

HUB Headlight

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RAILFUN TIMETABLE

Hands-On: Styrofoam Base Construction: Part 1 of Building a Diorama

By The RAILFUN Team

8 PM Friday, January 20, 2017, Cambridge School of Weston

This RAILFUN will show you how to construct the base for a diorama from light-weight Styrofoam material, including cut-outs for streams and elevations. The base material will be provided by the HUB division to all participants and will serve as the foundation for subsequent classes on "how to build a complete prototype diorama." This is the first of a series on the basic construction methods and scenery techniques for a diorama. You can choose whatever scale you wish to model but you must contact Andy Reynolds before the January meeting so we can order the appropriate amount of base materials. If time permits, we will review the overall steps Andy used to complete his diorama.

Hands-On: Track Laying Methods: Part 2 of Building a Diorama

By Dick Johannes and Ken Belovarac

8 PM Friday, February 17, 2017, Cambridge School of Weston

Dick and Ken will present techniques on how to hand-lay track, which may be used as the trackwork on your HO-scale diorama. Participants who are building dioramas in other scales should bring some sectional track or a piece of flex track. Regardless of your scale, this clinic will present some tips for improving the appearance of your trackwork. Those who chose not to hand-lay track must bring a piece of cork roadbed and some flex track. We will show you how to tack it down and prepare it for ballasting. If you still wish to hand-lay track, you must complete the process at home as we have no time to repeat the clinic. Bring a stiff 1/2" brush for ballast spreading and a 1" to 2" softer brush for painting a surface preparation on the Styrofoam. An eye dropper, ear syringe or pipette will be useful for dispensing a diluted glue solution. Do not forget to bring your tools and dioramas.

The map to Cambridge School of Weston appears on page 10.

Considerations For Layout Design - Part 1

By Mike Tylick, MMR

Intro: This is a follow-up to a recent RAILFUN discussion I delivered about model railroad design. Rather than get into specifics of design or how to replicate and operate a full-sized railroad, I felt it best to discuss very general things to consider about how your proposed project relates to you and the rest of the world: things I think one should consider before firing up the computer or putting pencil to paper. I hope this will get you thinking and maybe help you avoid a few classic pitfalls.

In our anxiety to have an operating layout, it's all too easy to overlook some very important basic design considerations. We would like to be able to include a transcontinental railroad in our basements, but we barely have space for a decent-sized hump yard. Before we have a cohesive idea of what might be something we can live happily with for years, we often start busily building the individual trees before we even allot space for the forest – making detailed drawings of yards and switching puzzles, planning how our trains will run and perhaps even scenic features we want to include. It's very easy to ignore the big picture and pack a room with unrelated and unmanageable clutter that we will never be really happy with.

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Speed-Matching Dissimilar Locomotives (or What I Did On My Summer Vacation) - Part 2

By Dan Fretz

This is the second installment of my article explaining how I speed-match my locomotives. Please see the September-October Headlight for Part 1, and a copy of the entire article can be found on the HUB website.

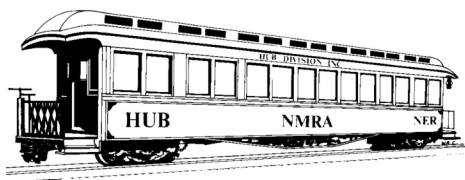
Configuring a Reference Locomotive

The basic approach to speed-matching a group of locomotives is to configure a reference locomotive to operate at the speeds you want at various speed steps, then match all of the other locomotives in the group against this reference. As previously explained, this reference locomotive *must* be configured to run at the same speed in both directions at the same speed step.

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An HO city scene featuring Walthers Cornerstone kits. Built for a Bar Mills Modelworks display.



THE PRESIDENT'S CAR

By James VanBokkelen

Hello, members of the HUB Division and readers outside our group. As I began this column, the sky was darkening with the approach of my second snowstorm this season. The Editor wishes I'd finished it then, but as I send it to him, it's sunny and most of the snow has melted.

Since last issue, the HUB Division has gotten a good start at its Fall/Winter event calendar: the New England Model Train Expo benefited from more effective publicity and floor-plan adjustments. Many thanks to all the HUB members who helped out. I've also seen HUB members enjoying the hobby at Railfun, Tour de Chooch and other module setups.

Coming up, we have the Holiday Party on January 7 in Norwood, then modular displays at the Wenham Museum over the Martin Luther King weekend and the Eastern States in West Springfield on January 28/29. The snow should be long gone when the HUB has its Annual Meeting at the Spring Training show April

22, 2017 in Wellesley. We're trying a non-hotel venue, but the event will keep its traditional focus on clinics and layouts.

Tour de Chooch was a lot of fun for me, though Saturday was spent on prep rather than visiting other layouts. I made good progress on structures and scenery before the event, and it was nice to see everything cleaned up and organized. I had many good conversations, and running all day was a good test of my layout and signal system; it turned out to be valuable for showing trains orbiting the layout as well as operating sessions.

So, right after T de C, I went back to work on signals: Now, all my main-line blocks have occupancy detectors, though there are a couple that still need signals to be useful. And my layout room is not nearly as neat as it was, which probably means I should schedule an operating session soon.

I've also finally earned my "Qualified Operator/Conductor" license from Seashore Trolley Museum in Arundel, ME. They've closed for the winter, but I expect to spend a few days a month up there during their 2017 season. Say "Hi" if you see me, though I won't answer if I'm driving a moving streetcar.

I'm going to repeat what I said about volunteering last time: HUB events, Modular Group setups, the smaller train shows, open houses, etc., happen because people volunteer. The HUB, the NER and our neighboring NMRA divisions do

fairly well at drawing volunteers; when a job needs to be done, one or more people step up. But I'd also like you to think about jobs you can imagine: If you have an idea that would be valuable to your fellow modelers or draw new people into the hobby, say something. No need to drive to a Board meeting, just talk to someone who's already active, or email me.

One new/old thing is a phone number for HUB members to call if they don't have (or can't use) a computer. Modern concerns about privacy aside, mine is published because I'm an elected official. So it's been in every one of these columns, but now it will go in the Headlight's masthead. And we'll be setting up a number we can keep for a long time, redirecting to a willing Board Member or Officer as time passes.

Another old thing is my Layout Doctor proposal: if your layout has a problem and you can't get it resolved, no need to go sulk in front of the TV; ask me. I did Tech Support for most of my career, so I can work out a lot of things over the phone. Or I can pick up my tools and drive to your house.

Email me at president@hubdiv.org, call me at (603) 394-7832 or catch me at a HUB event if there's something on your mind about the HUB or its activities.

Until next time, High Green!

HUB Division Calendar of Events (Subject to Change)

2017

Jan 7 (Sat)	HUB Holiday Party at the Olde Colonial Cafe, 171 Nahatan St., Norwood, MA
Jan 14-16 (Sat-Mon)	HUB Modular Railroad display at the Wenham Museum, Wenham, MA
Jan 20 (Fri)	HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
Jan 28-29 (Sat-Sun)	HUB Modular Railroad display at the Amherst Railway Society's Railroad Hobby Show, Big-E Fairgrounds, West Springfield, MA
Feb 1 (Wed)	Submissions deadline for the HUB Headlight Mar-Apr issue
Feb 17 (Fri)	HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
Feb 25 (Sat)	HUB Modular Railroad display at the Lowell Winterfest, Lowell, MA
Feb 25-26 (Sat-Sun)	HUB Modular Railroad display at the Greenberg's Toy & Train Show, Hanover, MA
Mar 17 (Fri)	HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
Mar 25-26 (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 Headlight May-Jun issue
Apr 21 (Fri)	HUB RAILFUN Meeting, 8 PM, Cambridge School of Weston, Weston, MA
Apr 22 (Sat)	The HUB-sponsored Spring TRAINing show
Apr 22 (Sat)	The HUB Division Annual Meeting and Election - following Spring TRAINing



Shanty Talk Stories from the Road Part II

By Rudy Slovacek

My last column had a few stories from the residents of a retirement home and, I would like to continue on the theme of senior citizen's recollections. In November, we visited another retirement community in the Boston area and this time I had for my display a World War II (WWII) military train pulled by steam. There are still a few people who remember those days and this is what some of them recalled.

The first was from a man who actually drove an M-4 Sherman tank fitted with a 90 mm gun instead of the short-barrel 75 mm gun. The increased firepower earned them the name "tank destroyers" near the end of the war. He recalled that during training they had a tank they could drive all around the open fields, and that once he and his buddies drove it down the street of the neighboring little town. It must have been quite a sight for the unsuspecting town folk.

During the war, hundreds of tanks were built by the automotive companies like General Motors. In Schenectady, Alco also got pressed into service building an early tank design. They even developed a modification to accommodate a larger gun and churned them out quickly in time to stop Rommel's advance in North Africa. For this work they received the gratitude and a citation from the British Army.

My second story was from a lady who recalled standing by the tracks one day as a young girl with her friends dressed in their Sunday best when a troop train came along. It was a long train with soldiers hanging out the windows and they were

all waving as she and her friends waved back until their arms got tired. But, she quipped, it was a lot of fun.

In another, a soldier stationed somewhere in Europe was in a unit that was called upon to quickly move south to stall an enemy advance. The old railway carriages they rode in were called "8 et 40" because they could hold either 8 horses or 40 men. They were a holdover from the first World War (WWI) and there was a hole cut in the wooden floor for the men to relieve themselves. The young soldier wrote home to his father remarking that they were probably the very same carriages that his father had ridden during WWI.

A gentlemen came up to me and told the story of how he and his friends, along with a group of girls, were stopped at a crossing by a train. The train came to a halt blocking the crossing so they waited and waited but the train did not move. Becoming frustrated, the young man climbed up the car intending to cross over the couplers. Just then the train began to move and the girls screamed. He jumped to safety but not before a good scare.

This last one reminds me of a story told by my wife. It started in Balston Lake, NY which, at the time, had a siding for both a coal dealer and a flour mill. Both she and her cousin Ray were playing in the vicinity one day and decided to climb into an empty boxcar. Shortly thereafter the car began to move and picked up speed rapidly. It was going too fast to jump off so they thought best to ride until it stopped. Well stop it did, miles on down the road in Mohawk Yard. Then they began yelling, hoping to attract attention. A brakeman came and removed them from the car then took them up to the yard office.

The Yardmaster called Ray's mother and she, none too happily, drove down to the yard and picked up the children. It was a different time back then as the local switching crew likely recognized the kids as living near the tracks in Balston Lake.

On hot summer days the kitchen car chef on the north-bound passenger train used to throw a block of ice out in the direction of the house so that the family could cool the milk and butter in their icebox. And, in the winter, the children were tasked

with picking up coal near the siding for the coal stove in their kitchen; it heated the whole house.

Yes those days are quite different from the present. Now the ever-smaller train crews are tasked with moving more freight faster with fewer people to make money for the railroad stockholders. Those stockholders are people like you and me, now worried about our retirement accounts. Back then, the engineer always had a moment to tug at the whistle cord for the waving children and the conductor had a friendly wave from the little red caboose on the tail end. And so I tell the retired folk to wave at the little engineer in the passing train as they'll likely get a whistle or two. I know it always worked for me and strangely enough it works for them, too. You see that magical connection is always there in my world of model trains. It is especially so at this time of the year. With that I'd like to wish you all a happy and safe holiday. Oh, and if you get the chance, take a train ride and sit back, relax, and listen to the clickity - clack of the wheels. It's good for the soul.

New Members

The HUB Division welcomes the following new members:

- Charles Sheridan, Plymouth
- Sean Reynolds, Abington
- Bob LeBlanc, Burlington
- John Foley, Scituate
- John Barry, Worcester
- Jim Emerson, Bridgewater
- Roland Tyler, Rowley
- Tom Moran, Newton
- Logan Murphy, Student

Dwarf Signals



*Single-light dwarf signals scratchbuilt from styrene and 3mm bi-color LEDs on James VanBokkelen's B&M Eastern Route.
Photo by James VanBokkelen*

Considerations for Layout Design - Part 1

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I'd like to discuss some design considerations that all too many of us only give a fleeting thought to, but which I believe are very important to designing and building a successful model railroad; important factors that have little to do with the nuts and bolts of a track plan.

KISS (Keep It Simple, Stupid): I've been told this is taught to engineering students on the first day of class and rammed down their throats almost every day afterwards. And the instructors are right – there is no need to add unnecessary complications that will make what is already a very complex and delicate project more unwieldy than it has to be. The Bauhaus School taught us that

form follows function. Real railroad engineering departments work very hard to eliminate as much track as they can. Then they try to make their track configurations as functional and easy-to-use as possible – they do not want to tie up expensive manpower and equipment wasting time on maintenance or solving elaborate and unnecessary puzzles. Operating a railroad is already difficult enough for people who do it every day, so get a Rubik's Cube if you want to challenge your brain.

Do we really want to spend our hobby time on maintenance and repair? The more track and switches we spike down, locomotives and cars we have, and electronic gadgets we install, the more we must do to keep them in good working order. As a model railroad progresses towards completion, often more time is spent on tedious repair and cleaning work than on interesting projects. Consider what is sometimes referred to as the 80-20 rule. A Union Pacific study showed that when they ran grain trains between elevators that could handle at least 150 cars, they realized 80% of their grain revenue

while using only 20% of their equipment. Is the final 20% of revenue worth the effort? So should we build more track than we really need? Can we have just as much fun switching five industries as we can switching 10 or 20? Or by running four trains instead of eight? Do we really want to spend time on detailed projects like undersides of bridges or backsides of structures that no one will ever see? We could tell ourselves, "I know it's there." But out-of-sight is out-of-mind, and I find my memory grows worse each day. The Minimalist art movement tells us that "Less is more." That's something to think about.



A short train crosses the Connecticut River on a lenticular truss bridge. Photo was taken on Bob Van Gelder's HO-scale home layout. The backdrop is a photo of the real river taken from the French King Bridge. Bob is the owner of South River Modelworks.

and people have other plans. Can you operate by yourself between sessions? Real railroaders undergo months of training before they are permitted to work the line and, over time, they gain considerable experience. Your operators may show up once a month or less. People forget what they did even a few days ago. Don't try to confuse them any more than necessary.

Tradeoffs: Engineering schools also stress that tradeoffs are probably impossible to avoid. We must realize that emphasizing one aspect will always be at the expense of another (e.g., more track means less room for scenery; broader curves will

look better and handle larger equipment but will require more room.) Taking good advice from our lives, moderation is usually advisable. We may never reach an ideal balance, but we may find we are happiest if we trend more closely to the

middle ground. At the very least, it is good to realize that there ARE tradeoffs and to work with them as best we can.

Age, time, money, and Minions: Building even a small model railroad requires a significant investment in time and money. Be wary of entering into long-term projects when you are approaching retirement age. Even if you do enjoy a long life, will you have the energy or desire to crawl over and under a model railroad a few more years down the road? Will you have the money to complete it? More than one layout has been abandoned when its owner was lured into moving towards warmer weather or closer to the children. And if you are young, who knows where life may take you? Chances are good you will move at least several times in your life. At the very least, work and family will occupy more of your time as your career progresses.

Time is money, and you can certainly save construction time by spending more money. More and more ready-to-go model railroad equipment becomes available each month. There are always people you can hire to work on your layout. Many of them are quite good at their crafts and can complete work much faster than you. There are always friends who will help, but friends can lose interest, move away, or become less friendly. Don't count on them for too much over a long period of time.

Purpose of the Layout: This may seem obvious at first, but it is worth considering



A scene from my former Fitchburg and Southbridge HO layout. The locomotive is a reworked MDC mogul, the car from an old scrounged wood kit. The bridges are scratchbuilt.

what you are going to do with the layout. Perhaps it will serve several purposes, complicating the design process. If we know where we want to arrive before we start, we can usually get there more quickly and efficiently.

Is the model railroad to be portable or permanent? A layout intended to travel must be built in smaller sections with durable, lightweight benchwork that mates

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Considerations for Layout Design - Part 1

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with as few tracks (and no switches) crossing the sections. Wiring should be simplified for easy connections / disconnections, and scenery and structure techniques must be able to withstand the abuse of moving. Are the sections to be true modules – pieces that will fit each other interchangeably, or sections that will only fit together one way? If truly modular, the sections should conform to accepted modular standards to fit with those built by others. Standard modular sections may seem to be the way to go, but the uniformity will severely limit track

and scenery design possibilities much more than a portable layout will. And much more than a permanent layout will.

While nothing is truly permanent, a home layout may never be moved. Nevertheless, care must be given to joint locations and heavy duty construction – the benchwork may even be attached to the wall and floor. Even if the layout is designed to someday be broken down into sections, moving the beast may prove overly difficult and expensive, and finding a new space in which to use the pieces may be more difficult than one might think. Salvageable pieces must not only fit past obstacles in the present location but must also fit into a new and unknown home. Trying to force old pieces into a new design can lead to poor design decisions. It may be best to think the layout was fun while it lasted. Start anew with the hope of not repeating too many of the mistakes made the last time around. Maybe it's best to attempt to save or give away some of the rolling stock and structures, or maybe look on this as an opportunity to start afresh with a new scale or type of railroad. Lest we think someone might buy our present home in order to keep the layout, consider that realtors look on a model railroad as **decreasing** the value of the property. Each time I have sold a house,

the agent was quick to assure potential buyers that all my hobby stuff would be gone. When I move again, I'm planning to call Dirty Deeds (Done Dirt Cheap) Rubbish Removal to transport my layout.

Is the primary purpose of the model railroad to be for display or for realistic operation? While the two are not mutually exclusive, the plan will be more successful if we are aware of its end use. A display railroad could be a small operation for



I built these mines in S-scale from styrene for custom layout builders What Detail!, Inc. for a client in the Lake Tahoe, Nevada desert area.

shows or an elaborate home layout that is primarily used to release tension by watching the trains run around and around – it can be fun. We are being taught that this is unacceptable for real model railroaders but there is really no shame in this. I am sure most of us are guilty of this recreation sometimes, even if we justify this to ourselves by only running the trains around aimlessly when we have casual party guests or to clean the track. On the other hand, even the most casual train watcher can derive some

pleasure from occasionally switching a few cars or making up a train. A display layout should be able to keep trains moving with little attention. The various continuous track plans – oval, loop to loop, twice around, dog bone, folded dog bone and so forth are usually a good choice. Point-to-point and out and back operations –

even if one or more destinations are in hidden storage – may be best suited to realistic operation, but even this is not hard and fast. A display layout might have the capability to run multiple trains and probably needs some industry to look convincing, and there is no reason that these features can't be used for operating fun

when there are no onlookers to entertain. Conversely, it is wise to include a way to allow an operation-oriented layout a way to just let the trains rip – perhaps a connection to complete a show loop for casual guests or to sometimes just enjoy the childlike fun of seeing our trains run.

My portable O-scale Pioneer Valley layout may serve as a small example. Based on the Timesaver Switching Puzzle, we had installed a Circuitron reversing circuit that allowed a short train to automatically travel back and forth across the layout. It kept trains moving at shows, was quite dependable and performed for many hours without a hitch. But there were occasions when the layout was set up in my basement and the Timesaver switching puzzle was actually operated in a manner not too different than the prototype street trackage at Holyoke, Mass. Always remember the tradeoffs!

Hobby Interests: While your partner may whine that "I don't know who you really are," hopefully you know a little about what you would like from your hobby. Even if you are just starting out, you probably have some inkling of your interests. Remember preferences often change over time as you gain experience and get

to know yourself even better, so a balance between extremes is advisable to create a layout that can evolve with us.



I built an HO scale module based on a fictitious line in Sedona, Arizona. Unable to borrow suitable Santa FE equipment, my Fitchburg and Southbridge was happy to lend a piece or two. A heavily reworked Athearn switcher was configured to look like an early EMD SC locomotive.

Much has been said about right-brain / left-brain / intuitive / analytical thinking, but most of us sooner or later gravitate towards either the technical or creative sides of the hobby. The disciplines we find the least interesting leave us easily

confused, bothered and bewildered. We often don't know where to begin without a great deal of help and hand-holding. But remember, we do need electricity to see our railroad operate, and we really don't want to see an elaborate control system

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Speed-Matching Dissimilar Locomotives

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I've tried a couple of ways to accomplish this, but the approach that worked best was to use the stopwatch tool on my ancient texting phone to time how long it takes the locomotive to cover a specific distance, then calculate the scale mph. I use a distance of 4 feet that I marked off along one side of my loop of track. This is a convenient distance for HO scale, but you might want to use a shorter distance for smaller scales or a longer distance for larger scales. The general mph calculation is:

$$(d/t) \times 3600/5280 \times s = \text{scale mph}$$

where 'd' is the distance in feet (in my case, 4), 't' is the measured time in seconds, and 's' is the scale (160 for N, 87.1 for HO, 48 for O, etc.). Notice that the 'd', 's', and fraction are constant, so you can simplify the formula by calculating the constant part once, and the calculation becomes:

$$\text{constant}/t = \text{scale mph}$$

In HO scale, for a distance of 4 feet, this constant value is $(4 \times 3600 \times 87.1) / 5280 = 237.5$, or approximately 240. So a locomotive that takes 4 seconds to travel the 4 feet is traveling at $240 / 4 = 60$ mph, 8 seconds is $240 / 8 = 30$ mph, etc.

From the group of locos being speed-matched, pick one to be the candidate reference. If possible, choose one that does *not* have a Tsunami, primarily due to the mid-speed behavior mentioned below in step 3. The steps for configuring the reference locomotive are as follows:

1. Configure the minimum speed.

Set the locomotive to operate at 128 speed steps, and move the throttle to setting 1, corresponding to speed step 1 (SS1). If the loco does not run smoothly, increase the start voltage via CV2 until it does. Then increase or decrease the speed via CV67 (the SS1 slider in the speed table). Note that if this is an ESU LokSound decoder, neither the SS1 slider nor CV67 are adjustable; you can only use CV2.

I configure my locomotives to run at about 3 mph at SS1, mainly because I have some locos that cannot operate reliably at 1 or 2 mph no matter what I do. At SS1, I make CV2/CV67 adjustments until it takes between 75 seconds (3.2 mph) and 79 seconds (3.0 mph) to travel the 4 feet.

If you cannot get the locomotive to run this slow with *only* the CV2 and CV67 adjustments, set it aside and choose a different locomotive for your potential reference, do the initial setup, and start over. This locomotive can be made to run slower later with other CV corrections when it is matched to the reference loco. But you want a good runner for your reference and this one isn't it.

2. Configure the maximum speed.

With the throttle set to its maximum, adjust the value in CV94, which is the SS28 slider in the speed table, until the maximum speed is where you want it. Remember that if this is an ESU LokSound decoder, the SS28 slider and CV94 are not adjustable, so you can only adjust

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operate expensive equipment on a piece of unpainted plywood. If we like building scenery, we probably also like to build models. If we like designing control systems, we probably also like to operate trains. It is most helpful to know whether we would rather tinker with art supplies or transistors and we can plan accordingly. But there is plenty of room under the tent for both camps and we should plan for this from the beginning. We may even learn new skills and discover hidden talents in the process.

Do you like socializing? Would you like to have lots and lots of people see and operate your model railroad? Or do you want this to be your own private sanctuary? It doesn't have to be large to be either, but be sure the space can accommodate at least a few visitors. If you build it, they will come. Do you want to involve your family? Hobbies can be great family

activities with many therapeutic benefits, but remember that by inviting your family to become part of your hobby you are no longer in complete control of your railroad, but rather you are creating a democracy with all the compromises that will entail.

Are you interested in publication? If so, be sure to provide for a few good photo locations and consider building interesting photo opportunities into the design. Try to have enough space to move cameras, tripods, and lights and perhaps an assistant around the room. Consider that every project you may work on can become a possible future article or clinic. A small studio for shooting work in progress will be important. Are you better off with a mainstream scale and layout or something rather obscure for your subject? Both have their advantages and disadvantages when dealing with the press.

If you are interested in pursuing the NMRA Achievement Program, there are numerous options for building the track, control systems, rolling stock, scenery,

and structures that can apply to the certificates. By looking at the certification requirements in advance, you will likely find it easy to include many of the necessary projects into your design to win the awards. The variety will add to the fun of construction challenges and may even make the layout more interesting to operate and view. And you may pick up a few new skills in the process. In many ways the achievement program is very well thought out – to become an MMR you have to become familiar with all the aspects of the hobby.

Teaser: You're very patient to have stayed with me thus far and I hope I have given you a few things to think about that will help make your model railroad a better one. But I always have more to say and I don't want to wear out my welcome. In the meantime, please mull over some of my rantings until the next issue. I'm looking forward to seeing you then.

Speed-Matching Dissimilar Locomotives

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the maximum speed by changing the maximum voltage value in CV5 (Vhigh). If this is a Tsunami decoder, it's the other way around - CV5 is not supported, so you need to adjust the maximum speed with CV94.

I configure my locomotives to run at a maximum speed of about 60 mph, so I adjust CV94 until it takes between 3.95 seconds (60.8 mph) and 4.1 seconds (58.5 mph) to travel the 4 ft. It is very difficult to be more precise than this when the loco is running so fast. However, I've found that a difference of a couple mph at maximum speed is barely noticeable in an MU, which would never be run this fast anyway.

Once the maximum speed is set, click the <Match Ends> button on the Decoder Pro "Speed Table" tab. At this point, you might also want to save the configuration so that you can restore all CV settings as they currently exist if things get hopelessly messed up in the following steps.

3. Verify the middle speed.

With a minimum speed of 3 mph and a maximum speed of 60 mph, then at SS14 the loco should travel at about $(3+60)/2 = 31.5$ mph with a linear speed curve. Using the general mph calculation from above, now 't' is the unknown. Rearranging the formula a bit and using the constant, it should take the locomotive $constant/31.5 = 7.6$ seconds to travel 4 feet in HO. In many cases, it will not. For example, I've found that locomotives with a Soundtraxx Tsunami run way too fast and typically clock in at about 40-45 mph at SS14 when SS28 is at 60 mph. These locomotives can be very difficult to slow down at a given speed step, and are very tedious to configure to run linearly.

If the mid-speed is close, minor CV adjustments around the middle of the speed curve can give the locomotive linear performance even though the "linear" speed curve displayed by Decoder Pro has a slight bend in it.

If the mid-speed is not close, now you have a decision to make. You can set this loco aside, choose another one as your potential reference locomotive, and start from the beginning. That's what I did. The alternative is to stick with this one, which will require significant changes to the speed curve because, if it is not linear at the mid-point, it most likely will be off at other points as well. So you will end up with a curve that has lots of kinks in it. Yes, it may have linear performance for matching other locos, but then you'll be matching those locos to a reference that needed lots of adjustments to get it to run well. My preference was to have a reference locomotive that ran correctly to begin with, so that few corrections were necessary. I actually started over multiple times at this point until I found one I liked - an Athearn unit with an after-market ESU LokSound Select decoder. It runs beautifully and was almost dead-on at the mid-point speed.

Regardless of whether you need to make minor or major adjustments to the mid-speed, the process is the same, and described in detail in Part 3 "Matching a Locomotive to the Reference," in the "Configure the Middle Speed" step. But instead of matching to another locomotive, you'll match the reference to the mid-speed you've chosen; in this case, 31.5 mph.

4. Match the reverse direction.

After the speed curve adjustments have been completed and the performance is linear, it's time to move on to the reverse direction. With the loco in reverse, clock the times for your minimum, maximum and mid-speed throttle settings. If they match the forward direction, you are done with this step. If the loco is faster at all three settings, or slower at all three settings, that can be corrected by adjustments to the Reverse Trim value (CV95, in Decoder Pro on the "Speed Table" tab).

The reverse trim allows the entire speed curve to be adjusted up or down. The default is 128, which has no effect. Values 127 downward slows the loco at all speeds, and values 129 upward increases its speed. The farther from 128, the larger the effect. Do not change the speed table

settings, because that will mess up the forward speeds. Though the reverse trim can often produce matching reverse speeds, on occasion I've seen a slight variation in a loco, such that it matches two of the three speeds, with the third being slightly off. In these cases, I adjust the reverse trim to match the low and mid speeds.

If the reverse speeds are too far off, then this is another case of a locomotive with running characteristics not worthy of a reference locomotive, so I'd set it aside, pick a different loco, and start over.

5. Set Acceleration and Braking Momentum.

After the speed curve adjustments have been completed and the performance is linear, the last step is to adjust momentum settings. The momentum settings simulate the mass of a prototype locomotive. As the momentum rates are increased, the models take longer to reach the set speed and longer to stop once the speed is set to 0. The amount of momentum is purely your preference.

In Decoder Pro, momentum is configured by the Acceleration (CV3) rate and the Braking (CV4) rate, and are found on the "Motor" tab. The settings for most decoder brands are similar but will vary slightly from one locomotive to the next. Note, however, that Decoder Pro documentation says that ESU V4 and Select decoders use a momentum multiplier value that is not the NMRA-standard. The effect is that the momentum values of the V4/Select decoders must be set to roughly 4-times the values in older ESU decoders and most other decoder models, in order to have the same momentum effect.

If using Decoder Pro, do a *File→Save...* to save the modified configuration of the reference loco.

In Part 3, I will explain how to match your other locomotives to the reference locomotive.

November RAILFUN: Steam Locomotive Modeling Tips, Soldering and Techniques

By Andy Reynolds

Malcolm Houck gave a motivating presentation on November 18th at our monthly RAILFUN. He showed off his 55 years of modeling with a focus on construction, detailing, modification and refinement of prototype steam locomotives. There was a particular emphasis on his favorite railroad, the New York Ontario and Western Railway (NYO&W). He started by showing us his NYO&W Class X, 2-10-2 Bullmoose that was entirely scratch-built in brass with homemade photo-etched parts for the cab and cistern. Throughout the presentation, we were shown the process of this build and other engines that he has either kit-bashed or renovated. We were served some fabulous original photographs at the Middletown, NY facilities and other trains, as well as Malcolm's great photo-shopped diorama photographs. At times, I couldn't tell an original from the prototype.

Not only does he have an old 11" swing Logan lathe from his Indian Motorcycle restoration days, used for heavy cutting of large stock blanks, he also has a great soldering station. With different Weller chisel and pointed tips, it's a home-built resistance soldering setup, regulated by an

on-off pedal. To bond his type 360 free-machining brass (C360), we were informed that there are at least four types of solder, melting at temperatures between 361 and 496 degrees, depending on the application. He

swears by cleaning his tips of the burned away rosin with sal ammoniac, which is a mineral composed of aluminum chloride, that can easily be purchased through Amazon for under \$10 for a 1/4 pound block.

When it comes time to add DDC sound and decoders to his tenders, he has skillfully raised the bottom of the coal bunkers, and introduced a smaller amount of coal to allow additional room. Underneath he drills large holes in an irregular pattern on the tender floor and adds a layer of nylon to keep the speaker magnets from picking up any metal fragments laying on the track.

We have seen some motivating speakers this year, purely from our HUB members, both new and veterans. The HUB has been,

and will always be, interested in what our members wish to see. There has been an emphasis lately on achieving your MMR, and this show was just one example. At the end of the show, even Malcolm realized that this could be for him the starting point at filling out the paperwork for his Master-BUILDER-Motive Power AP certificate. This, coupled with another six areas of modeling, would get him there. Anyone interested in their MMR can contact Peter Watson, our Achievement Program Chair. We

want to have continued meaningful content, so if you would like a particular topic presented, or have a speaker in mind, please email me at railfun.coordinator@hubdiv.org.



The Worcester Model Railroaders, Inc. Annual Show

The Worcester Model Railroaders, Inc., one of the oldest Model Railroad Clubs on the East Coast, is holding its annual show and sale at the Auburn Elks, 754 Southbridge St, (Route 12), Auburn, MA on Sunday, March 19, 2017 from 10 AM to 3:30 PM. There will be two floors of dealers and exhibits, and the Amherst Beltlines will operate a 20' x 30' modular layout. An hourly raffle will be held along with a raffle for a 4'x8', fully operational, HO layout. Admission \$5, children under 12, (with adult) free. For further information and directions: pjsmithross@aol.com, www.wmrr.org

Members Wanted

The Worcester Model Railroaders, Inc., a club and non-profit organization that has existed since 1946, currently has a 40' by 60' model railroad in the Stevens Linen complex at 137 Schofield Avenue in Dudley MA. Recently, our building has changed hands, requiring us to move. The new location has 3100 square-feet available for the construction of an entirely new HO-(Digitrax) and O-scale layout as well as a crew lounge and workshop. We welcome new members so come join the fun! For more information, please contact Ralph Kimball at 508-868-5189 or ralphkimball@charter.net www.wmrr.org



Seacoast Division Activities

Derry Model Railroad Fun Night

- January 13, 2017
- February 10, 2017

Meetings are Friday nights at 7 PM in the Marion Gerrish Community Center, 39 West Broadway, Derry, NH.

Visit www.seacoastnmra.org for more info.

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. Please email editor@hubdiv.org.

Renowned 'UNION FREIGHT' Layout by John Pryke Now at Nauset Model Railroad Club

By Jay Stradal, Club President

The Union Freight layout depicts its namesake switching railroad that ran along Boston's busy waterfront for more than 100 years starting in 1872. Built by the late John Pryke, the layout is internationally known for its pace-setting urban scenery and fine detail, all of which is being preserved as an operating part of the Nauset Model Railroad Club's HO layout in Orleans, MA.

Made famous by numerous articles written by John in *Model Railroader* Magazine, including a four-part series September-December, 2000, the Union Freight layout was the focus of his book on building urban scenery also published in 2000. John had been a model railroader for nearly 70 years when he died in December, 2013. A New York City native, he grew up watching railroads there and in Boston.

The "Real" Union Freight

The prototype Union Freight Railroad Co. (UFRR) ran for two miles down the

middle of Atlantic Avenue and Commercial Street. Many sidings branched off – and even crisscrossed – its two-track mainline to serve the warehouses, plants and other commercial buildings stacked along the route. There were connections to yards at both North and South Stations, and the UFRR maintained its own small yard off Atlantic Avenue. A section of the Boston Elevated line ran overhead from 1901 to 1942.

John watched the Union Freight at work during the late 1950s. He remembered being amazed at how the freight cars rocked back and forth over the uneven track and screeched around tight curves. He noted traffic and pedestrians snaking around moving trains, stationary cuts of cars in the street, and the old support columns for the Elevated line. It's what gave the railroad its character, he said.

The Union Freight at Nauset Model Railroad Club

All of the complex trackwork, waterfront buildings and intricate street details were captured by John on his layout. Now they can be enjoyed by visitors year-round, thanks to his foresight and generosity. A member of our Club for many years, John arranged to give the

Union Freight and other sections of his Orleans home layout to the Club upon his death.



John's Boston yard and roundhouse section of his former Orleans home layout now serves to complete the two mainline loops of the Club's 14' x 35' HO model railroad. His Union Freight module is on a new extension in the background.

Late in September, 2016, after parts of the Club's previous HO model railroad were removed, John's layout sections were brought in, leveled and set in place. Some small adjoining table pieces were built, and minor track adjustments made, to align old and new sections and complete the two main loops of the original Club layout.

Since John's model railroad was wired with basic DC and block control, rewiring was done to enable both DC and DCC operation. As a final step, scenery details such as track ballasting, structure placement, turnout controls, and re-installation of vehicles and figures were completed.

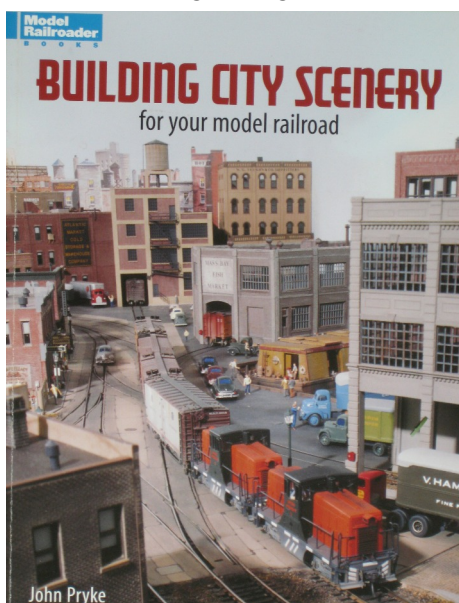
This was a major undertaking by the Club, but having a renowned model railroad in our midst, built by a revered member and modeler, made it all worth-while. Please visit us next time you're on the Cape. We are open on Friday evenings year-round, on Wednesday evenings in July and August, and on Saturday afternoons from Thanksgiving to New Year's.

For more photos and information, go to:

NausetModelRRclub.com



Compare this photo of Boston's Atlantic St. and the Union Freight HO layout, modeled by the late John Pryke (now on display at the Nauset Model Railroad Club in Orleans, MA) with...



*...the same scene on the cover of John's book published by **Model Railroader** / Kalmbach Publishing in 2000 out-of-print).*

HUB Headlight

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Directions to RAILFUN Meetings

RAILFUN is usually held at the Cambridge School of Weston (CSW) in Classroom G6 on the second floor of the George Cohan Building. The school is located at 45 Georgian Road, Weston, MA 02493.

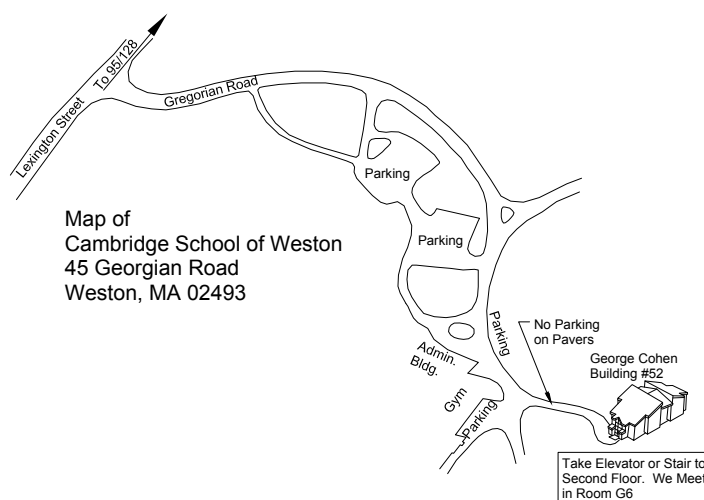
From Route 128 / Interstate 95:

From the North, take Exit 27B towards Winter Street.

From the South, take Exit 27A-B for Third Avenue toward Totten Pond Road/Waltham. Take Exit 27B towards "Winter Street" Bear right onto Wyman Street and continue to the traffic light. Take a right onto Winter Street at the light.

Continue on Winter Street to the second traffic light. Turn left on West Street, which becomes Lexington Street as you cross the Weston town line. At the crest of a small hill is Georgian Road and the CSW school sign; turn left on Georgian Road into the CSW campus.

Follow Georgian Road. There is a parking lot on your right, or you can park along the left side of the road and down the hill by the gymnasium. Please do not park on the stone pavers leading to the Cohen Building. See detail map below.



RAILFUN Weather / School Closure Note:

If the school is closed, we will NOT have RAILFUN that evening. School closings are broadcast over the radio at **WRKO 680AM** and **WBZ 1030AM**, and on **TV Channels 4, 5 and 7**. The Cambridge School of Weston recording is at **781-642-8600**. Check the radio or TV stations early **on the morning of RAILFUN!** You can also check www.hubdiv.org and we plan to post notices on **Facebook** and **Twitter**.

