NORTHEAST N-TRAK

January 2009 NEWSLETTER

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President's Message
Mark Ferracane

What takes 2 ½ hours to assemble and 40 minutes to remove? An NTRAK layout. After all these years we have it down to a science. The reason it takes 2 ½ hours to set up is that people do not arrive on time and are not awake yet. Please, if set-up time is at 8am please be there a few minutes earlier. This will help everyone out and the coordinator has less of a hassle waiting for people to arrive.

Well by now you should have made your reservations for the hotel and sent in your Registration for Winterfest 2009. And you should be getting your contest entries ready for the show. (Print out your entry form to save time on Saturday).

The Greenburg show was packed both days. We were in the Fez Room and we had a 33x24 with MaiNeTrak added to the layout. Fay did a great job coordinating the layout. The dealers had the usual stuff for sale, there were bargains if you looked hard enough. Sometimes you go to a show and find everything you want and sometimes you don't find anything. It is always hit or miss. Well at least at The Amherst Railway Show we will have 4 buildings to look for stuff. And you do not always buy at the first table you go to. You have to look around and see who has the better prices. Last year I purchased 2 Atlas GP-40's with DCC at 45% off list. I cost me $150 for 2 locomotives. Not BAD!

I wish everyone a Merry Christmas and a Happy New Year, and Happy Railroading!
Mark

Winterfest 2009

HAVE YOU REGISTERED?
IF NOT GO TO OUR WEBSIDE AND REGISTER NOW.

HAPPY NEW YEAR

Some of the gang at the Great Train Expo in Wilmington in November. More on page 5. (Fay, Mark, Charlie, Bob & Dan)

Whoever said Model Railroading is not a lot of hard work?

Look at how hard these guy have worked. Model railroading is hard work for all of us from the young to the oldest. If you don't believe me look at the pictures below of some Ntrak modelers.

MaiNe Trak
We're The "N" in Maine

Joining us at the Great Train Expo in Wilmington in November was members from the "MaiNe Trak Club". (I to r) Rob Selberg, Jim Selberg, Ray Houlihan and Steve Cappers. Below are pictures of there layout.

Show Schedule for 2008 – 2009

Jan 23 to 25, 2009, WINTERFEST 2009, West Springfield, MA
Big "E" Exposition Center, West Springfield, MA
Set-up Fri noon to 5pm & Sat 7am
Show Sat 9am to 5pm - Sun 10am to 5pm
Coordinator: John Dunne - 508-697-7635
Winterfest Coordinator: Bob Pawlak - 781-862-2485

Feb 14 & 15, 2009 Museum of National Heritage, Lexington,MA
Set-up Sat 7:30am Show Sat 10am to 5pm - Sun noon to 5pm
Coordinator: Bob Pawlak - 781-862-2485

Mar 28 & 29, 2009 Great Train Expo, Wilmington, MA
Shriners Auditorium, Wilmington, MA
Set up Sat 7:30AM Show Sat 10AM to 4PM - Sun 10PM to 4PM
Coordinator: Dan Pawling - 617-244-5261

Apr ??, 2009, Billerica Train Show,
NEW SHOW
Set-up 8am Show 10am to 4pm
Coordinator: Peter Matthews - 978-667-7906

Apr ??, 2009, Hooksett Lyons Club, Hooksett, NH
Cawley Middle School, Hooksett, NH
Set-up 8am Show 10am to 4pm
Coordinator: ????

July 5-11, 2009, Hartford NMRA Convention
Start planning now.

Members helping Members
by Ron Wood

On Sunday November 16 Mike Walker and Bill Hayes and I worked on Bill's new module at his place in Hooksett,NH. We spent a few hours laying cork roadbed and laying some track. The module features light weight construction utilizing pink insulation foam board within the frame. It will be a welcome addition to the club's list of displaying modules when it is finished. Take care.

Lights and Speedometers for Bridges Canyon

(*Part 1 of 2 Parts)*

by Bob Pawlak

When I was a youngster growing up, I was fascinated by the operating wayside signal lights and control panel train position indicator lights on the model railroad at the Museum of Science and Industry in Chicago, Illinois. When I was building my 12' straight "Bridges Canyon" Ntrak module, I wanted it to have these two features.

When the module first appeared at a train show in December, 2004, nine, 3-light wayside signals had been installed and wired. The two control panels with several indicator lights located on the back of the module were also finished and wired. However, the electronics needed to actually light the wayside signals and control panel lights as a function of where trains were on the private track of the module were not finished until the Pepperell Siding Show on October 5, 2008. In the process of building these electronics, I also decided to build a speedometer display unit which made its first appearance at the Bedford Boomers show on November 2, 2008. This article, part 1 of 2 parts, attempts to describe the end results of the project. Part 2, in a subsequent newsletter, will describe what was involved in designing, building, and testing the electronics and software required to accomplish the project.

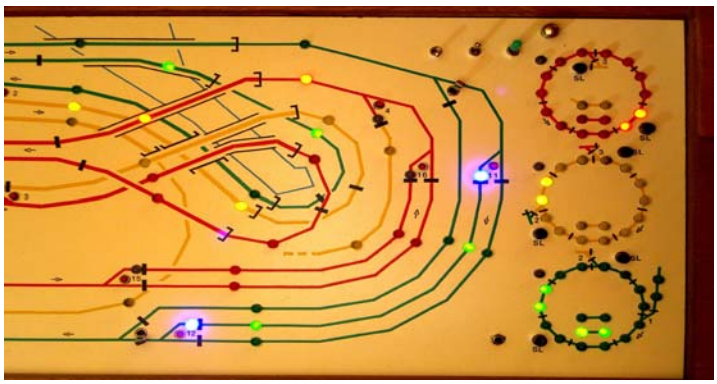


Photo bottom left shows a partial view of the main control panel on the back of the module. The red, yellow, and green lines are the shape of the upper, middle, and lower loops of track below the standard Ntrak mainline level. Other lines show major features such as block boundaries, tunnel portals, bridges, and the rivers. There are 2 colored LEDs (lights) for each track occupancy block. Red LEDs are used for the upper loop, yellow for the middle, and green for the lower loop. The pairs of lighted red, yellow, and green LEDs in the photo indicate the presence of trains on the tracks. Unfortunately, my digital camera does not properly portray the true color of the red and yellow LEDs. The three circles to the right replicate the lights on the diagram and make it easier to monitor and control train separation when there are two trains running on the same loop.

The **control panel lights** at the moment the photo was taken show a train on Heart-In-Mouth Bridge (upper loop Red Line), a middle loop Yellow Line train passing under the same bridge, and a lower loop Green Line train starting up the grade far below the upper loop train. There is also a train on the center passing siding of the lower loop Green Line. The two blue lights indicate the turnouts are thrown to allow it to move out to follow the other train on the lower loop.

Locomotives and last cars of the trains, fitted with special resistive wheel sets, will indicate block occupancy. As trains move, the indicator lights change accordingly. If the train is completely within a single block, the two lights for that block will light. When the loco crosses into the next block, the first light of the new block lights and the trailing light of the old block goes out. When the last car of the train crosses the block boundary, both lights of the new block light and the other light of the old block goes out.

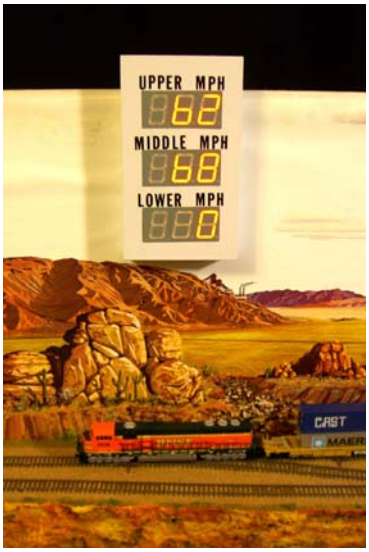
Another feature of the control panel which is difficult to show in a picture is **automatic breakaway detection**. One of the worst things that can happen on Bridges Canyon is a breakaway condition while I am not watching and that is not immediately reported by the viewing public. After a breakaway the locomotive comes around the loop it is on, plows into the uncoupled and stationary end of its train, derails something somewhere, and pushes the mess until it contacts the wayside and makes a bigger mess, oftentimes buried in a tunnel!

Given a single train shorter than any detection block on a given loop, I developed software that can detect a breakaway condition. When this condition occurs, the software turns on a beeper and a flashing blue light on the control panel near one of the three circles of indicator lights. There is a separate beeper and blue light for each of the 3 loops. In theory, I hear the beeper, look at the panel to see which blue light is flashing, stop the appropriate train, throw a toggle switch to silence all beepers (because they are

annoying), and proceed to repair the breakaway before a collision could occur. Hopefully, I will also remember to throw the toggle switch to reactivate the beeper circuits. Unfortunately, I must deactivate automatic breakaway detection whenever running two trains on any loop because two separate trains look like a breakaway to the detection software.

Photo above shows an example of **wayside signal light** operation. It shows a coal train approaching a green wayside signal light. It will turn from green to red as the train progresses across the block boundary and past the signal. The Amtrak train has just crossed a block boundary and caused the signal in the upper right hand corner of the photo to turn from green to red. The yellow signal along the track parallel to the coal train (lower left) indicates that the block immediately ahead of the yellow signal is not occupied but the next block is occupied. When two blocks ahead are not occupied, the yellow signal will turn green.

Photo right shows the new **speedometer** hanging on the sky board above an inter-modal container stack train operating on the Mountain Division Track near the center of the module. At the moment the photo was taken, there was at least one train on the upper loop that was going 62 scale miles per hour (MPH). There was also at least one train on the middle loop that was going 68 MPH. There was also a train on the lower loop that was standing still at zero MPH. If there were no train on a particular loop, the corresponding display would be blank (not lighted).



When a loco is first placed on an empty loop, the software detects its presence, displays zero MPH, and determines which block it is in. As the loco begins to move in the preferred direction and crosses the next block boundary, the software calculates and displays its speed and updates the speed as the loco crosses subsequent block boundaries. If a second train is added to the same loop, the software ignores it and continues to display the speed of the first loco to appear on the loop. It is assumed that, on average, two trains on the same loop must move at approximately the same speed or they will eventually collide with each other. If the first train is removed, the software will find the other train and begin to measure its speed.

The displays are 0.8" tall and "alarm clock red" (not the off-white color improperly depicted in the photo because of my camera). The speedometer can display a maximum speed of 199 scale MPH. There is a duplicate triple display on the back side of the spy board. It is wider to accommodate the electronics needed to drive the displays. It is connected to the microprocessor on the printed circuit board (PCB) underneath the module via a nine-wire cable.

Summary

The control panel indicator lights work pretty well except there are still some "bugs" in the software, wiring, or perhaps faulty components that I haven't resolved yet. Locos are detected pretty reliably, but the resistive wheel sets used to indicate occupancy of the last car of a train operate less reliably. As a result, some of the lights sometimes give incorrect indication.

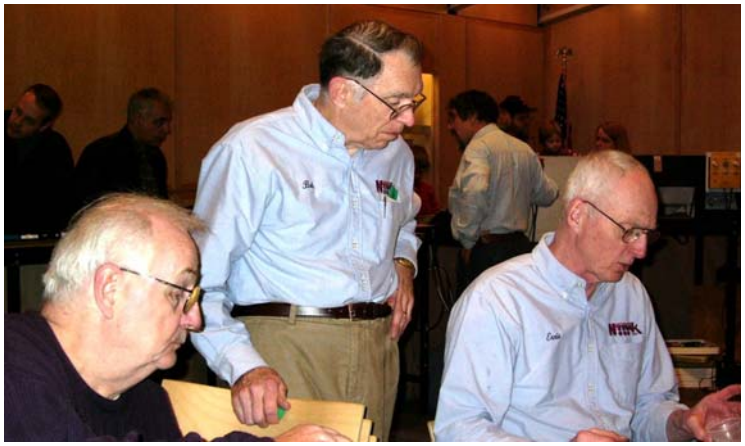
At the moment, the wayside signals work properly and seem reliable. The biggest problem with them is that they are small and hard for the public to see because they can only be placed at block boundaries and are pointed along the track while most visible track on the module runs perpendicular to the public's view. However, if you position yourself properly, it is fun to watch a wayside signal light change from green to red as a train goes by and then to yellow and finally back to green as the train progresses to following blocks.

When I designed the speedometer, given the speed of the microprocessor and the quantization of my "clock", I estimated there would be only about 0.5 MPH variation in the displayed answer from one detection block to the next as a train went around its loop at a constant throttle setting. When I began testing the speedometer using just a locomotive without a train, I was surprised that the 2.5% grades had considerably more effect on the speed of the loco than I had anticipated. Unfortunately, the Digitrax BDL16 occupancy detectors also seem to have inconsistent response times and introduce an additional error of about ± 2 MPH at 70 MPH with more error at higher speeds and less error at lower speeds.

The biggest drawback of the speedometer system, however, is that it is impossible to properly measure and display the speed of a train that suddenly stops. This is because a new estimate of speed is normally calculated only when a train crosses the next block boundary and speed varies inversely with time. When a train crosses a block boundary at 80 MPH and then stops before it gets to the next block boundary, it would take about 16 seconds to decide the speed has dropped to something less than 40 MPH, then 32 seconds to decide the speed has dropped to less than 20 MPH, then 64 seconds to decide the speed is less than 10 MPH, etc. Meanwhile the viewing public can see that the train has actually been standing still all the while. To get around this problem, I plan to eventually change the software to arbitrarily display 40, 20, and 0 MPH at fixed elapsed time intervals after the last block boundary crossing.

Based on just two shows, I am a little disappointed because the general public does not seem to notice or react to the speedometer unit or the operating wayside signal lights. Those who do notice them seem to have a "ho hum" response because they have no idea how much effort was involved in making them work. In the case of the panel lights, the general public can't even see them because they are on the back of the module! However, some people eventually notice them when they move around to the other side of the layout.

I am generally pleased with the way the wayside signals and panel lights work even though there are still some bugs to work out. I am pleased with the way the speedometer display unit packaging turned out but not happy with the larger than expected variations in speed results being displayed. I have spent a great deal of time running locos at constant throttle settings trying to calibrate and adjust the stored values for block lengths, but can't seem to reduce the display errors by this approach. I have a few other ideas for how to fix this problem but I plan to "recharge my batteries" for a while before I go at it again.



John, Bob and Ernie at the Lexington show February 2005

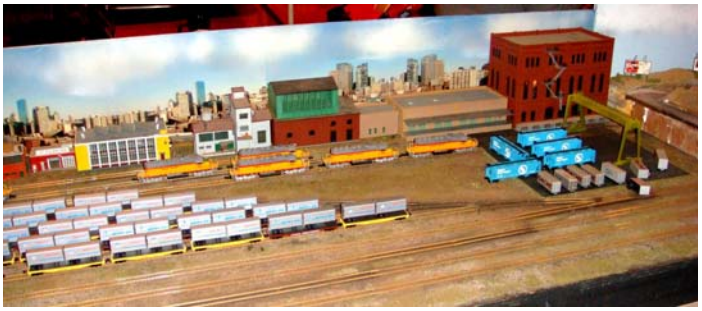
WELCOME OUR NEW MEMBER MATT KEISER

Matt has been in the hobby for over 20 years. Has built a 12' x 12' "E" shaped layout and wants to build module and display with the club.

6 Flynn Street
Somersworth, NH 03878
603-692-3236 **rmkeiser@comcast.net**

Great Train Expo in Wilmington

By Fay Chin



Fay Chin's module at the Greenberg show.

We again put on another great display at the Greenberg show. The Greenberg organization was very appreciative including the public, based on their feedbacks and comments. I heard and over-heard many people complimenting the layout. The attendance was very high, especially on Saturday. Numerous times people crowded around the layout and no walking space. The layout was located in the Fes Room away from the vendors. Since there were no vendors, we have the public attention. The show was successful, thanks to all the members who participated. This year, we had guests from the MaiNetrak club from Maine. With only a few e-mails, the clubs were able to combine and have a running layout. For those who have never coordinated a show, it is an easy and rewarding task. Feel free to volunteer for future shows as the show coordinator and be the boss. Our combined layout dimensions were approximately 32' x 23'. The layout was basically connecting the Northeast Ntrak loop with three running tracks and the MaiNeTrak loop with two running tracks. The outside lines on both loops were shared which allowed four separate running tracks. It was in preparation for the West Springfield show. Everyone had plenty of running time using DCC control and conventional DC on the layout. We would like to extend our gratitude for their participation. I want to again, thank all the show participates.

Winterfest 2009

Winterfest 2009 Reminders

For those who haven't registered yet, registration is $5 cheaper if your check is postmarked before January 1, 2009.

The special room rate (good until January 5, 2009) is the same for single (King) or double (2 Queens) occupancy so invite a friend to share your room to reduce your expenses.

I still need one more person to do a clinic, 20 -25 minutes plus time for questions. Someone out there must have something they are anxious to share with us. Any volunteers?

About 10 "better" prizes will be reserved for a special drawing for those who bring modules for the layout (1 ticket for every 4' of modules) so bring whatever modules you can to help fill our allotted space and increase your chances of winning.

There is a proposal to have three loops connected to a spine of transition corners instead of the usual single large loop and peninsula for our layout. This would increase the number of modules that could participate in the layout, increase the need for transition and regular 3' corners, increase the length of the DCC Red Line Route, and reduce the requirement for tower operators (perhaps only one for each pair of Yellow Line and Blue Line inner loops). I know there must be plenty of great corner modules out there that have never been in a Winterfest layout before so perhaps you can plan to bring yours. The final design of the layout will depend on who volunteers to bring which modules so please call John Dunne at 508-697-7635 to discuss which modules you plan to bring, or which would be best to bring if you have a choice of more than one.

Be sure to fill out the model and photo contest entry blanks you will need (provided on our web site at www.NortheastNtrak.org) before you leave for the show.

Report to the Show Office inside Door #7 to pick up your "Exhibitor Badge" after 1:00 P.M. on Friday when you come for layout set up. You will need this badge to gain entry to the show on Saturday and Sunday. These badges will not be available at registration on Friday night as in past years. Check in will be available after 4:00 P.M. at the hotel.

Registration starts at 7:00 P.M. at the hotel. Clinics will start at 7:30 P.M.

Best regards,
Bob Pawlak, Chairman
Winterfest 2009
781-862-2485