

THE BRASS POUNDER



Newsletter of the Carolina Southern Division 12, Mid-Eastern Region,
National Model Railroad Association

Volume 22 Number 2

February 2022

Division Coming Events

(See [CSD Website](#) for
further details)

DIVISION MEETING

**The Division's
Monthly Meeting
will be held on
Saturday,
February 19th at
10:00am at the NC
Transportation
Museum
1 Samuel Spencer
Dr, Spencer, NC
28159**

**We'll meet in
Storehouse# 3, the
metal building behind
the Master
Mechanic's Office
and Gift Station.**

Superintendent's Corner

By Andrew Stitt

Although I don't yet have a roster of the membership of the Carolina Southern Division, I can safely assume that I have not met all of you. So let me take a moment to introduce myself. My wife and I live on Badin Lake in New London, NC. When we relocated from Fuquay Varina some years ago, I left behind the Carolina Piedmont Division (CPD 13) to join with you. Patty graciously agreed that I could have the basement for the railroad. As I wrote in the Herald some years ago, be careful what you ask for! What space I was given seemed nice at first, but soon became overwhelming. So now, after several previous layouts, the space is my interpretation of the ET&WNC in On30. I've been working on it for nearly 3 years now.

If you missed the January meeting, which was held at the Newton Depot, we had a good time getting reacquainted with the surroundings, and those that were able to attend in person. The work done by Division volunteers to relocate Wade's Train Town from Brookford is extraordinary. It looks better than it did, and that work will be appreciated going forward by the museum's visitors. Please take a moment to consider volunteering for a Saturday to help the Train Town committee host this attraction. On another note, we included in the meeting a connection to Zoom so

those unable to attend could participate. From what I have heard, it was well received by all. As planning for the February meeting is ongoing, we do anticipate repeating the Zoom connection. So please keep it in mind, and give me or other division officials your input regarding future use of this means of communication.

Finally, I am pleased to hear that train show season is coming up in the form of a number of them scheduled within reach of many of us. Please look at the postings within our newsletter for them. If Ed seems to be missing one, please let him know. Perhaps we can finally begin to put the pandemic issues behind us, and get back to model railroading in public again!

For our upcoming Division Meeting on Saturday, February 19th, we'll be in Storehouse #3 of the NC Transportation Museum in Spencer. In case you're not familiar with the Museum, this excerpt from their website shows where Storehouse #3 (building D on the map) is located. For a closer look at the map, use [this link](#).

Map Legend

- Restrooms
- Parking
- Picnic Shelter
- Vending Machines
- Train Ride Route
- Shuttle Bus Pick-up
- Walking path

C Master Mechanic's Office (1911)
The Master Mechanic's Office, once housed the head of operations for Spencer Shops. Today, the building houses temporary and traveling exhibits, hosting rentals, providing programming and special event activity space. The Gift Station is also located here.

D Storehouse No. 3 (1896)
The oldest structure on site, it is primarily used for storage and special events.

E Flue Shop (1924)
The Flue Shop was used to repair the flues, or pipes, used in steam locomotive boilers. The building now houses the Bumper to Bumper auto exhibit, a collection of antique vehicles from a 1901 steam powered car, to Model As and Ts, with roadsters and modern cars, tracing the evolution of autos in North Carolina.

F Roundhouse (1924)
The 37-stall Bob Julian Roundhouse, one of the largest remaining such structures, is one of the few preserved roundhouses remaining in the country. Home to some 40 restored locomotives and rail cars, in 2011, the Roundhouse was named a Historic Mechanical Engineering Landmark by the American Society of Mechanical Engineers. Exhibits at the Roundhouse focus on the lives of the men who made Spencer Shops run and the history of railroads in North Carolina. Aviation exhibits are also displayed. Stop by the orientation room to get a map of the building, watch the film, and take a spin on the 100-foot turntable.

Other Spencer Shops Buildings

1 Paint Shop (1902)	4 Oil House (1913)	7 Roundhouse Office (pre-1940s)
2 Powerhouse (1896)	5 Icehouse	8 Wheel Balancing Shed (pre-1940s)
3 Car Repair Shed (1917)	6 Radio Shop	9 Sand House (1913)

Department of Cultural Resources 411 S. Salisbury Avenue, Spencer, N.C. 28159 704-636-2889 www.nctrans.org

**UPCOMING
AREA TRAIN EVENTS**

**Central Railway Museum
Model [Train Expo 2022](#)
Friday Feb 18th, 2022
12:00-6:00pm and
Saturday Feb 19th
9:00am – 3:00pm
Rock Springs Church
Impact Center
207 Rock Springs Rd.
Easley, SC 29642**

**30th Annual Model Train
Show**

**Friday Feb 25th
12:00-7:00pm and
Saturday Feb 26th
9:00am – 5:00pm
WNC Agricultural Center
775 Boylston Hwy,
Fletcher, NC 28732**

**20th Annual North
Carolina Railroad Expo**

**April 1-2, 2022
Fri 12:00-7:00pm
Sat 9:00am-4:00pm
Hickory Expo Center
1960 13th Ave Dr SE
Hickory, NC 28602**

**Fort Mill SC
Model Train Show
April 9th
9:00am – 3:00pm
Clarion Hotel
3695 Foothills Way
Fort Mill, SC 29708**

Editor's Notes

By Ed Gumphrey

It's hard to believe January is already behind us. I was glad that we were able to hold our Annual Meeting, especially since outgoing Superintendent Alan Hardee enabled a Zoom meeting option. I'm also pleased that our new Superintendent, Andrew Stitt is making arrangements to continue to offer Zoom. CSD covers a wide geographic area, so even without the threat of Covid, it's a good tool that will enable more members to participate without having to drive a great distance.

The Division will continue with our monthly meetings. The next meeting is coming up on Saturday, February 19th in Warehouse #3 of the NC Transportation Museum in Spencer. I always enjoy when we have meetings there, because it gives me an opportunity to check out the latest "gotta have" items at [The Little Choo Choo Shop](#) across the street from the Museum.

As Andrew Stitt stated on the opening page, we have a couple of train shows coming up this month. Make sure you check the banner on the left for details. I use this page and the banner to list upcoming train events. If you think I've missed one, just let me know. A similar banner on the opening page lists upcoming Division activities. On a related topic, please see Alan Hardee's request at the bottom half of page 8.

My thanks to Fred Miller, MMR and Ed Smith for their article contributions this month.

I'll close my comments this month on a familiar note. Please let me know what projects you're working on. I'd like to expand my roster of regular contributors, not to mention my almost empty backlog of articles.

SUBMISSION GUIDELINES

**I target the 1st of each month for publication.
Please submit articles for publication by the 27th of
each month.**

**The preferred format is MS Word, but I can
convert most other formats.**

**For questions and help, email me at
editor@carolinasouthern.org**

DIVISION AND REGIONAL NEWS

By Ed Gumphrey

Members will see a new opening to this section of the newsletter. I will lead off each month's Division news with an update on activity at Wade's Train Town in Newton. As Gil Brauch, MMR has previously reported, and as our new Superintendent notes in his comments, Train Town is being well received at Newton Depot. It looks better, is being visited by far more people, and is operating well. The operational success is further illustrated by some new animation. To augment the existing active streetcar, Fred Miller, MMR built some animation circuits and Ed Smith got them installed. They allow for visitors to interact with the layout by activating sounds at the fairgrounds, movement on the ice rink and operation of a gandy dancer. This new year also marks Gil's handoff of the project's leadership to Ed Smith.

Please, don't forget that volunteers are still needed for upcoming weekends. Here's the Box Score for last month. Follow the link to volunteer to help and get your name added to the list. Like Gil has said, C'mon folks.

Train Town Box Score

January 2022

Open Houses 5

Attendance 73

Hosts: Gil Brauch (2), Fred Brooks (r), Keith Iritsky, David Myers, Larry Paffrath (2), Ken Riddick, Tim Rust, Ed Smith (4)

To volunteer, go to:

<http://carolinasouthern.org/ttvolunteerrequest.html>

(#)=frequency (r)=first time host

MEETING

Next up in the news is a report on the Annual Meeting. It was held in the conference room at Newton Depot on Saturday, January 15th, with in-person attendance of 11 as well as remote attendance by four members through a Zoom meeting. Superintendent Alan Hardee called the meeting to order approximately 10:00am with new year greetings, followed by a brief synopsis of his annual report to the MER. As you might expect, the major highlight of the report was the successful relocation of Wade's Train Town from Brookford to Newton.

Gil Brauch, MMR provided a synopsis of his Annual Report on the Train Town project and announced his formal handoff of project leadership to Ed Smith. Some notable achievements associated with the relocation include:

- On February 9th 2021, a Memorandum of Understanding with Wade Warren's family, the Newton Depot, and CSD for the layout's relocation was finalized.
- From February through April of 2021 Division members completed the inventory, disassembly, and packing of the layout, structures and equipment.
- On May 15, 2021, with the help of the Metrolina Model Railroad Club and their trailers, 14 Division members moved everything from Brookford to Newton.
- From mid May until September 18, 2021, a total of 16 members participated in re-assembling the layout and restoring it to full operation.
- On September 23-25, 2021 the Division hosted a preview showing for the attendees of the National Narrow Gauge Convention held in Hickory.
- October 2, 2021 featured a Grand Re-opening Ceremony at the Newton Depot Model Railroad Center.
- Since that time, the Division conducted 21 open house sessions with 14 members serving as hosts to 384 visitors. That is the highest number of visitors to the layout (in just three months) than we had in a whole year since 2013.

Gil completed his remarks with the reminder that the biggest challenge ahead is to maintain our responsibility to continue hosting weekly open houses. Follow the link in the Box Score on the previous page to help out.

Paymaster Dave Thrans provided a brief summary of the Division's financial status. Bottom line – we are solvent.

I provided a brief summary of my Annual Reports as Clerk and Editor. Key points are:

- I will continue as Clerk and Editor.
- I welcome more members to submit articles about their model railroad projects.
- Even if there are no articles submitted, I will continue monthly publication with minimum announcements and news.

ELECTIONS

Following the reports, Alan Hardee's final act as Superintendent (term limited) was to officiate the election process. All nominees were seconded and unanimously voted into their new positions:

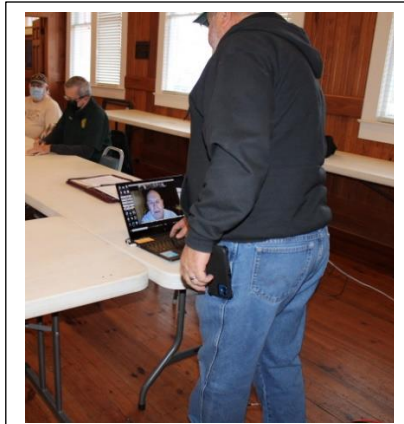
- Andrew Stitt was elected as our new Division Superintendent.
- Alan Hardee was elected Assistant Superintendent (effectively swapping roles).
- Dave Thrans was re-elected as Paymaster.
- Ed Smith was re-elected to the Board and is now Director 2025.
- Ed Gumphrey was re-elected as Clerk and re-appointed as newsletter editor.
- In view of Scott Perry's relocation to Utah, Joe Skorch, after volunteering, was appointed to fill Scott's remaining time as Director 2023.

After elections were concluded, new Superintendent Andrew Stitt made a few brief remarks. He lauded the membership's efforts for the Train Town project and then discussed one of his primary goals – to find a "home" for the Division to hold monthly meetings. He asked members to explore options to augment his efforts to identify a central location that can be a reliable, repetitive location. Andrew also emphasized the significant efforts that will be needed in the next 8 months to be ready to host the MER Convention in October. Finally, he responded to the instant positive feedback from the Zoom participants, noting that he will explore the possible use of Zoom for future meetings to increase participation.

Thanks to Gil Brauch, MMR for a few snapshots from the meeting.



"Layout Wiring" temporary hook-up for the Zoom meeting participants.



The Clerk checks in. Alan Hardee is stunned by Ed's Saturday morning appearance.



It's actually working. Alan turns his laptop so to show the Zoom connection.

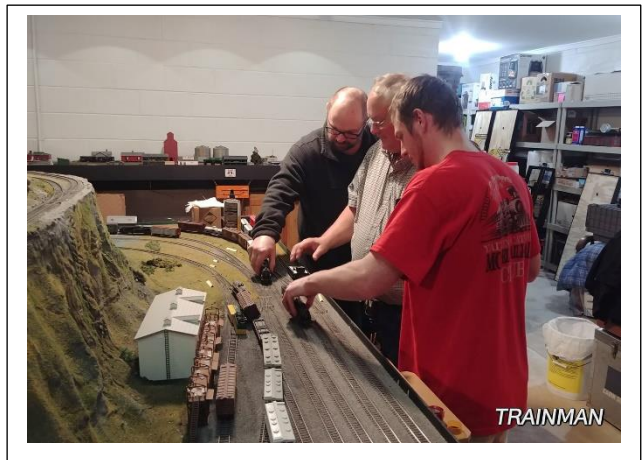


Eleven members attended in person (Gil was taking the picture).

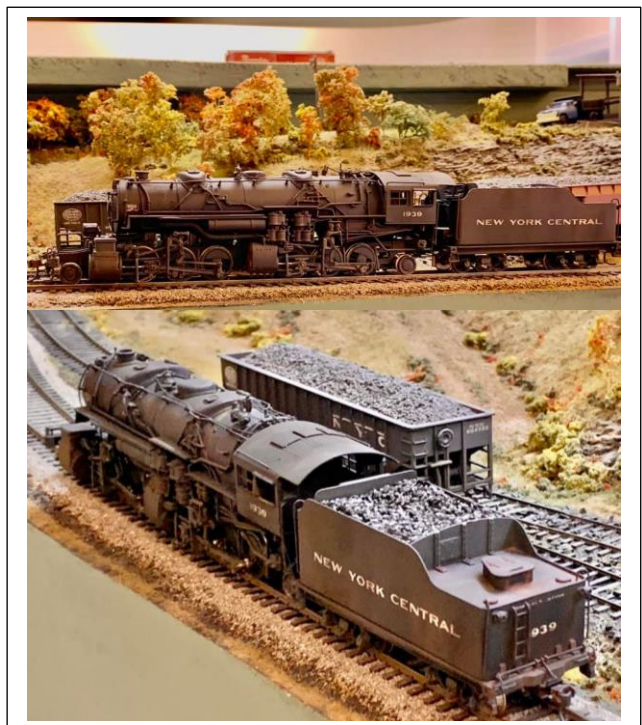
OTHER NEWS

Regular readers know I like to keep an eye on social media for other news about CSD member activities. The new year did not disappoint me, as January revealed some other activities. Photos are from member's Facebook posts.

Late January found Neal Anderson, MMR on travel to Arizona for a family wedding. While there during our recent snowfall, he managed to tease us about 75 degree weather as he visited the Maricopa Live Steamers in Glendale, AZ for a train ride. Back home by the end of the month, Neal had a derailment to clean up on his KK&L railroad during an operating session. It seems somebody forgot to restore a turnout to mainline routing.



Seth Gartner was also active outdoors as he enjoyed his 1:1 scale hobby with a day of rail car operation. Meanwhile, at home on the New York Central Piney Fork Branch, Seth posted pictures of his project restoring a brass model of a NYC 2-6-6-2 and converting to DCC/Sound. The prototype was NYC class NE2g built by Alco in 1920.



CONVENTION NEWS



LOOK SOUTH IN 2022

If you haven't been in touch – **BREAKING NEWS** - Our Division is hosting the Mid-East Region's convention in Charlotte from October 20-23, 2022. The web pages for the convention have been activated. Check it out at <http://carolinasouthern.org/MER2022.html> Updates will be coming in March, and throughout the period leading up to October.

LAYOUTS NEEDED

By Alan Hardee

Do YOU have a home layout?

Do you have a friend with a home layout?

If you answered YES to either one of these questions, I need you to contact me for information about the 2022 MER Convention. The Carolina Southern Division is hosting the 2022 MER convention in Charlotte, NC in October. We need Layouts for tours and/or operating sessions during the convention.

Please contact me by email at 2022tours@carolinasouthern.org or assistsuper@carolinasouthern.org or by phone at 704-689-3867.

I hope to hear from you soon.

WADE'S TRAIN TOWN

By Ed Smith

For over 4 years I've been writing articles about my modeling endeavors in *The Brass Pounder*. This article is a little different. Starting this month, MMR Gil Brauch has decided it is time to step aside as Project Manager of Wade's Train Town, and I, have agreed to fill these big shoes and run the day-to-day operations at Wade's. The good news is that Gil will stay involved, so our core group of Gil, myself, and Keith Iritsky will still be handling our weekly open houses.

About Gil - Our Division, including myself, owes him a great debt of gratitude for his work at Wade's Train Town. Because of his efforts and dedication, this legacy layout is like the phoenix that rises from the ashes, not once, but twice. In the early 2000's he and Rick Knight saved the display from extinction. Gil, with the help of volunteers, coordinated the restoration of the layout and it opened for viewing again around 2010 at the old Brookford School building. Once again, he was the driving force, with volunteer help, at open houses once monthly for 9 years. But, alas, time had run its course, and we were facing extinction again. But Gil didn't quit. Because of his efforts, our Division and the Southeastern Narrow Gauge & Shortline Museum in Newton struck a deal to move Wade's Train Town to the museum. As usual, Gil oversaw the move, restoration, renovation, and opening at our new home. Because of him, he has saved this delightful layout, which I think is an asset to our Division. It now resides in a venue that represents prototypical railroading and model railroading, which I think the NMRA is all about.

For 20 years, Gil has tirelessly given his time to this cause. A well-deserved break is allowed. But don't go too far, because I've probably got a ton of questions. I know I speak for myself, and I hope our Division, when I say "Thanks" to Gil for everything you've done.

One last thing; as Gil has written in *The Brass Pounder* in the past, we really do need volunteers to step up and help the core group hosting our Saturday open houses. The time requirement on Saturday is 9:45 am to 4:15 pm. We still have February 26th, March 19th, and March 26th open for volunteers in the first quarter. So, if you're interested and able to volunteer your time, go to the link below and sign up.

<http://carolinasouthern.org/ttvolunteerrequest.html>

To plan ahead for the Spring, send an email to: wadestraintown@carolinasouthern.org and a member of our leadership will get back with you.

ED

GANDY DANCER AUTOMATED THROTTLE

FOR WADE'S TRAIN TOWN IN NEWTON, NC

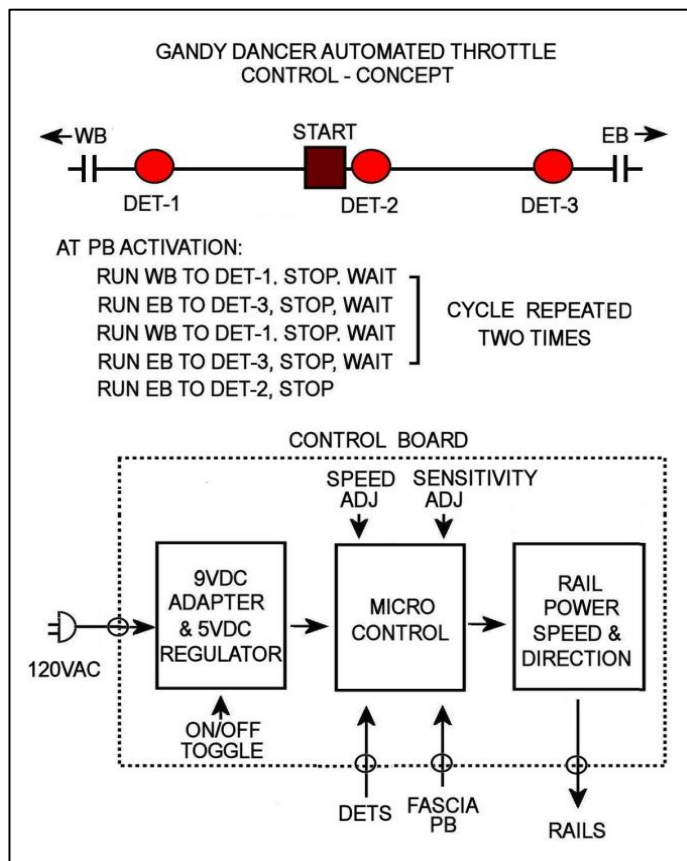
by Fred Miller, MMR

Overview

In September, 2021, Gil Brauch, MMR, the Train Town Project manager, asked if I could develop another animation for the Layout Display at the new Museum home of Wade's Train Town. His thoughts were to provide an automated back-and-forth operation for a little Bachmann Gandy Dancer, initiated by a layout fascia pushbutton, similar to the sound and animation projects



recently installed. The operation would be similar to the Circuitron AR-2 controlled trolley already in use on the layout but with the push-button initiation for the kid's enjoyment.



I indicated that I would be happy to develop such a facility and this article describes the design, development and operation of the resulting project.

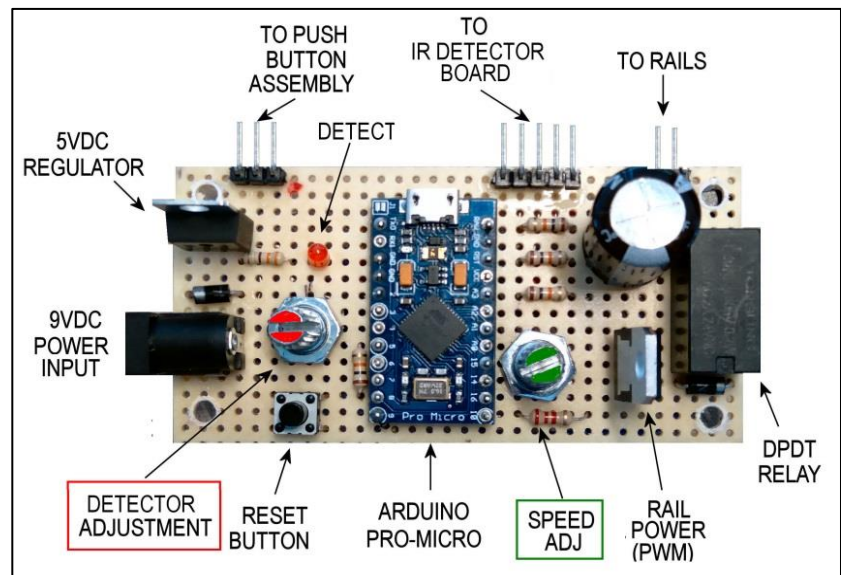
The figure to the left outlines the concept. When the pushbutton is pressed, the Gandy Dancer would run to the left stopping at a west-end detector. After a four second

pause, the unit would run to the right, stopping at an east-end detector. This cycle would be repeated once again and finally the Gandy Dancer would stop at a middle detector.

Implementation

I decided to use the Opto-Sensor (Photo-Resistor) detectors similar to those used in the Circuitron products. The design had to include recognition of the 3 detectors, the fascia strip pushbutton (with indicator light) and provide for the reversible self-contained DC power. An Arduino Pro-Micro was selected for the logic and interface to the necessary input/outputs.

The unit will use a 9VDC power adapter for the Gandy Dancer rail power as well as the micro-controller logic (reduced to 5VDC). Provision will be made for adjusting the sensitivity of the Opto-Sensor detectors to match the ambient room lighting.

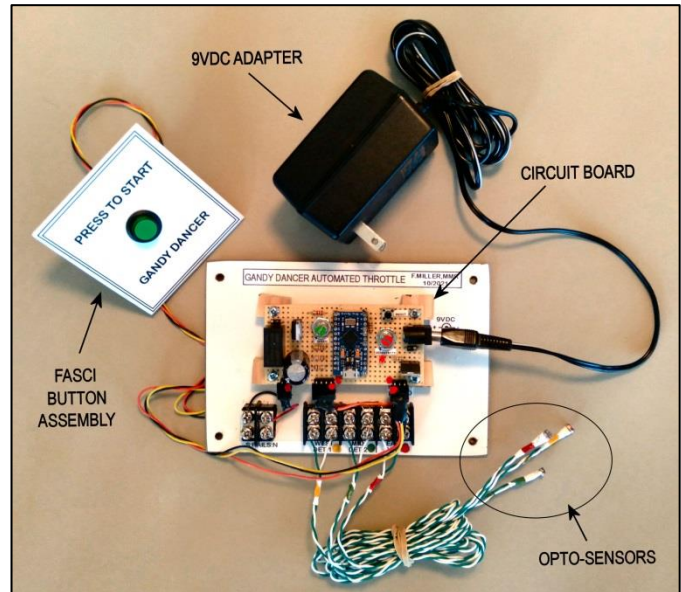


Assembled Circuit Board

The normal operating speed of the Gandy Dancer will also be adjustable and provision is made for a momentary higher voltage to nudge the small DC motor into action.

The rail power for the Gandy Dancer will be developed with a Pulse-Width Modulated (PWM) output from the micro-controller and 'smoothed' with a capacitor. A DPDT relay will provide the track power reversing.

After designing and then testing the circuit on a temporary 'breadboard' and developing the software for the Arduino Pro-Micro, the circuit was then built on a perf-board as shown above. For ease of mounting and connecting wires to the control unit, the circuit board was mounted on another board with terminal blocks as shown to the right.



Completed Automated Throttle Components

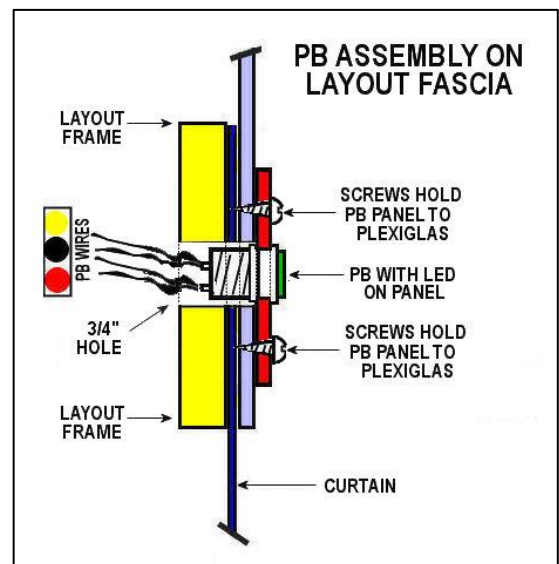
Installation

The Opto-Sensor detectors should be mounted between the rails with one at each end of an isolated section of track. The third detector is mounted somewhere in the middle of that track. The control board should be mounted under the layout with access to a 120VAC power strip for the 9VDC power adapter and within reach of the fascia push-button assembly and the three detectors.

The push-button assembly should be mounted on the layout fascia as shown to the right.

Adjustments

After the control unit and associated parts are mounted, the Opto-Sensor 'sensitivity' needs to be adjusted for the ambient room lighting.



When the unit is first powered up, the potentiometer (marked in RED and closest to the 9VDC plug on the circuit board) is rotated counter-clockwise

until the Red LED (below the potentiometer) is turned ON. Then the potentiometer is backed off clockwise until the Red Led turns OFF. This setting is then tested by placing the Gandy Dancer over each of the Opto-Sensor detectors. The Red LED should turn ON when the Dancer is over a detector. If the LED doesn't turn OFF, or flickers, when the Dancer is moved away, then the sensitivity potentiometer needs to be backed off (clockwise) a bit more. Check for operation of each detector.

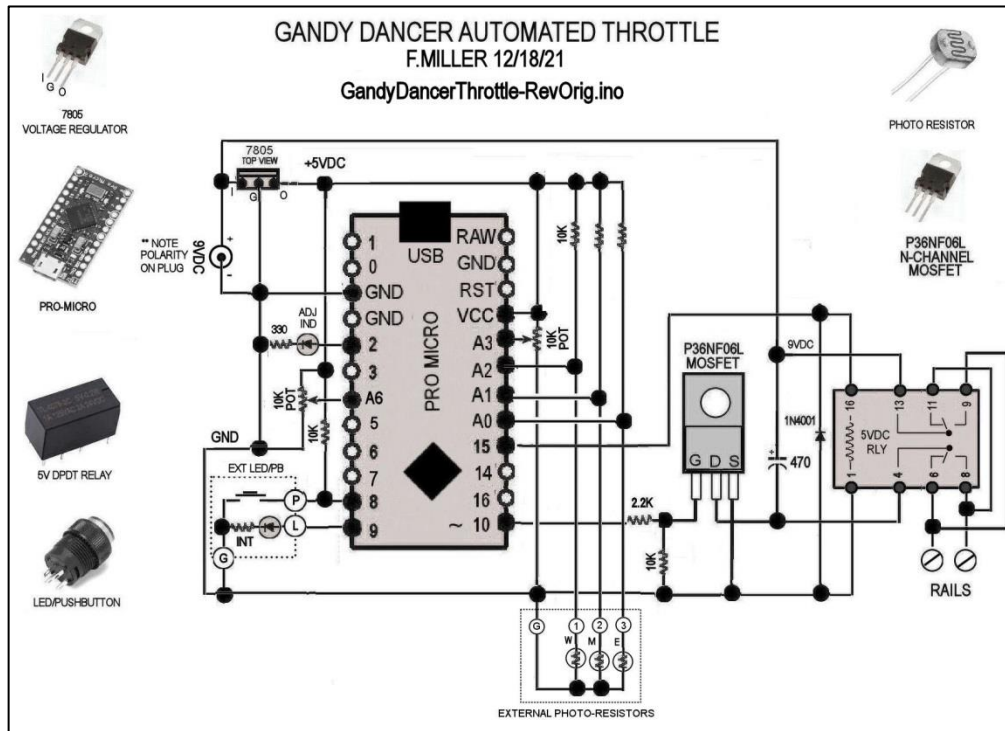
Place the Gandy Dancer somewhere in the middle of the traveled track and press the fascia mounted push-button. The button should illuminate and the Gandy Dancer should move to the left, stop for 4 seconds, reverse and run to the right, stop for 4 seconds, then repeat that back-and-forth cycle once more, finally stopping at the middle detector. The push-button light should go off after this final stop.

The speed of the Gandy Dancer can be adjusted with the second potentiometer (marked in GREEN) on the circuit board. The best speed setting is one fast enough that the Gandy Dancer does not stall, but not so fast that it is unrealistic.

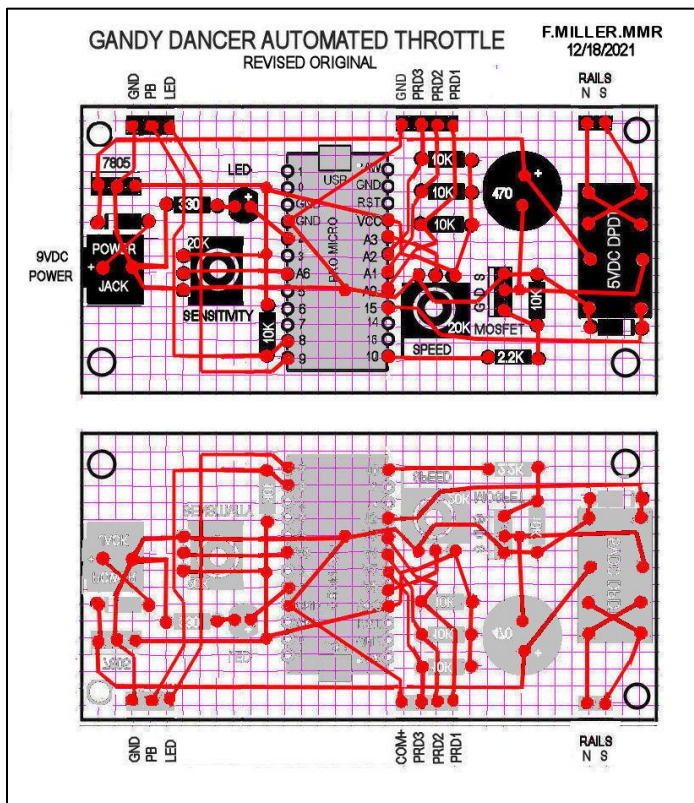
Both the sensitivity and speed adjustments, once set, should work each time the Gandy Dancer is powered up and push-button operated.

A 'reset' button on the circuit board will reset the control unit the same as 9VDC power unplug or power strip OFF/ON. However, the 'reset' does take a few seconds for recovery. The 'reset' should not be necessary unless problems develop in setting the potentiometers.

Appendix - Electronics



Control Circuit



Parts layout on Perf-board

Parts	Source	Approx \$
Arduino Pro-Micro	eBay	\$4
2.1 mm Power PCB Jack	Amazon	10 for \$10
5 VDC Voltage Regulator	Goldmine	80 cents
MOSFET N-Channel 30V/60A	eBay	5 for \$4
470 UFD 35V Capacitor	Goldmine	10 for \$2.95
(3) Photo-Resistors	Amazon	30 for \$4
(2) 20K Potentiometers	Goldmine	4 for \$4
Red LED	Goldmine	10 for \$4
SPST Pushbutton w/Green Led	Amazon	12 for \$8
Barrier Terminal Strip	Amazon	2 for \$7
5VDC DPDT Relay	Amazon	5 for \$9
(5) 1/4W resistors	Various	@ 10 cents
9VDC Wall Power Adapter	eBay	\$6
Perfboard & misc hardware	Various	-

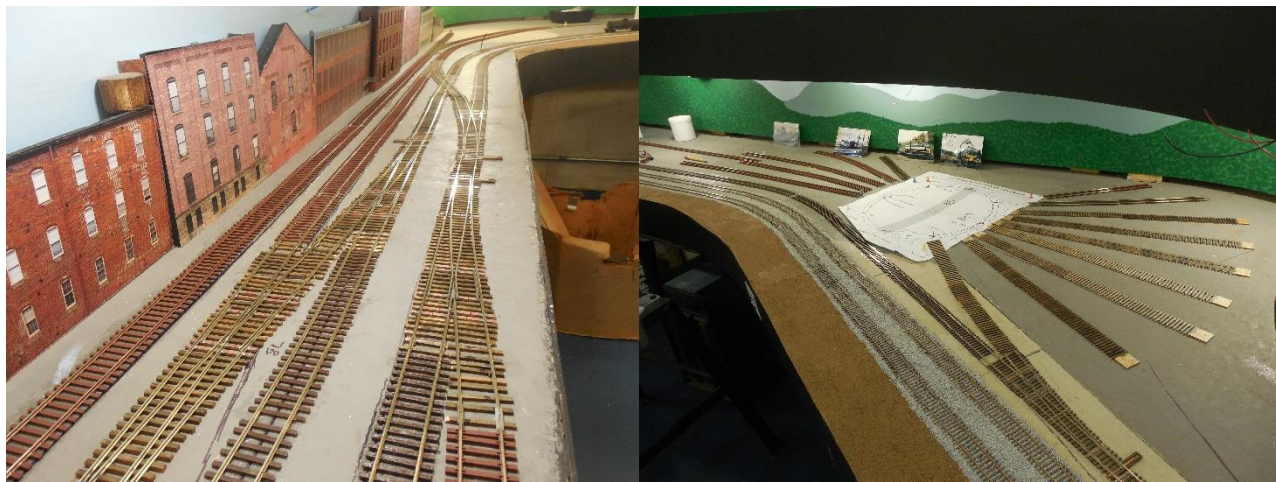
Total Cost of Parts used is less than \$25



WIRE, WIRE, EVERYWHERE

By Ed Smith

This article is a quick update on where I stand on the installation of my main bus wire and Digitrax system on my layout. As I write this at the end of January, I believe we have made good progress and are still on schedule to have the main lines operable by mid-summer. That said, it visually doesn't look like that because the progress is primarily underneath in the infrastructure. I did make a few changes above ground when I rebuilt the yard leads and switches from the yards and engine facility in Pt. Jervis (pic 1). This was done to create better switching access between the two locations. There are 3 different colors of trackwork, Rust painted Flextrack, Fast Track's switches, and unpainted Micro Engineering mainline track. After the electrical drops are installed, all will be weathered, giving the appropriate feeling of mainline and yard track.



Pic 1: Some track changes were made to improve switching access between the yards and engine facility in Pt Jervis. Track has not yet been uniformly painted or ballasted.

The first thing I did was to install all 25 UP5's, 1 LNRP, and the new UR93 (pic 2). I then placed PS14's around the layout at approximately every 4 UP5's to enhance the signal. The Loconet wiring connecting these UP5's will be installed after all the Bus is secured and not in the way of the Loconet.



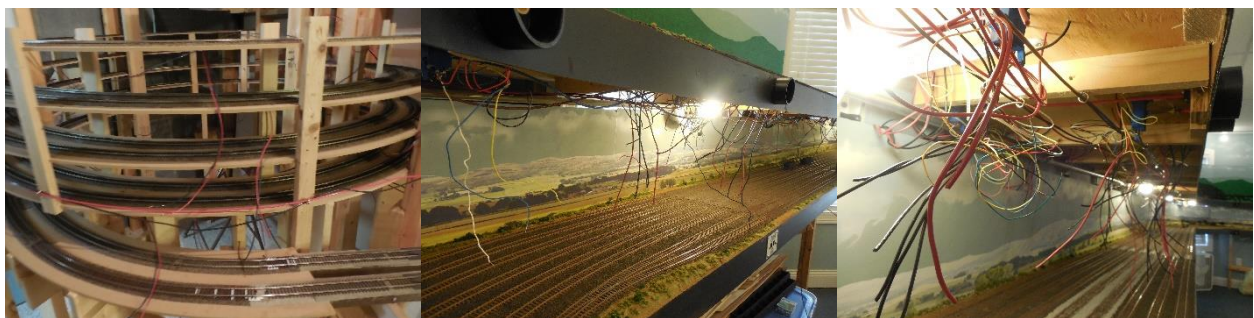
Pic 2: Digitrax Loconet panel modules were installed around the layout.

Now, the Bus wire. I'm using #12AWG stranded THHN wire for the Bus. This wire is very durable, but because of the wire insulation, it has a tendency to tangle easily and can be hard to work with. I do have a few places where I drilled holes to run the Bus wire, but mainly I'm using screw eyes with approximately a 3/8" hole to run my 2 wire Bus for each district (pic 3).



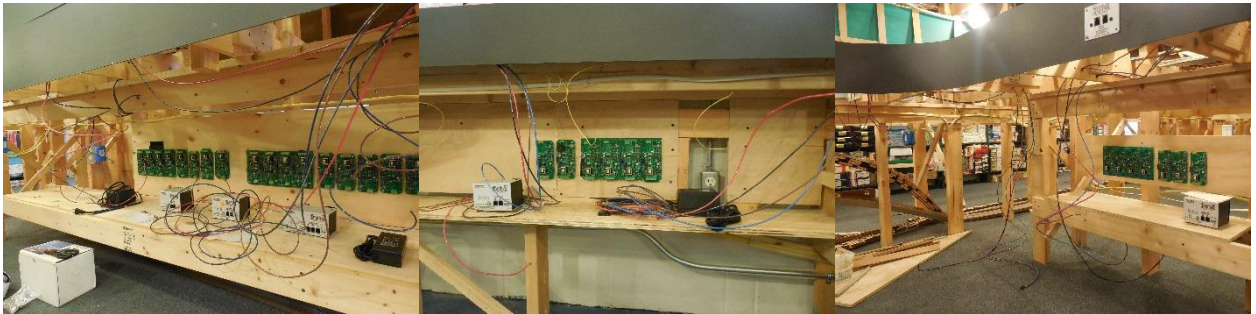
Pic 3: Screw eyes with a 3/8" opening are inserted into benchwork to provide support for the bus wires running to each of the planned 34 districts.

Since I'm planning on signals, there are a total of 17 districts East and 17 districts West. That's a total of 34 isolated, 2 wire Bus lines for each district on the mainline. Each of these will connect to a PSX Circuit Breaker Board. One wire from each Bus will pass through a Donut Coil on a Dallee Detection Board. I'm using #12 red and black wire for the East mainline and brown and blue wire for the West mainline. The one caveat is on the lower deck. The East main is in front (red & black) and the West main is in back (brown & blue), but after the helix it switches orientation on the upper deck. This had to be remembered and followed. The main Bus lines took approximately 2800' of wire. At today's pricing, I had sticker shock. A reel of 500' of #12 wire rose from \$59 to around \$105 in 2 years. I originally used #22 stranded wire for track drops in the staging yards, but I've changed to #22 solid wire for these drops because experience has shown that solid wire forms better and is easier to solder to the track. I purchased four 250' rolls of #22 blue, black, red, and brown wire to stay color coordinated with their respective Bus.



Pic 4: As of now, the view underneath the layout is one of chaotic wire runs and drops. Not to worry, when completed, it will all be neatly routed and listed in the wiring ledger to aid troubleshooting.

As of now, with all the different wires, the view underneath the layout is chaotic, with three typical areas shown (Pic 4). Similarly, all 5 Booster Stations where the Bus wires will terminate presently have wires going everywhere. (pic 5). But I have a plan and a ledger to keep track of each run. In the near future all Bus runs will be given an address, recorded, and connected to a labeled PSX Board. Hopefully, my electrician apprentice training from Goodyear, where I wired tire machine panels, will allow me to keep everything neat and coordinated. This is very important for future trouble shooting.



Pic 5: Similar to the appearance of bus wires running around the railroad, the booster stations look chaotic, but will all be properly dressed and routed as connections are made.

I rapidly depleted my bus wire supply. It used to look plentiful, and now only remnants remain (pic 6).



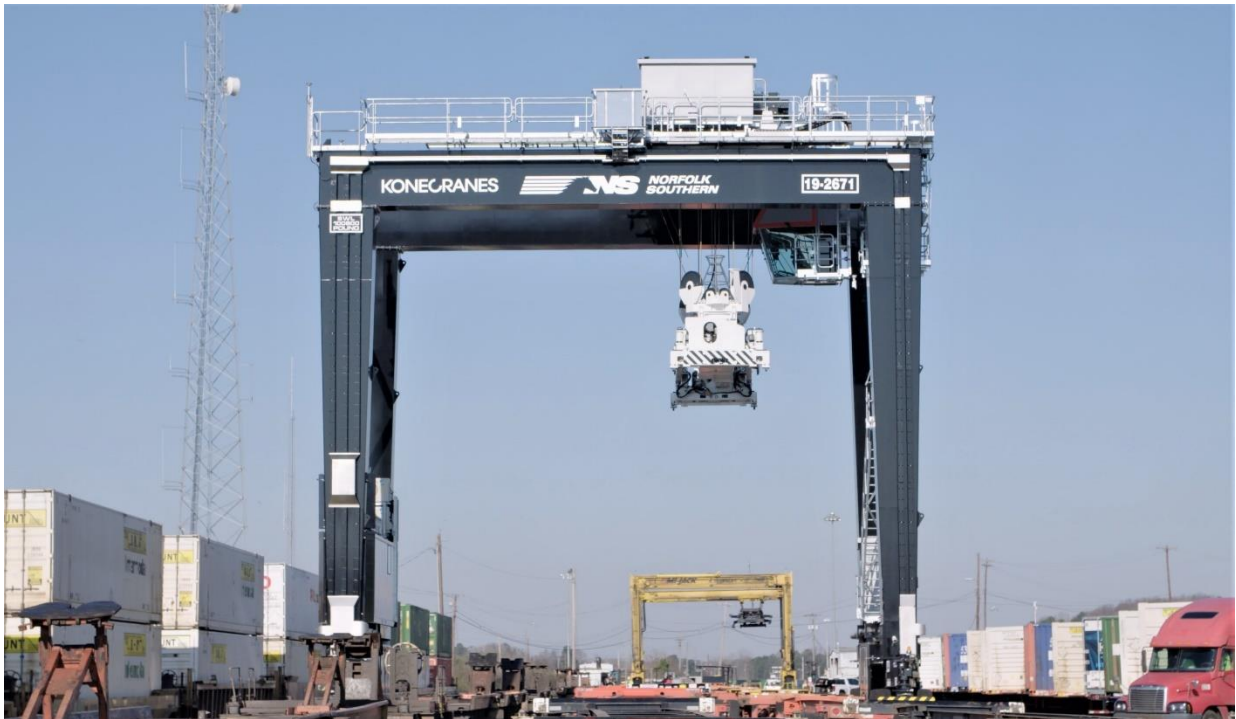
Pic 6: Similar to the appearance of bus wires running around the railroad, the booster stations look chaotic, but will all be properly dressed and routed as connections are made.

Next, on February's agenda is soldering drops, connecting the Bus wires to PSX boards, installing the Dalle detection boards, adding the Loconet cables to the UP5's and the Loconet for the Command Station and Boosters, and working on finishing the upper deck main. I'm fortunate to have Keith Iritsky and Ken Riddick helping me once a week, weather permitting. So, I'm confident that I'm still on schedule and my goal is attainable.

Until next time,

ED

CLOSING PAGE BONUS



In January 2022, Norfolk Southern Corporation completed the installation of five additional new diesel-electric hybrid overhead gantry cranes at Chicago's Lander's and Atlanta's Inman intermodal terminals. The fuel-efficient cranes further the company's sustainability efforts by increasing fuel efficiency in terminal operations and reducing air emissions.

Division Brass

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<u>Director 2024</u>	Larry Paffrath	director2@carolinasouthern.org
<u>Director 2025</u>	Ed Smith	director3@carolinasouthern.org
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