT101	Power Cord	StarTech.com 6ft (1.8m) Computer Power Cord, NEMA 5-15P to C13, 10A 125V, 18AWG	\$ 7.99	1	\$ 7.99
Amazon	DH670-V-30V	AC Voltmeter	Baomain Voltmeter DH-670 AC 0-30V Rectangular Class 2.5 Analog Panel Volt Voltage Meter	\$ 8.99	1	\$ 8.99
Amazon	DH670-A-10A	AC Ammeter	Baomain Ammeter DH-670 AC 0-10A Rectangular Ampere Needle Panel Meter Gauge Amperemeter	\$ 7.64	1	\$ 7.64
Total						\$ 208.72

Achievement



Joe Brodbine (left) receives his Chief Dispatcher certificate from Peter Watson, MMR (right) at the HUB Picnic on July 17, 2023.
Photograph by Bill Barry

HUB Picnic



Some of the folks that came out in the rain for the HUB Picnic included, from left, Dan Fretz, Erich Whitney, Bruce Robinson, Joe Brodbine, his wife Judy and Bruce's companion Gloria.
Photograph by Bill Barry

Herding Cats

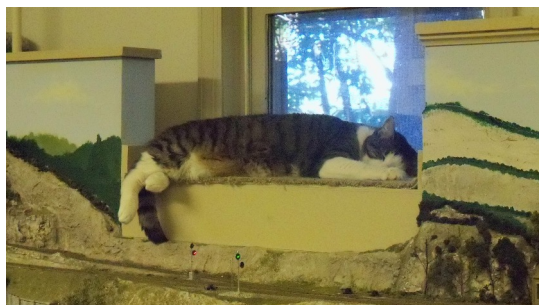
(Continued from Page 2)

session. Usually 12 invitations or notices are sent aiming to fill the eight operating slots available. The VJRR runs to a schedule making filling those eight openings critical. "Ya gotta have eight or it doesn't work."

OK, the notices have been sent. Now the wait begins. A typical month will see most of the crew responding quickly, perhaps six slots are taken. Now we wait again. The week before the op session date the game of "herding cats" begins! I have had the number of confirmations be as high as 11 and as low as six by the Thursday ahead of the Friday date. The most irritating response is**NO RESPONSE!** (Yup, some names have been removed from the invitation list due to there being no response to the invitation.)

The moral of this story is, if you receive an invitation please respond. All that is needed is a "1" or a "0" as in you are coming or you are not coming. Remember, one of those eight slots was held for you. It is equally important to say yes or no. A "no" response will allow another modeler to receive an invitation and join the crew for a fun-filled evening running trains around the basement with a bunch of other great model railroaders.

I have been "herding cats" for nearly 30 years to fill those operating positions. You get used to it and deal with it.



With a no-show for an op session Plan B had to be activated. The results were, sadly, not ideal. The substitute crew member showed little enthusiasm to fill in for the missing human.

NER Convention, Uniondale, NY

Thursday, October 5 to Sunday, October 8

By Bill Barry

The NER convention will be held on Long Island, NY, for the first time in many years. The Sunrise Trail Division has put together an extensive convention program with a long list of clinicians, layout tours and operating sessions. The prototype outing is a tour of Grand Central Terminal including a trip over the newly opened Long Island Rail Road East Side Access trackage to the new Grand Central Madison station.

Visit www.ner-conventions.org/cannonball-express/ before September 27th to register.

It would be great if we could have a good showing of HUB members attending the convention in a part of the NER that doesn't host conventions very often.



HUB Division Calendar of Events (Subject to Change)

2023

Sep 17 (Sun)	HUB Thomas Division display at Old Colony Railroad Club Show, Taunton, MA
Sep 23 (Sat)	HUB RAILFUN Meeting, 10 AM, Chelmsford Public Library, Chelmsford, MA
Sep 23-24 (Sat-Sun)	HUB Modular Railroad display at Hopedale Day in the Park Festival, Hopedale, MA
Sep 30-Oct 1 (Sat-Sun)	HUB Modular Railroad display at the Nashua Valley Model Railroad Association's RailFair 2023, Boxboro, MA
Oct 1 (Sun)	Submissions deadline for the HUB <i>Headlight</i> Nov-Dec issue
Oct 5-8 (Thu-Sun)	Cannonball Express NER Convention, Uniondale, NY, www.ner-conventions.org/cannonball-express/
Nov 18 (Sat)	HUB RAILFUN Meeting, 10 AM, Chelmsford Public Library, Chelmsford, MA
Nov 18-19 (Sat-Sun)	HUB Modular Railroad display at the Greenberg's Toy & Train Show, Shriner's Auditorium, Wilmington, MA
Nov 24 (Fri)	Submissions deadline for the HUB <i>Headlight</i> Jan-Feb issue
Dec 2-3 (Sat-Sun)	The HUB-sponsored New England Model Train EXPO at the Best Western Royal Plaza Trade Center, Marlborough, MA
Dec 16 TBA (Sat)	HUB Holiday Party at the Common Market, Quincy, MA

2024

Jan 13-15 (Sat-Mon)	HUB Modular Railroad display at the Wenham Museum, Wenham, MA
Jan 20 (Sat)	HUB RAILFUN Meeting
Jan 27-28 (Sat-Sun)	HUB Modular Railroad display at the Amherst Railway Society's Railroad Hobby Show, Big-E Fairgrounds, West Springfield, MA
Feb 1 (Thu)	Submissions deadline for the HUB <i>Headlight</i> Mar-Apr issue
Feb 17 (Sat)	HUB RAILFUN Meeting
Mar 16 (Sat)	HUB RAILFUN Meeting
Mar 23-24 (Sat-Sun)	HUB Modular Railroad display at the Greenberg's Toy & Train Show, Shriner's Auditorium, Wilmington, MA
Apr 1 (Sat)	Submissions deadline for the HUB <i>Headlight</i> May-Jun issue
Apr 20 (Sat)	HUB RAILFUN Meeting
Apr 20 (Sat)	The HUB Division Annual Meeting prior to RAILFUN
May 18 (Sat)	HUB RAILFUN Meeting
Jun 15 (Sat)	HUB RAILFUN Meeting
Jul 14 (Sun)	HUB Summer Picnic, Waushakum Live Steamers, Holliston, MA
Aug 4-11 (Sun-Sun)	2024 NMRA National Convention, 2024 SurfLiner, Long Beach, CA, www.2023texasexpress.com

Fall Shows and Open Houses

September 2-3, 2023 (Sat-Sun): Seashore Trolley Museum Model Railroad Layout Exhibit Days, Kennebunkport, ME.
www.trolley-museum.org

September 9, 2023 (Sat): The North Shore Model Railroad Club's Flea Market, Wakefield, MA, www.nsmrc.org

September 17, 2023 (Sun): The Old Colony Model Railroad Club's Annual Train Show, Clarion Hotel, Taunton, MA.
www.oldcolonyrailroadclub.com

September 23, 2023 (Sat): Southern New England Model Railroad Club Open House, Gardner, MA, www.snemrr.org

September 30-October 1, 2023 (Sat-Sun): Nashua Valley Model Railroad Association's RailFair 2023, Boxboro, MA,
www.nvrta.com

October 21-22, 2023 (Sat-Sun): The North Shore Model Railroad Club Open House, Wakefield, MA, www.nsmrc.org

October 28-29, 2023 (Sat-Sun): The South Shore Model Railway Club's annual Fall Model Railroad Show & Open House, Hingham, MA, www.ssmrc.org

November 24-26, 2023 (Fri-Sun): Annual "Tour de Chooch" layout tour, Southern NH, Northeastern MA,
www.tourdechooch.org

November 18-19, 2023 (Sat-Sun): Bay State Model Railroad Museum Open House, Roslindale, MA, www.bsmrm.org

December 2023 TBD (Sat): The Providence Northern Model Railroad Club Open House, Warwick, RI, (Club is also open most Saturdays 12-4.),
www.providencenorthern.com

Note: These are presented here for the benefit of members. If you belong to a club and want to promote your open house or show, please email editor@hubdiv.org

Treasurer's Report Fiscal Year Ended: June 30, 2023

By Gerry Covino

The HUB Division completed another year with continued financial success. The Division has improved its financial status while offering exiting programs to members and the public at-large.

The Museum of Science "All Aboard Trains" exhibit during the holiday season continued its success with the dedicated hard work and time commitment of our volunteers. Boris Maznek is doing a tremendous job coordinating volunteers and maintaining a strong line of communications between the Division and the Museum. Your help is critical for the Division to meet its contractual obligation with the Museum, so please volunteer again this year to help us maintain the strong relationship we have with the Museum. Watch for Boris' Signup Genius email for the upcoming season.

The NEMTE, under the Direction of John Russo, with the extensive volunteer hours

provided by our members was again profitable for the Division. Please remember this event does require the full support of membership to be successful. John will also be using Signup Genius for the convenience of volunteers to schedule their time at the event. Be on the lookout for John's email this fall.

Looking forward to this New Year, we hope to maintain the strong financial support enabling us to increase our programs. Dan Fretz continues securing items for the donation table, which we offer at the NEMTE. We hope dealers and the modeling public will join us for our annual fundraiser, the NEMTE, and we hope you will continue to volunteer so that all the time slots are filled to meet the shows operational commitment.

Finally, the Board urges each of you to make, or continue making an annual financial contribution to the HUB Division and consider leaving part of your railroad collection to the HUB. The HUB Division is a registered 501(c)3 non-profit organization that can accept donations that might be tax deductible to you. You will find a form in this issue of the *Headlight* that you can use to make your contribution.

You also can contribute financially to the Division when you make personal purchases over the Internet using PayPal. Designate a small contribution to the HUB Division at the time of checkout. In your PayPal account you need to designate the HUB Division as your organization of choice.

Your financial support as well as your volunteer assistance will continue to ensure the ongoing success of the organization and the programs offered to you and to all members. The Board greatly appreciates your continued generosity.

We hope this year will be a very enjoyable and successful modeling year.

Account Balances Year-Ended June 30, 2023

Checkbook	\$ 1,303.32
General Savings Account	0.00
Reserve-Life Savings Accounts	62,790.51
Restricted Savings Accounts	3,460.24
Program Checking Account	387.62
PayPal Account	137.58
USPS Permit Account	<u>1.38</u>
Total Funds Available	\$ 68,080.65

Old Colony Model Railroad Club



23rd Annual Model Train Show
Sunday, September 17, 2023
Clarion Hotel, Taunton, MA
(Former Taunton Holiday Inn)

TIME: 10:00 AM - 3:30 PM

PLACE: Myles Standish Blvd., Route 495 Exit 25 (Old Exit 9)

ADMISSION: \$5 per person, children under 12 free when accompanied by an adult. Scouts in uniform free

All scales, operating layouts, concessions & free parking

More Information: visit:
www.oldcolonyrailroadclub.com

Southern New England Model Railroad Club



Open House
Saturday, September 23, 2023

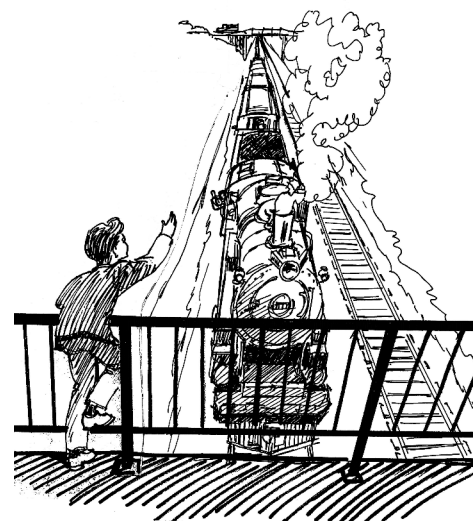
TIME: 9:30 AM - 4:00 PM

PLACE: Chestnut Street United Methodist Church, 161 Chestnut Street, Gardner, MA

ADMISSION: Free

Featuring 65' x 40' Southern New England O-Scale layout, plus dealers, displays, free parking, food and beverages

More Information: visit:
www.snemrr.org



HUB Headlight

Volume 40, Number 1, September - October, 2023

HUB Headlight, published by The HUB Division Inc., Northeastern Region, National Model Railroad Association, is issued in January, March, May, September and November. Contributions may be sent by email to the Editor or by mail to the Office Manager.

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Headlight Printers

Versatile Printing Services, LLC, Burlington, MA

From the Modular Superintendent's Desk

By Bob Collins



Every year we take a look at all of our shows, and do our best to maximize our public visibility, while making sure that our members have the appropriate opportunities to participate with the modular group. Too many shows and we risk burning out our awesome volunteers. Too few shows, and we aren't helping our members maximize their opportunities to demonstrate this awesome hobby to the public. This year, unfortunately, Norwood has come off the schedule, but we added a new show in Hopedale and another one in Taunton.

There are a lot of things that happen behind the scenes that enable the modular group to be successful. Periodically this year it will be my goal to give everyone a peek behind the curtain. For example, Dick Ball and Rod Feak have spent countless hours putting together our new HUB-owned loop. We are looking to debut the loop at Nashua Valley September 30 and October 1.

We also had a number of great volunteers help us at our annual workday in Holliston. We rehabbed several modules, worked on the new loop, and made extensive repairs to the Thomas modules.

I have been busy coordinating with various organizations to register us for the 12 to 14 or so shows we will be doing this year. In fact, I'm writing this to you while standing on the platform at Springfield Union Station where our Thomas Division is, once again, helping out the Amherst Railway society with a second annual jobs and train fair. These non-traditional shows are awesome opportunities for helping people who may be less familiar with the hobby, and not likely to go to a traditional train show, see the awesome benefits of model railroading.

Well, that's all for now. HUB Division OK to go, next stop Taunton.

RAILFUN Updates or Cancellations

RAILFUN Updates or cancellations will be posted on the division website (www.hubdiv.org) and issued via the HUB email list and via Constant Contact.

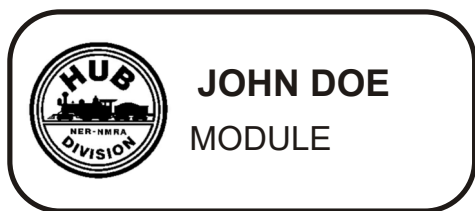
Submissions Requested

The *Headlight* is always accepting photos and articles relating to model and prototype railroading. Articles about model building or home layouts would be much appreciated. Earn credit towards your Author AP certificate. Please email editor@hubdiv.org.

Make checks payable to:
“The HUB Division, Inc.”

**Mail to: Gerald Covino, Treasurer
The HUB Division, Inc.
P.O. Box 672
Hollis, NH 03049-0672**

To pay using your credit card, email Treasurer@hubdiv.org and an electronic invoice will be sent to you.



Badge with magnetic holders and first line of printing is \$16.75, plus \$3.00 S&H. Each additional line is another \$2.00. You may have up to three lines on your name tag.

Cost: \$21.50 (1 line) \$23.50 (2 lines) \$25.50 (3 lines)

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City **State** **Zip**

I enclose \$8.00 for a subscription to the HUB Headlight for 2022

Name _____

Address

City **State** **Zip**

It Takes All of Us Working Together!

() \$25.00 () \$50.00 () \$100.00 () Other \$

___ **YES**, I am happy to support The **HUB Division, Inc.** to foster railroading through displays, modeling and educational opportunities to members and the public at large. I show support with the enclosed gift.

Name _____

Address

City **State** **Zip**

The HUB Division offers to its members a complete packaged module kit for \$232.50 discounted to \$225.00 for payment by cash or check. The kit has everything you need, including all pre-cut lumber, hardware, a complete wiring harness for the DCC and inter-module connections, a panel-jack and wire, and even the roadbed and track! A module is the perfect solution if you do not have the space for a full-size layout or just want to experiment or learn new techniques without committing the time and money to a larger setup. Please contact Bob Collins at modulekits@hubdiv.org with additional questions and to order the module kits.

To order HUB Logo-branded merchandise, the HUB Division is partnering with Queensboro to bring you a personalized shopping experience. Within the HUB store you will find shirts, hats, outerwear and accessories in an array of sizes (men's, women's and youth) that you can purchase directly online and have sent directly to you.



In order to access the merchandise for ordering, please visit the website at:

<https://nmrahubdivision.qbstores.com>

Create a login with your personal details
and start shopping.

Each week, Queensboro will send a promotional email to all registered HUB Online store users with special pricing on selected sale items. Sale periods normally run for about three days.

Shipping rates to the contiguous US are always a flat \$7.95

Please email the PRDirector@hubdiv.org email address with any questions or concerns and someone will get back to you.